stomor
CIVIL ENGINEERING CONSULTANTS

FLOOD RISK ASSESSMENT

GRID REF: 505759E, 191614N

HAREFIELD GROVE, RICKMANSWORTH ROAD

HAREFIELD, UB9 6JH

prepared for

COMER HOMES GROUP

JUNE 2025

REFERENCE: ST3783/FRA-2506
REVISION 0

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Drawings contained in this report are based upon information available at the time of production and serve to assess the likely drainage and flood risk implications arising from delivery of the proposed development. The information produced by Stomor Ltd for this report should not be used as detailed design for construction purposes.

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Revision	*Author*	*Checked by*	*Issue Date*
0	*KD*	*SJB*	*20/06/25*

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APPENDICES

1. Introduction

1.1.1. Stomor Ltd. have been commissioned by Comer Homes Group to prepare a Flood Risk Assessment (FRA) and Drainage Strategy to support the proposed development at Harefield Grove, Rickmansworth Road, Harefield. A Site Location Plan is provided in **Appendix A**.

1.1.2. This document supersedes the previous FRA, dated September 2021, submitted as part of the 2022 proposals.

1.1.3. The application site is brownfield currently comprising a manor house and associated outbuildings, associated car parking, landscaping and existing Lodge House, with a total area of 7.48 hectares (ha).

1.1.4. Development proposals comprise conversion of the existing manor house and outbuildings into residential apartments, in addition to the demolition and reconstruction of the existing stable block and several new dwellings to provide a total of 38No. residential units.

1.2. Policy Context

1.2.1. The FRA has been prepared in accordance with relevant national, regional, and local planning policy and guidance on flooding as follows:

- The National Planning Policy Framework (NPPF) published by Ministry of Housing, Communities and Local Government (MHCLG), and the accompanying National Planning Practice Guidance (NPPG).
- The Environment Agency (EA) published advice for Preparing a Flood Risk Assessment: Standing Advice (April 2012, updated April 2025).
- The EA's Approach to Groundwater Protection (March 2017, updated October 2023).
- The London Plan (March 2021).
- London Borough of Hillingdon (LBH) Local Plan Part 1 (November 2012).
- LBH Local Plan Part 2 (January 2020).
- LBH Surface Water Management Plan (January 2013).
- West London Strategic Flood Risk Assessment (SFRA) (March 2018).

1.2.2. Furthermore, the FRA follows the methodology prescribed in Construction Industry Research and Information Association (CIRIA) document C624: Development and Flood Risk (2004), Guidance for the Construction Industry.

1.3. Flood Risk Vulnerability and the NPPF Sequential Test

1.3.1. The Indicative Floodplain Map obtained from the UK government website is provided in **FIGURE 1.1**. This shows that the application site is located within Flood Zone 1, land assessed to have a low probability of flooding.

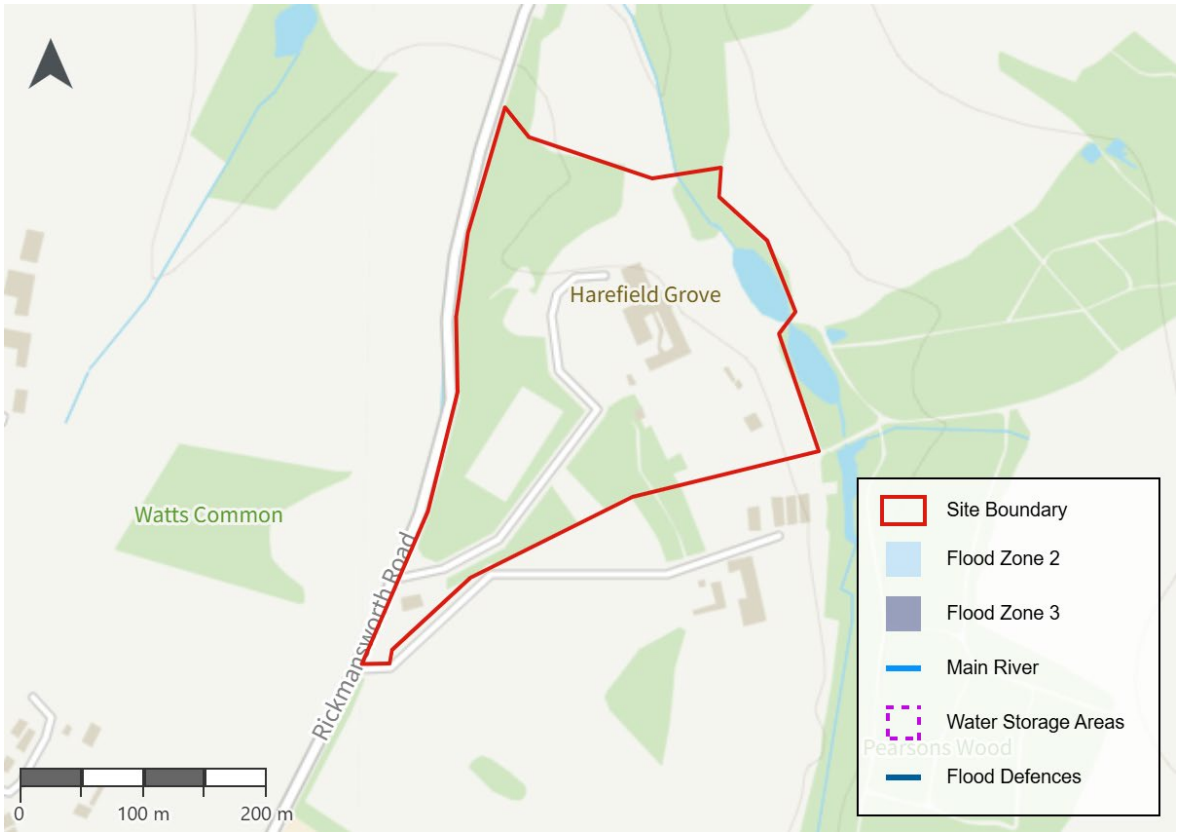

FIGURE 1.1: UK Government Flood Map for Planning

1.3.2. The differences between Flood Zones 1, 2 and 3 are described in Table 1: Flood Zones from the Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government Flood Risk and Coastal Change guidance (updated August 2022), reproduced below:

Zone 1 Low Probability	Land assessed as having a less than 0.1% annual probability of river or sea flooding.
Zone 2 Medium Probability	Land assessed as having between a 1% and 0.1% annual probability of river flooding, or land having between a 0.5% and 0.1% annual probability of sea flooding.
Zone 3a High Probability	Land assessed as having a 1% or greater annual probability of river flooding, land having a 0.5% or greater annual probability of flooding from the sea.
Zone 3b The Functional Floodplain	Land where water from rivers or the sea has to flow or be stored in times of flood. Normally comprises land having a 3.3% or greater annual probability of flooding, or land designed to flood (such as a flood attenuation scheme).

1.3.3. The Flood Risk and Coastal Change Category (ID 7) of the NPPG and associated documents identifies that a Flood Risk Assessment is required areas at risk of flooding.

1.3.4. The Flood Risk and Coastal Change Category of the NPPG and associated documents identify that site-specific flood risk assessments should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.

1.3.5. The development would have a NPPF flood risk vulnerability classification of More Vulnerable. In accordance with the 2024 NPPG guidance, the sequential test should be followed in areas at risk from any sources of flooding including access routes and areas of land raising.

2. Site Location & Surrounding Area

2.1.1. The application site comprises approximately 7.48ha of brownfield land, currently comprising a manor house and associated outbuildings, associated car parking, landscaping and existing Lodge House.

2.1.2. The site is located approximately 850m from Harefield town centre. The site boundary is defined by Rickmansworth Road to the west, existing farm buildings to the south and south-east, and Pearsons Wood to the north and east.

2.1.3. Inspection of the topographical survey shows that the site generally falls from south-west to north-east. Surveyed ground levels range from approximately 69.52 m AOD to 87.82 m AOD within the site. A copy of the topographical survey is provided in **Appendix B**.

2.1.4. The nearest watercourse to the site is an Ordinary Watercourse that runs through the east side of the site, running from south to north. The nearest an EA Designated Main River is the River Colne, which is located approximately 1.6km to the west of the site.

2.1.5. EA catchment data identifies that the site is located within the Colne operational catchment area, within the Thames River Basin District.

