

**Flood Risk Assessment
and SuDS Report
March 2026**

The logo for EAS, consisting of a dark blue square with the letters 'EAS' in white, bold, sans-serif font.

**34 Drayton Gardens,
West Drayton
UB7 7LG**

Sazz Investments Limited

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The content of this report is based on information available as of March 2026, the validity of the statements made may therefore vary over time as planning guidance / policies and the evidence base change.

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1 Introduction

- 1.1 EAS has been commissioned to provide a Flood Risk Assessment and SuDS Strategy report to inform a planning application for two proposed dwellings, in the rear garden of 34a Drayton Gardens, West Drayton, UB7 7LG (hereafter referred to as 'the site').
- 1.2 At present the site comprises of a garden area which features a garage. The site location plan is included in **Appendix A** and the proposed development plans are in **Appendix B**.
- 1.3 The site is shown to be at a Low risk of a fluvial (river) flood event, being located within Flood Zone 1 on the Flood Map for Planning. Flood Zone 1 is defined as having less than a 0.1% annual probability of river flooding.
- 1.4 This FRA includes a SuDS Strategy to demonstrate compliance with national and local policy requirements.
- 1.5 The contents of this FRA are based on the advice set out in the National Planning Policy Framework (NPPF) last updated December 2024, Annex 3: Flood risk vulnerability classification, also from the NPPF and PPG 'Guidance for Flood Risk and Coastal Change', updated in September 2025.
- 1.6 This document includes the following sections:
 - Section 2 – describes any relevant local and national planning policy;
 - Section 3 – provides a site description and background information;
 - Section 4 – reviews any potential sources of flooding;
 - Section 5 – identifies suitable mitigation measures to address the flood risks;
 - Section 6 – details the proposed drainage strategy;
 - Section 7 – details the maintenance for the proposed drainage strategy; and
 - Section 8 – summarises and concludes the report.

2 Policy Context

Introduction

2.1 This section sets out the policy context. This report is based on the advice set out in the National Planning Policy Framework (NPPF) last updated December 2024 and the Planning Practice Guidance (PPG) updated in September 2025.

2.2 Paragraph 181 of the NPPF discusses the use for site-specific flood-risk assessments and what the assessment should demonstrate:

“When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;

b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;

c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;

d) any residual risk can be safely managed; and

e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.”

2.3 Paragraph 181 footnote 63 of the NPPF states:

“A site-specific flood risk assessment should be provided for all developments in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.”

2.4 The flood zones are defined as:

- Flood Zone 1 - less than a 0.1% (1 in 1000) annual probability of river or tidal flooding.
- Flood Zone 2 - between a 0.1% and 1% (1 in 1000 and 1 in 100) annual probability of river flooding; or between a 0.1% and 0.5% (1 in 1000 and 1 in 200) annual probability of flooding from tidal sources.
- Flood Zone 3a- This zone comprises land assessed as having a 1% (1 in 100) or greater annual probability of river flooding; and for tidal flooding at least a 0.5% (1 in 200) annual probability of flooding from tidal sources.

- Flood Zone 3b - This zone comprises land where water has to flow or be stored in times of flood. This classification is usually classified as land which had a 3.33% (1 in 30) annual probability of flooding.
- 2.5 Paragraph 170 discusses the suitability of development location, particularly with regards to future risks induced by climate change:
- “Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere”.*
- 2.6 Paragraph 182 of the NPPF discusses the application of sustainable drainage systems:
- “Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. Sustainable drainage systems provided as part of proposals for major development should:*
- a) take account of advice from the Lead Local Flood Authority;*
 - b) have appropriate proposed minimum operational standards; and*
 - c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development.”*
- 2.7 The site is shown to be at a 1 risk of a fluvial (river) flood event being located within the Flood Zone 1 on the Flood Map for Planning. Flood Zone 1 is defined as having less than a 0.1% annual probability of river flooding.
- 2.8 The EA Flood Map has been enclosed in **Appendix C**.

The London Plan (2021)

- 2.9 The London Plan provides an overall strategic plan for the development of London over the next 20-25 years. It sets out the integrated economic, environmental, transport and social framework and is legally part of each of London’s Local Planning Authorities’ Development Plan. This ensures that all planning decisions within Greater London take into account this plan.
- 2.10 Policy SI 12 Flood Risk Management states:
- “A. Current and expected flood risk from all sources (as defined in paragraph 9.2.12) across London should be managed in a sustainable and cost-effective way in collaboration with the Environment Agency, the Lead Local Flood Authorities, developers and infrastructure providers.*
- B. Development Plans should use the Mayor’s Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Local Flood Risk Management Strategies, where necessary, to identify areas where particular and cumulative flood risk issues exist and*

develop actions and policy approaches aimed at reducing these risks. Boroughs should cooperate and jointly address cross-boundary flood risk issues including with authorities outside London.

C. Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.

D. Developments Plans and development proposals should contribute to the delivery of the measures set out in Thames Estuary 2100 Plan. The Mayor will work with the Environment Agency and relevant local planning authorities, including authorities outside London, to safeguard an appropriate location for a new Thames Barrier.

E. Development proposals for utility services should be designed to remain operational under flood conditions and buildings should be designed for quick recovery following a flood.

F. Development proposals adjacent to flood defences will be required to protect the integrity of flood defences and allow access for future maintenance and upgrading. Unless exceptional circumstances are demonstrated for not doing so, development proposals should be set back from flood defences to allow for any foreseeable future maintenance and upgrades in a sustainable and cost-effective way.

G. Natural flood management methods should be employed in development proposals due to their multiple benefits including increasing flood storage and creating recreational areas and habitat.”

2.11 Policy SI 13: Sustainable Drainage states:

“A. Lead Local Flood Authorities should identify – through their Local Flood Risk Management Strategies and Surface Water Management Plans – areas where there are particular surface water management issues and aim to reduce these risks. Increases in surface water runoff outside these areas also need to be identified and addressed.

B. Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:

- 1) rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)*
- 2) rainwater infiltration to ground at or close to source*
- 3) rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)*
- 4) rainwater discharge direct to a watercourse (unless not appropriate)*
- 5) controlled rainwater discharge to a surface water sewer or drain*
- 6) controlled rainwater discharge to a combined sewer.*

C. Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.

D. Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity, and recreation.”

Hillingdon Local Plan Part 1 (2012)

2.12 The Hillingdon Local Plan Part 1 was adopted in November 2012 and sets out the policies for development in the Borough up until 2026.

2.13 Policy EM1: Climate Change Adaptation and Mitigation includes but is not limited to:

“The Borough will ensure that climate change adaptation is addressed at every stage of the development process by:

10. Locating and designing development to minimise the probability and impacts of flooding.

11. Requiring major development proposals to consider the whole water cycle impact which includes flood risk management, foul and surface water drainage, and water consumption.

13. Promoting the use of living walls and roofs, alongside sustainable forms of drainage to manage surface water run-off and increase the amount of carbon sinks.”

2.14 Policy EM6: Flood Risk Management states:

“The Council will require new development to be directed away from Flood Zones 2 and 3 in accordance with the principles of the National Planning Policy Framework (NPPF).

The subsequent Hillingdon Local Plan: Part 2 -Site Specific Allocations LDD will be subjected to the Sequential Test in accordance with the NPPF. Sites will only be allocated within Flood Zones 2 or 3 where there are overriding issues that outweigh flood risk. In these instances, policy criteria will be set requiring future applicants of these sites to demonstrate that flood risk can be suitably mitigated.

The Council will require all development across the borough to use sustainable urban drainage systems (SUDS) unless demonstrated that it is not viable. The Council will encourage SUDS to be linked to water efficiency methods. The Council may require developer contributions to guarantee the long-term maintenance and performance of SUDS is to an appropriate standard.”

2.15 Implementation of Policy EM6: how we will achieve this:

“The Council will implement Policy EM6 by:

- *Working with the Environment Agency, British Waterways, Natural England and other partners to develop a management plan for the Grand Union Canal and other Blue Ribbon Networks where they are not currently in place.*
- *Developing flood risk policies including SUDS in the Hillingdon Local Plan: Part 2- Development Management Policies LDD.”*

The Hillingdon Local Plan Part 2 (2020)

2.16 The Hillingdon Local Plan Part 2 was adopted by the Council in January 2020 and provides a development strategy for the borough up until 2026.

2.17 Policy DMEI 1: Living Walls and Roofs and on-site Vegetation states:

All development proposals are required to comply with the following: i) All major development should incorporate living roofs and/or walls into the development. Suitable justification should be provided where living walls and roofs cannot be provided; and ii) Major development in Air Quality Management Areas must provide onsite provision of living roofs and/or walls. A suitable offsite contribution may be required where onsite provision is not appropriate.

2.18 Policy DMEI 9 Management of Flood Risk states:

"A) Development proposals in Flood Zones 2 and 3a will be required to demonstrate that there are no suitable sites available in areas of lower flood risk. Where no appropriate sites are available, development should be located on the areas of lowest flood risk within the site. Flood defences should provide protection for the lifetime of the development. Finished floor levels should reflect the Environment Agency's latest guidance on climate change.

B) Development proposals in these areas will be required to submit an appropriate level Flood Risk Assessment (FRA) to demonstrate that the development is resilient to all sources of flooding.

C) Development in Flood Zone 3b will be refused in principle unless identified as an appropriate development in Flood Risk Planning Policy Guidance. Development for appropriate uses in Flood Zone 3b will only be approved if accompanied by an appropriate FRA that demonstrates the development will be resistant and resilient to flooding and suitable warning and evacuation methods are in place.

D) Developments may be required to make contributions (through legal agreements) to previously identified flood improvement works that will benefit the development site.

E) Proposals that fail to make appropriate provision for flood risk mitigation, or which would increase the risk or consequences of flooding, will be refused."

2.19 Policy DMEI 10 Water Management, Efficiency and Quality' states:

"A) Applications for all new build developments (not conversions, change of use, or refurbishment) are required to include a drainage assessment demonstrating that appropriate sustainable drainage systems (SuDS) have been incorporated in accordance with the London Plan Hierarchy (Policy 5.13: Sustainable drainage).

B) All major new build developments, as well as minor developments in Critical Drainage Areas or an area identified at risk from surface water flooding must be designed to reduce surface water run-off rates to no higher than the pre-development greenfield run-off rate in a 1:100 year storm scenario, plus an appropriate allowance for climate change for the worst storm duration. The assessment is required regardless of the changes in impermeable areas and the fact that a site has an existing high run-off rate will not constitute justification.

C) Rain Gardens and non householder development should be designed to reduce surface water run-off rates to Greenfield run-off rates.

