Surface water drainage strategy

To accompany a planning application for land

164 Harefield Road, Hillingdon, London, UB8 1PP

Prepared by

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Innervision Design Ltd

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design

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Disclaimer

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Scope

Note: this report can only be assessed under the scope it is intended for as set out below:

Town and Country Planning Act 1990

The scope of this report includes the provision of supplementary information in relation to a planning application set under the provision of this Act and is intended to meet the requirements for "particulars" under Section 62; (3) & (4A) of same.

Building Act 1984

Building Regulations 2010 and Statute control

This report **is not** provided in support of any application made under the Building Act 1984 or related Regulations.

Statement of conformity

While this report cannot therefore be lawfully assessed by any persons, in any capacity, for compliance with the above Building Regulations all drainage on this private site, both foul and SW will be subject to full compliance with Part H of the Building Regulations 2010 (as amended 2013).

Hence all construction details, SW runs, pipe diameters etc. as detailed in this report are designed to comply in full with the "Adequate provision" Requirement of Part H and are to be checked, inspected, tested and approved by the Building Control Body of the clients choice at the time of detailed design and construction.

SuDS design additional standards

All SuDS (Sustainable drainage system) on site will also be designed and installed in accordance with CIRIA 753 & CIRIA 768, para 169 of the NPPF, its supporting technical guidance and the DEFRA Non-Statutory Technical standards for sustainable drainage systems (2015).

1 Executive Summary

A All surface water arising from the roof is attenuated and discharged at no greater that 1.1 ls^{-1} to the existing network.

B All areas of hard standing on the site will be constructed using a permeable medium.

C The project team have detailed “off line” rainwater butt(s) to collect water for external use.

D All SuDS on site will be installed with full consideration to long term maintenance.

2 Introduction

2.1 Site location

The project is on land to the rear of 164 Harefield Road, Hillingdon, London, UB8 1PP (see Figure 1).

Figure 1: Site location plan, as indicated in red with North topmost. (source: Open streetmap)

2.2 Development description

Proposal is for the erection of a detached residential dwelling.

All plans to be submitted under separate cover.

2.3 Site geology

With reference to BGS mapping the site is located directly on the London Clay Formation. refer also to the Geo-insight report at Appendix A.

2.4 Existing surface water disposal strategy

The existing site drains to the Thames Water network and the hardstanding direct onto the adjoining highway.

2.5 Greenfield estimation of peak rate of run-off

2.5.1 Methodology

To assess the minimum outfall rates then as a greenfield site and is less than 50 ha therefore run-off rate calculations have been carried out in accordance with the IH Report 124 'Flood estimation for small catchments'[1]. The pro rata method on the size of catchment has been used.

2.5.2 Formula

For catchments less than 50ha:

$$Q_{BAR50ha} = 1.08\,(50/100)^{0.89} * SAAR^{1.17} * SPR^{2.17} \tag{1}$$

$$Q_{BAR} = Q_{BAR50ha} * \frac{A}{50} \tag{2}$$

$$Q_{1yr} = Q_{BAR} * 0.85 \tag{3}$$

$$Q_{100yr} = Q_{BAR} * GC_{100} \tag{4}$$

2.5.3 Variables

Qbar/Qmed =0.85

SAAR = 640mm

Hydrological Region 6

Growth curve factors: 30 yr = 2.3; 100 yr = 3.19

SPR = 0.47

2.5.4 Calculations

$$\begin{aligned} Q_{BAR50ha} &= 1.08 * 0.5^{0.89} * 640^{1.17} * 0.47^{2.17} \\ &= 0.58 * 1919.69 * 0.19 \\ &= 217.37 \end{aligned}$$

Using Equation 2:

$$\begin{aligned} Q_{BAR} &= \frac{217.37 * 0.05}{50} \\ &= 0.23 ls^{-1} \end{aligned}$$

Using Equation 3:

$$\begin{aligned} Q_{1} &= 0.23 * 0.85 \\ &= 0.20 ls^{-1} \end{aligned}$$

Using Equation 4:

$$\begin{aligned} Q_{100} &= 0.23 * 3.19 \\ &= 0.75 ls^{-1} \end{aligned}$$

2.5.5 Peak run-off rates

For the 1 year Return Period event the peak runoff calculates to 0.20 ls^{-1}
For the 30 year Return Period event the peak runoff calculates to 0.54 ls^{-1}
For the 100 year Return Period event the peak runoff calculates to 0.75 ls^{-1}

3 SuDS Principles

3.1 SuDS design philosophy

The CIRIA SuDS[2] manual provides the design philosophy:

> "SuDS design should, as much as possible, be based around the following:
>
> - using surface water run-off as a resource
> - managing rainwater close to where it falls
> - managing run-off at the surface
> - allowing rainwater to soak into the ground
> - promoting evapotranspiration
> - slowing and storing run-off to mimic natural run-off characteristics
> - reducing contamination of run-off through pollution prevention and controlling the run-off at source
> - treating run-off to reduce the risk of urban contaminants causing environmental pollution."

3.2 Source control

- Sedum roofing.
- Infiltration devices. Typically soakaways.
- Rainwater harvesting.
- Bio-retention planting, rain gardens.
- Permeable paving, porous asphalt. These provide both infiltration and short term storage volumes thus reducing overall un-mitigated run-off volumes.

3.3 "End of pipe" solutions

To be considered only after implementation of the above options.

- Retention tanks with outfall controlled by hydraulic means to limiting discharge rates and volumes to discharge to existing SW flow pathways.

Sections 4.2 to 4.7 consider the viability of a range of these SuDS devices.

4 Appraisal of SuDS options

4.1 Site constraints impacting on SuDS

- No areas on site greater than 5m from the proposed dwelling.
- Extremely low pro rata greenfield run-off rate.
- Pitched roofs.
- No access to water courses or ditches.

4.2 Infiltration devices

Due to site constraints, as per Section 4.1, soakaways are not possible.

4.3 Bio-retention

Due to site constraints, bio-retention devices are not suited to this site.

4.4 Permeable hard standing

With reference to Section 3.1, permeable paving promotes the following SuDS design criteria:

- manages rainwater close to where it falls
- manages run-off at the surface
- allows rainwater to soak into the ground
- slows and stores run-off to mimic natural run-off characteristics
- treats run-off to reduce the risk of urban contaminants causing environmental pollution.

4.4.1 Permeable paving

A 30% void ratio is assumed through a 350mm sub-base. This is appropriate for a DOT Type 3 Sub-base hence the storage capacity equates to circa 105mm per 1m^2 therefore based on a M6 100hr + cc storm of 87mm rainfall the paving offers, without any allowance for infiltration, a circa 1:1.2 drained volume:storage volume capacity. Hence there is no anticipated exceedance flow from the areas of permeable paving.

TSS 0.7, Metals 0.6, Hydrocarbons 0.7 = suitable for trafficked areas

All permeable paving offers sufficient storage volume to accommodate the 5mm event.

4.5 Rainwater harvesting

With reference to Section 3.1, Rainwater harvesting promotes the following SuDS design criteria:

- uses surface water runoff as a resource
- manages rainwater close to where it falls

and:

- stores rainwater for later use

4.5.1 For external use

Rain water harvesting / water butts: These provide additional, "off line[1]" SuDS, and are deemed a suitable SuDS component for small plots[2], extract at Figure 2. The image shows a water butt in "off-line" configuration using a standard diverter.

[1]The term "off-line" refers to the fact that a water butt is a harvesting device that is not "in-line" in the same manner that a pipe is in-line. Water is collected (harvested) until the water butt is full. When full, the rainwater continues down the rainwater pipe. Outflow from the tank is not "automatic" since this would negate the reason to harvest rainwater. Instead, manual drawdown occurs with the harvested water being used for external uses. Since a water butt may be full, the useful volume is not accounted for in storage and run-off calculations.

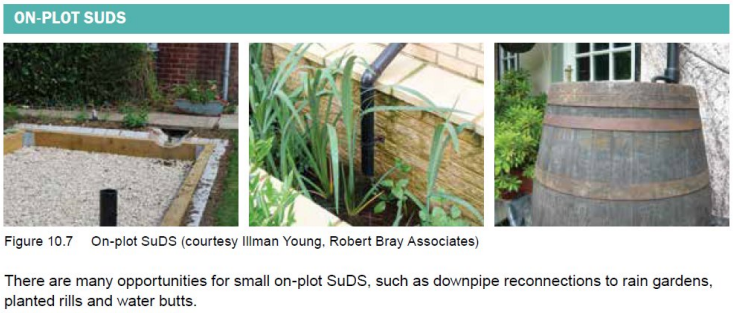


Figure 2: Use of water butts as provided in the SuDS manual

The collection and re-use of water can reduce run off volumes arising from roofs. The collected water, via readily available diverters (e.g. Web link: Standard diverter example, as per Figure 3), being used for external uses.

Figure 3: Standard rainwater diverter

Rainwater butts can, in part, accommodate the 5mm event dependent on manual drawdown and evaporation.

4.6 Sedum/green/blue roofs.

Due to site constraints, as per Section 4.1, these are not viable.

4.7 "End of pipe" solutions

To be considered only after implementation of the above options.

- Retention tanks with outfall controlled by hydraulic means (e.g. hydrobrakes, pipe sizing, orifice plate etc.) to limiting rates and volumes to discharge to existing flow pathways.

5 Proposed Surface water disposal strategy

5.1 Outfall control

5.1.1 Pitched roof area

Surface water from the roofed areas will be directed to the existing SW network under hydraulic control with outfall rates limited to a 1 in 100 yr discharge rate of 1.1 ls^{-1}(Copy of Thames Water ALS at Appendix B).

5.1.2 Method to restrict discharge rate

Designed to accommodate all surface water arising from a design drained area of 115.5m^2 requires a minimum attenuation volume of 4 m^3. This can be achieved using an overall storage volume of 5 m^3 formed with a 0.4m overall unit depth. See Table 1.

Drained area	$105m^2$	
Urban Creep	1.1	
Designed drained area	$115.5m^2$	
Return periods considered	1yr, 30yr, 100yr	
Storm profiles used	50% Summer	75% Winter
Storm coeffs	a = 0.1, b = 0.815	a = 0.06, b = 1.026
Storm range, storm increments	From 5 minutes duration in further 2 min. intervals until critical storm reached	
Rainfall model	FEH 2022	
Critical design storm	78 mins, Winter	
Climate change	1.4	
Storm mean intensity	$38.1mm.hr^{-1}$	
Design mean intensity	$53.3mm.hr^{-1}$	
Storm peak intensity	$100.0mm.hr^{-1}$	
Design peak intensity	$140.0mm.hr^{-1}$	
Design maximum head	0.35m	
Calculated maximum head	0.30m	
Minimum attenuation volume required	$4.24m^3$	
Void ratio	95%	
Design attenuation volume	$5.0m^3$	(0.35m x $14.25m^2$)
Provided attenuation volume	$5.7m^3$	(0.95 x $15m^2$ x 0.4m)
Factor of Safety	1.14	
1 in 1yr maximum outfall rate	$0.59ls^{-1}$	(See Figure 9.)
1 in 30yr maximum outfall rate	$0.90ls^{-1}$	(See Figure 10.)
1 in 100yr maximum outfall rate	$1.06ls^{-1}$	(See Figure 11.)
1 in 100yr Time to peak	59 mins	
1 in 100yr Max head: Time to drop to 50%	0.65 hrs	
Outfall control method	30mm Orifice	CD = 0.62