2.1.6. Inspection of the EA's groundwater source protection zone data shows that the site lies within Groundwater Source Protection Zone III (Total Catchment). A small area at the south of the site extends into Zone II (Outer Protection Zone). Therefore, there may be restrictions on the areas discharging via infiltration methods, subject to suitable infiltration rates and levels of water treatment.

2.1.7. EA Maps identify that the site is located in a Drinking Water Safeguard Zone (surface water). Inspection of the groundwater vulnerability map identifies that the site is predominantly at Medium risk, with soluble rock risk. A small area extending into the north of the site is at Medium-High risk, and a small area extending into the south of the site is at Low risk.

2.1.8. The site is located predominantly within a Secondary (A) Aquifer for the Superficial Drift Designation, with a small area along the northern boundary not within a superficial aquifer. The site is located within a Secondary (A) Aquifer for the Bedrock Designation.

3. Site Background

3.1.1. The site is currently brownfield and is the site of a manor house and associated outbuildings, associated car parking, landscaping and existing Lodge House.

3.1.2. Historical mapping information indicates that the site has comprised the Harefield Grove manor house and associated grounds since the 1830s.

3.1.3. A Level 1 Strategic Flood Risk Assessment (SFRA) for the area was prepared by Metis Consulting, on behalf of the London Borough of Hillingdon, in March 2018. The SFRA is used as a desk-based study to map all forms of flood risk to provide an evidence base to locate new development primarily within low-risk areas. The information allows the planning authority to identify the level of detail required for the site-specific Flood Risk Assessments.

3.1.4. Inspection of the British Geological Survey (BGS) website identifies that the underlying ground conditions of the site comprise Lambeth Group (clay, silt and sand) at bedrock with superficial deposits of Gerrards Cross Gravel (sand and gravel). In addition, inspection of the Soilscapes website indicates that the site lies in a region with impeded drainage.

3.1.5. Infiltration test results in accordance with BRE Digest 365 have been provided to Stomor by the Client which identified varying levels of infiltration potential across the site. Infiltration rates in the vicinity of the Main House were recorded at $3.6x10^{-8}ms^{-1}$ which would suggest infiltration in this area may not be feasible. Copies of the soakage test results are provided in **Appendix C.**

4. Existing Drainage

4.1. Surface Water Drainage

4.1.1. As the site is brownfield, there is likely existing surface water drainage infrastructure in place. Runoff from the site is currently believed to discharge to the unnamed Ordinary Watercourse within the east of the site.

4.1.2. Thames Water Utilities (TWU) sewer records identify that there are no public surface water sewer located in close proximity of the site. TWU sewer records are provided in **Appendix D**.

4.1.3. Greenfield runoff rates have been calculated based upon the IH124 Method, for a development area of 7.48 ha. Geotechnical information from the WRAP map of the Wallingford Procedure indicates that the underlying soil conditions would reflect Winter Rain Acceptance Potential (WRAP) Soil Class 4, which gives flow rates as follows:

Greenfield Runoff (l/s)		
1 in 1 year	Q1	29.3 l/s
1 in 30 years	Q30	79.3 l/s
1 in 100 years	Q100	110 l/s

4.1.4. However, the proposed development would result in an area of 0.382ha of impermeable area that would need to be positively drained, which gives greenfield runoff rates as follows:

Greenfield Runoff (l/s)		
1 in 1 year	Q1	1.5 l/s
1 in 30 years	Q30	4.1 l/s
1 in 100 years	Q100	5.6 l/s

4.1.5. The existing impermeable area of the site is approximately 0.73 ha. Surface water runoff associated with these impermeable areas would discharge at an unrestricted rate to either a receiving watercourse or public surface water sewer. The existing discharge rate being generated by the current impermeable areas within the site has been calculated based upon the Modified Rational Method as follows:

Existing Brownfield Area – 0.73 ha		
Storm Event	**Rainfall Intensity (i)**	**Peak Runoff Rate**
1 in 1 year	50mm/hr	101.47 l/s
1 in 30 years	126mm/hr	255.7 l/s
1 in 100 years	152mm/hr	308.47 l/s

4.1.6. A copy of the runoff calculation sheets are provided in **Appendix E**.

4.2. Foul Water Drainage

4.2.1. TWU sewer records identify no public foul water sewers in the immediate vicinity of the site. The nearest public foul water sewer is located on Rickmansworth Road, approximately 445m south-west of the site access.

5. Proposed Development

5.1.1. Development proposals comprise conversion of the existing manor house and outbuildings into residential apartments, in addition to the demolition and reconstruction of the existing stable block and several new dwellings to provide a total of 38No. residential units.

5.1.2. The existing impermeable area of the site is 0.73. Based upon the current development proposals, redevelopment of the site is expected to generate an impermeable area of approximately 0.382ha, providing a decrease of 0.382ha.

6. Proposed Site Drainage

6.1. Surface Water Drainage

6.1.1. The site is currently brownfield. Based upon the proposed layout, the development would be expected to generate a decrease in impermeable area of 0.382ha.

6.1.2. In accordance with EA guidance, the order of consideration for the disposal of surface water runoff from a development should be as follows: infiltration methods, watercourses, then public sewer network.

6.1.3. Infiltration test results in accordance with BRE Digest 365 have been provided to Stomor by the Client which identified varying levels of infiltration potential across the site. Infiltration rates in the vicinity of the Main House were recorded at $3.6x10^{-8}ms^{-1}$ which would suggest infiltration in this area is likely to not be feasible.

6.1.4. The nearest watercourse to the site is an Ordinary Watercourse that runs through the east side of the site, running from south to north. The nearest, designated as an EA Designated Main River, which is located approximately 1.6km to the west of the site.

6.1.5. The existing site is assumed to discharge to the unnamed Ordinary Watercourse within the east of the site, either directly or via existing on-site drainage infrastructure. Therefore, it is considered that this would appear to be the most feasible point of discharge.

6.1.6. An Indicative Drainage Strategy is provided in **Appendix F**. The strategy demonstrates how the proposed development can be effectively drained and the amount of storage required to avoid flooding within the site during all storms up to and including the 1 in 100-year storm event plus a 40% allowance for climate change.

6.1.7. The proposed drainage strategy has been modelled using Micro Drainage. Copies of Micro Drainage output files for the development are provided in **Appendix G**, demonstrating that the proposed SuDS features provide sufficient storage to avoid flooding during the 1 in 100-year storm event plus 40% allowance for climate change.

6.1.8. The indicative drainage strategy incorporates SuDS features which will need to have clear, enforceable maintenance regimes in place so that they provide effective flood protection and water treatment for the long term. See attached our SuDS Maintenance Fact Sheet in **Appendix H**.

6.1.9. The CIRIA SuDS Manual C753 promotes the use of the Simple Index Approach as a method of determining water quality risk management and is generally regarded as the accepted method within the industry.

6.1.10. Table 26.2 of the SuDS Manual gives pollution hazard indices for different land use classifications. Tables 26.3 and 26.4 of the SuDS Manual provides typical treatments levels from various different SuDS features discharging to surface water and to ground respectively.

6.1.11. To deliver adequate treatment, the selected SuDS components should have a total mitigation index that equals or is greater than the pollution hazard index. Where a single SuDS component is insufficient, additional components in a series would be required, where:

Total SuDS mitigation index = mitigation index$_1$ + 0.5 (mitigation index$_2$)

6.1.12. A factor of 0.5 is used to account for the reduced performance of secondary or tertiary components associated with already reduced inflow concentrations. In a series of multiple subsequent components, each is halved.

6.1.13. The SuDS proposed on the development would provide more than the adequate treatment for the potential pollution hazards generated by the land uses. See attached our Simple Index Approach Calculation sheet in **Appendix I**.

6.2. Foul Drainage

6.2.1. A strategy for the discharge of foul water flows from the development has been prepared and is shown in principle on the Indicative Drainage Strategy, attached in **Appendix F**. This indicative drawing aims to demonstrate that the site can be drained, based upon the current development proposals.

6.3. Detailed Design and Approvals

6.3.1. The proposed drainage strategy is subject to approval by the LLFA, and the Local Planning Authority.

6.3.2. Proposed detailed drainage systems will need to be modelled in Micro Drainage to confirm required pipe sizes and storage volumes.

6.3.3. Overland flow routes have been shown on the drainage plan through the development, to identify proposed flow paths for surface water runoff during extreme storm events. Final external levels will be designed to prevent overland flow routes from entering buildings.