D) Schemes for the use of SuDS must be accompanied by adequate arrangements for the management and maintenance of the measures used, with appropriate contributions made to the Council where necessary.

E) Proposals that would fail to make adequate provision for the control and reduction of surface water run-off rates will be refused.

F) Developments should be drained by a SuDS system and must include appropriate methods to avoid pollution of the water environment. Preference should be given to utilising the drainage options in the SuDS hierarchy which remove the key pollutants that hinder improving water quality in Hillingdon. Major development should adopt a 'treatment train' approach where water flows through different SuDS to ensure resilience in the system.

Water Efficiency

G) All new development proposals (including refurbishments and conversions) will be required to include water efficiency measures, including the collection and reuse of rainwater and grey water.

H) All new residential development should demonstrate water usage rates of no more than 105 litres/person/day.

I) It is expected that major development proposals will provide an integrated approach to surface water run-off attenuation, water collection, recycling, and reuse.

Water and Wastewater Infrastructure

J) All new development proposals will be required to demonstrate that there is sufficient capacity in the water and wastewater infrastructure network to support the proposed development. Where there is a capacity constraint the local planning authority will require the developer to provide a detailed water and/or drainage strategy to inform what infrastructure is required, where when and how it will be delivered."

West London Strategic Flood Risk Assessment (SFRA) 2018

2.20 The West London SFRA was published in 2018 with the overarching aim "to provide the evidence base for ensuring development is steered away from areas identified most at risk from various flood sources, reducing the risk of flooding to its residents and buildings."

2.21 The first paragraph of 4.2.3 relating to Site-Specific Flood Risk Assessments (FRA) states:

"Site-specific FRAs should be proportionate to the degree of flood risk, making the best use of available information. They should also be appropriate to the scale, nature and location of the development. For example, developments such as single house extensions would generally require a less detailed assessment as they tend not to significantly increase the number of people present in an area at risk of flooding. Conversely, new developments comprising of multiple houses in a similar location would generally require FRAs with greater detail."

2.22 The West London SFRA provides an interactive map for site-specific assessments of flood risk, these are detailed below for the site:

- The site is confirmed to be in Flood Zone 1.
- In terms of surface water, the site does not experience flooding in a 3.3% or 1% Annual exceedance probability (AEP) storm events, with extents only found beyond the site boundaries. However, this may affect access and egress from the site.
- Surface water flooding is projected to occur in the 0.1% AEP event as shown in the extract of the West London Surface Water mapping below.
- The site is also located outside the outlines of previous historic flood events (i.e., 2017)
- The site is not located in any Flood Warning or Flood Alert Areas.
- The site is positioned in a 1km² quartile that is defined as having under a $\geq 25\%$ <50% susceptibility to groundwater flooding.
- The site is shown to have increased potential for elevated groundwater levels. Being located in an area of Permeable Superficial Deposits.
- While there are artificial flood extents that reach close to the site's south boundary, the site is not considered at risk of flooding from artificial sources.
- In reference to source protection zones, the site is not located within these areas.
- The site is not within an area with a history of Thames Water sewer flooding (2017 data).

2.23 This site-specific FRA has been produced to provide an assessment which is proportionate to the degree of the flood risk.

3 Existing Site Assessment

Site Description

- 3.1 The site is located at 34a Drayton Gardens, West Drayton, UB7 7LG. The proposals seek to retain the existing dwelling, with the addition of two new proposed dwellings in the current garden area, accessed by an extended driveway and with the addition of two parking spaces.

Local Watercourses

- 3.2 There are no watercourses shown to be present within the vicinity of the site.
- 3.3 The closest watercourse to the site is shown to be Fray's River, this passes 270m away from the site, which is an EA Main River.

Site Levels

- 3.4 Lidar data has been obtained from the National Lidar Programme, synthesized in QGIS to provide contour levels and is included within **Appendix D**.
- 3.5 The site is shown to fall in an east to west direction. With the highest point within the site being shown to be on the western boundary with a level being shown at 27.6mAOD. The lowest point of the site is shown to be on the eastern boundary of the site, which is shown as being 26.1mAOD.

Geology

- 3.6 The Bedrock geology of the site is shown to be London Clay Formation – Clay, Silt and Sand.
- 3.7 The Superficial deposits of the site are shown to be Langley Silt Member – Clay and Silt.
- 3.8 The closest Borehole to the site is shown to be TQ07NE420, which is around 200m away from the site. This Borehole indicates a Clay geology.
- 3.9 Data has been obtained from the DEFRA Magic Map and is summarised below. The site is shown to be located within an area of medium-low groundwater vulnerability, within an area with an unproductive aquifer bedrock, and within an area of principal aquifer designation for superficial drift. The site is not shown to be located within any source protection areas.

Sewer Records

- 3.10 Drayton Gardens is shown to be served by both foul and surface water sewer systems, which are both shown to start from the cul-de-sac, and flow away from the site. The closest foul manhole to the site is shown to be MH0703, (CL 27.47mAOD, IL 25.99mAOD). The closest surface water manhole to the site is shown to be MH0704, (CL 27.46mAOD, IL 25.71mAOD).
- 3.11 It is assumed that the existing property is served by an existing connection to both the surface water and foul sewer systems.

4 Potential Source of Flooding

Fluvial

- 4.1 A copy of the Environment Agency's Flood Map for Planning is enclosed in **Appendix C**.
- 4.2 The site is located entirely in Flood Zone 1. Land in Flood Zone 1 is considered to have an annual risk of flooding from a fluvial source of less than 0.1%.
- 4.3 The risk of flooding from fluvial sources is considered Low.

Surface Water

- 4.4 Surface water flooding refers to flooding caused when the intensity of rainfall, particularly in urban areas, can create runoff which temporarily overwhelms the capacity of the local drainage systems or does not infiltrate into the ground. The water ponds on the ground and flows towards low-lying land. This source of flood risk is also known as 'pluvial'.
- 4.5 The Long-Term Flood Map and the risk of flooding from surface water (RoFSW) data was updated in January 2025.
- 4.6 The RoFSW products are an assessment of where surface water flooding may occur when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. It includes information about flooding extents and depths. Risk is displayed as one of three likelihood categories:
 - High - greater than or equal to 1 in 30 (3.3%) chance of flooding in any year
 - Medium – Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance of flooding in any given year
 - Low – Less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance of flooding in any given year
- 4.7 For the purpose of this flood risk assessment, the RoFSW data set has been used.
- 4.8 **Appendix F** shows the mapped RoFSW layers, overlaid with the Site.
- 4.9 The dwellings are shown to be beyond the extents of surface water flooding. However, an area of pooled surface water flooding is identified in the turning area at the end of Drayton Gardens Road at the site entrance.
- 4.10 This small area of pooled water has between a low to high risk of occurring in the turning area at up to 300mm in depth; but is limited to up to 200mm in depth around the northern footway. Due to a steep gradient across the footway, the flood depths are likely to be negligible at the rear of the footway, providing for a safe evacuation route.

Artificial

- 4.11 The EA long term risk maps also display the risk from reservoirs. The site is shown not to be in a reservoir flood risk area.

Groundwater

- 4.12 The site is positioned in a 1km² quartile that is defined as having under a $\geq 25\%$ $< 50\%$ susceptibility to groundwater flooding.
- 4.13 The site is shown to be located outside of a groundwater flood alert area. Meaning that the EA are not monitoring groundwater conditions in this location.
- 4.14 The site is anticipated to be at a low risk of groundwater flooding.

Sewer

- 4.15 As of data obtained up to 2017, the site is not shown to have recorded any sewer flooding incidents.
- 4.16 Due to both sewers being shown to originate from the top of Drayton Gardens Road, the risk of them being overwhelmed is lower, therefore the risk of sewers is anticipated to be Low.

5 Flood Mitigation Measures

- 5.1 An area of pooled surface water flooding is identified in the turning area at the end of Drayton Gardens Road at the site entrance. This small area of pooled water is up to 300mm in depth, but only up to 200mm in depth around the northern footway. Due to a steep gradient across the footway, the flood depths are likely to be negligible at the rear of the footway.
- 5.2 Therefore, if surface water is noted to pool along Drayton Gardens Road, evacuation is anticipated to be possible for residents, and emergency vehicles will be able to access the building. In the unlikely event safe access is impeded the residents will remain safe within their properties.
- 5.3 Figure 5.1 below illustrates the proposed evacuation route.

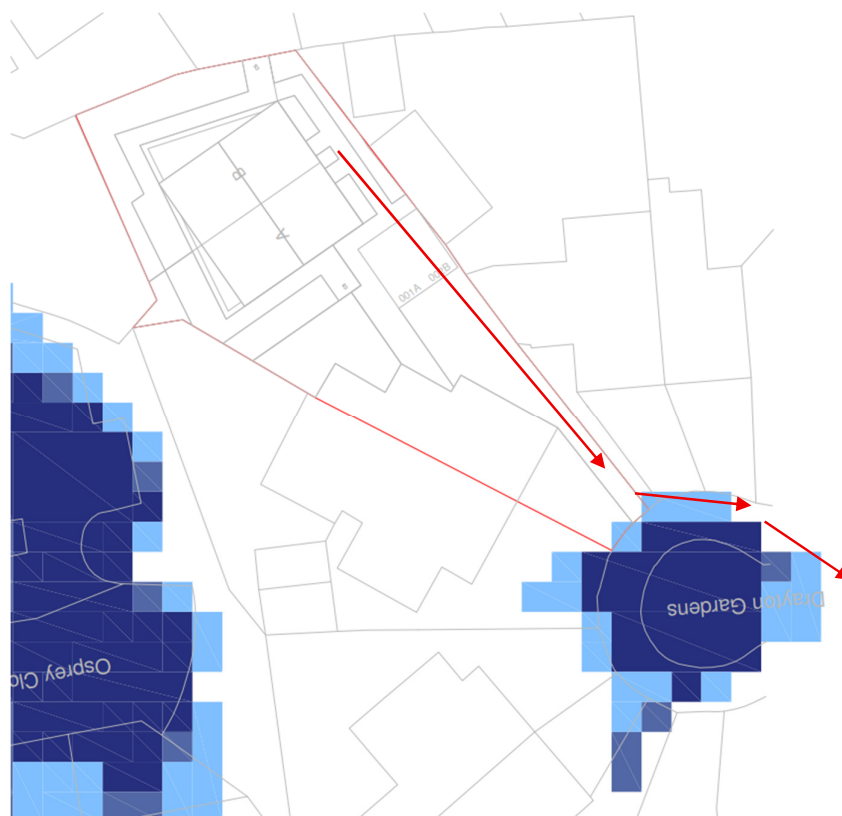


Figure 5.1 Proposed Evacuation Route

- 5.4 Warnings cannot be given for surface water flooding however surface water flooding is likely to correspond with heavy rainfall. Residents are advised to sign up to the MET Office weather warning service which can be found here: <https://www.metoffice.gov.uk/weather/warnings-and-advice/uk-warnings>.