Table 1: Storage volume design summary

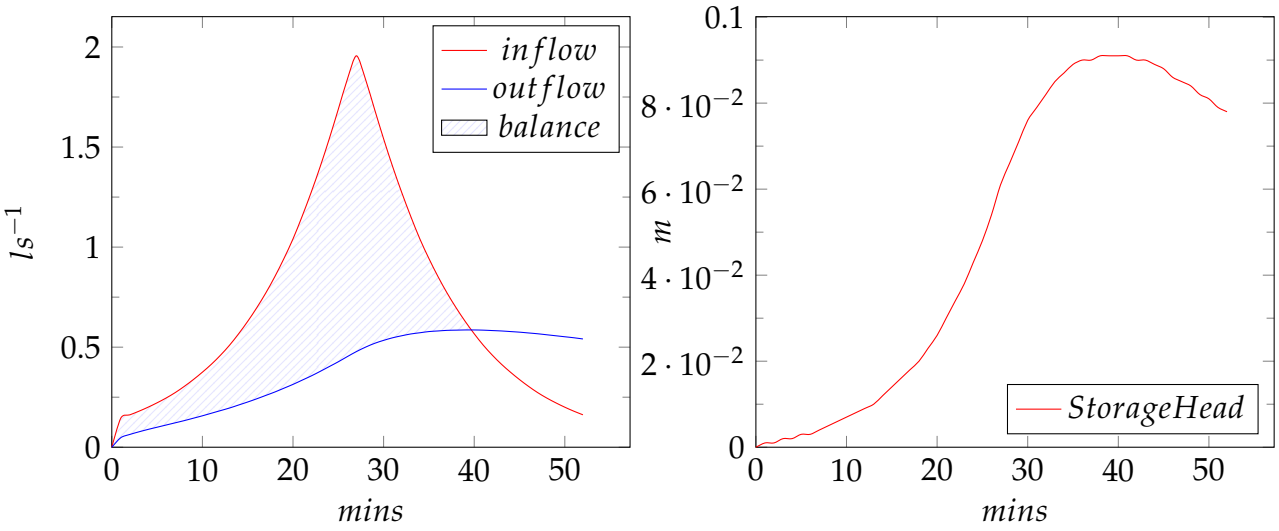


Figure 4: 1 in 1 year critical storm event

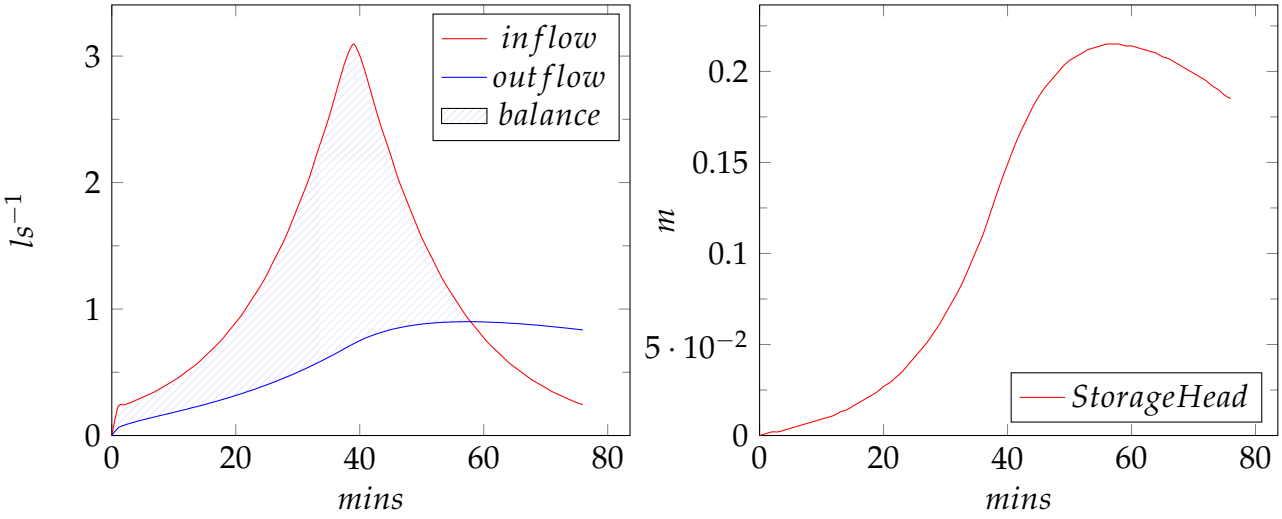


Figure 5: 1 in 30 year critical storm event

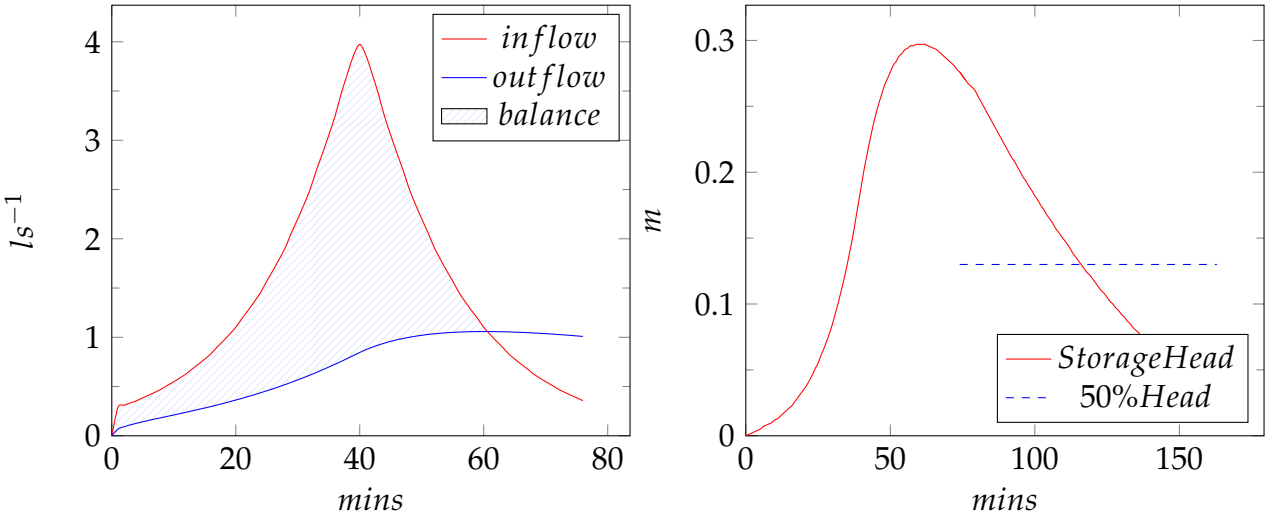


Figure 6: 1 in 100 year critical storm event

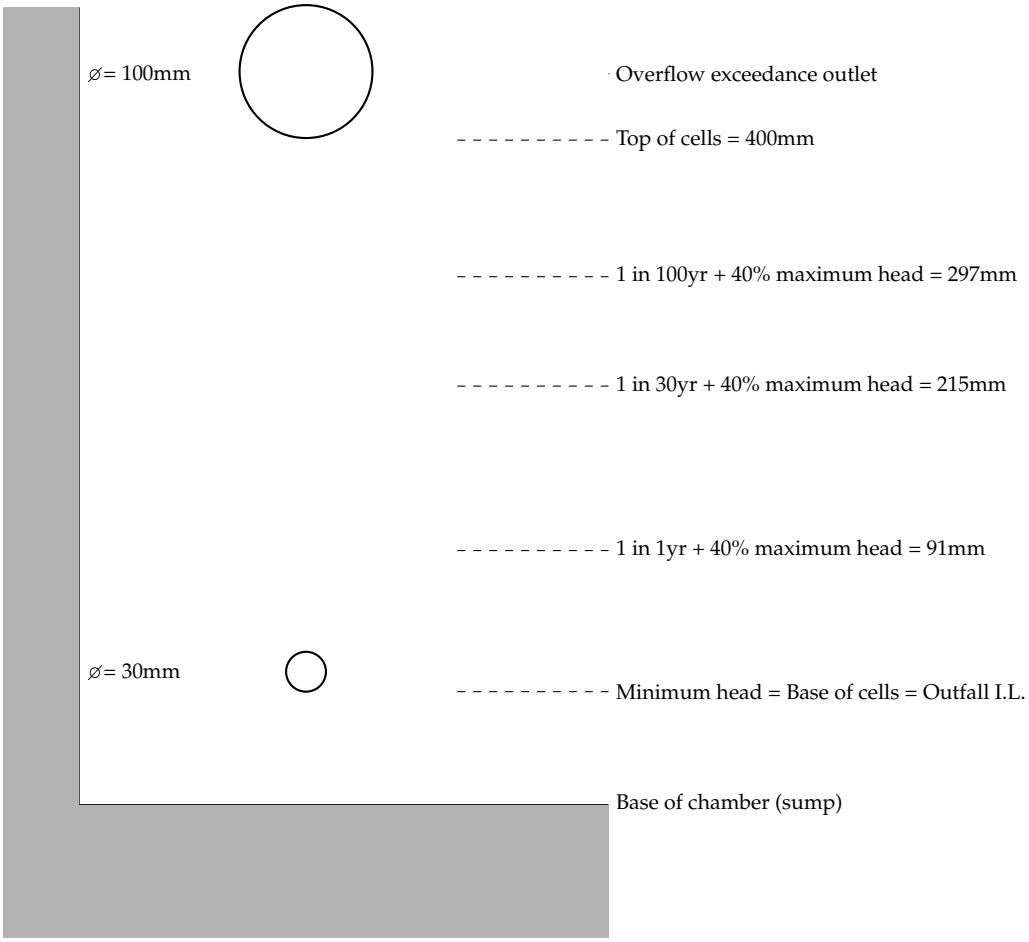


Figure 7: Orifice arrangement in control chamber

This can be achieved using a commercially available attenuation cells and protected orifice control device - see Appendix C. This unit incorporates a higher level 100mm diameter overflow pipe to route exceedance flows under system failure events.

The attenuation cells will be fully tanked and vented and installed in off-line configuration as per the typical detail at Figure 8.

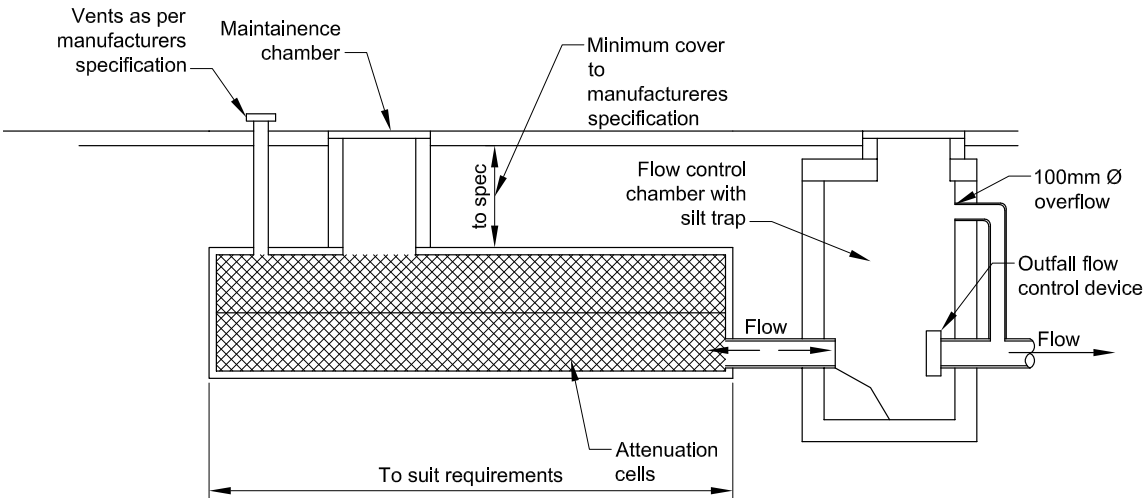


Figure 8: Typical off-line attenuation layout

5.1.3 Consent to discharge

Consents will be required hence the Thames Water developer pack is provided at Appendix B.

5.2 Permeable hard standing

5.2.1 Permeable paving

All areas of hard standing on the site will be constructed using a permeable medium on a DOT/MOT 3 sub-base (refer to Section 4.4.1).

5.2.2 Capacity check

For prelimninary design a low infiltration rate of 4 x 10^{-6} ms^{-1} is used which equals 14mm.hr^{-1}. A factor of safety of 3 is used which reduces this to 5mm.hr^{-1}. Over 110m^2 plan area, 5mm.hr^{-1} equates to a total outflow rate of 0.147ls^{-1}

Calculation based on CIRIA C753: Eq.25.1 where h_{max} = D(Ri-q)/n.

Designed to accommodate all surface water arising requires a sub-base with an attenuation capacity of 8.3 m^3 per 110m^2 drained area.

Duration (mins)	Intensity ($mmhr^{-1}$) + 40% CC	Inflow, m^3 (A)	Outflow, m^3 (B)	Balance volume required (A-B), m^3
5	156.58	1.44	0.04	1.4
10	156.58	2.87	0.09	2.8
15	156.58	4.31	0.13	4.2
30	102.56	5.64	0.26	5.4
60	63.73	7.01	0.53	6.5
120	39.72	8.74	1.06	7.7
240	23.87	10.50	2.12	8.4
360	17.37	11.47	3.18	8.3
600	11.39	12.53	5.29	7.2
700	9.99	12.82	6.17	6.6
1440	5.30	14.00	12.70	1.3

Table 2: Balance volume required within sub-base for a range of 1 in 100yr + 1.4% CC storm durations based on an outfall rate of $0.147ls^{-1}$ per $110m^2$ drained area.

This can be achieved by using a 0.35m deep, 30% void ratio, DoT Type 3 sub-base (see Table 3).