7. Potential Sources of Flooding

7.1. Flooding from Rivers or Sea

7.1.1. The EA Indicative Floodplain Map (**FIGURE 1.1**) identifies that the application site is located within Flood Zone 1, land assessed to have a low probability of flooding. The EA Risk of Flooding from Rivers and Seas map is shown in **FIGURE 7.1**, which identifies that that the site is at very low risk.

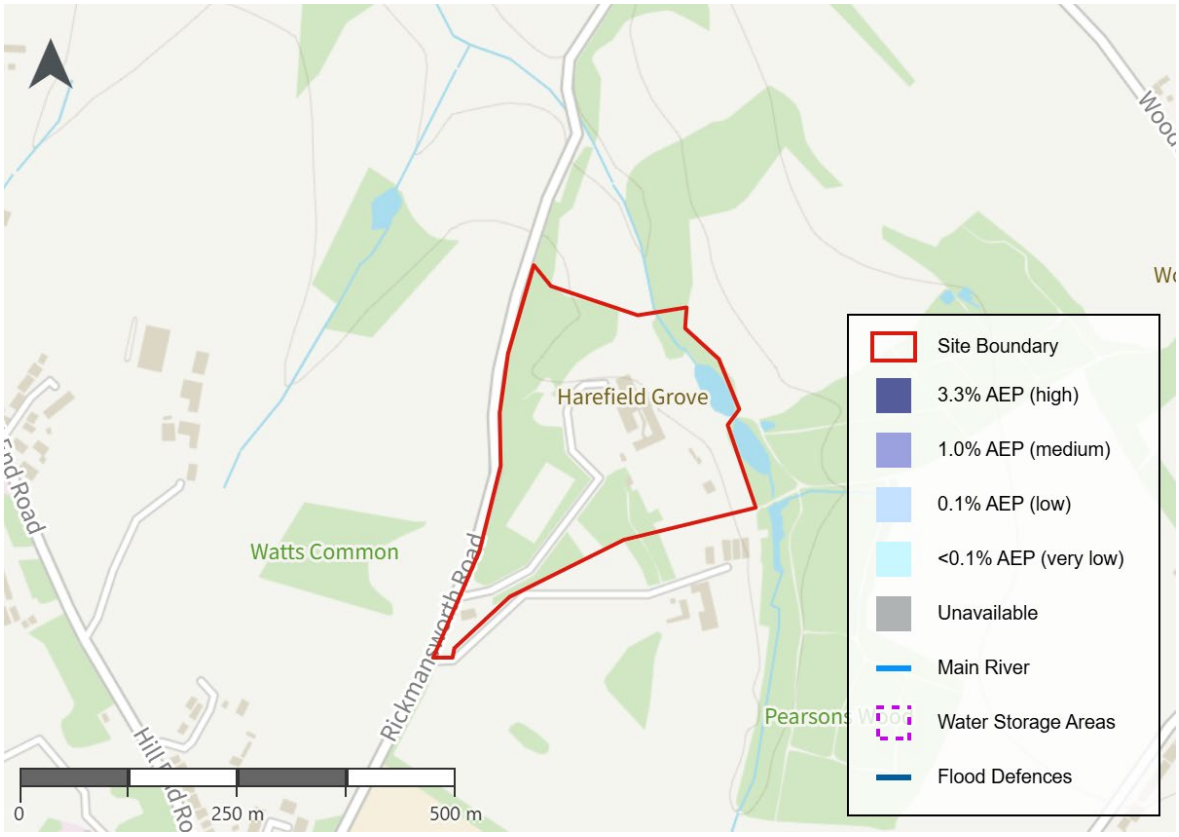

FIGURE 7.1: EA Risk of Flooding from Rivers and Seas Map

7.1.2. Historical fluvial flooding (**FIGURE 7.2**) has not been recorded in the area.

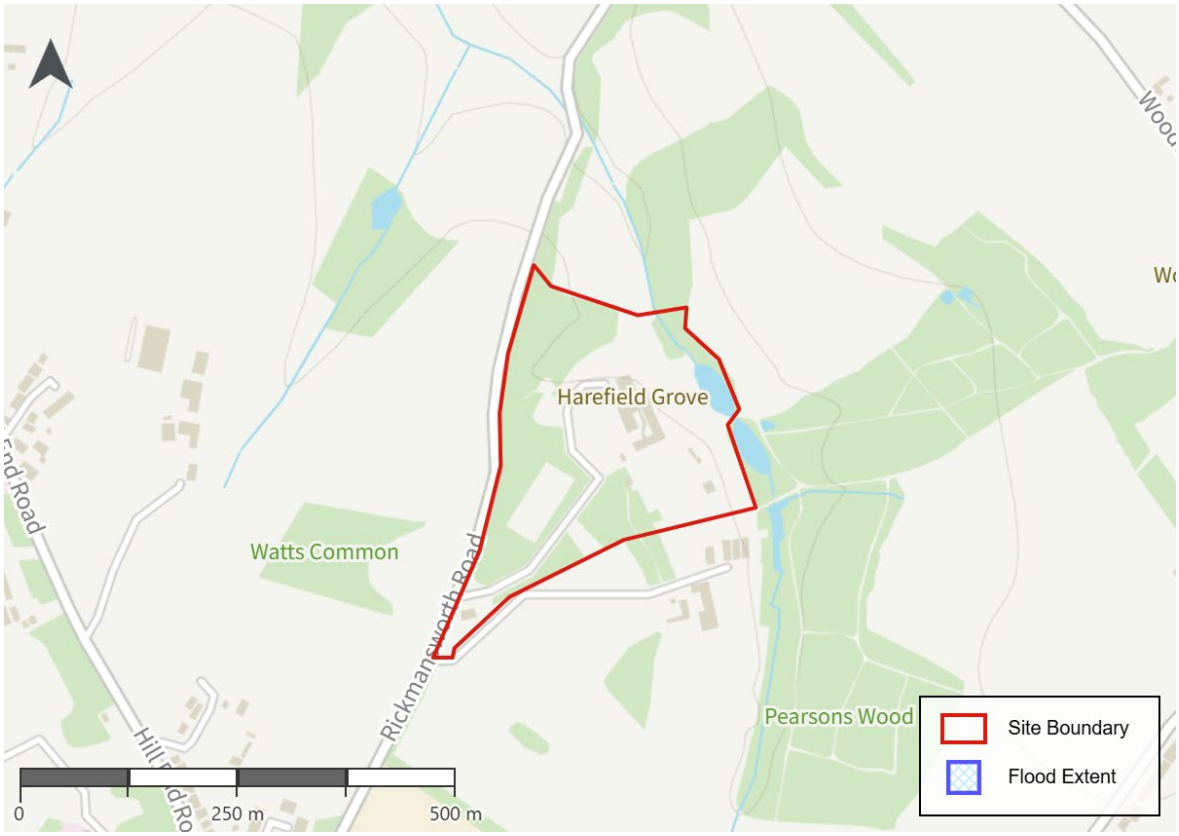

FIGURE 7.2: Historical Flood Extents Map

7.1.3. Based upon the above information, it is considered that the site is at low risk of flooding from fluvial sources.

7.2. Flooding from Land (Surface Water)

7.2.1. Flooding from land occurs when intense rainfall is unable to soak into the ground or enter drainage systems. Local topography and built form can have a strong influence on the direction and depth of flow.

7.2.2. The EA indicative surface water flood map (**FIGURE 7.3**) identifies that the site predominantly has a low risk of surface water flooding. Low risk means that this area has between 0.1% and 1% chance of flooding each year.