6 Proposed SuDS Strategy

Relevant SuDS Policy

- 6.1 SuDS mimic natural drainage patterns and provide a method of surface water drainage which can decrease the quantity of water discharged and hence reduce the risk of flooding. SuDS design should meet the “four pillars” of SuDS which are: Water Quantity, Water Quality, Amenity and Biodiversity, wherever possible.
- 6.2 In decreasing order of preference, the preferred means of disposal of surface water runoff is:
- Discharge to ground.
 - Discharge to a surface water body.
 - Discharge to a surface water sewer.
 - Discharge to a combined sewer.

Site-Specific SuDS

- 6.3 The various SuDS methods need to be considered in relation to site-specific constraints. Several SuDS options are available to reduce or temporarily hold back the discharge of surface water runoff. Table 6.1 outlines the constraints and opportunities to each of the SuDS devices in accordance with the hierarchical approach outlined in The SuDS Manual CIRIA C753. It also indicates what could and could not be incorporated within the development, based upon site-specific criteria.

| Device | Description | Constraints / Comments | Appropriate |
|---|---|---|-------------|
| Living roofs (source control) | Provide soft landscaping at roof level which reduces surface water runoff. | Not suitable due to pitch of residential roof | No |
| Infiltration devices & Soakaways (source control) | Store runoff and allow water to percolate into the ground via natural infiltration. | No suitable location on site for soakaways. Geology not considered suitable for shallow infiltration. | No |
| Pervious surfaces (source control) | Storm water is allowed to infiltrate through the surface into a storage layer, from which it can either infiltrate and/or slowly release to sewers. | Lined permeable paving is proposed | Yes |
| Rainwater harvesting (source control) | Reduces the annual average rate of runoff from the Site by reusing water for non-potable uses e.g. toilet flushing, recycling processes. | Not proposed at this stage. Some water saving features could be incorporated into the design by an M & E Engineer | Possibly |

| | | | |
|--|---|--|-----|
| Swales (permeable conveyance) | Broad shallow channels that convey / store runoff, and allow infiltration (ground conditions permitting). | No suitable location onsite | No |
| Filter drains & perforated pipes (permeable conveyance) | Trenches filled with granular materials (to take flows from adjacent impermeable areas) that convey runoff while allowing infiltration. | Infiltration is not proposed | No |
| Filter Strips (permeable conveyance) | Wide gently sloping areas of grass or dense vegetation that remove pollutants from run-off from adjacent areas. | Infiltration is not proposed | No |
| Infiltration basins (end of pipe treatment) | Depressions in the surface designed to store runoff and allow infiltration. | Infiltration is not being proposed | No |
| Wet ponds & constructed wetlands (end of pipe treatment) | Provide water quality treatment & temporary storage above the permanent water level. | No suitable location within development boundary for ponds and wetlands. | No |
| Attenuation Underground (end of pipe treatment) | Oversized pipes or geo-cellular tanks designed to store water below ground level. | Not required as lined permeable paving provides required attenuation | No |
| Raingardens | Rain gardens are relatively small depressions in the ground that can act as infiltration points for roof water and other 'clean' surface water. | Raingarden has been proposed | Yes |

Table 6.1 Site Specific SuDS

Consideration of SuDS Hierarchy

- 6.4 The SuDS Hierarchy has been methodically assessed, to determine a suitable outfall point for surface water.
- 6.5 The site is shown to be underlain with London Clay, this is unsuitable for an infiltration strategy.
- 6.6 There are no watercourses located within the vicinity of the site, as such discharge to a surface waterbody will not be possible.
- 6.7 There is a surface water sewer located on Drayton Gardens Road, it is proposed that a connection will be achieved here, connecting into SWMH0704.

Surface Water Drainage Design Parameters

- The local 2070s 'Upper End' Climate Change allowance is 40% and has been applied to the hydraulic drainage network design.
- The Hydraulic Model has been for a 1:2yr Storm Event, 1:30yr Storm Event, 1:30yr + 40% Climate Change Event, 1:100yr Storm Event and 1:100yr + 40% Climate Change Storm Event.

- FEH22 rainfall data has been used.
- The CV Value for Winter and Summer storms has been set to 1.0.
- A 5min time of entry has been used.
- The attenuation devices to have a half-drain time within 24hrs (1440mins).
- The drainage calculations include a surcharged outfall sewer, with the surcharge modelled to the top of the Thames Water surface water sewer.

Pre-Development Runoff Rates and Discharge Volumes

- 6.8 The site currently comprises roof and hardstanding areas, resulting in 0.052ha of impermeable area. Surface water runoff from the site outfalls unrestricted and untreated to the Thames Water surface water sewer, located on Drayton Gardens Road. No attenuation or treatment features serve the existing site.
- 6.9 In order to calculate the existing runoff rates, a 'dummy' existing drainage network, based on information from the topographical survey, has been modelled for a range of storm events using Causeway Flow. The runoff rates results are summarised below and are contained in **Appendix G** and include the brownfield runoff volume for a 1:100yr 360min Storm Event.
- 1 in 2 year – 8.6 l/s
 - 1 in 30 year – 26.0 l/s
 - 1 in 30 year + Climate Change – 36.5 l/s
 - 1 in 100 year – 33.7 l/s
 - 1 in 100 year + Climate Change – 47.1 l/s
 - Discharge Volume for 1:100yr 360min Storm: 38.5m³
- 6.10 Greenfield runoff rates were estimated using the FEH method on the Causeway Flow software. The results of which are included in **Appendix H**. The proposed impermeable area of the site is 0.041ha, the following greenfield runoff rates for a range of storm events have been scaled accordingly:
- 1 in 1 year – 2.0 l/s/ha – 0.08 l/s
 - 1 in 2 year – 2.5 l/s/ha – 0.10 l/s
 - 1 in 30 year – 7.6 l/s/ha – 0.31 l/s
 - 1 in 100 year – 10.0 l/s/ha – 0.41 l/s
 - Discharge Volume for 1:100yr 360min Storm: 4.88m³
 - Post Development Runoff Rate

6.11 Proposed discharge rates have been designed to be as close as possible to greenfield runoff rates. The runoff rates for the proposed SuDS Strategy, are listed below and are included within **Appendix J**.

- 1 in 2 year – maximum 0.2 l/s
- 1 in 30 year – maximum 0.4 l/s
- 1 in 30 year + 40% Climate Change – 0.4 l/s
- 1 in 100 year – maximum 0.4 l/s
- 1 in 100 year + 40% Climate Change – maximum 0.5 l/s
- Discharge Volume for 1:100yr 360mins: 16.5m³

Proposed SuDS Strategy

6.12 As outlined in Table 5.1 above, a number of SuDS Features shall be utilised to form the Surface Water Drainage Strategy in order to meet the 4 Pillars of SuDS.

- Water Quantity – Raingarden Planters and Permeable Paving
- Water Quality – Raingarden Planters and Permeable Paving
- Biodiversity – Raingarden Planters
- Amenity – Raingarden Planters

6.13 The proposed SuDS Layout is included in **Appendix I** and Causeway Flow Hydraulic Model Outputs are contained in **Appendix J**.

Permeable Paving

6.14 The permeable paving is proposed to cover all the new proposed areas of hardstanding. It will feature a minimum sub-base of 600mm, with a type 3 sub-base with 30% void ratio. The permeable paving area is sized at 100.25m², providing a maximum attenuation volume of 18.05m³. The permeable paving will outfall to the Thames Water surface water sewer (to be outlined at a later stage). The outfall will be controlled via an 18mm orifice plate, providing an outfall rate of 0.5 l/s for all storms up to and including the 1 in 100 + 40% CC event.

Raingarden Planters

6.15 Two raingarden planters have been proposed, one to serve each of the proposed dwellings. Providing attention for the roof areas, before being controlled via a 20mm orifice plate, and connecting into the permeable paving sub-base via diffuser units. The raingarden planters have been sized at 1.0m x 0.65m x 0.9m, providing an attenuation volume of 0.59m³.

6.16 The raingarden planters provide water quality, biodiversity and amenity benefits.

Long Term Storage

- 6.17 The pre-development brownfield 1 in 100yr 6hr discharge volume has been compared against the post development 1 in 100yr 6hr discharge volume. The post development discharge volume of 16.5m³ is a reduction of 22m³ compared to the predevelopment discharge volume of 38.5m³.
- 6.18 The National SuDS Standards state that if the post developments discharge volume for the 1 in 100yr 6hr storm is greater than the greenfield volume then the outfall should be restricted to the 1 in 2yr or 3 l/s/ha whichever is greatest.
- 6.19 The greenfield runoff rate for a 1 in 2yr event for the proposed impermeable area is 0.1l/s. Scaling the 3 l/s/ha to the proposed impermeable area gives a rate of 0.12l/s. Both outfall rates are not viable as the device required to restrict the outfall to such a low rate would have a high risk of blockages and potential for maintenance issues. Restricting to such a low rate would also require the use of an unsustainable amount of material in order to provide the required attenuation volume. Due to the site's size constraints providing further attenuation whilst achieving a gravity outfall is not achievable.
- 6.20 Given the above, an 18mm orifice plate the outfall is proposed to restrict to a maximum rate of 0.5 l/s for all storms up to and including a 1 in 100 year +40% CC. This is a reduction on all storm events including a reduction of 94.19% when compared to the 1 in 2yr rate of 8.6 l/s.

Exceedance Event

- 6.21 The proposed surface water drainage strategy is designed to accommodate a 1:100yr + 40% Climate Change Storm Event. The maximum water level in the proposed permeable paving in this event will have a 561mm depth. The permeable paving will provide an additional 39mm depth, providing an additional attenuation volume. In the unlikely event that an exceedance event requiring more than the additional storage volume occurs, any flood waters would flow in an easterly direction towards the away from the existing and proposed building. An Exceedance Route Plan is included in **Appendix I**.

Water Quality

- 6.22 The proposed drainage strategies are to meet the water quality requirements set out by Table 26.2 of the CIRIA SuDS Manual C753 which sets out the specific pollution hazard indices for residential roofs and low traffic roads in the table below:

| Land Use | Hazard Level | Pollution Hazard Indices | | |
|---|--------------|--------------------------|------------|--------------|
| | | Suspended Solids | Metals | Hydrocarbons |
| Residential roofs | Very low | 0.2 | 0.2 | 0.05 |
| Individual property driveways and low traffic roads and non residential parking with infrequent use such as schools and offices (i.e <300 traffic movements/day). | Low | 0.5 | 0.4 | 0.4 |
| Pollution Mitigation Required | | 0.5 | 0.4 | 0.4 |

Table 6.2. Land Use Pollution Hazard Ratings. Extracted from the CIRIA SuDS Manual C753 Simple Index Approach Tool.