Unit area	$110m^2$	
R	1	C753: $R = A_D / A_b$
Return periods considered	1yr, 30yr, 100yr	
Storm profiles used	50% Summer	75% Winter
Storm coeffs	a = 0.1, b = 0.815	a = 0.06, b = 1.026
Storm range, storm increments	From 5 minutes duration in further 2 min. intervals until critical storm reached	
Rainfall model	FEH 2022	
Critical design storm	286 mins, Winter	
Climate change	1.4	
Factor of Safety	3	
Storm mean intensity	$14.9mm.hr^{-1}$	
Design mean intensity	$20.8mm.hr^{-1}$	CIRIA C753: i
Calculated maximum head	0.25m	CIIRA C753: h_{max}
Sub-base attenuation volume required per $110m^2$	$8.33m^3$	
Void ratio	30%	CIRIA C753: n
Sub-base attenuation volume provided per $110m^2$	$12m^3$	(0.3 x $113.3m^2$ x 0.35m)
Based on a minimum infiltration rate of 5 $mmhr^{-1}$		CIRIA C753: q
1 in 1yr min. outfall rate per $110m^2$	$0.147ls^{-1}$	(See Figure 9.)
1 in 30yr min. outfall rate per $110m^2$	$0.147ls^{-1}$	(See Figure 10.)
1 in 100yr min. outfall rate per $110m^2$	$0.147ls^{-1}$	(See Figure 11.)
1 in 100yr Time to peak	274 mins	
1 in 100yr Max head: Time to drop to 50%	6.95 hrs	
Outfall control method	Base Infiltration - Type A	

Table 3: Summary of sub-base attenuation capacity

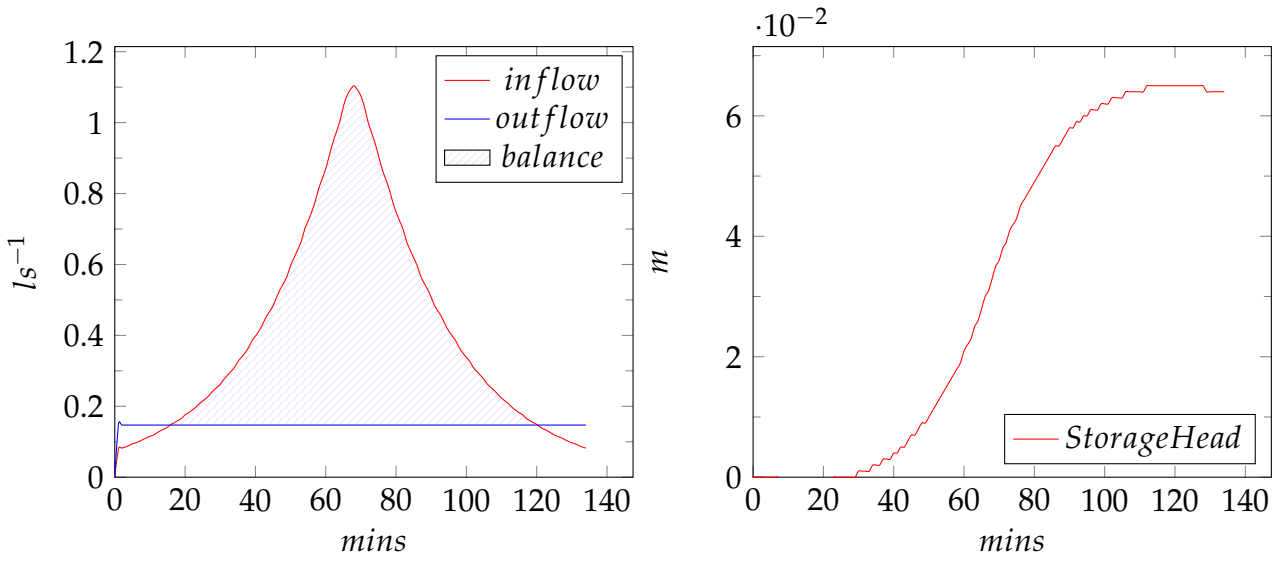


Figure 9: 1 in 1 year critical storm event

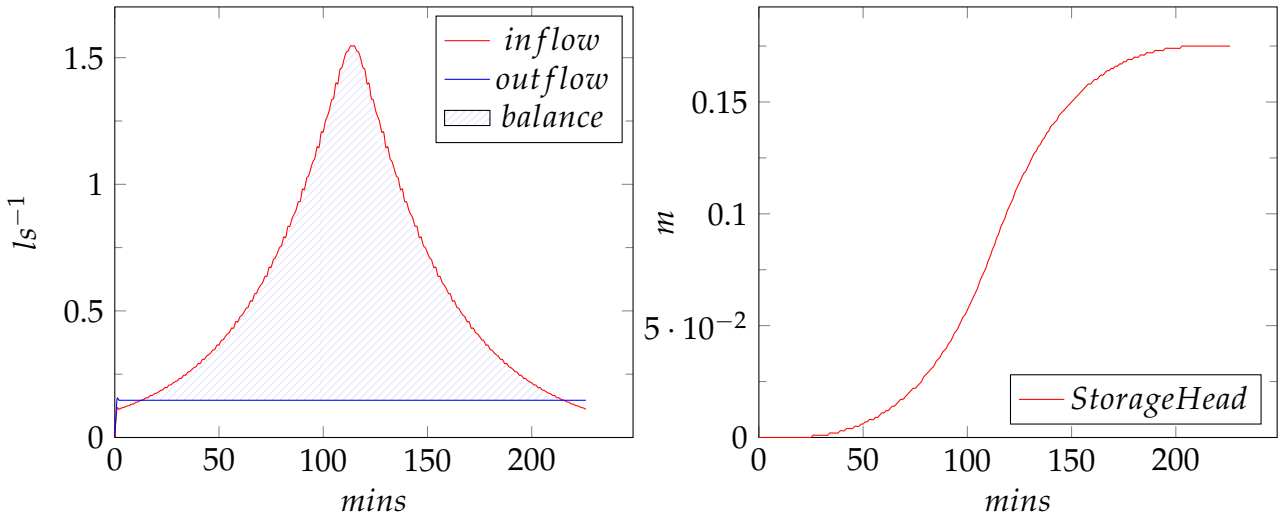


Figure 10: 1 in 30 year critical storm event

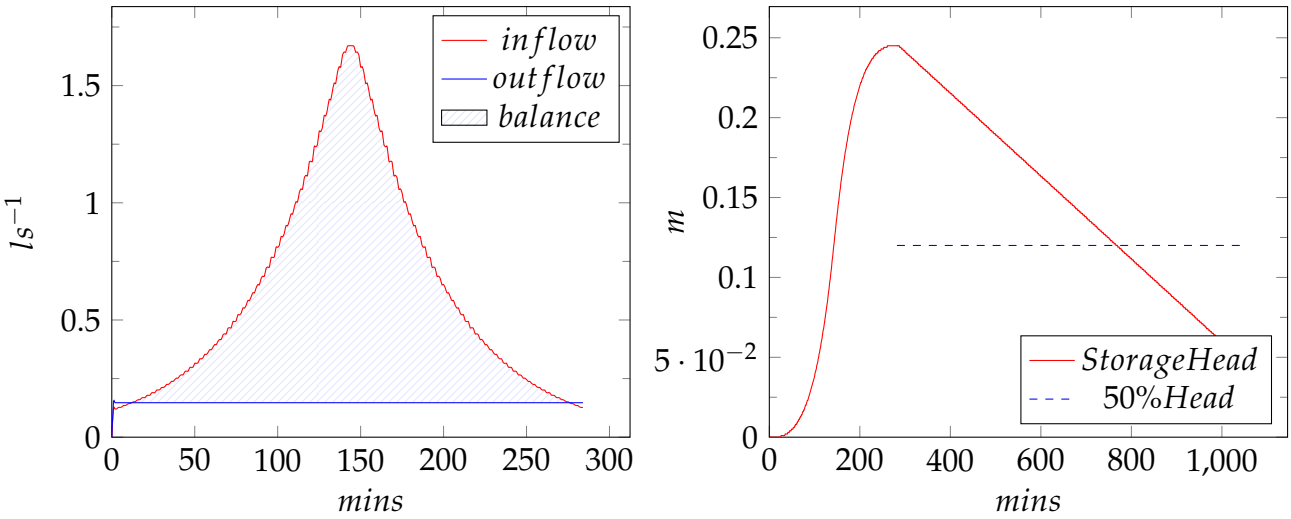
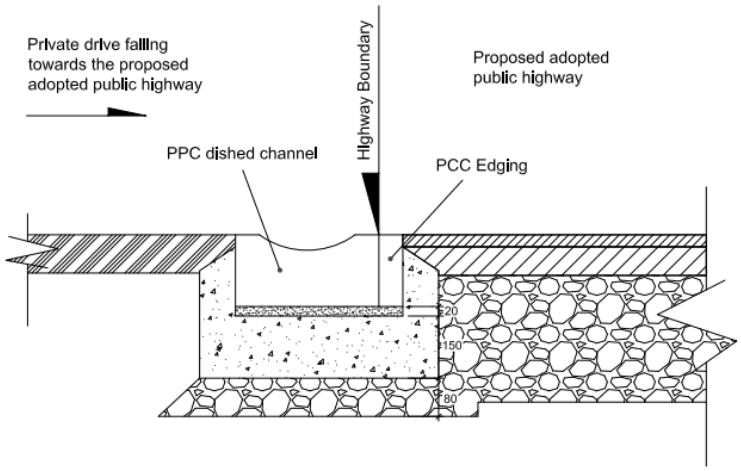


Figure 11: 1 in 100 year critical storm event

The areas of permeable paving are primarily disconnected from the proposed SW network on site, i.e. they are not primarily designed to drain to the network. Surface water retained in the sub-base matrix is lost through evaporation and infiltration at shallow depths, into the surrounding naturally fissured sub-soils (due to action of freeze-thaw, roots, earthworms and the proposed local re-grading following any site clearance). In doing so it mimics as close as possible the natural hydrological process of water falling onto the ground and finding natural flow paths for dispersion.

Exceedance flows (flows over the 1.2 x M1006hr + CC event) will be conveyed at the surface via channels (as Figure 12) to the proposed SW drains.



Notes:

1. Dished channels shall be installed between any areas of private land that fall towards the proposed adopted highway

2. The precast concrete dished channel shall fall to a soakaway or piped connexion to the private system on the site, no private water will be permitted into or on to the proposed adopted public highway.

3. The dished channel shall be laid on 20mm of class 1 mortar to allow a suitable fall to be created.

Figure 12: Channel drain at site entrance.

5.3 Rainwater harvesting

5.3.1 For external use

The project team have shown an "off line" rainwater butts to collect water for external use and to reduce potable water demand.

5.4 Vegetation Expansion

All landscaping will be colonised with greater and more expansive vegetation such as shrubs and trees, increasing interception and reducing run-off rates, where surface water will be dissipated through evapotranspiration and infiltration.

All domestic planting can accommodate the 5mm event. There is no anticipated exceedance flows from areas of domestic planting.

6 Design

6.1 Indicative layout

Refer to Appendix D.

6.2 Pipe sizing

Flow will be conveyed via 100mm diameter drainage runs laid at no less than 1:80 falls giving a maximum design capacity of 6.6ls^{-1}(Part H design chart, Figure 13).

1 in 100yr max mean intensity storm = 112mmhr^{-1}

Drained area to one pipe = 105m^2

Required pipe capacity = 105 x 0.1118 / 3.6 = 3.3 ls^{-1}

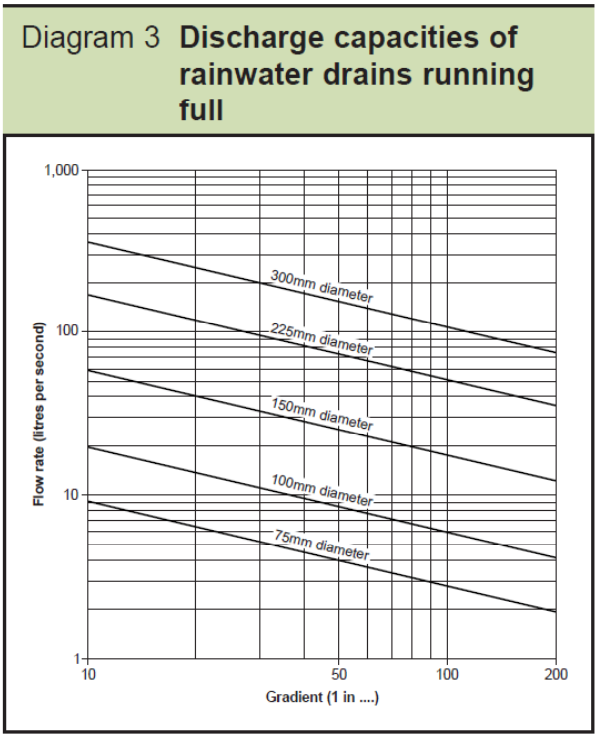


Figure 13: Part H drainage design chart

6.3 Timetable for implementation

6.3.1 Site clearing phase

During the site clearing phase, rainwater will be managed in line with the requirements under the CDM regulations using existing SW gullies with measures in place to prevent contaminants entering the network (sand bag bunds etc).

All existing redundant SW drains will then be grubbed out and capped off.

6.3.2 Construction phase

The Type 3 sub-base will be laid early in the project and protected with either 50mm wearing course or 100mm sacrificial crushed concrete over a geotextile material so as to allow site access.

Flow control devices and the attenuation cells will be installed early in the project under the remit of the ground-works operations.

Areas of landscaping and boundary planting will be undertaken as the project nears completion.

6.3.3 Post construction phase

Either the 50mm wearing course will be core drilled (100mm diam) at 1m staggered centres with core holes filled with 19mm stone, or the sacrificial layer of crushed concrete and geotextile removed to exposed a clean type 3 prior to local repair and laying of pavement over.

Permeable paving will only be installed when all construction activities are either complete, or near completion so as to minimise blockage of the surface.

Water butts will be installed prior to final completion as part of the final landscaping.

7 Maintenance of SuDS

Ultimate responsibility for the long term maintenance with SuDS in this environment lay with the land owner/management company.

All SuDS on site will be installed with full consideration to long term maintenance. The following guidance applies:

7.1 Pervious pavements

The maintenance plan for permeable paving will include:

- Monthly litter removal;
- Bi-Annual jet washing/sweeping as/if required.
- Annual inspection and repairs as/if required.

7.2 Inspection/control chambers

The maintenance plan for areas of geocellular systems will include:

- Regular inspection of silt traps, IC's, pipework and pre-treatment devices (safe access provision required)
- Removal of sediments and debris as required.