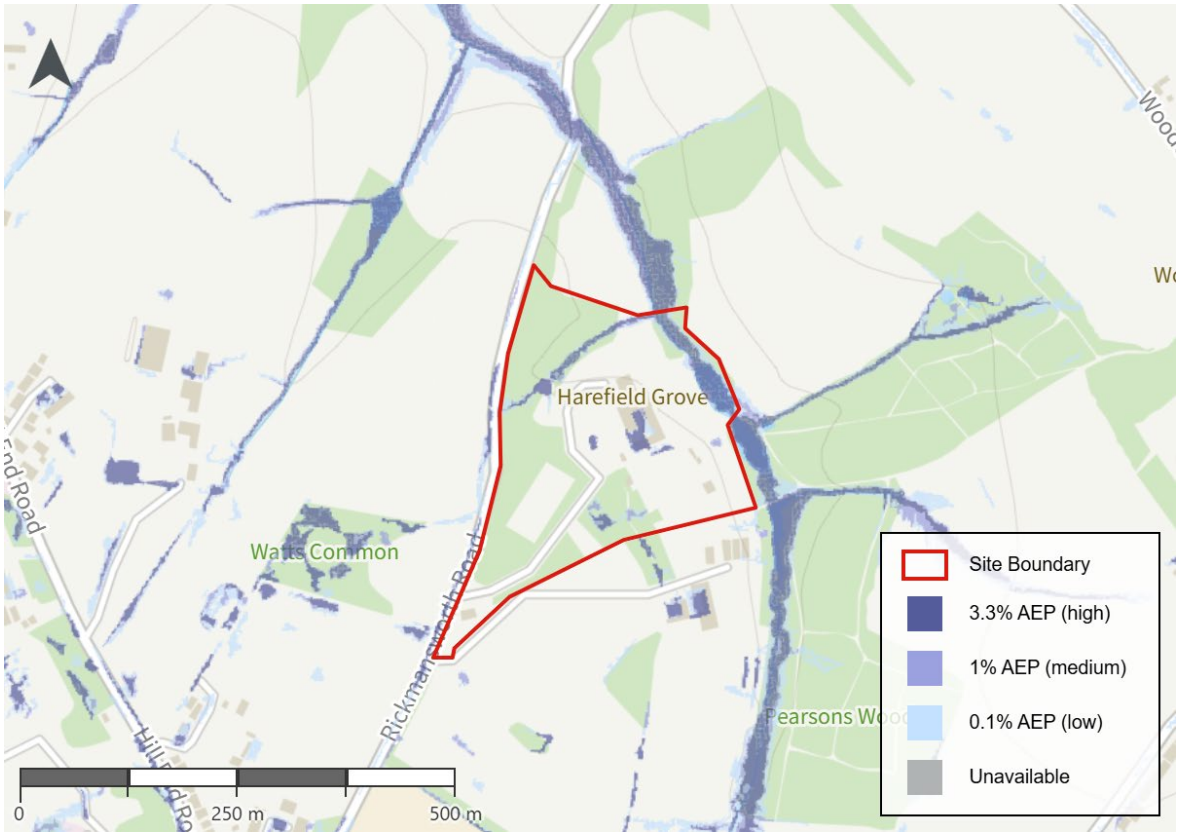

FIGURE 7.3: EA Indicative Surface Water Flood Map

7.2.3. There is a low-high surface water flow path extending along the course of the Ordinary Watercourse running with the site boundary to the east and associated with a ditch running through the north of the site. An isolated area associated with the manor house is also considered at high risk of surface water flooding.

7.2.4. Overland flow routes will be taken into consideration in the design levels for the proposed development to direct overland flows away from buildings, towards the proposed SuDS features in the lower end of the site.

7.2.5. The existing surface water flood risk within the site is primarily confined to the areas within and in the vicinity of watercourses, ponds and water features. There is an area of medium to high risk of surface water flooding within the vicinity of the existing building. Inspection of the topographical survey indicates that this is a local low point, which accumulates within the southern side of the building. Overland flows do not have a route past the building due to its 'U-shaped' design, the proposed development removes the U-shaped building with external levels designed to ensure overland flows would travel away from buildings and towards either the receiving Sustainable Drainage Systems (SuDS) features, or downstream waterbodies.

7.2.6. On-site drainage systems have been designed to accommodate runoff volume from a 1 in 100-year storm plus 40% climate change rainfall event, to minimise overland flows except during storms above this event.

7.3. Flooding from Groundwater

7.3.1. Groundwater flooding occurs when water levels in the ground rise above surface elevations. Groundwater flooding events are most likely to occur in low lying areas underlain by permeable rocks (aquifers).

7.3.2. The SFRA identifies that historical groundwater flooding has not affected the site. The SFRA Susceptibility to Groundwater Flooding map from the West London SFRA identifies that the site is <25% susceptible to groundwater flooding.

7.3.3. Based on the SFRA and British Geological Survey (BGS) Groundwater Susceptibility data, it is reasonable to assume that the site is at low risk of groundwater flooding. Overland flow routes will be taken into account in the design of levels for the proposed development to direct overland flows away from buildings.

7.4. Flooding from Sewers

7.4.1. A sewer flooding history enquiry has been undertaken with TWU who have identified that they have no historical record of surcharging sewers within the area. A copy of the TWU Sewer Flooding History is provided in **Appendix J**.

7.4.2. The SFRA identifies that there is no evidence of historic sewer flooding in the proximity of the site.

7.4.3. The development layout will be designed with consideration of flood routing, to ensure that new buildings and occupants of the site will not be subject to detrimental impacts in the event of flooding from infrastructure failure within or upstream of the site.

7.5. Flooding from Reservoirs, Canals and Other Artificial Sources

7.5.1. Inspection of the EA flood maps (**FIGURE 7.4**) confirm the site is not at risk of flooding from reservoirs, canals or other artificial sources.

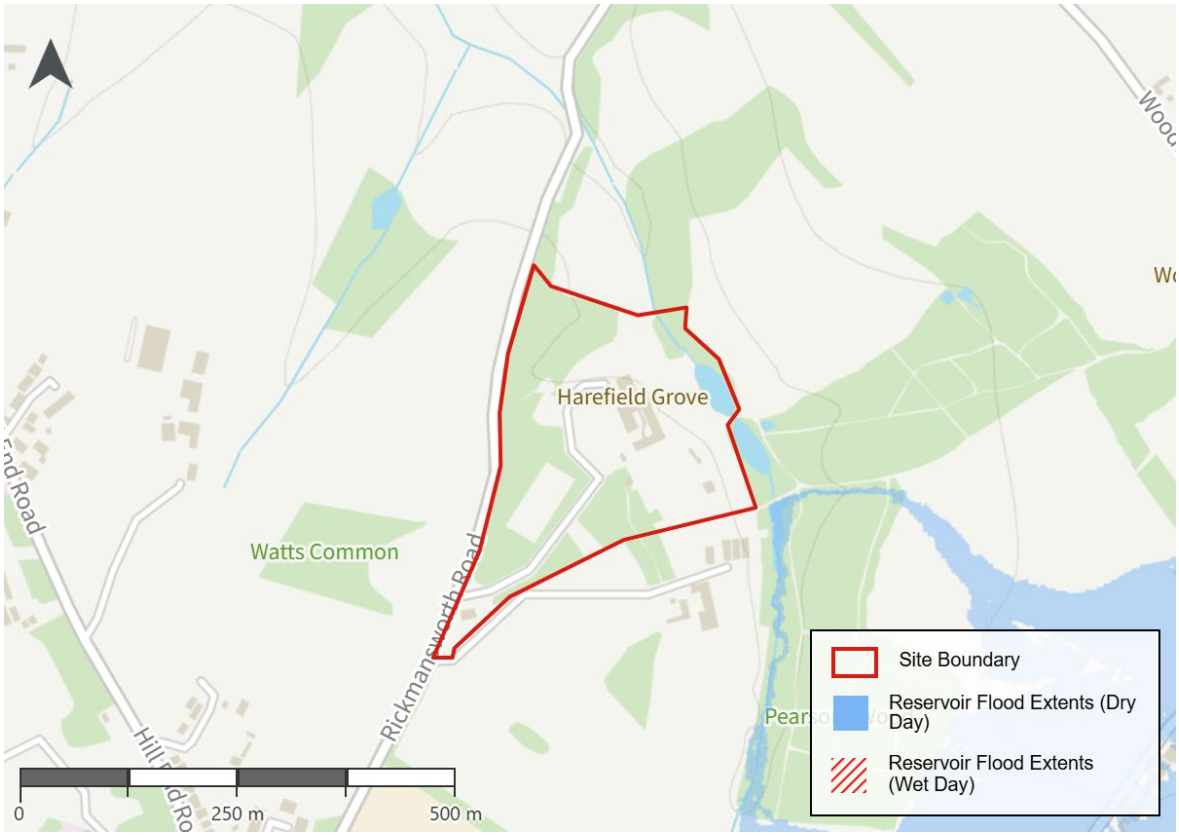

FIGURE 7.4: EA Flooding from Reservoirs, Canals and Other Artificial Sources Map

7.5.2. No other non-natural or artificial sources of flooding where water is retained above natural ground level, operational and redundant industrial processes including mining, quarrying and sand and gravel extraction, would appear to be located in the vicinity of the site which may cause increase floodwater depths or velocities.