6.23 In line with table 26.3 of the CIRIA SuDS Manual C753, the pollution mitigation indices are calculated as follows:

| SuDS Component | Pollution Hazard Indices | | |
|--------------------------------|--------------------------|--------|--------------|
| | Suspended Solids | Metals | Hydrocarbons |
| Bioretention System/Raingarden | 0.8 | 0.8 | 0.8 |
| Permeable Pavement | 0.7 | 0.6 | 0.7 |

Table 6.3. Pollution Mitigation Provided. Extracted from the CIRIA SuDS Manual C753 Simple Index Approach Tool.

6.24 Table 6.3 above illustrates the pollution mitigation indices can be achieved with either the permeable paving or raingardens; as such any combination of the SuDS features will exceed the mitigation requirements for the likely indices above.

7 Maintenance of SuDS Strategy

- 7.1 The maintenance of the SuDS features will remain the responsibility of the site owner or an appointed maintenance company. The site owner/appointed management company will be responsible for maintaining the permeable paving and raingarden planters.
- 7.2 Regular inspections and maintenance should be carried out for each of these elements, particularly after periods of heavy rainfall. Maintenance tasks and frequencies for the permeable paving and raingarden planters are detailed in the CIRIA SUDS Manual (C753) and have been summarised in the tables below:

Maintenance Schedule for Raingarden Planters and Bioretention Systems

| Maintenance Schedule | Required Action | Frequency |
|------------------------|---|--|
| Regular Inspections | Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary | Quarterly |
| | Check operation of underdrains by inspection of flows after rain | Annually |
| | Assess plants for disease infection, poor growth, invasive species etc and replace as necessary | Annually |
| | Inspect inlets and outlets for blockage | Quarterly |
| Regular Maintenance | Remove litter and surface debris and weeds | Quarterly |
| | Replace any plants, to maintain planting density | As required |
| | Remove sediment, litter and debris build up from around inlets or from forebays | Quarterly to biannually |
| Occasional Maintenance | Infill and holes or scour in the filter medium, improve erosion protection if required | As required |
| | Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch | As required |
| Remedial Actions | Remove and replace filter medium and vegetation above | As required but likely to be >20 years |

Table 7.1 Maintenance tasks and frequencies for Raingardens (Source: CIRIA C753, The SUDS Manual)

| Maintenance Schedule | Required Action | Frequency |
|----------------------|-------------------------|---|
| Regular maintenance | Brushing and vacuuming. | Three times per year at end of winter, mid- summer, after autumn leaf fall, or as required based on site specific observations of clogging or manufacturer's recommendations. |

| | | |
|------------------------|--|---|
| Occasional maintenance | Stabilize and mow contributing and adjacent areas. | As required. |
| | Removal of weeds. | As required. |
| Remedial actions | Remediate any landscaping which, through vegetation maintenance of soil slip, has been raised to within 50mm of the level of the paving. | As required. |
| | Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance of a hazard to the user. | As required. |
| | Rehabilitation of surface and upper sub-surface. | As required (if infiltration performance is reduced as a result of significant clogging.) |
| Monitoring | Initial inspection | Monthly for 3 months after installation. 3 monthly, 48 hours after large storms. |
| | Inspect for evidence of poor operation and/or weed growth. If required, take remedial action | Annually. |
| | Inspect silt accumulation rates and establish appropriate brushing frequencies. | Annually. |
| | Monitor inspection chambers. | Annually |

Table 7.2 Maintenance tasks and frequencies for Permeable Pavings (Source: CIRIA C753, The SUDS Manual)

- 7.3 It is recommended that during the first 12 months of operation all SuDS and drainage features are visually inspected on a monthly basis to determine any seasonal patterns this includes all SuDS features, inspection chambers, inlets and outlets. This will determine whether or not the recommended service intervals set out by CIRIA in the figures above will be sufficient for maintenance beyond the first year.
- 7.4 After the first 12 months, the maintenance schedule should be designed to at least meet the requirements set out by CIRIA based on the outcome of the monitoring.
- 7.5 Should the site experience an exceedance event, the appointed responsible party should ensure that all drainage and SuDS components are in a fully functional working condition.
- 7.6 Should the maintenance schedule not be followed or there is a failure to respond to a blockage or a pollution event, the drainage system and SuDS features could fail. This could increase the risk of flooding within the site and elsewhere and could cause a pollution incident where pollution enters watercourses or groundwater.

Manholes, Sewers and Inspection Chambers

- 7.7 All inspection chambers and manholes, including the orifice plate chambers, should be inspected on a bi-annual basis with further visual checks carried out throughout the year, such as in November after the heaviest leaf-fall has occurred.
- 7.8 Should a blockage occur at any time, it is advised to seek professional help to jet the drainage system to clean and clear the system.

Gutters and Downpipes

- 7.9 It is good practice to ensure that these are occasionally inspected to ensure they are in good order and free of leaves & debris. Once every 6 months should be sufficient.

8 Conclusions

- 8.1 EAS has been commissioned to provide a Flood Risk Assessment and SuDS Strategy report to inform a planning application for two proposed dwellings, in the rear garden of 34a Drayton Gardens, West Drayton, UB7 7LG.

Flood Risk Summary

- 8.2 The site is shown to be at a Low risk of a fluvial (river) flood event, being located within Flood Zone 1 on the Flood Map for Planning. Flood Zone 1 is defined as having less than a 0.1% annual probability of river flooding.
- 8.3 The dwellings are shown to be beyond the extents of surface water flooding. However, an area of pooled surface water flooding is identified in the turning area at the end of Drayton Gardens Road at the site entrance.
- 8.4 The site is shown to be at a low risk from all other forms of flooding.

Mitigation measures

- 8.5 An area of pooled surface water flooding is identified in the turning area at the end of Drayton Gardens Road at the site entrance. This small area of pooled water is up to 300mm in depth, but only up to 200mm in depth around the northern footway. Due to a steep gradient across the footway, the flood depths are likely to be negligible at the rear of the footway.
- 8.6 Therefore, if surface water is noted to pool along Drayton Gardens Road, evacuation is anticipated to be possible for residents, and emergency vehicles will be able to access the building. In the unlikely event safe access is impeded the residents will remain safe within their properties.
- 8.7 Residents should sign up to the Met Office flood warnings; surface water cannot be given a specific warning but coincides with heavy rainfall.

SuDS Summary

- 8.8 The SuDS hierarchy has been methodically assessed, with the chosen outfall point being the surface water sewer on Drayton Gardens Road.
- 8.9 The outfall location is the Thames Water surface water sewer MH0704, an approximate location has been determined for the SuDS strategy. With an exact location being determined at a later stage with a CCTV survey.
- 8.10 An attenuation-based strategy has been adopted making use of raingarden planters and an area of permeable paving. Being restricted via an orifice plate, before being allowed to outfall to an existing connection.
- 8.11 The permeable paving has been sized at 100.25m², providing an attenuation volume of 18.045m³. Both of the raingarden planters have been sized at 1.0m x 0.65m x 0.9m, providing an attenuation volume of 0.59m³.

8.12 The outfall is restricted for all storms via an 18mm orifice plate providing an outfall rate of 0.5l/s. With the outfall rates for specific storms outlined below.

- 1 in 2 year – maximum 0.2 l/s
- 1 in 30 year – maximum 0.4 l/s
- 1 in 30 year + 40% Climate Change – 0.4 l/s
- 1 in 100 year – maximum 0.4 l/s
- 1 in 100 year + 40% Climate Change – maximum 0.5 l/s
- Discharge Volume for 1:100yr 360mins: 16.5m³

Conclusion

8.13 In conclusion, the development is policy compliant in terms of flood risk and SuDS.

Appendices

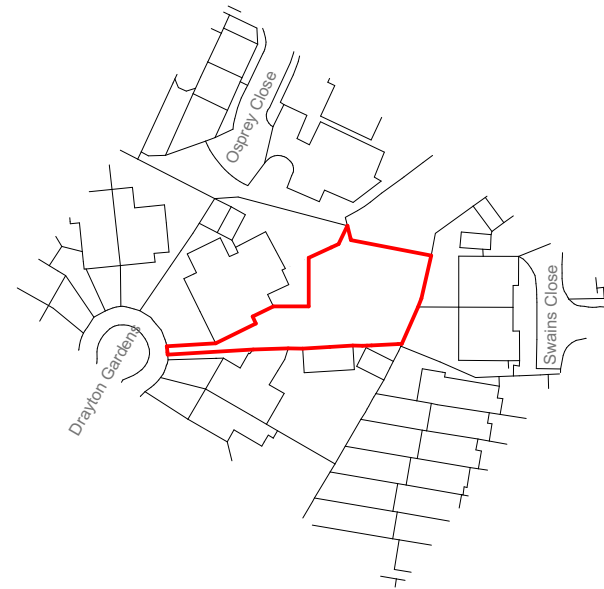
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Appendix: A – Site Location Plan

The Contractor is to check and verify all building and site dimensions, levels, sewer invert levels and positions of drains before works start. Any discrepancy to be notified to MDG Architects, DO NOT SCALE FROM THIS DRAWING. This drawing and the building works depicted are the copyright of MDG Ltd and may not be reproduced or amended except by written permission. No liability will be accepted for amendments made by other persons.

| Rev. | Date | DRN/CKD | Revision |
|------|----------|---------|--------------------------------|
| A | 09/01/26 | - | Updated to consultant comments |



Site Location Plan
Scale 1:1250@A4

Application Site Boundary —

PLEASE NOTE:
All drawing information provided herein is indicative only and subject to ongoing design development and detailed design input. No element of the drawing(s) should be relied upon for construction, costing, or statutory approvals without further verification.

The position and extent of all utilities (above and below ground), easements, topographical features, and trees are to be confirmed through additional surveys. The site boundary is to be confirmed based on the Land Registry title plan and further on-site investigations. The layout has been produced for feasibility and discussion purposes only, and is based on PDF survey data that is subject to a full measured building survey. This sketch is based on incomplete and unverified survey information. Core areas are assumed to contain vertical circulation but remain unconfirmed. The proposal is subject to full measured, structural, and M&E surveys, and represents an early-stage feasibility concept.