Access points are required so as to be able to use a suction tanker on an annual basis.

7.3 Vegetation expansion

The maintenance plan for any garden planting will include:

- Monthly inspections until vegetation is established;
- Six monthly inspections after the vegetation has become established;
- Monthly litter removal.

7.4 Water butts

A maintenance plan for water butts should include:

- Regular inspection of silt traps and filters.
- Removal of sediments and debris as required.

8 Summary

All surface water arising can be managed on site. Exceedance flows and flows arising from system failure can be managed on site. Run-off rates are controlled to as low an outfall rate as is currently technically feasible and proportionate to the nature and scale of the development whilst minimising the risk of blockage.

The use of SuDS techniques on site, as detailed above and when installed in line with best practice (I.e. CIRIA 753 & CIRIA 768), will mitigate and treat the run-off volumes in line with the core policies.

Signed: 

Dr Robin Saunders CEng, C. Build E, MCABE, BEng(Hons), PhD

Date: 17th July, 2024

References

[1] DCW Marshall & AC Bayliss. Flood estimation for small catchments. Technical Report No. 124, Institute of Hydrology, June 1994.

[2] CIRIA. The SUDS manual. Technical report, CIRIA, 2015.

A Geo-insight report

Groundsure LOCATION INTELLIGENCE

Geo Insight

164, HAREFIELD ROAD, UXBRIDGE, HILLINGDON, UB8 1PP

Order Details

Date: 17/07/2024

Your ref: 242728

Our Ref: GS-7UB-7RB-X97-GT2

Site Details

Location: 505843 185173

Area: 0.08 ha

Authority: London Borough of Hillingdon ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Geology 1:10,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
11 >	1.1 >	10k Availability >	Identified (within 500m)				
12 >	1.2 >	Artificial and made ground (10k) >	0	0	5	10	-
14 >	1.3 >	Superficial geology (10k) >	0	1	4	1	-
15	1.4	Landslip (10k)	0	0	0	0	-
16 >	1.5 >	Bedrock geology (10k) >	1	0	3	0	-
17	1.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
18 >	2.1 >	50k Availability >	Identified (within 500m)				
19 >	2.2 >	Artificial and made ground (50k) >	0	0	1	2	-
20	2.3	Artificial ground permeability (50k)	0	0	-	-	-
21 >	2.4 >	Superficial geology (50k) >	0	1	2	0	-
22 >	2.5 >	Superficial permeability (50k) >	Identified (within 50m)				
22	2.6	Landslip (50k)	0	0	0	0	-
22	2.7	Landslip permeability (50k)	None (within 50m)				
23 >	2.8 >	Bedrock geology (50k) >	1	0	1	0	-
24 >	2.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
24	2.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
25 >	3.1 >	BGS Boreholes >	0	0	9	-	-
Page	Section	Natural ground subsidence >					
27 >	4.1 >	Shrink swell clays >	Low (within 50m)				
28 >	4.2 >	Running sands >	Very low (within 50m)				
29 >	4.3 >	Compressible deposits >	Negligible (within 50m)				
30 >	4.4 >	Collapsible deposits >	Very low (within 50m)				
31 >	4.5 >	Landslides >	Very low (within 50m)				
32 >	4.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				

Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
34 >	5.1 >	BritPits >	0	1	1	1	-
35 >	5.2 >	Surface ground workings >	0	0	13	-	-
36	5.3	Underground workings	0	0	0	0	0
36	5.4	Underground mining extents	0	0	0	0	-
36 >	5.5 >	Historical Mineral Planning Areas >	0	0	0	1	-
37 >	5.6 >	Non-coal mining >	1	0	1	0	1
37	5.7	JPB mining areas	None (within 0m)				
37	5.8	The Coal Authority non-coal mining	0	0	0	0	-
38	5.9	Researched mining	0	0	0	0	-
38	5.10	Mining record office plans	0	0	0	0	-
38	5.11	BGS mine plans	0	0	0	0	-
38	5.12	Coal mining	None (within 0m)				
39	5.13	Brine areas	None (within 0m)				
39	5.14	Gypsum areas	None (within 0m)				
39	5.15	Tin mining	None (within 0m)				
39	5.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
40	6.1	Natural cavities	0	0	0	0	-
40	6.2	Mining cavities	0	0	0	0	0
40	6.3	Reported recent incidents	0	0	0	0	-
40	6.4	Historical incidents	0	0	0	0	-
41	6.5	National karst database	0	0	0	0	-
Page	Section	Radon >					
42 >	7.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
44 >	8.1 >	BGS Estimated Background Soil Chemistry >	1	1	-	-	-
44 >	8.2 >	BGS Estimated Urban Soil Chemistry >	2	4	-	-	-
45	8.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
46	9.1	Underground railways (London)	0	0	0	-	-
46	9.2	Underground railways (Non-London)	0	0	0	-	-
47	9.3	Railway tunnels	0	0	0	-	-
47 >	9.4 >	Historical railway and tunnel features >	0	0	3	-	-
47	9.5	Royal Mail tunnels	0	0	0	-	-
47 >	9.6 >	Historical railways >	0	0	3	-	-
48	9.7	Railways	0	0	0	-	-
48	9.8	Crossrail 1	0	0	0	0	-
48	9.9	Crossrail 2	0	0	0	0	-
48	9.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 30/04/2022

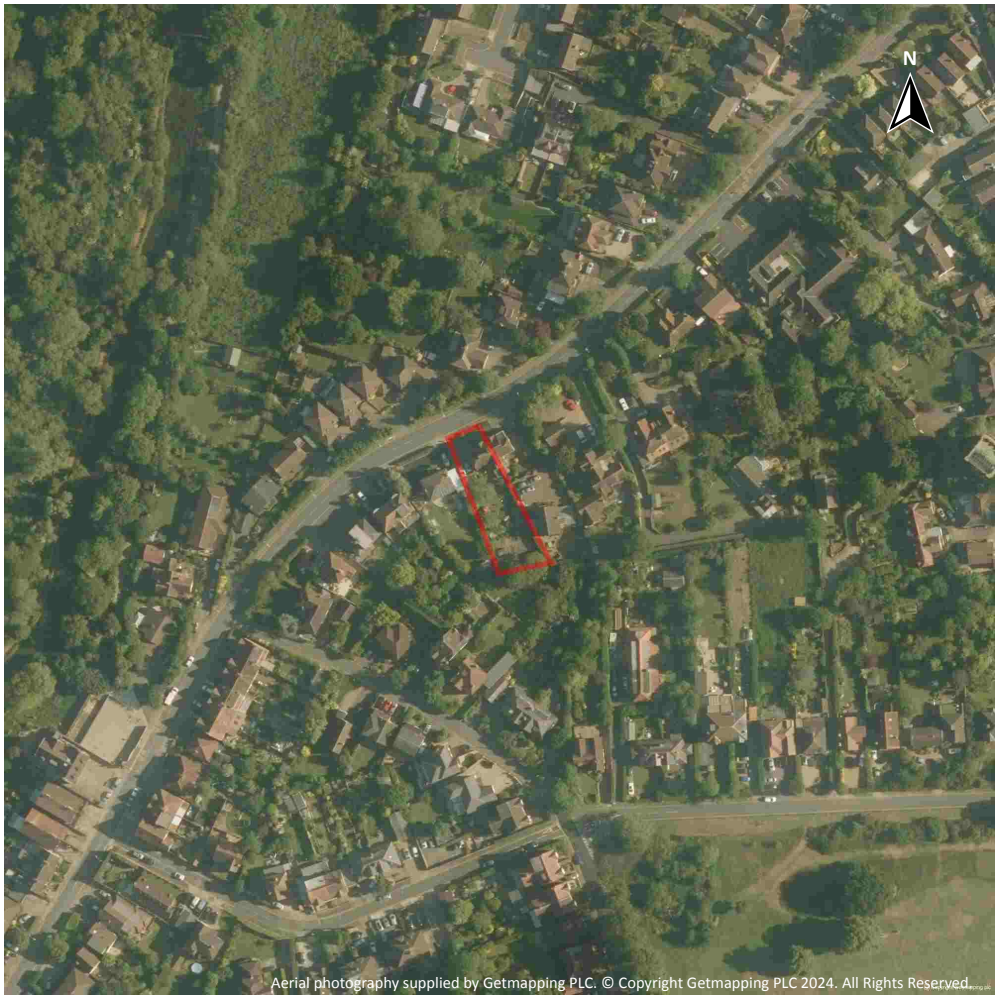
Site Area: 0.08ha

Recent site history - 2021 aerial photograph

Capture Date: 13/06/2021

Site Area: 0.08ha

Recent site history - 2015 aerial photograph



Capture Date: 20/04/2015

Site Area: 0.08ha

Recent site history - 2010 aerial photograph

Capture Date: 01/09/2010

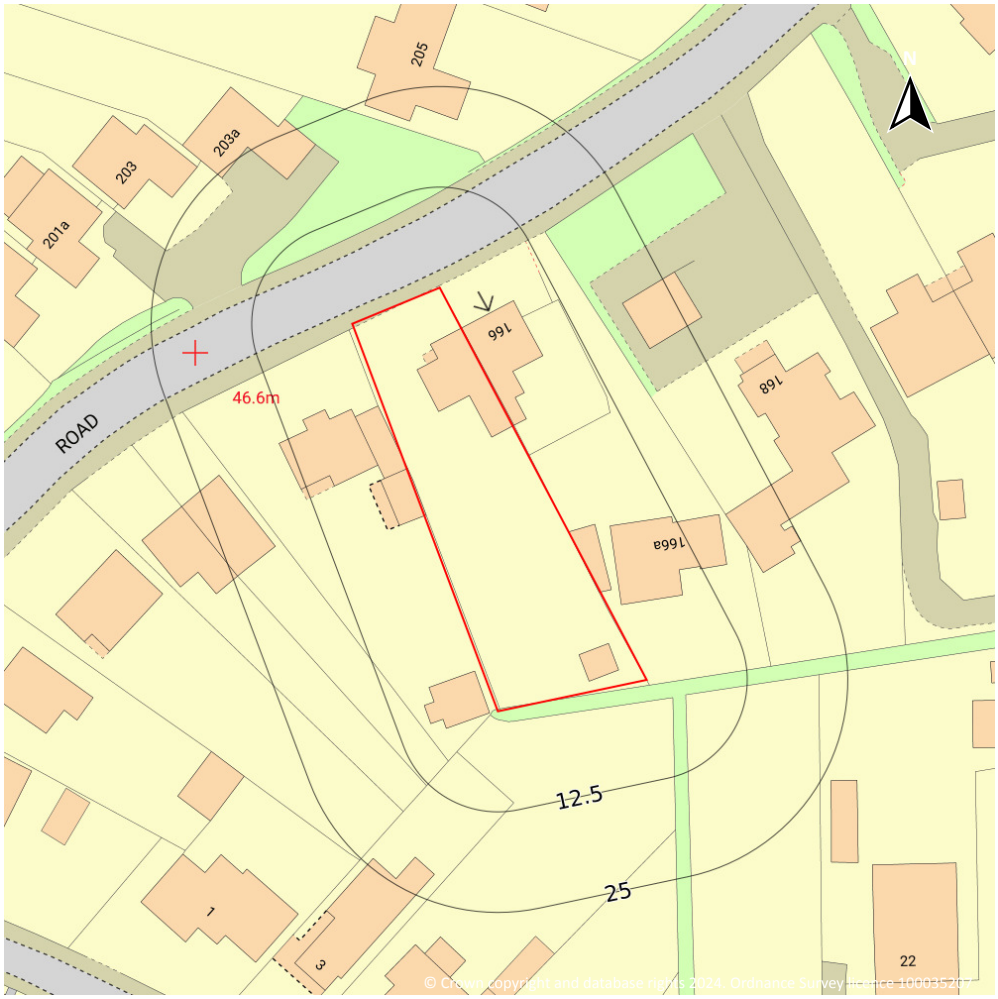
Site Area: 0.08ha

Recent site history - 1999 aerial photograph

Capture Date: 13/10/1999

Site Area: 0.08ha

OS MasterMap site plan



Site Area: 0.08ha

1 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

1.1 10k Availability

Records within 500m	2

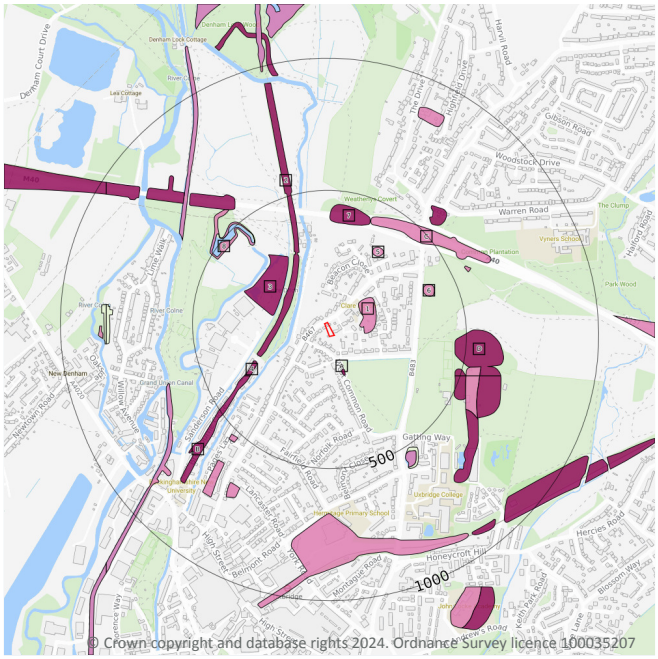
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 11 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**No coverage**	**TQ08NE**
2	149m S	Full	Full	Full	No coverage	TQ08SE