8. Summary and Recommendations

8.1.1. Stomor Ltd. has been commissioned by Comer Homes Group to prepare a Flood Risk Assessment (FRA) to support the proposed development of Harefield Grove, Rickmansworth Road, Harefield.

8.1.2. This document supersedes the previous FRA, dated September 2021, submitted as part of the 2022 proposals.

8.1.3. The application site is brownfield, currently comprising an existing manor house, outbuildings with associated access and landscaping, with a total area of 7.48 hectares (ha).

8.1.4. Development proposals comprise conversion of the existing manor house and outbuildings into residential apartments, in addition to the demolition and reconstruction of the existing stable block and several new dwellings to provide a total of 41No. residential units.

8.1.5. The proposed development would have a NPPF flood risk vulnerability classification of ‘More Vulnerable’. The application site is situated within Flood Zone 1, land assessed to have a low probability of flooding.

8.1.6. The nearest watercourse to the site is an Ordinary Watercourse that runs through the east side of the site, running from south to north. The nearest, designated as an EA Designated Main River, which is located approximately 1.6km to the west of the site.

8.1.7. It is considered that the site would be at predominantly low risk of flooding from surface water, sewers, groundwater, or artificial sources. The Ordinary Watercourse and ditch located within the site are at high risk of flooding from surface water, and isolated areas around the existing manor house are at medium-high risk.

8.1.8. The proposed surface water drainage strategy demonstrates SuDS features to provide sufficient storage to avoid flooding within the site during the 1 in 100-year storm event + 40% allowance for climate change.

8.1.9. Overland flow paths and exceedance routes will be taken into account in design of levels for the proposed development to direct overland flows away from buildings.

Existing Impermeable Areas
= 0.45ha
(to be removed as part of
proposed development)

COLE EASDON CONSULTANTS
YORK HOUSE
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E-mail cec@ColeEasdon.com

Client
Comer Homes Ltd

Job Title
Harefield Grove

Drawing Title
Existing Site and
Impermeable Areas

Designed by:	Drawn by:	Checked by:
RK	RK	DF

Date	Scale
15-06-12	1:500 @ A0

Drg. No.	Rev.
3482/500	


TP1
TP2
TP3
TP4
TP5

Falling Head Permeability Test

Location TP1 – Harefield Grove Infiltration Tests in Accordance with BRE 365

Length of test section	2.0m
Width of test section	2.0m
Depth of test section	2.0m
Test Duration	2mins
Depth of Water at Commencement of Test	0.0m
Permeability	5.41×10^{-3}m/s

Time Elapsed (mins)	Depth of Water Top (m)	Time Elapsed (mins)	Depth of Water Top (m)
0.00	0.0	10.00	-
1.00	1.6	15.00	-
2.00	2.0	30.00	-
3.00	-	60.00	-
4.00	-		
5.00	-		

Falling Head Permeability Test

Location TP2 – Harefield Grove Infiltration Tests in Accordance with BRE 365

Length of test section	2.0m
Width of test section	2.0m
Depth of test section	2.0m
Test Duration	2mins
Depth of Water at Commencement of Test	0.0m
Permeability	7.23×10^{-3}m/s

Time Elapsed (mins)	Depth of Water Top (m)	Time Elapsed (mins)	Depth of Water Top (m)
0.00	0.0	10.00	-
1.00	1.2	15.00	-
2.00	1.9	30.00	-
3.00	2.0	60.00	-
4.00	-		
5.00	-		

Falling Head Permeability Test

Location TP3 – Harefield Grove Infiltration Tests in Accordance with BRE 365

Length of test section	2.0m
Width of test section	2.0m
Depth of test section	2.0m
Test Duration	2mins
Depth of Water at Commencement of Test	0.0m
Permeability	8.11×10^{-7}m/s

Time Elapsed (mins)	Depth of Water Top (m)	Time Elapsed (mins)	Depth of Water Top (m)
0.00	0.0	10.00	0.03
1.00	0.0	15.00	0.09
2.00	0.0	30.00	0.16
3.00	0.0	60.00	0.28
4.00	0.0		
5.00	0.0		

Falling Head Permeability Test

Location TP4 – Harefield Grove Infiltration Tests in Accordance with BRE 365

Length of test section	2.0m
Width of test section	2.0m
Depth of test section	2.0m
Test Duration	2mins
Depth of Water at Commencement of Test	0.0m
Permeability	3.60×10^{-8}m/s

Time Elapsed (mins)	Depth of Water Top (m)	Time Elapsed (mins)	Depth of Water Top (m)
0.00	0.0	10.00	0.02
1.00	0.0	15.00	0.03
2.00	0.0	30.00	0.06
3.00	0.0	60.00	0.10
4.00	0.0		
5.00	0.0		

Falling Head Permeability Test

Location TP5 – Harefield Grove Infiltration Tests in Accordance with BRE 365

Length of test section	2.0m
Width of test section	2.0m
Depth of test section	2.0m
Test Duration	60mins
Depth of Water at Commencement of Test	0.0m
Permeability	4.87×10^{-7}m/s

Time Elapsed (mins)	Depth of Water Top (m)	Time Elapsed (mins)	Depth of Water Top (m)
0.00	0.0	10.00	0.02
1.00	0.0	15.00	0.02
2.00	0.0	30.00	0.07
3.00	0.0	60.00	0.12
4.00	0.0		
5.00	0.0		

Asset location search

Property Searches

Stomor Ltd
19

HITCHIN
SG4 9SP

Search address supplied

Cube Metals Ltd
Harefield Grove
Rickmansworth Road
Harefield
Uxbridge
UB9 6JY

Your reference st-3118

Our reference ALS/ALS Standard/2021_4476564

Search date 28 July 2021

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

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

0800 009 4540

Asset location search

Property Searches

Search address supplied: Cube Metals Ltd, Harefield Grove, Rickmansworth Road, Harefield, Uxbridge, UB9 6JY

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 searchprovides 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.

The following quartiles have not been printed as they contain no assets:

TQ0591NE
TQ0591SE

Following examination of our statutory maps, Thames Water has been unable to find any record of public sewerage within this area. However, there may be other sewerage pipework within the area that is not owned by the company. You may be able to obtain records of such pipework from the building control department of your local authority, from property deeds or from neighbouring landowners.

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.

Following examination of our statutory maps, Thames Water has been unable to find any plans of water mains within this area. If you require a connection to the public water supply system, please write to:

New Connections / Diversions
Thames Water
Network Services Business Centre
Brentford
Middlesex
TW8 0EE

Tel: 0845 850 2777
Fax: 0207 713 3858
Email: developer.services@thameswater.co.uk

Asset location search

Property Searches

The following quartiles have not been printed as they are out of Thames' water catchment area. For details of the assets requested please contact the water company indicated below:

TQ0591NE Affinity Water
TQ0591SE Affinity Water

Affinity Water Ltd
Tamblin Way
Hatfield
AL10 9EZ

Tel: 0345 3572401

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.