Further design development is required to address the following (non-exhaustive):
A compliant fire strategy, including:
Means of escape, Protected lobbies, Evacuation lift requirements, Fire-rated construction, Acoustic and thermal performance in line with current Building Regulations, including enhancements between residential uses where appropriate. Ventilation of habitable and shared spaces per Approved Document F, and assessment of overheating risk in accordance with Approved Document O. Structural capacity of the existing building to support any new residential use and associated loadings. Natural light provision, and performance against daylight/sunlight guidance as outlined by BRE.

Services coordination, including:
Drainage infrastructure, Vertical risers, Ventilation and duct routes, Access and inclusivity, including potential lift upgrades and Part M compliance. Refuse and cycle storage in accordance with local authority standards. Assessment of hazardous materials (e.g., asbestos) within the existing building fabric.

All elements of the proposal remain subject to:
Detailed technical input, Comprehensive measured and specialist surveys, Compliance with current planning policy and building regulations.

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This document and any associated drawings are not for construction and are issued solely for preliminary design coordination, internal review, and stakeholder discussion. Use beyond these purposes is at the user's own risk.

MDG Architects
201 The Follum
5-8 Caroline Street
The Jewellery Quarter, Birmingham
B3 1TR
Tel: 0121 638 0201
www.mdgarchitects.co.uk
innovation@mdg.co.uk



PROJECT
34 Drayton Gardens, West Drayton

BMR Property Group

DRAWING
Site Location Plan

| | | | |
|----------|----------------|----------|---|
| SCALE | 1 : 1250 at A4 | CHECKED | - |
| DATE | Oct 2025 | DRAWN | - |
| DWG. No. | A1442_(SK)001 | REVISION | A |

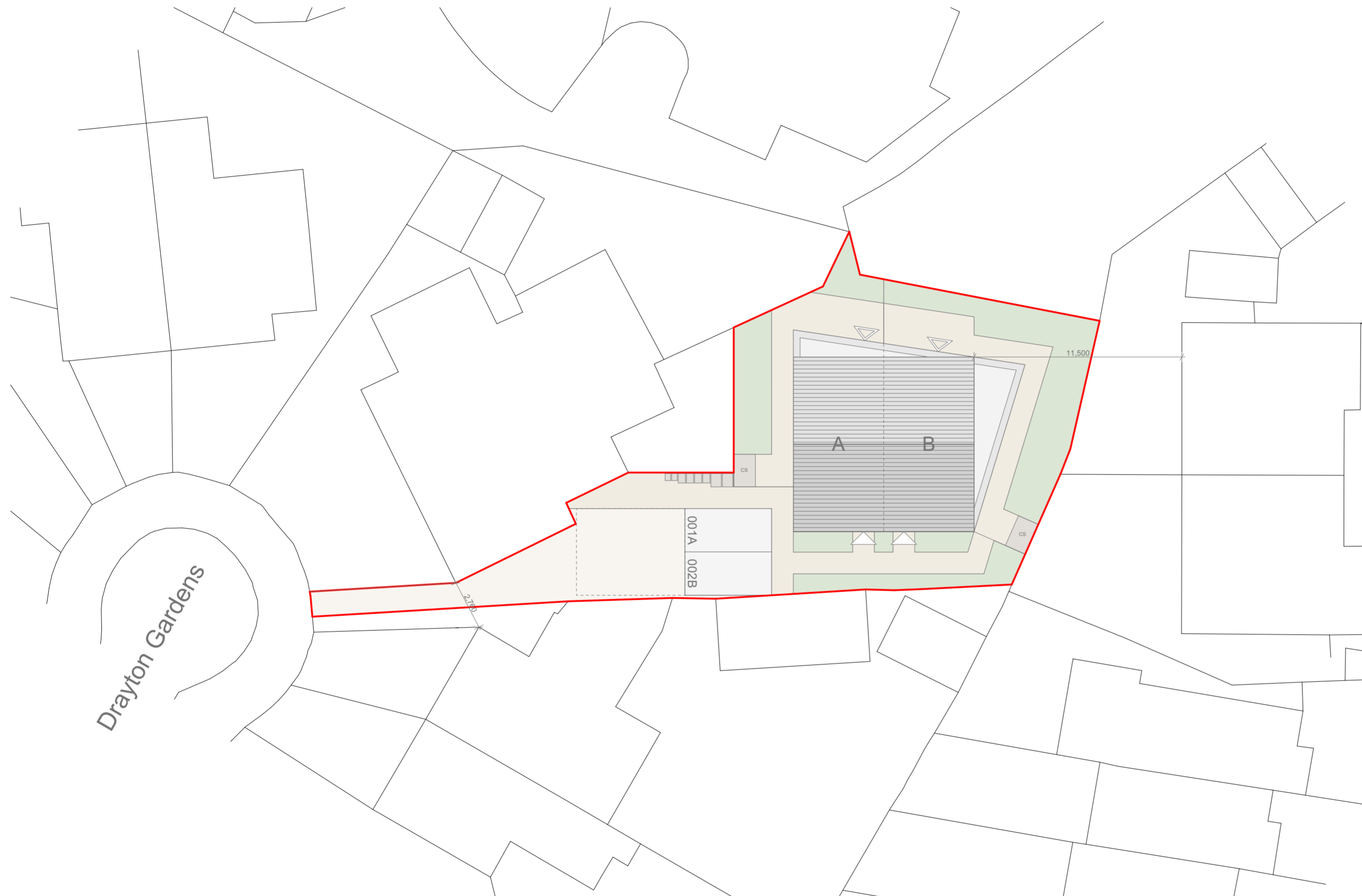




Appendix: B – Proposed Site Plan

The Contractor is to check and verify all building and site dimensions, levels, sewer invert levels and positions of drains before works start. Any discrepancy to be notified to MDG Architects. DO NOT SCALE FROM THIS DRAWING. This drawing and the building works depicted are the copyright of MDG Ltd and may not be reproduced or amended except by written permission. No liability will be accepted for amendments made by other persons.

| Rev. | Date | DRN/CKD | Revision |
|------|----------|---------|--------------------------------|
| A | 22/10/25 | - | Updated to consultant comments |
| B | 28/10/25 | - | Updated to consultant comments |
| C | 09/01/26 | - | Updated to consultant comments |



Proposed Site Plan
Scale 1:200@A2

Application Site Boundary —

PLEASE NOTE:
All drawing information provided herein is indicative only and subject to ongoing design development and detailed design input. No element of the drawing(s) should be relied upon for construction, costing, or statutory approvals without further verification.

The position and extent of all utilities (above and below ground), easements, topographical features, and trees are to be confirmed through additional surveys. The site boundary is to be confirmed based on the Land Registry title plan and further on-site investigations. The layout has been produced for feasibility and discussion purposes only, and is based on PDF survey data that is subject to a full measured building survey. This sketch is based on incomplete and unverified survey information. Core areas are assumed to contain vertical circulation but remain unconfirmed. The proposal is subject to full measured, structural, and M&E surveys, and represents an early-stage feasibility concept.

Further design development is required to address the following (non-exhaustive):
A compliant fire strategy, including:
Means of escape, Protected lobbies, Evacuation lift requirements, Fire-rated construction, Acoustic and thermal performance in line with current Building Regulations, including enhancements between residential uses where appropriate. Ventilation of habitable and shared spaces per Approved Document F, and assessment of overheating risk in accordance with Approved Document O. Structural capacity of the existing building to support any new residential use and associated loadings. Natural light provision, and performance against daylight/sunlight guidance as outlined by BRE.

Services coordination, including:
Drainage infrastructure, Vertical risers, Ventilation and duct routes, Access and inclusivity, including potential lift upgrades and Part M compliance. Refuse and cycle storage in accordance with local authority standards. Assessment of hazardous materials (e.g., asbestos) within the existing building fabric.

All elements of the proposal remain subject to:
Detailed technical input, Comprehensive measured and specialist surveys, Compliance with current planning policy and building regulations.

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MDG Architects
201 The Follum
5-8 Caroline Street
The Jewellery Quarter, Birmingham
B3 1TR
Tel: 0121 638 0201
www.mdgarchitects.co.uk
innovation@mdg.co.uk

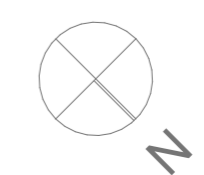


PROJECT
34 Drayton Gardens, West Drayton

BMR Property Group

DRAWING
Proposed Site Plan

| | | | |
|----------|---------------|----------|----------|
| SCALE | 1 : 200 at A2 | CHECKED | - |
| DATE | Oct 2025 | DRAWN | - |
| DWG. No. | A1442_(SK)010 | REVISION | C |





Appendix: C – EA Flood Map for Planning

Flood map for planning

| | | |
|----------------|-----------------------------|------------------------|
| Your reference | Location (easting/northing) | Created |
| Unspecified | 506058/179751 | 16 December 2025 09:41 |

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference

Unspecified

Location (easting/northing)