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

1.2 Artificial and made ground (10k)

Records within 500m	15

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

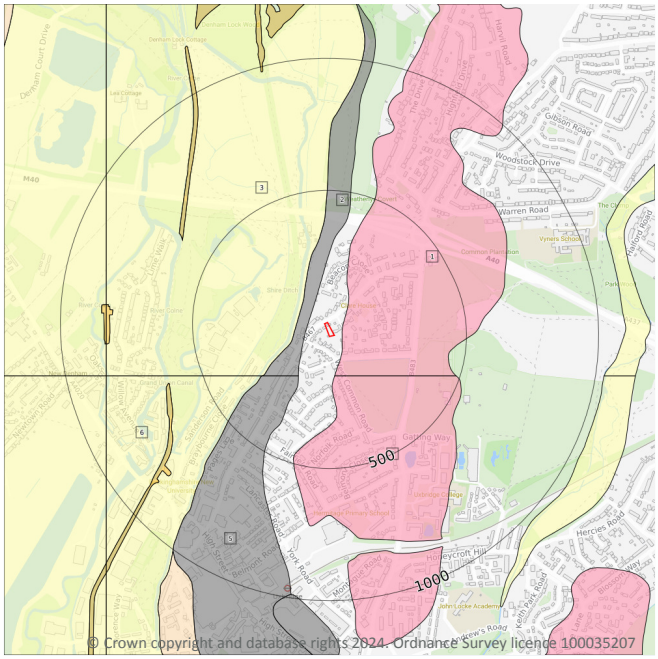
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 12 >**

ID	Location	LEX Code	Description	Rock description
1	103m E	WGR-VOID	Worked Ground (Undivided)	Void
A	114m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	132m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	147m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
3	190m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	292m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	311m NE	WGR-VOID	Worked Ground (Undivided)	Void
B	335m SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	375m E	WGR-VOID	Worked Ground (Undivided)	Void
7	379m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
8	401m NW	WGR-VOID	Worked Ground (Undivided)	Void
C	408m NE	WGR-VOID	Worked Ground (Undivided)	Void
D	457m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
D	477m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
D	482m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

1.3 Superficial geology (10k)

Records within 500m	6

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 14 >**

ID	Location	LEX Code	Description	Rock description
1	29m SE	BPGR-XSV	Black Park Gravel Member - Sand And Gravel	Sand And Gravel
2	60m NW	LHGR-V	Lynch Hill Gravel Member - Gravel (unlithified Deposits Coding Scheme)	Gravel
3	102m NW	ALV-XZC	Alluvium - Silt And Clay	Silt And Clay

ID	Location	LEX Code	Description	Rock description
4	151m S	BPGR-XSV	Black Park Gravel Member - Sand And Gravel	Sand And Gravel
5	190m SW	LHGR-V	Lynch Hill Gravel Member - Gravel (unlithified Deposits Coding Scheme)	Gravel
6	295m SW	ALV-XZC	Alluvium - Silt And Clay	Silt And Clay

This data is sourced from the British Geological Survey.

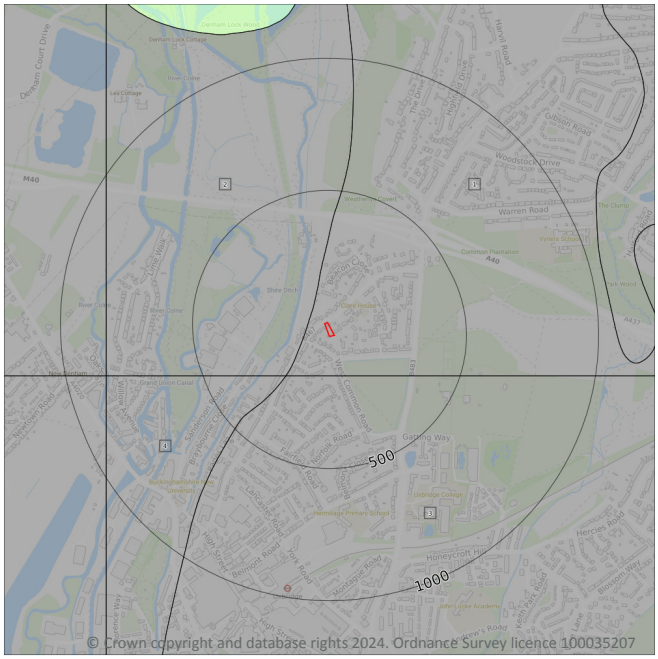
1.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

1.5 Bedrock geology (10k)

Records within 500m	4

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 16 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LC-CLSISA**	**London Clay Formation - Clay, Silt And Sand**	**Eocene Epoch**
2	60m NW	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch
3	149m S	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch

ID	Location	LEX Code	Description	Rock age
4	222m SW	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch

This data is sourced from the British Geological Survey.

1.6 Bedrock faults and other linear features (10k)

Records within 500m	**0**

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

2 Geology 1:50,000 scale - Availability

Site Outline

Search buffers in metres (m)

Geological map tile

2.1 50k Availability

Records within 500m	1

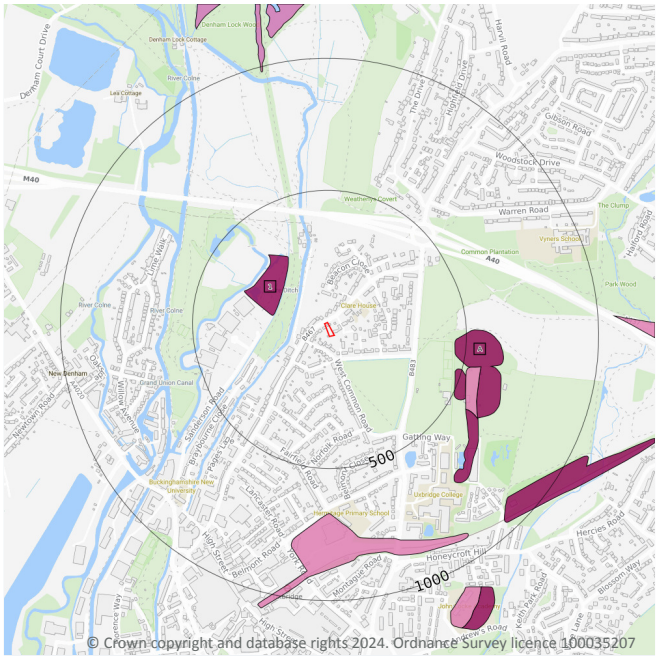
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 18 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW255_beaconsfield_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

2.2 Artificial and made ground (50k)

Records within 500m	3

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 19 >**

ID	Location	LEX Code	Description	Rock description
1	190m NW	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
A	457m E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
A	477m E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

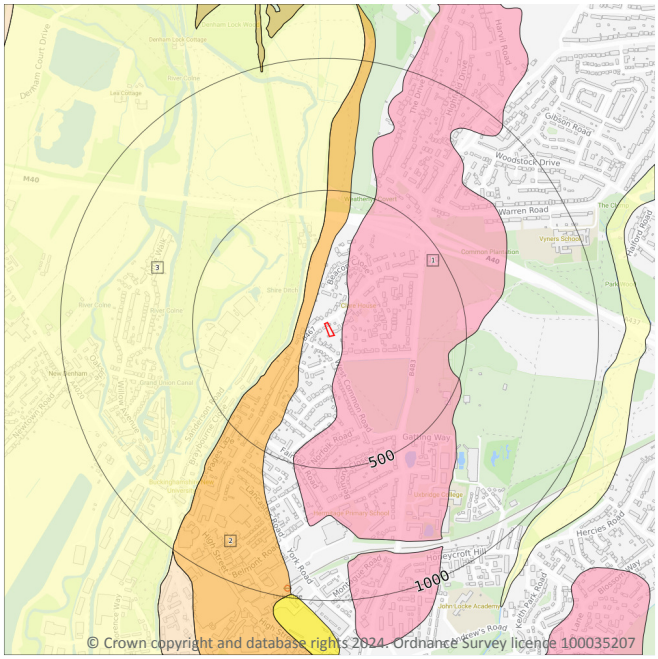
2.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

2.4 Superficial geology (50k)

Records within 500m	3

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 21 >**

ID	Location	LEX Code	Description	Rock description
1	29m SE	BPGR-XSV	BLACK PARK GRAVEL MEMBER	SAND AND GRAVEL
2	60m NW	LHGR-XSV	LYNCH HILL GRAVEL MEMBER	SAND AND GRAVEL
3	102m NW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

2.5 Superficial permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
29m SE	Intergranular	Very High	High

This data is sourced from the British Geological Survey.

2.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

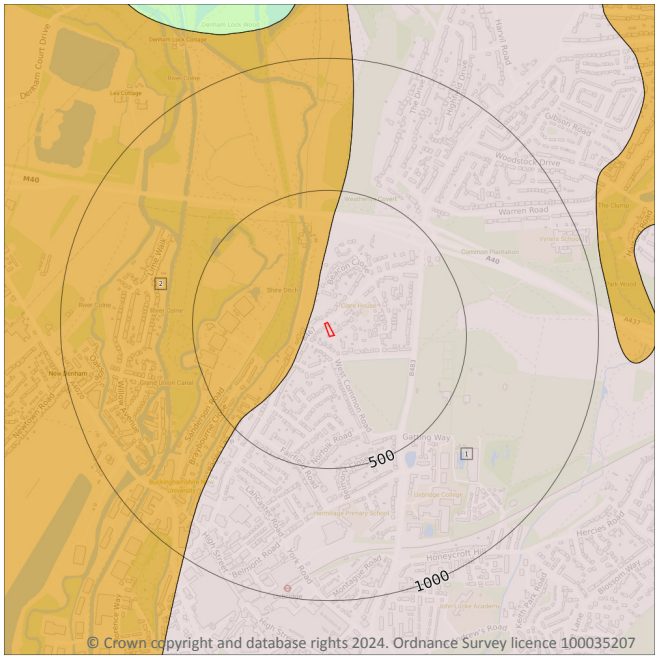
2.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

2.8 Bedrock geology (50k)

Records within 500m	2

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 23 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LC-XCZS**	**LONDON CLAY FORMATION - CLAY, SILT AND SAND**	**YPRESIAN**
2	60m NW	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN

This data is sourced from the British Geological Survey.

2.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Moderate**	**Very Low**

This data is sourced from the British Geological Survey.

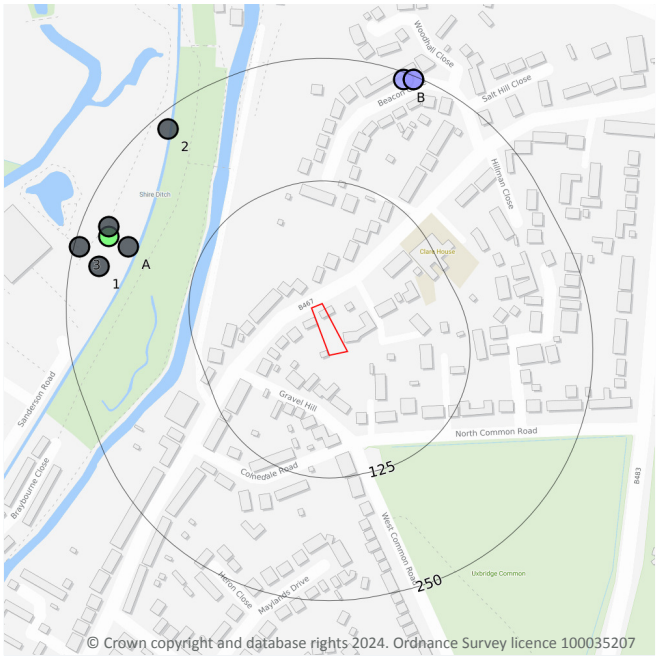
2.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

3 Boreholes



3.1 BGS Boreholes

Records within 250m	9

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

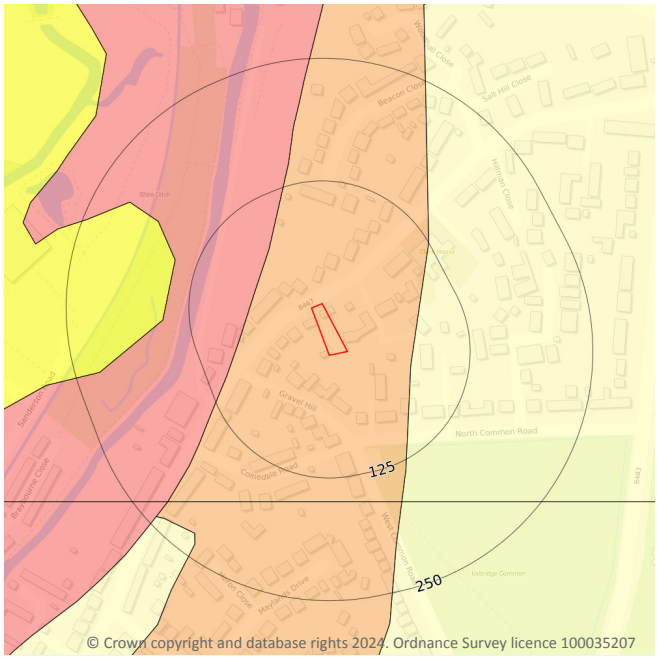
Features are displayed on the Boreholes map on **page 25 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	197m NW	505640 185260	SHIRE DITCH TP MTP/1/002	-	Y	N/A
A	219m NW	505620 185270	100 ACRE SITE UXBRIDGE 8	15.5	N	575874 ↗
1	221m W	505610 185240	SHIRE DITCH TP MTP/1/001	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	222m NW	505620 185280	SHIRE DITCH TP MTP/1/003	-	Y	N/A
2	234m NW	505680 185380	SHIRE DITCH TP MTP/1/017	-	Y	N/A
B	243m N	505920 185430	BEACON CLOSE UXBRIDGE MIDDLESEX 4	6.0	N	15947106 ↗
3	245m W	505590 185260	SHIRE DITCH TP MTP/1/004	-	Y	N/A
B	246m N	505930 185430	BEACON CLOSE UXBRIDGE MIDDLESEX 2	6.0	N	15947104 ↗
B	246m N	505930 185430	BEACON CLOSE UXBRIDGE MIDDLESEX 1	4.0	N	15947103 ↗

This data is sourced from the British Geological Survey.