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

Based on the Ordnance Survey Map with the sanction of the Controller of H.M Stationary Office License Number 10019345

ALS/ALS Standard/2021_4476564

0 10 20 40 60 80
Meters

Scale:	1:1792
Width:	500m
Printed By:	G1KANAGA
Print Date:	28/07/2021
Map Centre:	505711,191560
Grid Reference:	TQ0591NE

Comments:

ALS/ALS Standard/2021_4476564

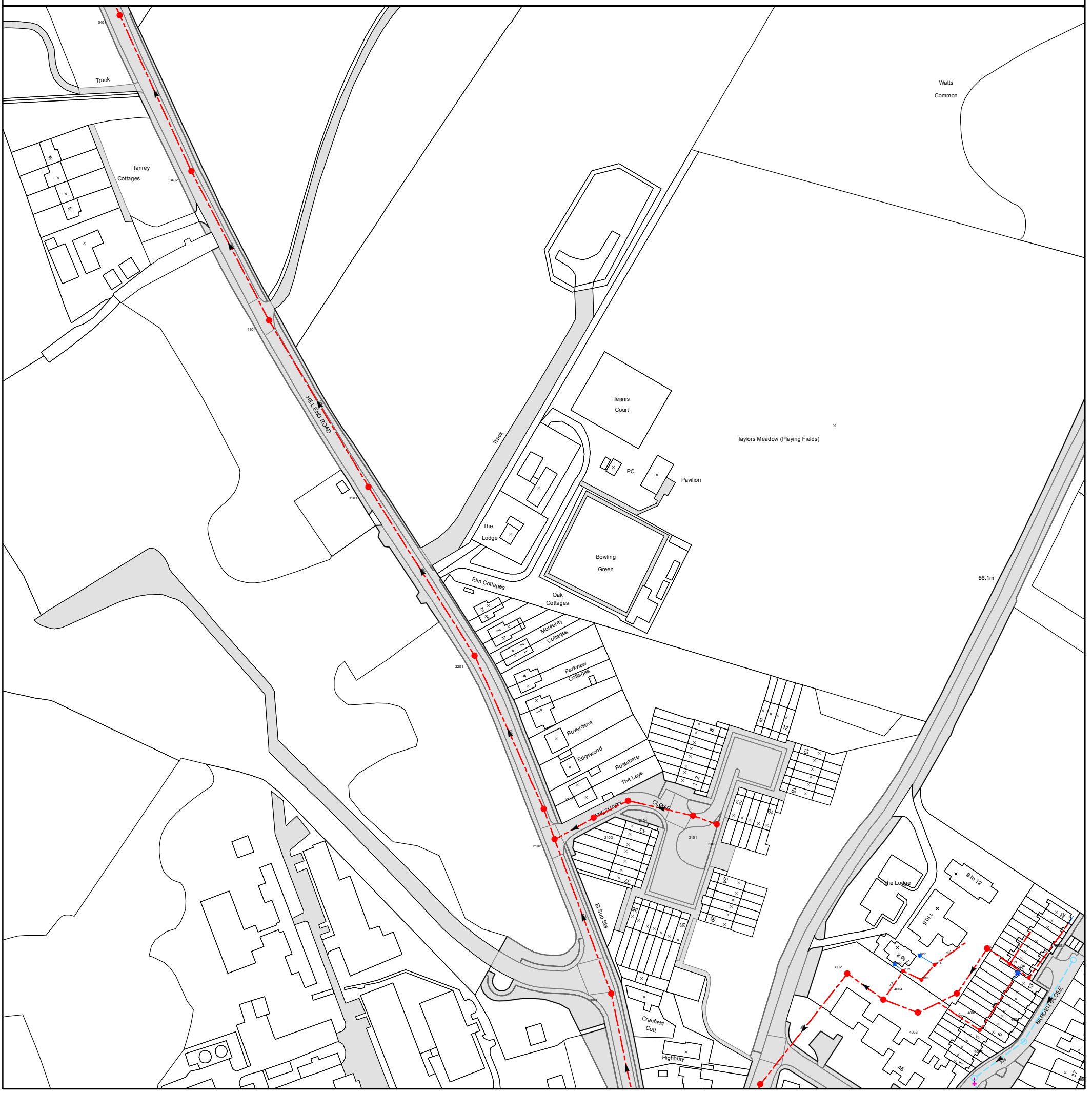
NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL

REFERENCE	COVER LEVEL	INVERT LEVEL

Based on the Ordnance Survey Map with the sanction of the Controller of H.M Stationary Office License Number 10019345

ALS/ALS Standard/2021_4476564



0 10 20 40 60 80 Meters

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 before any works are undertaken. Crown copyright Reserved

Scale:	1:1792
Width:	500m
Printed By:	G1KANAGA
Print Date:	28/07/2021
Map Centre:	505250,191250
Grid Reference:	TQ0591SW

Comments:

ALS/ALS Standard/2021_4476564

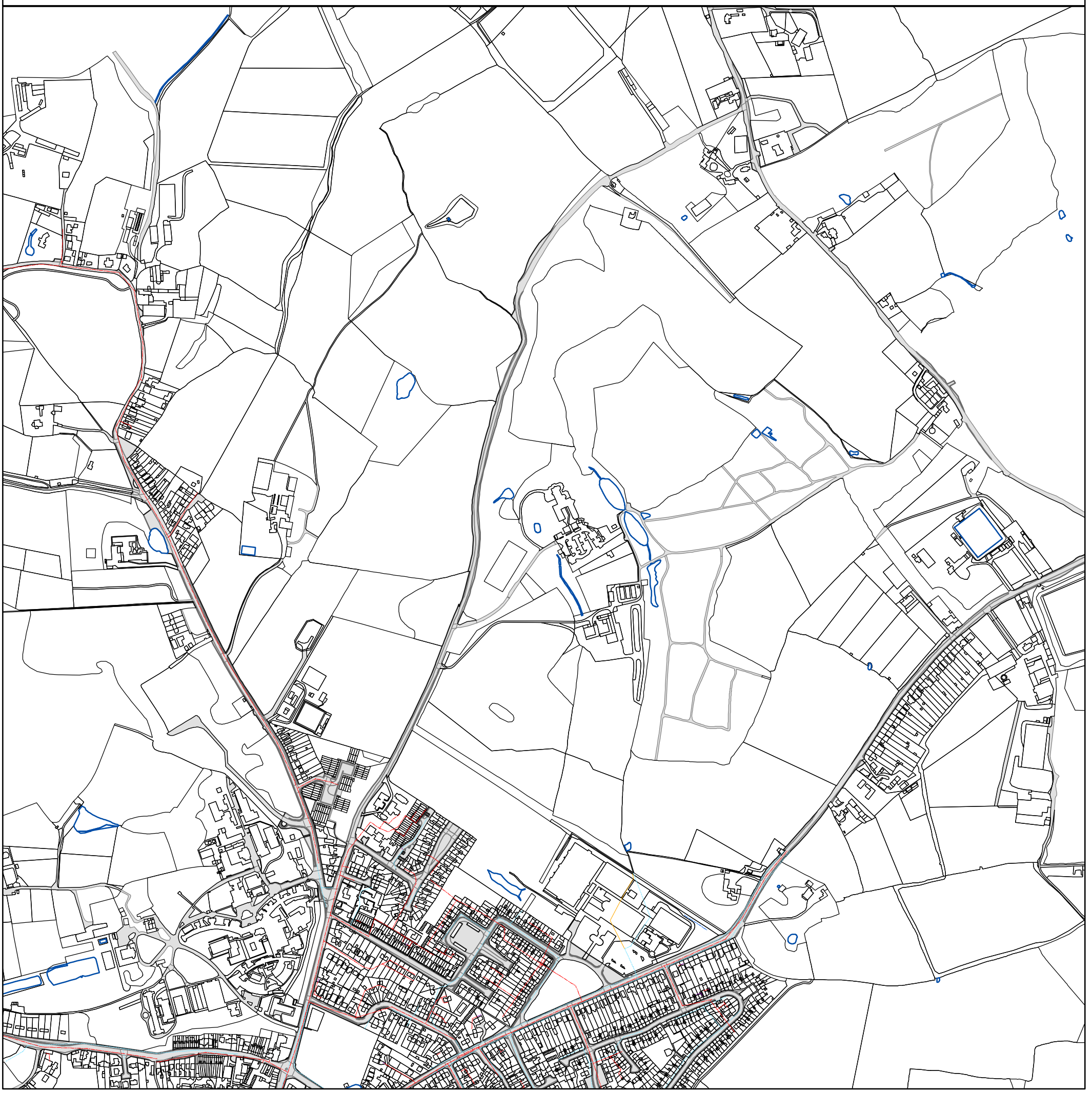
NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
4006		
401I		
2201	87.2	86.31
3001	88.65	87.28
4004		
4002		
3002		
4003		
2102		
3102		
2104		
401A		
401B		
4001		
401F		

REFERENCE	COVER LEVEL	INVERT LEVEL
4007		
4005		
2103		
0401		
1301	86.87	85.47
1201	87.13	86.03
0402	87.58	85.47
2101	87.63	86.56
3101		
2001	88.04	86.74
401J		
401D		
401C		
401E		
401G		

Based on the Ordnance Survey Map with the sanction of the Controller of H.M Stationary Office License Number 10019345

ALS/ALS Standard/2021_4476564



0 45 90 180 270 360
Meters

Scale:	1:7158
Width:	2000m
Printed By:	G1KANAGA
Print Date:	28/07/2021
Map Centre:	505711,191560
Grid Reference:	TQ0591NE

Comments:

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 14 days from due 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. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL`s terms and conditions shall apply.
6. 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'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. 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 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

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 0121 345 1000 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**	**Cheque**
Call **0800 009 4540** quoting your invoice number starting CBA or ADS / OSS	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	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

This is an estimati n of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting c nsents for the drainage of surface water runoff from sites.