506058/179751

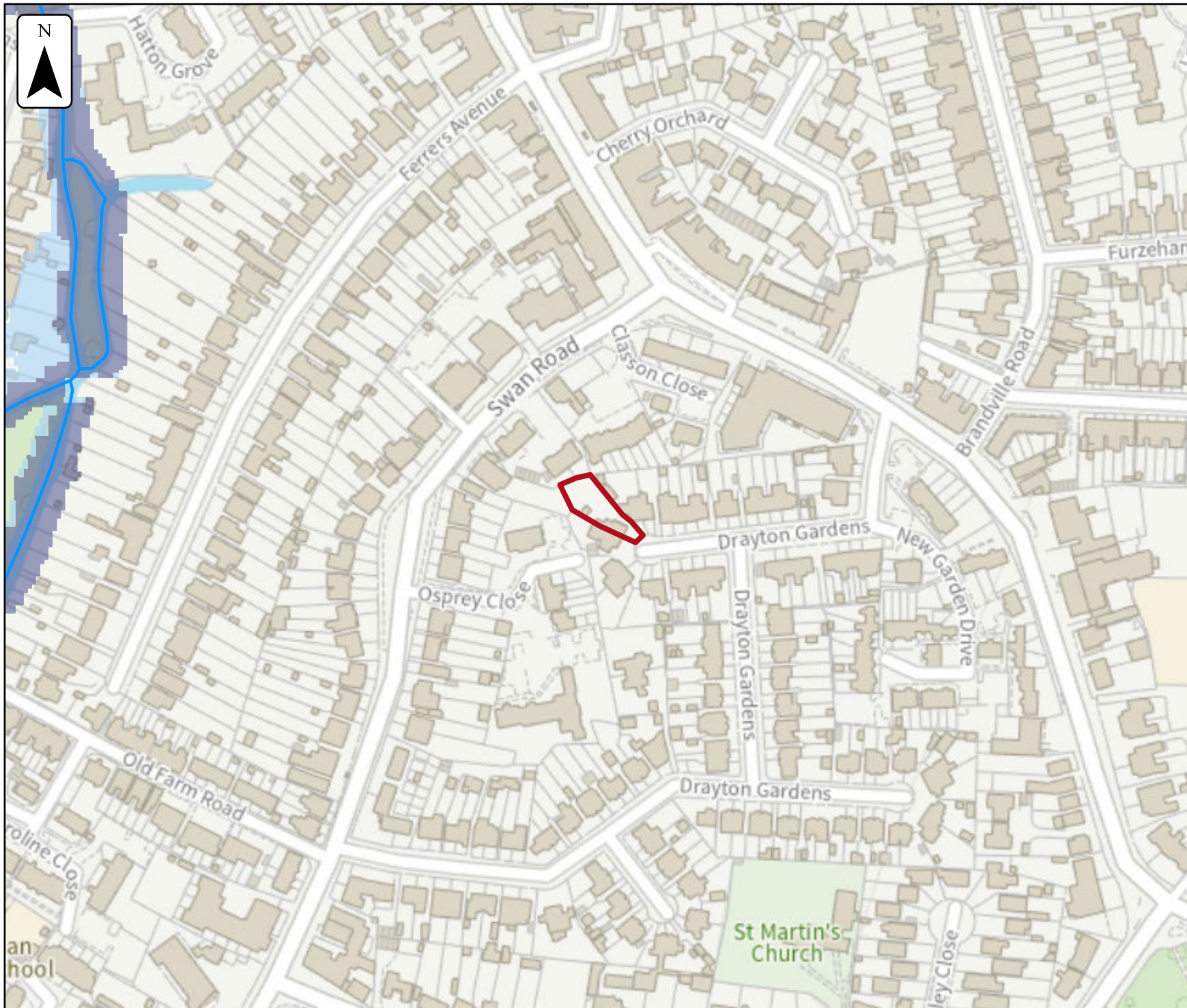
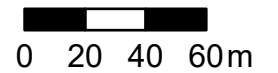
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Created

16 Dec 2025 09:41

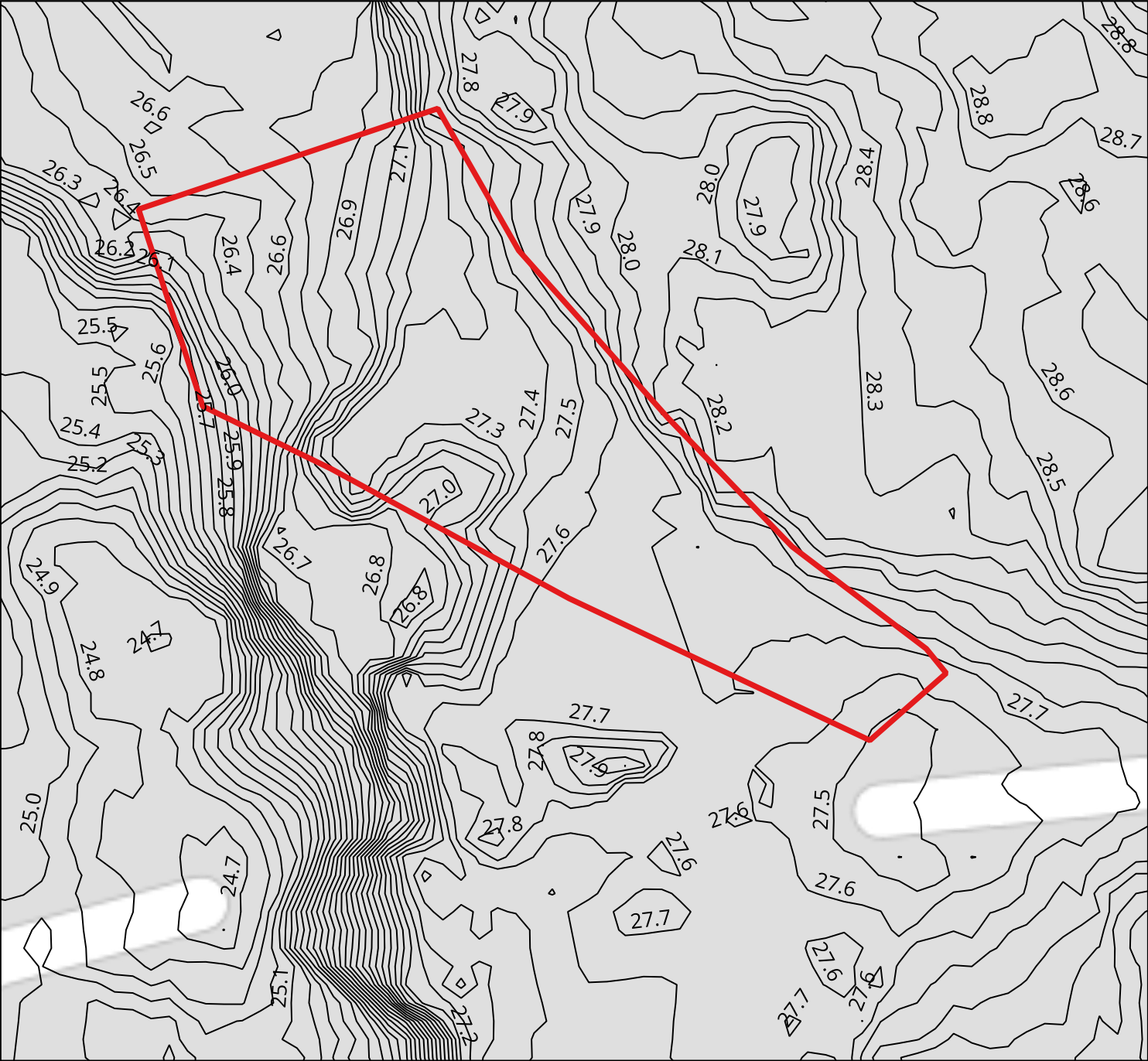
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-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area





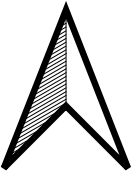
Appendix: D – LIDAR Data

LIDAR DATA

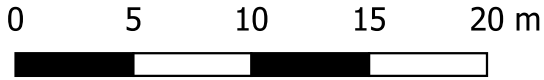


Key:

-  Site
-  Contours



EAS Transport Planning
1st Floor Millers House
Roydon Road
Stanstead Abbots
SG12 8HN



Map Source: OpenStreetMap

Appendix: E – Thames Water Sewer Mapping



EAS
EAS TRANSPORT PLANNING, FIRST
STANSTEAD ABBOTTS
SG12 8HN

Search address supplied 34a
Drayton Gardens
West Drayton
UB7 7LG

Your reference 34A Drayton Gardens

Our reference ALS/ALS Standard/2025_5264352

Search date 10 December 2025

Keeping you up-to-date

Notification of price changes

We're changing our report prices from 4th June 2025. The price will increase by 3.5% based on Retail Price Index (RPI).

Find our new prices on our website thameswater.co.uk/property-searches

Any Questions? We're happy to talk through the changes with you – give our Property Searches team a call on 0800 009 4540 .



Thames Water Utilities Ltd
Property Searches,
Clearwater Court, Vastern Road, Reading RG1 8DB



property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches



0800 009 4540

Search address supplied: 34a, Drayton Gardens, West Drayton, UB7 7LG

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 and 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 contact details below:

Thames Water Utilities Ltd
Property Searches
Clearwater Court
Vastern Road
Reading
RG1 8DB

Email: property.searches@thameswater.co.uk

Web: thameswater.co.uk/propertysearches

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. The public sewer map 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

Asset Location Search



Property Searches

Hatfield
AL10 9EZ
Tel: 0845 7823333

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.



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. You can do this by emailing customer.feedback@thameswater.co.uk with the email subject header 'Enquiry – TWOSA', along with details of the request.

If you have any questions regarding sewer connections, budget estimates, diversions or building over 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

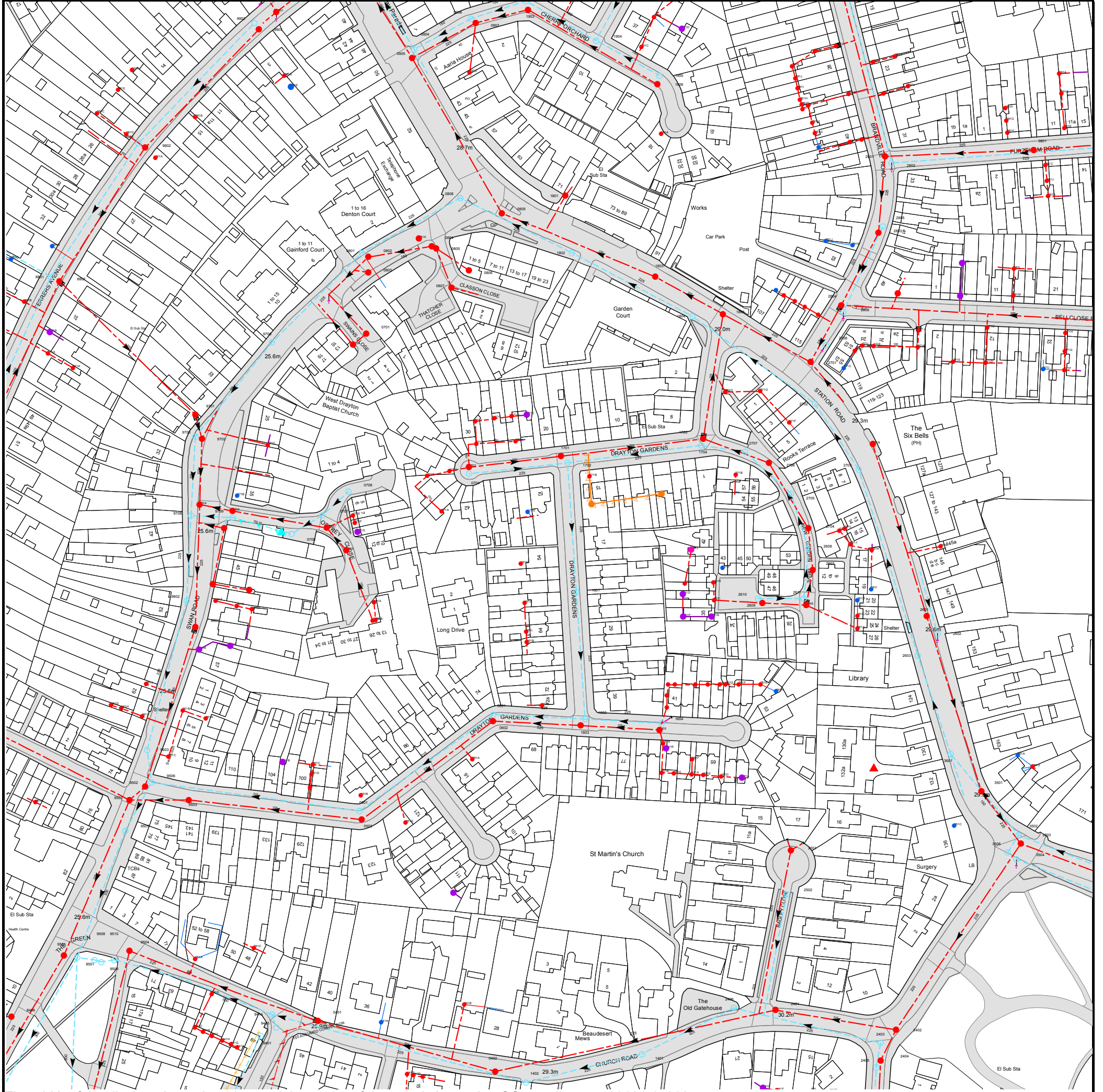
Clean Water queries

Should you require any advice concerning clean water 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/2025 5264352



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 506121,179697

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.