4 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.1 Shrink swell clays

Records within 50m	1

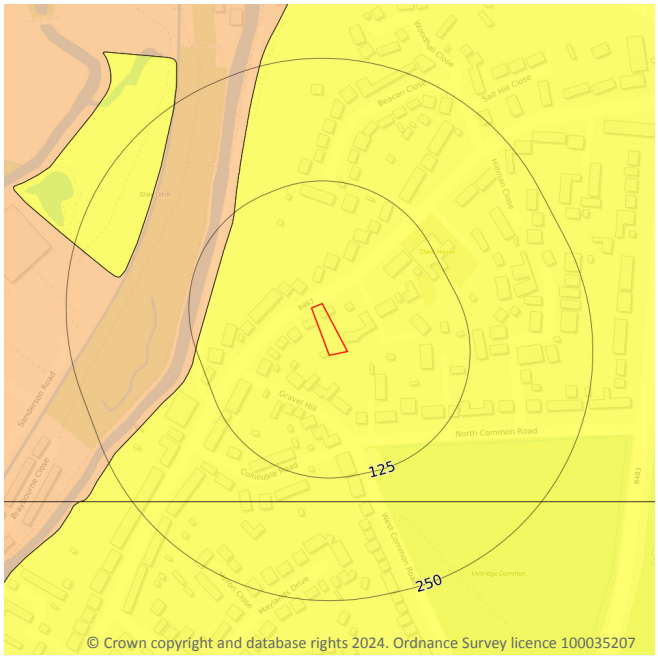
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 27 >**

Location	Hazard rating	Details
On site	**Low**	**Ground conditions predominantly medium plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.2 Running sands

Records within 50m	1

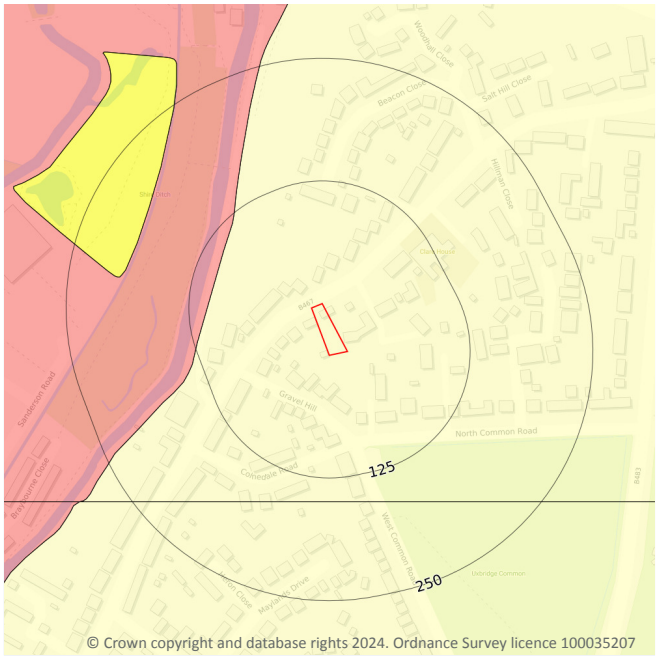
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 28 >**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.3 Compressible deposits

Records within 50m	1

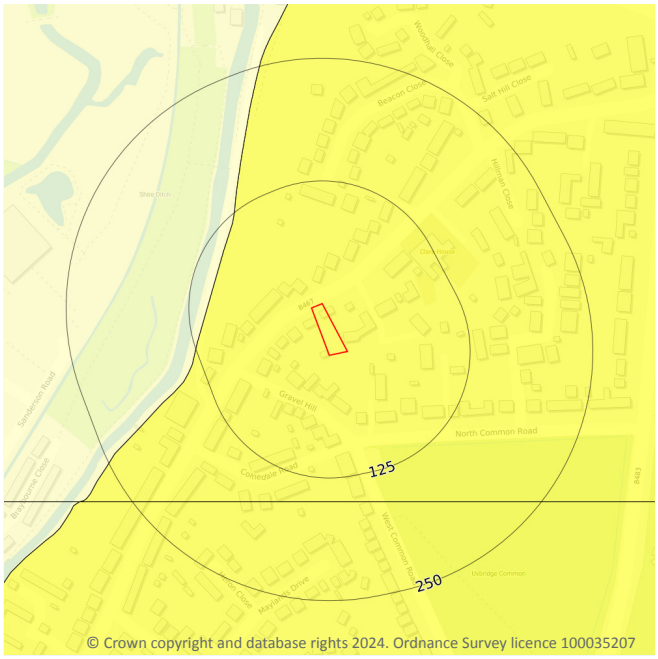
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 29 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.4 Collapsible deposits

Records within 50m	1

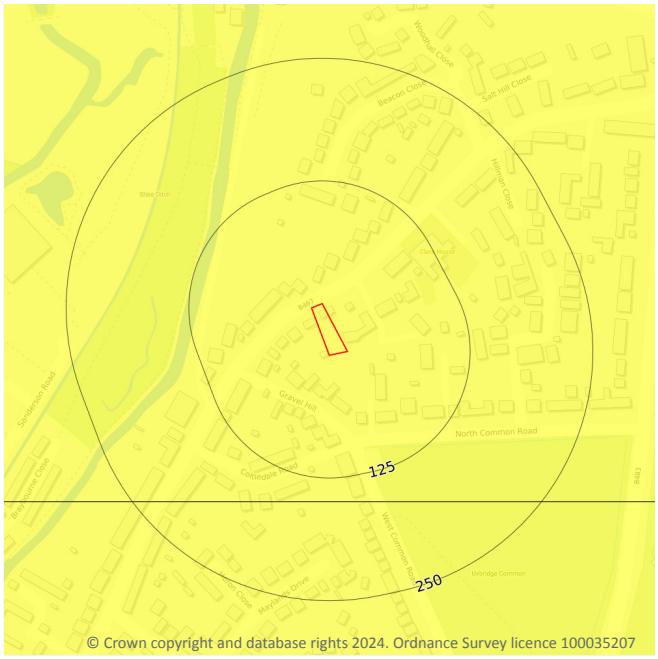
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 30 >**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.5 Landslides

Records within 50m	1

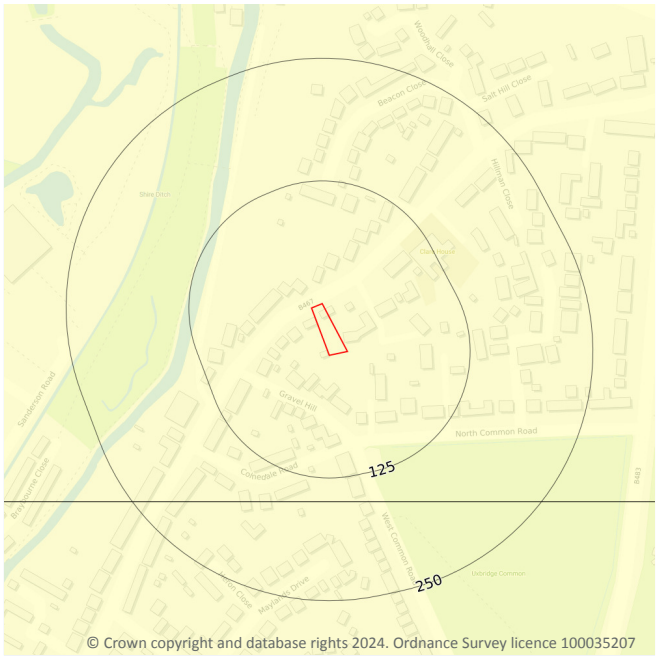
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 31 >**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.6 Ground dissolution of soluble rocks

Records within 50m	1

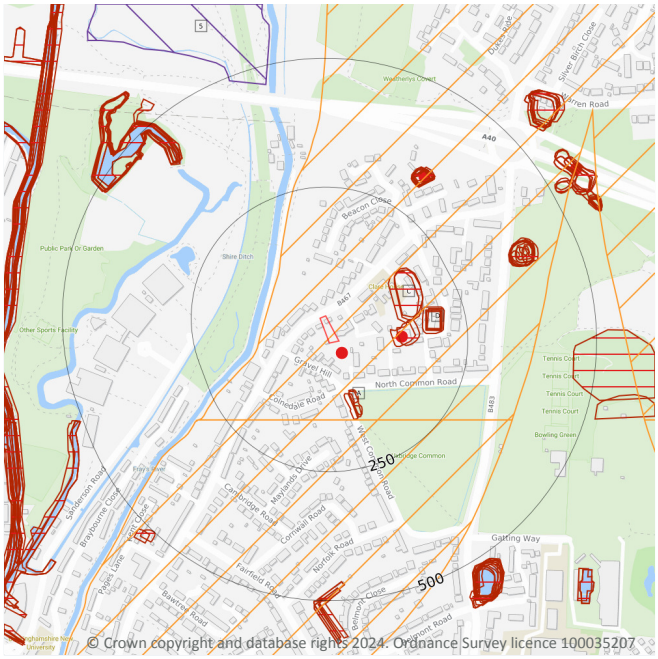
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 32 >**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

5 Mining and ground workings



Site Outline

Search buffers in metres (m)

BritPits

Surface ground workings

Underground workings

Underground mining extents

Historical mineral planning areas

TCA non-coal mining

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

5.1 BritPits

Records within 500m	3

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on **page 34 >**

ID	Location	Details	Description
2	24m SE	Name: Uxbridge Common Tileworks Address: Uxbridge Common, UXBRIDGE, Middlesex Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
B	121m E	Name: Uxbridge Common Gravel Pit Address: Uxbridge Common, UXBRIDGE, Middlesex Commodity: Sand & Gravel Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
E	331m NE	Name: Warren Farm Gravel Pit Address: Uxbridge Common, UXBRIDGE, Greater London Commodity: Sand & Gravel Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

5.2 Surface ground workings

Records within 250m	**13**

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 34 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	98m S	Ponds	1895	1:10560
A	100m S	Ponds	1865	1:10560
B	102m E	Gravel Pit	1865	1:10560
A	102m S	Ponds	1900	1:10560
B	115m E	Gravel Pit	1881	1:10560
C	122m E	Unspecified Pit	1900	1:10560
C	131m E	Unspecified Pit	1895	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
C	133m E	Unspecified Pit	1895	1:10560
D	164m E	Pond	1967	1:10560
D	170m E	Pond	1960	1:10560
D	170m E	Covered Reservoir	1973	1:10000
D	172m E	Reservoir	1938	1:10560
D	173m E	Reservoir	1938	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

5.3 Underground workings

Records within 1000m	**0**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

5.4 Underground mining extents

Records within 500m	**0**

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

5.5 Historical Mineral Planning Areas

Records within 500m	**1**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

Features are displayed on the Mining and ground workings map on **page 34 >**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
5	464m N	Harefield place	Sand and gravel	Surface mineral working	Refused	Not available

This data is sourced from the British Geological Survey.

5.6 Non-coal mining

Records within 1000m	3

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining and ground workings map on **page 34 >**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Chalk**	**C**	**Underground mine workings may have occurred in the past, or current mines may be operating to modern engineering standards. Potential for difficult ground conditions should be considered.**
3	149m S	Not available	Chalk	C	Underground mine workings may have occurred in the past, or current mines may be operating to modern engineering standards. Potential for difficult ground conditions should be considered.
7	613m E	Not available	Chalk	C	Underground mine workings may have occurred in the past, or current mines may be operating to modern engineering standards. Potential for difficult ground conditions should be considered.

This data is sourced from the British Geological Survey.