Project details

Date	29/05/2025
Calculated by	KD
Reference	ST-3783
Model version	2.0.1

Location

Site name	Harefield Grove
Site location	Harefield

Site easting	505774
Site northing	191682

Site details

Total site area (ha)	7.48 ha

Greenfield runoff

Method

Method	IH124

IH124

	My value		Map value
SAAR (mm)	673 mm		673
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	34.5 l/s		

Growth curve factors

	My value		Map value
Hydrological region	6		6
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

Results

Method	IH124
Flow rate 1 year (l/s)	29.3 l/s
Flow rate 2 year (l/s)	30.4 l/s
Flow rate 10 years (l/s)	55.9 l/s
Flow rate 30 years (l/s)	79.3 l/s
Flow rate 100 years (l/s)	110 l/s
Flow rate 200 years (l/s)	129 l/s

Disclaimer

Greenfield runoff rate estimation tool

www.uksuds.com | Greenfield runoff rate estimation tool (https://www.uksuds.com/)

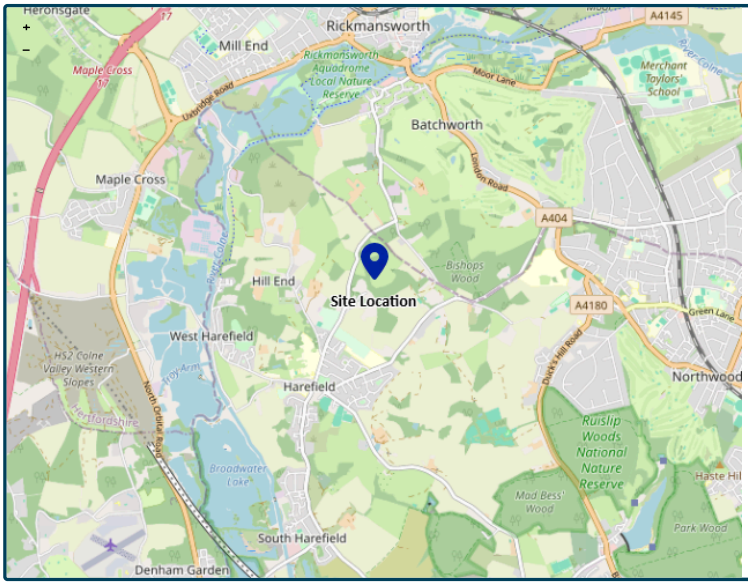
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	30/05/2025
Calculated by	Sam Briscoe
Reference	ST-3783
Model version	2.0.1

Location

Site name	Harefield Grove
Site location	Harefield



Site easting	505866
Site northing	191559

Site details

Total site area (ha)	.382 ha

Greenfield runoff

Method

Method	IH124

IH124

	My value		Map value
SAAR (mm)	673 mm		673
How should SPR be derived?	WRAP soil type		
WRAP soil type	4		4
SPR	0.47		
QBar (IH124) (l/s)	1.8 l/s		

Growth curve factors

	My value		Map value
Hydrological region	6		6
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

Results

Method	IH124
Flow rate 1 year (l/s)	1.5 l/s
Flow rate 2 year (l/s)	1.6 l/s
Flow rate 10 years (l/s)	2.9 l/s
Flow rate 30 years (l/s)	4.1 l/s
Flow rate 100 years (l/s)	5.6 l/s
Flow rate 200 years (l/s)	6.6 l/s

Disclaimer

	ST 3783
Project Name	Harefield Grove,
	Rickmansworth Rd
Date	May-25

Brownfield Runoff Calculation

Based upon the Modified Rational Method

$Q = C \times A_p \times r$

Q		=	Flow Rate in litres/second
C	2.78	=	Dimensionless Runoff Coefficient of 2.78
A_p	0.73	=	Impermeable Drained Area (ha)
r		=	Rainfall Intensity Rate in mm/hour; Storm Duration 6 minutes

r (1 in 1 year)	50	mm/hr
r (1 in 30 year)	126	mm/hr
r (1 in 100 year)	152	mm/hr

Brownfield Runoff Rate:

1 in 1 year	Q=	101.47	l/s
1 in 30 year	Q=	255.7	l/s
1 in 100 year	Q=	308.47	l/s

KEY

- SITE BOUNDARY
- EXISTING WATERCOURSE
- EXTENT OF EXISTING HARDSTANDING TO BE REPLACED WITH PERMEABLE GRAVEL
- PROPOSED POROUS PAVING
- PROPOSED DETENTION BASIN
- OVERLAND FLOW ROUTES
- EXCEEDANCE FLOW ROUTES
- PROPOSED SURFACE WATER PIPE RUN
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED FOUL WATER PIPE RUN
- PROPOSED FOUL WATER MANHOLE
- PROPOSED FOUL WATER PACKAGE TREATMENT PLANT
- EXISTING DRAINAGE RUN TO BE UTILISED
- EXISTING MANHOLE TO BE UTILISED

THIS IS AN INDICATIVE DRAINAGE & LEVELS STRATEGY AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES. DRAINAGE PROPOSALS ARE SUBJECT TO DETAILED DESIGN. THE ACTUAL POSITION AND DETAILS OF ANY EXISTING SERVICES ARE SUBJECT TO A DETAILED SURVEY.

Rev	Description	Date	Drawn	Checked	Apvd.
A	Drainage Strategy update to suit the latest layout.	19.06.25	LGM	SJB	-

Project

Harefield Grove, Harefield

Drawing Description

Indicative Drainage Strategy

Project Number	*Drawing Number*			
ST-3783	500-A			
Scale	*Date*	*Drawn*	*Checked*	*Approved*
1:1000@A3	30.05.25	SJB	SIV	-

Client

Architect

stomor
CIVIL ENGINEERING CONSULTANTS
Suite 2, First Floor, Portmill House,
Portmill Lane, Hitchin, Herts, SG5 1DJ
www.stomor.com | 01462 615433 | info@stomor.com

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for ST-3783.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	29.152	0.810	36.0	0.038	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	29.576	0.493	60.0	0.019	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	8.508	0.063	135.0	0.055	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	17.651	0.859	20.5	0.024	5.00	0.0	0.600	o	150	Pipe/Conduit	
3.000	9.301	0.203	45.8	0.025	5.00	0.0	0.600	o	150	Pipe/Conduit	
2.001	16.838	0.551	30.6	0.009	0.00	0.0	0.600	o	150	Pipe/Conduit	
2.002	19.496	0.617	31.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.003	46.535	2.115	22.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
1.004	11.243	0.659	17.1	0.142	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.005	10.619	0.822	12.9	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
1.006	26.221	0.734	35.7	0.000	0.00	0.0	0.600	o	375	Pipe/Conduit	
4.000	34.218	1.255	27.3	0.009	5.00	0.0	0.600	o	225	Pipe/Conduit	
4.001	32.493	2.649	12.3	0.040	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	0.00	5.29	80.987	0.038	0.0	0.0	0.0	1.68	29.7	0.0
1.001	0.00	5.67	80.173	0.057	0.0	0.0	0.0	1.30	23.0	0.0
1.002	0.00	5.79	79.680	0.112	0.0	0.0	0.0	1.12	44.7	0.0
2.000	0.00	5.13	81.644	0.024	0.0	0.0	0.0	2.23	39.4	0.0
3.000	0.00	5.10	80.988	0.025	0.0	0.0	0.0	1.49	26.3	0.0
2.001	0.00	5.29	80.785	0.058	0.0	0.0	0.0	1.83	32.3	0.0
2.002	0.00	5.42	80.084	0.058	0.0	0.0	0.0	2.34	92.9	0.0
1.003	0.00	6.02	79.250	0.170	0.0	0.0	0.0	3.37	238.0	0.0
1.004	0.00	6.07	77.135	0.312	0.0	0.0	0.0	4.41	486.5	0.0
1.005	0.00	6.10	76.476	0.312	0.0	0.0	0.0	5.06	559.3	0.0
1.006	0.00	6.25	75.654	0.312	0.0	0.0	0.0	3.04	335.8	0.0
4.000	0.00	5.23	78.825	0.009	0.0	0.0	0.0	2.52	100.0	0.0
4.001	0.00	5.35	77.570	0.049	0.0	0.0	0.0	4.51	319.0	0.0