5.7 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

5.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the

Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

5.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

5.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

5.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

5.12 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

5.13 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

5.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

5.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

5.16 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

6 Ground cavities and sinkholes

6.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

6.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

6.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

6.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

6.5 National karst database

Records within 500m	0

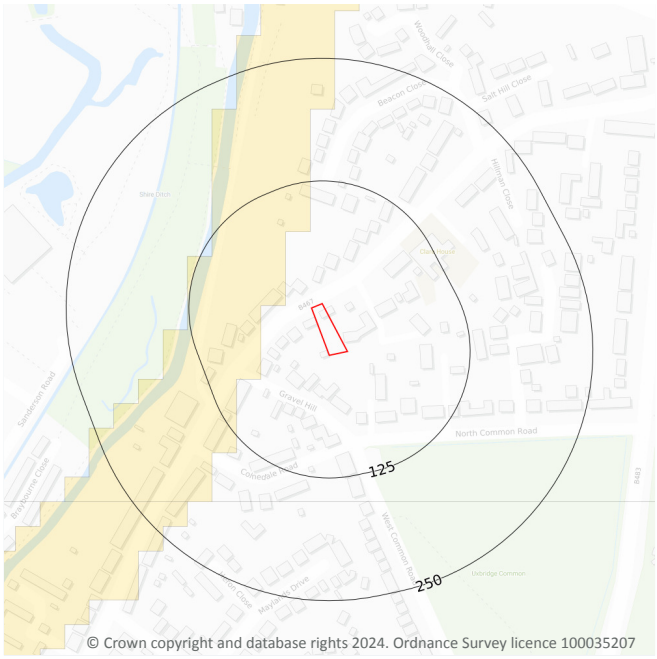
This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

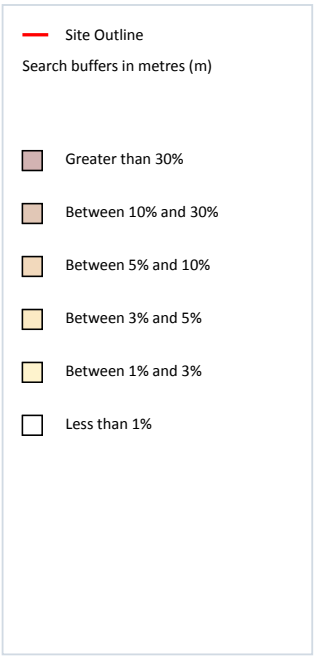
Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

7 Radon





7.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 42 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

8 Soil chemistry

8.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**No data**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**No data**	**No data**
29m SE	No data	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	No data	No data

This data is sourced from the British Geological Survey.

8.2 BGS Estimated Urban Soil Chemistry

Records within 50m	6

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**13**	**2.3**	**123**	**85**	**0.5**	**61**	**39**	**18**	**8**
On site	**13**	**2.3**	**119**	**82**	**0.5**	**62**	**41**	**18**	**8**
26m NW	13	2.3	124	85	0.5	62	43	18	8
27m NW	12	2.1	112	77	0.5	62	41	17	8
37m E	14	2.5	126	87	0.5	59	35	19	8
49m S	15	2.6	145	100	0.5	62	41	21	8

This data is sourced from the British Geological Survey.

8.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

9 Railway infrastructure and projects

Site Outline
Search buffers in metres (m)
Crossrail 1 Stations
Crossrail 1 Route
Crossrail 2 Stations
Crossrail 2 Route
Crossrail 2 Worksites
Crossrail 2 Safeguarding
Crossrail 2 Headhouses
Railway stations
Active railways
Active tunnels
Abandoned railways
Historic railways
Historic tunnels
Underground stations
Underground Lines
Royal Mail tunnels
HS2 optimised route
HS2 Stations
HS2 Depots
HS2 Surface Safeguarding
HS2 Subsurface Safeguarding

9.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

9.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

9.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

9.4 Historical railway and tunnel features

Records within 250m	3

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 46 >**

Location	Land Use	Year of mapping	Mapping scale
152m NW	Railway Sidings	1932	10560
153m NW	Railway Sidings	1938	10560
170m NW	Railway Sidings	1932	2500

This data is sourced from Ordnance Survey/Groundsure.

9.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

9.6 Historical railways

Records within 250m	3

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

Features are displayed on the Railway infrastructure and projects map on **page 46 >**

Location	Description
170m NW	Historic
174m NW	Historic
176m NW	Historic

This data is sourced from OpenStreetMap.

9.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

9.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

9.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

9.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.

B Thames Water

B.1 ALS

Asset Location Search

Thames Water Property Searches

Innervision Design Ltd
26The Barons
BISHOPS STORTFORD
CM23 4HR

Search address supplied 164
Harefield Road
Uxbridge
UB8 1PP

Your reference 242728

Our reference ALS/ALS Standard/2024_5021785

Search date 16 July 2024

Notification of Price Changes

From 1st April 2024 Thames Water Property Searches will be increasing the prices of its CON29DW Residential and Commercial searches along with the Asset Location Search. Costs will rise in line with RPI as per previous years, which is sat at 6%.

Customers will be emailed with the new prices by February 28th 2024.

Any orders received with a higher payment prior to the 1st April 2024 will be non-refundable. For further details on the price increase please visit our website at www.thameswater-propertysearches.co.uk.

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0800 009 4540

Asset Location Search

Property Searches

Search address supplied: 164, Harefield Road, Uxbridge, UB8 1PP

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Asset Location Search

Thames Water Property Searches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an ‘as constructed’ record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

Affinity Water Ltd
Tamblin Way
Hatfield
AL10 9EZ
Tel: 0345 3572401

Asset Location Search

Property Searches

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Asset Location Search

Thames Water Property Searches

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

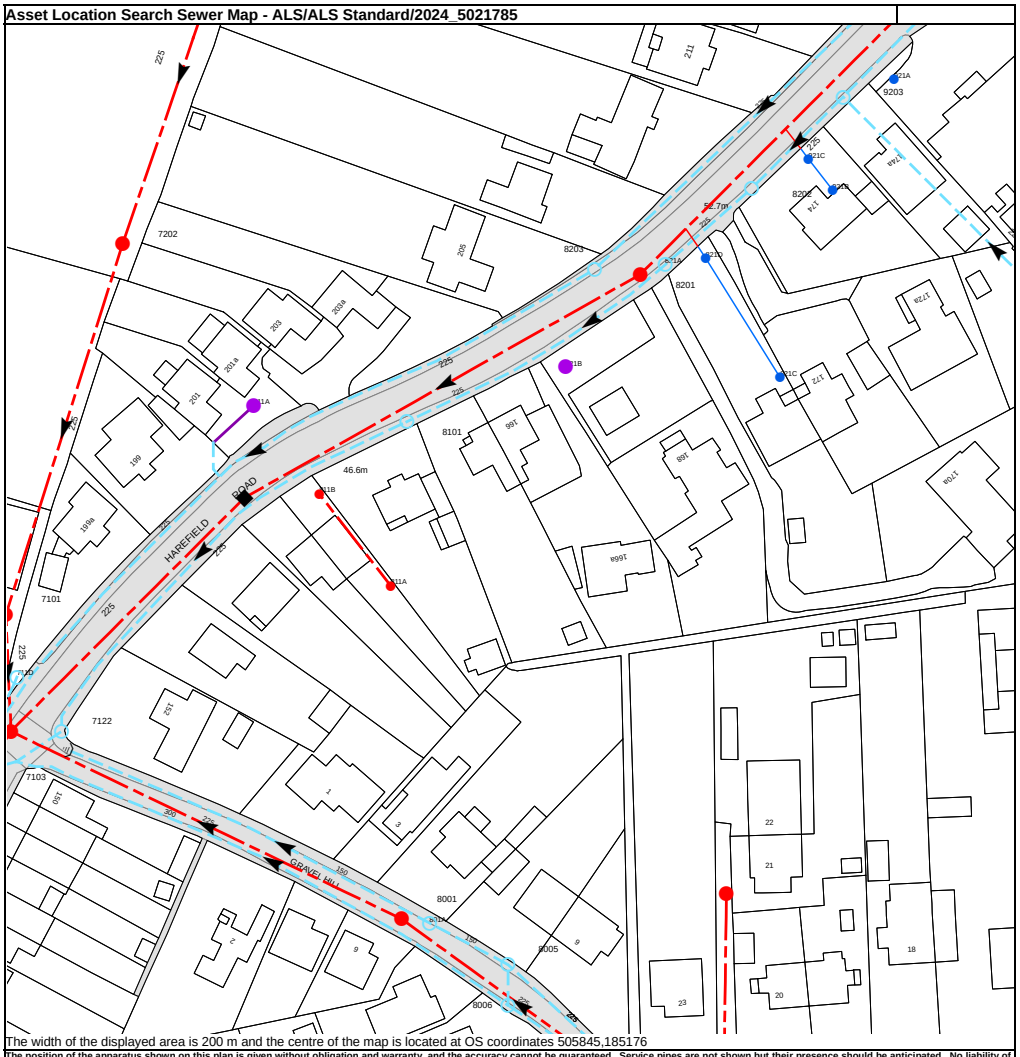
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2024_5021785



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 505845,185176

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Thames Water Utilities Ltd, Property Searches, PO Box 3189, Slough SL1 4W,
T 0800 009 4540 E searches@thameswater.co.uk I www.thameswater-propertysearches.co.uk

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
8102	n/a	n/a
8202	n/a	n/a
821C	n/a	n/a
921C	n/a	n/a
921B	n/a	n/a
9203	n/a	n/a
921A	n/a	n/a
8006	52.42	51.86
8005	52.17	51.67
801A	n/a	n/a
8001	n/a	n/a
811A	n/a	n/a
811B	n/a	n/a
8101	58.34	57
821B	n/a	n/a
8201	51.74	49.83
8203	n/a	n/a
821A	n/a	n/a
821D	n/a	n/a
7122	41.76	40.96
7103	41.45	39.08
711D	n/a	n/a
7101	40.74	39.35
711A	n/a	n/a
7202	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

- Storm Sewer
- Sludge Sewer
- Foul Trunk Sewer
- Surface Trunk Sewer
- Combined Trunk Sewer
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Vacuum
- Thames Water Proposed
- Vent Pipe
- Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

- Sewer
- Culverted Watercourse
- Proposed
- Decommissioned Sewer
- Content of this drainage network is currently unknown
- Ownership of this drainage network is currently unknown

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Meter
- Dam Chase
- Vent
- Fitting

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Ancillary
- Drop Pipe
- Control Valve
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Inlet
- Outfall
- Undefined End

Other Symbols

Symbols used on maps which do not fall under other general categories.

- Change of Characteristic Indicator
- Public / Private Pumping Station
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Chamber
- Operational Site

Ducts or Crossings

- Casement — Ducts may contain high voltage cables. Please check with Thames Water.
- Conduit Bridge
- Subway
- Tunnel

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters.
Text next to a manhole indicates the manhole reference number and should not be taken as a measurement.
If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Thames Water Utilities Ltd, Property Searches, PO Box 3189, Slough SL1 4W,
T 0800 009 4540 **E** searches@thameswater.co.uk **I** www.thameswater-propertysearches.co.uk

Payment Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment within 14 days of the date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service or will be held to be invalid.
4. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
5. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
6. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 980 8800.

If you are unhappy with our service, you can speak to your original goods or customer service provider. If you are still not satisfied with the outcome provided, we will refer the matter to a Senior Manager for resolution who will provide you with a response.

If you are still dissatisfied with our final response, and in certain circumstances such as you are buying a residential property or commercial property within certain parameters, The Property Ombudsman will investigate your case and give an independent view. The Ombudsman can award compensation of up to £25,000 to you if he finds that you have suffered actual financial loss and/or aggravation, distress, or inconvenience because of your search not keeping to the Code. Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0300 034 2222 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**
Please Call **0800 009 4540** quoting your invoice number starting CBA or ADS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number

Application for a pre-development enquiry

Application form

You can go to our website **thameswater.co.uk/buildover** and apply online or complete this form and return to Thames Water, Developer Services, Clearwater Court, Vastern Road, Reading RG1 8DB

Guidance notes

Pre development enquiries are designed to aid developers and their consultants in understanding the impact of their proposed development on Thames Water sewerage network.

You may also use this application form to enable early discussion/meeting on planning issues such as Flood Risk Assessments, capacity checks, drainage strategies and pre S104 application layouts.

Once we have received your appliation Thames Water will undertake a simple desktop study to determine your sites impact on our network and identify if any detailed further analysis or modelling is required.

Please note, that all relevant sections of the application must be fully completed, as insufficient information will result in your application being returned to you, which will result in your response being delayed.

Applicant Details
Please provide the full name, address and contact details of the person or company making the Pre-development enquiry.
All applications must be paid for prior to any response being answered. Please send your cheque, with the amount (including VAT), to Thames Water Limited with the accompanying fully completed application to:
Thames Water
Developer Services
Clearwater Court
Vastern Road
Reading
Berkshire RG1 8DB

Development site details
The site must hold a comprehensive address, scaled location plan and site layout (if available) which will assist in determining the location of proposed connection points.
A 12 figure grid reference highlighting the centre point of the site will also be helpful to us if an address is difficult to determine.
The type, number of units and size of the development will assist us.

We require information on the history of the site, therefore, if the site is Brownfield ie. land identified for redevelopment, then please let us know if the site has sewerage connections and what was previously occupying the site.

Proposed development and flows
Please indicate the proposed discharge rates for surface water and foul discharge in litres per second (l/s).

Checklist and declartion
Ensure that you have fully completed all relevant sections of the application. Please print your name, sign and date the application form and enclose:

- a scaled location plan
- a scaled site layout
- payment of the required fee of £398 + VAT

What happens next?

- Once we have received your fully completed application form we will provide you with the following response to your application:
- A preliminary assessment of any restrictions and potential connection points to the existing sewerage network.
- A preliminary assessment of any reinforcement works that will be required to service the development.
- Details of any protective measures for sewerage assets which may require diversion or easements.

We will endeavor to respond to you within 15 working days of receipt of your application providing it is not necessary to carry out further investigation works.

If further analysis is required, involving detailed modelling and site investigation (depth loggers, rain gauges or flow monitors) we are able to provide you with a scope, estimated cost and timeframe for undertaking a formal impact study for the price of £400 + VAT. Once completed this study would include a full report detailing the impact and recommendations/network improvements required to alleviate any increased flood risk.

Application for a pre-development enquiry

Please complete all sections of this form in BLOCK CAPITALS

About the person applying

This is the person we'll contact about the application and will recieve all correspondence. This can be the property owner or someone acting on their behalf.

Are you applying as? An individual ☐ or A company ☐

'An individual' is a homeowner and 'A company' is an agent/architect/builder etc acting on behalf of the homeowner

Company name

Title Mr ☐ Mrs ☐ Ms ☐ Miss ☐ Dr. ☐ Other:

First name(s)

Last name

Applicant contact details

We'll use these details to get in touch with you about your application.

Preferred contact number

Alternative number

Email address

Full postal address

Address line 1:

Address line 2:

Town:

County: Postcode:

Nominated contact

Who should we contact to process your application? Applicant ☐ Someone else ☐

(Please tick one)

If someone else:

Title Mr ☐ Mrs ☐ Ms ☐ Miss ☐ Dr. ☐ Other:

First name(s)

Continued...

Last name

Preferred contact number

Alternative number

Email address

Full postal address

Address line 1:

Address line 2:

Town:

County: Postcode:

Invoices

Who should we send invoices to? Applicant ☐ Nominated contact ☐ Someone else ☐

If someone else:

Title Mr ☐ Mrs ☐ Ms ☐ Miss ☐ Dr. ☐ Other:

First name(s)

Last name

Full postal address

Address line 1:

Address line 2:

Town:

County: Postcode:

Email address

Where the work is taking place

What is the address of the property being connected? Same as applicant ☐ Same as the nominated contact ☐ Somewhere else ☐

If somewhere else:

Site name

Continued...

Full postal address

Address line 1:

Address line 2:

Town:

County: Postcode:

About the site

What is your local authority?

Ordance survey grid ref

What is the site currently used for?

Greenfield/agricultural Industry Housing Landfill Other

VAT development classification

New build house or flat Relevant residential or charitable

Commercial, existing or orther Listed Conversion Mixed

Location of existing connection

Does the site already have any of these sewerage connections?

Foul water Yes No

If yes:

Current discharge rate Litres per second

Size of existing site Number of units/hectares

Location of existing connection?

Surface water Yes No

If yes:

Current discharge rate Litres per second

Size of existing site Number of units/hectares

Location of existing connection?

Your proposed development

Type of development Greenfield/agricultural ☐ Industry ☐ Housing ☐ Landfill ☐ Mixed ☐

Preferred foul water connection point

Preferred surface water connection point

Size of proposed development Number of units/hectares

Proposed foul water discharge rate Litres per second

Proposed surface water discharge rate Litres per second

How will development flows reach the connection point? Pumped ☐ Gravity ☐

Trade effluent agreement required? Yes ☐ No ☐ Don't know ☐

If Yes, Trade effluent reference number

Planning status

Is the development identified in the local plan? Yes ☐ No ☐ Don't know ☐ If Yes, reference number

Does the development have outlined planning permission? Yes ☐ No ☐ Don't know ☐ If Yes, reference number

Does the development have full planning permission? Yes ☐ No ☐ Don't know ☐ If Yes, reference number

Does the development have building regulation permission? Yes ☐ No ☐ Don't know ☐

Enclose your documents

All drawings must be of suitable detail and have a drawing reference number on them.
What we need from you to process your application:

Site plan	This should show the site with nearby buidlings, roads and any sewers.
Development plan	This should show propsed layout of new development buildings, roads and sewers.
Site drainage plan	This should show all propsed sewers, pipe sizes and gradients.

Checklist and Declaration

I have completed the application form and enclose the following information:

- Application fee of £398 + VAT
- A scaled location plan ie. site plans showing existing and proposed layouts.
- The development site drainage plan.

Declaration

I agree, that for the purpsoses of the Water Industry Act 2003 and the Data Protection Act 1998, the information provided in this form and in any accompanying documents, may be held on a computer and processed by Thames Water Ltd and its servants and agents for all purposes connected with the Company's statutory water and sewerage undertakings.

Print name	
Position within company	
Company	
Date	
Signature	

Getting in touch with us

For enquiries regarding this application or any other questions relating to your building or development work please contact us on:

thameswater.co.uk/developerservices

developer.services@thameswater.co.uk

0800 009 3921
Monday - Friday 8.00am-5.00pm

Thames Water, Developer Services, Clearwater Court, Vastern Road, Reading, Berkshire RG1 8DB

If you have any other questions for Thames Water

thameswater.co.uk

0800 980 8800

- Queries relating to your bill
- Change of address
- Meter readings

Minicom service if you are deaf or hard of hearing 0800 316 6899

0800 316 9800

- For emergencies
- Other non-billing enquiries
- Literature

Minicom service if you are deaf or hard of hearing 0800 316 9898

To contact us from abroad +44 1793 366011

Thames Water, PO Box 286, Swindon, SN38 2RA

This leaflet can be supplied in braille or audio-tape upon request.

12961I 04/15

2.3 Polystorm

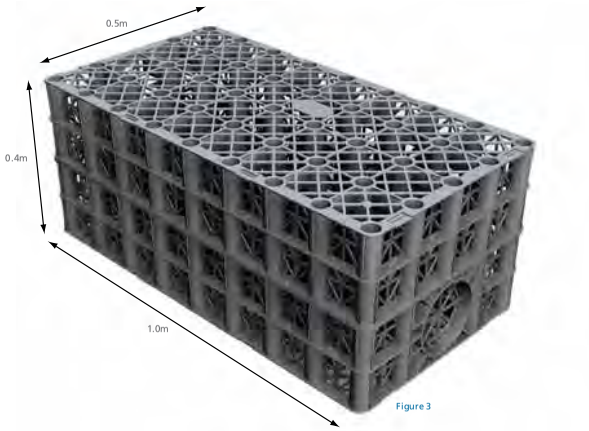


Figure 3

Designed for use in trafficked and loaded applications with a load bearing capacity of:

40 tonnes

Technical specification overview	
Unit type	Polystorm
Product code	PSM1*
Dimensions	1m x 0.5m x 0.4m high
Total volume	0.2m per cube
Unit weight	9kgs**
Cube storage volume	0.19m³ (190 litres)
Surface area	48% perforated
Compressive strength	Maximum 40 tonnes per sq metre
Maximum burial depth	3.7 metres***

* Each unit includes 4 clips and 2 shear connectors. Please note that brick bond connector may be required at additional cost.

** Pallet weight dependent upon order quantity and transport type.

*** In weak clay soil conditions the maximum burial depth is reduced, please consult Polypipe WMS Technical Team on 01509 615100.

Table 3

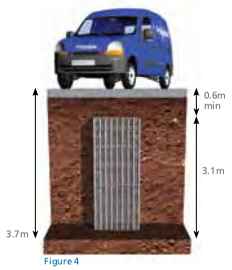


Figure 4

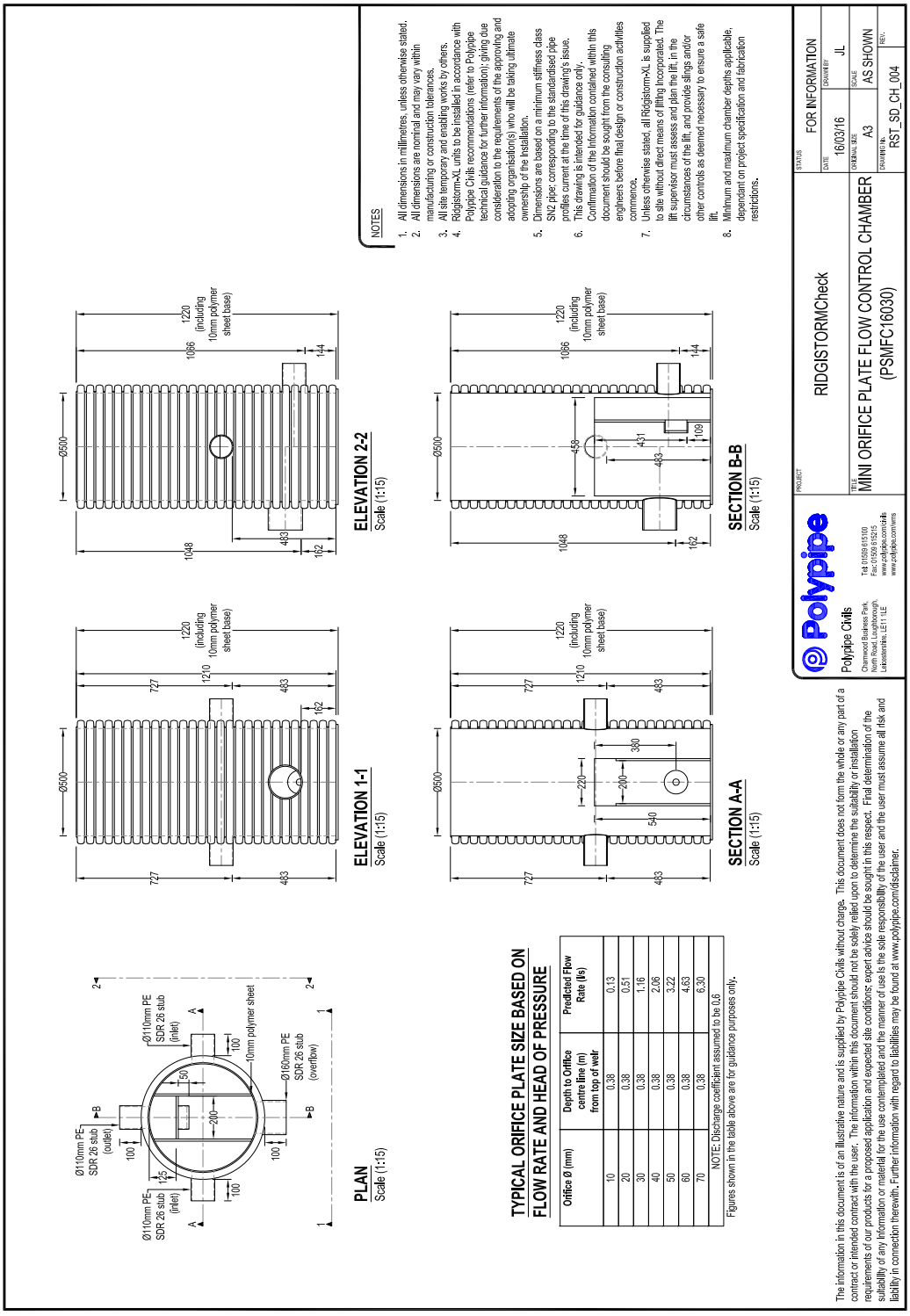
Polystorm features individual modular cells that can be built up to form a load-bearing tank structure of any shape or size to receive rainwater collected from the gutter system or surface drains ready to release within a set discharge limit. Polystorm has a 40 tonne per square metre compressive strength and is ideally suited for light trafficked and loaded applications. Polystorm can be used for both attenuation and soakaway applications and typically for housing developments, small car parks and light commercial developments.

Polystorm		
Description	Code	Pack quantity
Polystorm cell 1000 x 500 x 400mm	PSM1	15
Polystorm cell with 225mm connector	PSMCRD225	1
Polystorm cell with 300mm connector	PSMCRD300	1
Brick bond shear connector	PSMBBSC	30
Clips	PSMCLIP	60
Shear connector	PSMSC	30
EN1401 flange adaptor - 110mm	PSMFA110	1
Ridgidrain flange adaptor - 150mm	PSMFA150	1
EN1401 flange adaptor - 160mm	PSMFA160	1
Basic silt trap	PSMST160	1
Advanced silt trap - 15 litres/sec	PSMSTA160/15	1
Cover & frame (round)	UG501	1
Cover & frame (square)	UG502	1
450mm silt trap lid & frame	UG512	1
460mm lockable plastic cover & frame	UG511	1
Polypropylene cover & frame	ICDC1	1
Chamber riser section	ICDR1	1
Silt trap sealing ring	UG488	1

Table 4

Note: Minimum cover and burial depths may vary depending on load and ground conditions. Please contact Polypipe WMS for further information. All grades of Polystorm units may be used in situations outside of those recommended above, through the use of the appropriate protective measures designed to reduce the imposed loading on the proposed Polystorm structures.

C.2 Protected orifice chamber




Polyethylene wear plate, with chamfered circular orifice & perforated debris guard
Integral hinged stainless steel plate to slide up between guide rails for simple maintenance
Integral polypropylene 2.5kN lockable cover and frame, individually labelled with a unique reference number and orifice size for whole-life relevance
Polyethylene twin-wall chamber complying with BS 7158

D Proposed SuDS layout