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for ST-3783.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.007	38.298	4.231	9.1	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.007	0.00	6.37	74.421	0.361	0.0	0.0	0.0	5.26	371.5	0.0

Free Flowing Outfall Details for ST-3783.SWS

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.007	S21	72.040	70.190	0.000	0	0

Simulation Criteria for ST-3783.SWS

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Storm Duration (mins)	30
Ratio R	0.430		

Online Controls for ST-3783.SWS

Hydro-Brake® Optimum Manhole: S18, DS/PN: 1.007, Volume (m³): 7.1

Unit Reference	MD-SHE-0052-1500-1500-1500
Design Head (m)	1.500
Design Flow (l/s)	1.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	52
Invert Level (m)	74.421
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	1.5	Kick-Flo®	0.469	0.9
Flush-Flo™	0.233	1.1	Mean Flow over Head Range	-	1.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.0	1.200	1.4	3.000	2.1	7.000	3.0
0.200	1.1	1.400	1.4	3.500	2.2	7.500	3.1
0.300	1.1	1.600	1.5	4.000	2.3	8.000	3.2
0.400	1.0	1.800	1.6	4.500	2.5	8.500	3.3
0.500	0.9	2.000	1.7	5.000	2.6	9.000	3.4
0.600	1.0	2.200	1.8	5.500	2.7	9.500	3.5
0.800	1.1	2.400	1.9	6.000	2.8		
1.000	1.2	2.600	1.9	6.500	2.9		

Storage Structures for ST-3783.SWS

Tank or Pond Manhole: S18, DS/PN: 1.007

Invert Level (m) 74.421

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	130.0	1.500	535.0

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for ST-3783.SWS

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	2013
Site Location	GB 505788 191562 TQ 05788 91562
Data Type	Point
Cv (Summer)	1.000
Cv (Winter)	1.000

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	OFF
DVD Status	ON
Inertia Status	ON

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	100
Climate Change (%)	40

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)
1.000	S8	15 minute 100 year Summer I+40%	82.637	82.281	1.144	0.000	0.96	
1.001	S9	15 minute 100 year Summer I+40%	81.523	81.523	1.200	0.161	1.74	
1.002	S10	15 minute 100 year Summer I+40%	81.596	80.218	0.313	0.000	2.38	
2.000	S2	15 minute 100 year Summer I+40%	83.157	81.811	0.017	0.000	0.57	
3.000	S3	15 minute 100 year Summer I+40%	82.338	81.737	0.599	0.000	0.84	
2.001	S4	15 minute 100 year Summer I+40%	82.135	81.587	0.652	0.000	1.47	
2.002	S6	15 minute 100 year Summer I+40%	81.584	80.200	-0.109	0.000	0.53	
1.003	S11	15 minute 100 year Summer I+40%	81.596	79.414	-0.136	0.000	0.57	
1.004	S14	15 minute 100 year Summer I+40%	78.193	77.400	-0.110	0.000	0.82	
1.005	S16	15 minute 100 year Summer I+40%	77.964	76.720	-0.131	0.000	0.73	
1.006	S17	15 minute 100 year Summer I+40%	76.650	75.934	-0.095	0.000	0.88	
4.000	S22	15 minute 100 year Summer I+40%	80.325	78.869	-0.181	0.000	0.09	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for ST-3783.SWS

PN	US/MH Name	Pipe Flow (l/s)	Status
1.000	S8	27.2	SURCHARGED
1.001	S9	38.2	FLOOD
1.002	S10	84.0	SURCHARGED
2.000	S2	21.0	SURCHARGED
3.000	S3	19.5	SURCHARGED
2.001	S4	44.2	SURCHARGED
2.002	S6	44.2	OK
1.003	S11	127.4	OK
1.004	S14	261.3	OK
1.005	S16	258.9	OK
1.006	S17	257.1	OK
4.000	S22	8.0	OK

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for ST-3783.SWS

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.
4.001	S23	15 minute 100 year Summer I+40%	79.070	77.651	-0.219	0.000	0.16
1.007	S18	960 minute 100 year Winter I+40%	75.921	75.770	1.049	0.000	0.00

PN	US/MH Name	Overflow (l/s)	Pipe Flow (l/s)	Status
4.001	S23		48.0	OK
1.007	S18		1.4	FLOOD RISK

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Fact Sheet:

Maintenance of Drainage Features

The design process should consider the maintenance of the components (access, waste management etc.) including any corrective maintenance to repair defects or improve performance of SuDS. Inlets, outlets, control structures or other below ground features should be as shallow as reasonably possible to allow easy access for maintenance and to reduce safety risks, while ensuring that sufficient depth is maintained for structural stability.

A SuDS Management Plan must be provided prior to the first occupation which will identify the following:

- The function of SuDS;
- How and why it works on the site;
- Impacts on amenity and wildlife, indicating how they can be enhanced;
- Health and safety issues;
- Long-term expectations for the SuDS on site.

Usually, SuDS components are on or near the surface and most can be managed using landscape maintenance techniques. Typical inspection and maintenance requirements for surface SuDS features are identified below:

Activity	Indicative frequency	Typical tasks
Routine/regular maintenance	Monthly (for normal care of SuDS)	• litter picking • grass cutting (cuttings to compost, wildlife piles or removedfrom site) Height and frequency dependent upon amenity of grass area. • inspection of inlets, outlets and control structures.
Occasional maintenance	Annually (dependent on the design)	• silt control around components • vegetation management around components • suction sweeping of permeable paving in autumn after leaffall • silt and debris removal from inlets, outlets, gratings, catchpits, control chambers, soakaways and cellularstorage. • trim wet swale or pond edges in September to October or3-year rotation for wildlife value • wetland vegetation to be cut to 30% height annually and to 100mm on a 3-year rotation • remove overhanging trees or growth within SuDS features
Remedial maintenance	As required (tasks to repair problems due to damage or vandalism)	• inlet/outlet repair • erosion repairs • reinstatement of edgings • reinstatement following pollution • removal of silt build-up.

For below-ground SuDS such as permeable paving, the manufacturer or designer should provide maintenance advice. This should include routine and long-term actions that can be incorporated into the SuDS Management Plan.

Funding for the maintenance of SuDS systems on the site should be resolved at the start of the development process.

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Low traffic roads (e.g. residential roads and general access roads, < 300 traffic movements/day)				
Pollution Hazard Level	Low				
Pollution Hazard Indices					
TSS	0.5				
Metals	0.4				
Hydrocarbons	0.4				
SuDS components proposed					
Component 1	Pervious pavement (where the pavement is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Detention basin	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B	Detention basins should be designed to ensure the effective retention and management of sediment, such that the sediment will not be re-suspended and washed out in subsequent events		
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.95				
Metals	0.85				
Hydrocarbons	>0.95				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.95				
Metals	0.85	**Note: In order to meet both Water Quality criteria set out in the SuDS Manual (Chapter 4), Interception should be delivered for all impermeable areas wherever possible. Interception delivery and treatment may be met by the same components, but Interception requires separate evaluation.**	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England		
Hydrocarbons	>0.95				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

Sewer Flooding
History Enquiry

Property Searches

Stomor Ltd

Search address supplied	Cube Metals Ltd Harefield Grove Rickmansworth Road Harefield Uxbridge UB9 6JY
Your reference	st-3118
Our reference	SFH/SFH Standard/2021_4476565
Received date	**28 July 2021**
Search date	**28 July 2021**

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

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

0800 009 4540

Sewer Flooding
History Enquiry

Property Searches

Search address supplied: Cube Metals Ltd,Harefield Grove,Rickmansworth Road,Harefield,Uxbridge,UB9 6JY

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

(i) any negligent or incorrect entry in the records searched;

(ii) any negligent or incorrect interpretation of the records searched;

(iii) and any negligent or incorrect recording of that interpretation in the search report

(iv) compensation payments

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Sewer Flooding
History Enquiry

Thames Water Property Searches

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk

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