Based on the Ordnance Survey Map (2024) with the Sanction of the controller of H.M. Stationery Office, License no. AC000849556 Crown Copyright Reserved.

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 |
|-------------------|---------------------|----------------------|
| 371F | n/a | n/a |
| 371I | n/a | n/a |
| 371D | n/a | n/a |
| 371G | n/a | n/a |
| 371H | n/a | n/a |
| 371C | n/a | n/a |
| 381E | n/a | n/a |
| 381M | n/a | n/a |
| 381L | n/a | n/a |
| 381D | n/a | n/a |
| 381B | n/a | n/a |
| 381J | n/a | n/a |
| 381C | n/a | n/a |
| 3801 | 28.97 | 27.9 |
| 2405 | 30.39 | 28.15 |
| 2403 | 30.74 | 28 |
| 2402 | 30.77 | 25.79 |
| 3506 | 29.98 | 28.68 |
| 3504 | 30.01 | 28.28 |
| 3503 | 29.91 | 26.09 |
| 2608 | n/a | n/a |
| 2607 | n/a | n/a |
| 2702 | 29.28 | 27.73 |
| 261C | n/a | n/a |
| 261D | n/a | n/a |
| 261A | n/a | n/a |
| 2703 | 29.4 | 27.83 |
| 2603 | 30.74 | 29.21 |
| 2602 | 29.65 | 28.89 |
| 3601 | 29.88 | 28.36 |
| 351C | n/a | n/a |
| 3501 | 29.85 | 26.47 |
| 361A | n/a | n/a |
| 3502 | 29.77 | 28.27 |
| 351D | n/a | n/a |
| 991G | n/a | n/a |
| 091E | n/a | n/a |
| 0905 | 28.5 | 24.37 |
| 0904 | 28.4 | 27.47 |
| 091C | n/a | n/a |
| 0906 | 28.56 | 27.63 |
| 0907 | 28.69 | 26.49 |
| 1902 | 28.81 | 27.81 |
| 1903 | n/a | n/a |
| 191F | n/a | n/a |
| 1904 | 29.21 | 28.04 |
| 191C | n/a | n/a |
| 191B | n/a | n/a |
| 1906 | 29.58 | 27.05 |
| 1905 | 29.57 | 28.23 |
| 181A | n/a | n/a |
| 291L | n/a | n/a |
| 381H | n/a | n/a |
| 381G | n/a | n/a |
| 381F | n/a | n/a |
| 391A | n/a | n/a |
| 391B | n/a | n/a |
| 381K | n/a | n/a |
| 281F | n/a | n/a |
| 281B | n/a | n/a |
| 281C | n/a | n/a |
| 281G | n/a | n/a |
| 281H | n/a | n/a |
| 281E | n/a | n/a |
| 281I | n/a | n/a |
| 281D | n/a | n/a |
| 291H | n/a | n/a |
| 291M | n/a | n/a |
| 291A | n/a | n/a |
| 291I | n/a | n/a |
| 291J | n/a | n/a |
| 291K | n/a | n/a |
| 291E | n/a | n/a |
| 291D | n/a | n/a |
| 291F | n/a | n/a |
| 291G | n/a | n/a |
| 191D | n/a | n/a |
| 271C | n/a | n/a |
| 2701 | 29.33 | 25.47 |
| 371E | n/a | n/a |
| 271D | n/a | n/a |
| 271K | n/a | n/a |
| 271E | n/a | n/a |
| 271I | n/a | n/a |
| 2708 | 29.16 | 27.93 |
| 271J | n/a | n/a |
| 2812 | n/a | n/a |
| 2806 | 29.76 | 26.79 |
| 2811 | n/a | n/a |
| 2804 | n/a | n/a |
| 2807 | n/a | n/a |

| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|-------------------|---------------------|----------------------|
| 281K | n/a | n/a |
| 281J | n/a | n/a |
| 2803 | 28.89 | 26.79 |
| 2805 | n/a | n/a |
| 2802 | 29.01 | 27.51 |
| 2801 | 29.03 | 27.71 |
| 161O | n/a | n/a |
| 161K | n/a | n/a |
| 161J | n/a | n/a |
| 1704 | 29.4 | 27.75 |
| 161H | n/a | n/a |
| 161E | n/a | n/a |
| 271B | n/a | n/a |
| 2707 | n/a | n/a |
| 2706 | n/a | n/a |
| 2705 | n/a | n/a |
| 2704 | n/a | n/a |
| 271M | n/a | n/a |
| 271L | n/a | n/a |
| 261J | n/a | n/a |
| 261I | n/a | n/a |
| 261K | n/a | n/a |
| 271N | n/a | n/a |
| 261B | n/a | n/a |
| 1606 | n/a | n/a |
| 1607 | n/a | n/a |
| 161P | n/a | n/a |
| 2613 | n/a | n/a |
| 2612 | n/a | n/a |
| 161N | n/a | n/a |
| 161I | n/a | n/a |
| 161Q | n/a | n/a |
| 261G | n/a | n/a |
| 261F | n/a | n/a |
| 2610 | n/a | n/a |
| 261E | n/a | n/a |
| 2609 | n/a | n/a |
| 261H | n/a | n/a |
| 2611 | n/a | n/a |
| 2606 | n/a | n/a |
| 2601 | 29.54 | 27.08 |
| 161A | n/a | n/a |
| 161R | n/a | n/a |
| 151C | n/a | n/a |
| 151A | n/a | n/a |
| 151F | n/a | n/a |
| 151E | n/a | n/a |
| 151D | n/a | n/a |
| 2406 | 30.41 | 26.96 |
| 251A | n/a | n/a |
| 241E | n/a | n/a |
| 2401 | 30.34 | 25.23 |
| 241F | n/a | n/a |
| 2502 | 29.9 | 29 |
| 2501 | 30 | 27.87 |
| 2404 | 32.51 | 27.82 |
| 1402 | n/a | n/a |
| 041C | 0 | -0.82 |
| 041D | -0.33 | -1.18 |
| 041G | -0.28 | -2.38 |
| 0402 | 32.01 | 27.79 |
| 1401 | n/a | n/a |
| 041A | n/a | n/a |
| 041B | n/a | n/a |
| 051F | n/a | n/a |
| 051G | n/a | n/a |
| 0502 | 25.66 | 24.36 |
| 0501 | 25.64 | 24.78 |
| 051B | n/a | n/a |
| 151B | n/a | n/a |
| 051A | n/a | n/a |
| 1605 | 28.59 | 26.44 |
| 1603 | 28.03 | 25.26 |
| 1604 | 28.61 | 26.45 |
| 0602 | 27.26 | 24.86 |
| 1602 | 28.1 | 25.32 |
| 0601 | 27.25 | 25.11 |
| 1609 | n/a | n/a |
| 161F | n/a | n/a |
| 1608 | n/a | n/a |
| 161B | n/a | n/a |
| 161L | n/a | n/a |
| 0604 | n/a | n/a |
| 061B | n/a | n/a |
| 161C | n/a | n/a |
| 061A | n/a | n/a |
| 1601 | 28.29 | 25.53 |
| 161D | n/a | n/a |
| 071G | n/a | n/a |
| 071F | n/a | n/a |
| 071E | n/a | n/a |
| 171G | n/a | n/a |
| 071A | n/a | n/a |

| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|-------------------|---------------------|----------------------|
| n/a | n/a | n/a |
| n/a | n/a | n/a |
| 171B | n/a | n/a |
| 071B | n/a | n/a |
| 0704 | 27.46 | 25.71 |
| 071C | n/a | n/a |
| 0703 | 27.47 | 25.99 |
| 1702 | 28.55 | 25.81 |
| 1701 | 28.55 | 25.81 |
| 071H | n/a | n/a |
| 171A | n/a | n/a |
| 9509 | n/a | n/a |
| 9510 | n/a | n/a |
| 9504 | 25.58 | 23.38 |
| 941C | n/a | n/a |
| 951A | n/a | n/a |
| 941B | n/a | n/a |
| 941D | n/a | n/a |
| 941I | n/a | n/a |
| 941H | n/a | n/a |
| 941G | n/a | n/a |
| 941A | n/a | n/a |
| 951C | n/a | n/a |
| 9401 | n/a | n/a |
| 9414 | n/a | n/a |
| 9415 | n/a | n/a |
| 0401 | 26.19 | 24.06 |
| 0801 | 26.61 | 24.13 |
| 0701 | 26.36 | 25.24 |
| 0802 | 26.53 | 25.31 |
| 0803 | 26.48 | 25.39 |
| 081A | n/a | n/a |
| 0804 | 27.57 | 26.15 |
| 0805 | 27.57 | 26.44 |
| 0807 | 28.26 | 27.3 |
| 0808 | 28.27 | 25.97 |
| 0806 | n/a | n/a |
| 071J | n/a | n/a |
| 071I | n/a | n/a |
| 0809 | 28.61 | 24.75 |
| 171D | n/a | n/a |
| 171C | n/a | n/a |
| 1801 | 29.18 | 26.53 |
| 1802 | 29.1 | 27.04 |
| 1803 | 29.13 | 25.12 |
| 1804 | 29.14 | 27.5 |
| 1703 | 30.46 | 25.62 |
| 1805 | 29.18 | 25.26 |
| 271H | n/a | n/a |
| 271G | n/a | n/a |
| 2808 | n/a | n/a |
| 2809 | n/a | n/a |
| 271F | n/a | n/a |
| 2810 | n/a | n/a |
| 851K | n/a | n/a |
| 961G | n/a | n/a |
| 961H | n/a | n/a |
| 9507 | n/a | n/a |
| 9501 | 25.78 | 23.12 |
| 961I | n/a | n/a |
| 9502 | 25.78 | 24.48 |
| 9603 | 25.72 | 24.51 |
| 9506 | n/a | n/a |
| 961C | n/a | n/a |
| 961B | n/a | n/a |
| 9503 | 25.67 | 23.42 |
| 961A | n/a | n/a |
| 951B | n/a | n/a |
| 051E | n/a | n/a |
| 051D | n/a | n/a |
| 051C | n/a | n/a |
| 8406 | 25.35 | 24.27 |
| 9508 | n/a | n/a |
| 9505 | 25.43 | 23.23 |
| 8501 | 26.51 | 23.81 |
| 961J | n/a | n/a |
| 9602 | 25.66 | 24.61 |
| 9708 | n/a | 24.8 |
| 9601 | 25.61 | 23.39 |
| 961K | n/a | n/a |
| 9704 | 25.65 | 23.69 |
| 9605 | n/a | n/a |
| 961F | n/a | n/a |
| 9710 | n/a | n/a |
| 961L | n/a | n/a |
| 9709 | 25.45 | n/a |
| 9705 | 25.5 | 23.98 |
| 961E | n/a | n/a |
| 971B | n/a | n/a |
| 9604 | n/a | n/a |
| 961D | n/a | n/a |
| 0709 | n/a | n/a |
| 0707 | n/a | n/a |
















| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|-------------------|---------------------|----------------------|
| 071D | n/a | n/a |
| 0603 | n/a | n/a |
| 881C | n/a | n/a |
| 871A | n/a | n/a |
| 871B | n/a | n/a |
| 881B | n/a | n/a |
| 8801 | 25.82 | 24.52 |
| 881D | n/a | n/a |
| 8802 | 25.81 | 24.06 |
| 971A | n/a | n/a |
| 981C | n/a | n/a |
| 991E | n/a | n/a |
| 981D | n/a | n/a |
| 991F | n/a | n/a |
| 9801 | 26.02 | 24.7 |
| 9802 | 26.04 | 24.31 |
| 981A | n/a | n/a |
| 981B | n/a | n/a |
| 9703 | 25.7 | 25.24 |
| 9701 | n/a | n/a |
| 9702 | 25.7 | 23.69 |
| 9902 | 27.36 | 25.68 |
| 9903 | 31.36 | 29.04 |
| 9904 | n/a | n/a |
| 971C | n/a | n/a |
| 9706 | n/a | n/a |
| 9901 | 27.5 | 24.76 |
| 0708 | n/a | n/a |
| 0702 | 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

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.

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
-  Fitting
-  Meter
-  Vent
-  Dam Chase

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

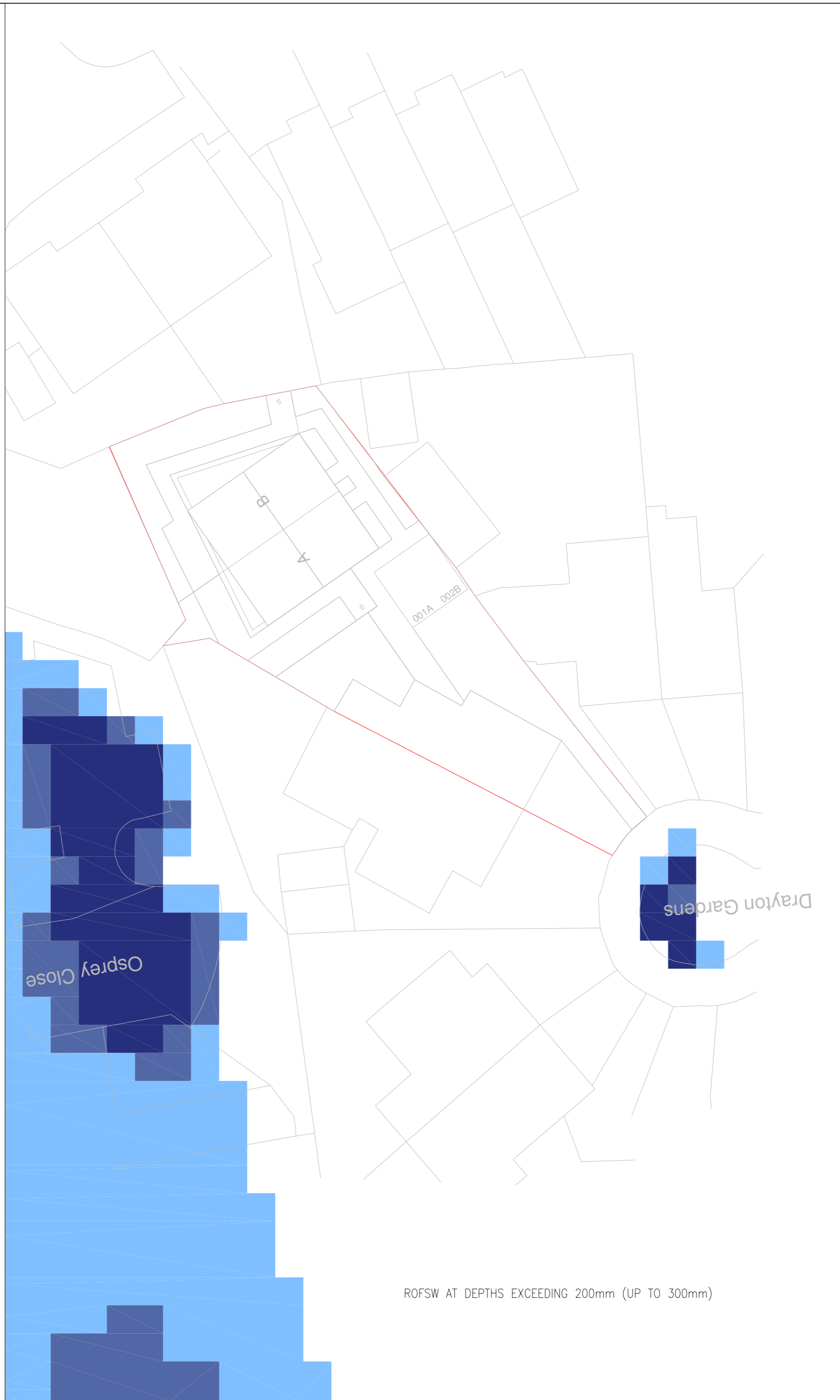
Ducts or Crossings

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

5) 'na' or 'of' 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.

Appendix: F – Risk of Flooding From Surface Water Maps



KEY

— SITE BOUNDARY

SURFACE WATER FLOOD LIKELIHOOD CATEGORY:

- LOW (less than 1% AEP*, greater or equal to 0.1% AEP*)
- MEDIUM (less than 3.3% AEP*, greater or equal to 1% AEP*)
- HIGH (greater or equal to 3.3% AEP*)

* AEP = ANNUAL EXCEEDANCE PROBABILITY

| REV | DATE | BY | DESCRIPTION | CHK | APD |
|-----|------|----|-------------|-----|-----|
| | | | | | |

DRAWING STATUS: FOR PLANNING

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1st Floor Millers House, Roydon Road,
Stanstead Abbots, Hertfordshire, SG12 8HN
Tel: 01920 871777

www.eastp.co.uk

CLIENT: SAZZ INVESTMENTS LIMITED

ARCHITECT:

PROJECT: 34A DRAYTON GARDENS

TITLE: RISK OF FLOODING FROM SURFACE WATER

SCALE: A2: 1:250 DESIGN-DRAWN: BS DATE: 19.12.2025

PROJECT No: 6382 DRAWING No: SK01

Appendix: G – Causeway Flow Outputs: Brownfield

Design Settings

| | | | |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology | FEH-22 | Minimum Velocity (m/s) | 1.00 |
| Return Period (years) | 100 | Connection Type | Level Soffits |
| Additional Flow (%) | 0 | Minimum Backdrop Height (m) | 0.200 |
| CV | 1.000 | Preferred Cover Depth (m) | 1.200 |
| Time of Entry (mins) | 5.00 | Include Intermediate Ground | ✓ |
| Maximum Time of Concentration (mins) | 30.00 | Enforce best practice design rules | ✓ |
| Maximum Rainfall (mm/hr) | 50.0 | | |

Nodes

| Name | Area (ha) | T of E (mins) | Cover Level (m) | Diameter (mm) | Easting (m) | Northing (m) | Depth (m) | Invert Level (m) |
|------|-----------|---------------|-----------------|---------------|-------------|--------------|-----------|------------------|
| 1 | 0.026 | 5.00 | 27.400 | 1200 | 1.333 | 73.599 | 1.425 | 25.975 |
| 2 | 0.026 | 5.00 | 27.200 | 1200 | 15.513 | 73.329 | 1.516 | 25.684 |
| 3 | | | 27.000 | 1200 | 30.233 | 72.248 | 1.564 | 25.436 |

Links

| Name | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.000 | 1 | 2 | 14.183 | 0.600 | 25.975 | 25.684 | 0.291 | 48.7 | 225 | 5.13 | 50.0 |
| 1.001 | 2 | 3 | 14.760 | 0.600 | 25.684 | 25.436 | 0.248 | 59.5 | 225 | 5.27 | 50.0 |

| Name | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 1.000 | 1.878 | 74.7 | 4.7 | 1.200 | 1.291 | 0.026 | 0.0 | 38 | 1.060 |
| 1.001 | 1.698 | 67.5 | 9.4 | 1.291 | 1.339 | 0.052 | 0.0 | 57 | 1.206 |

Simulation Settings

| | | | | | |
|----------------------|----------|---|--------|-------------------------|---|
| Rainfall Methodology | FEH-22 | Analysis Speed | Normal | Starting Level (m) | |
| Rainfall Events | Singular | Skip Steady State | x | Check Discharge Rate(s) | x |
| Summer CV | 1.000 | Drain Down Time (mins) | 1440 | Check Discharge Volume | x |
| Winter CV | 1.000 | Additional Storage (m ³ /ha) | 20.0 | | |

Storm Durations

| | | | | | | | | | | | |
|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440 |
|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|------|

| Return Period (years) | Climate Change (CC %) | Additional Area (A %) | Additional Flow (Q %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 2 | 0 | 0 | 0 |
| 30 | 0 | 0 | 0 |
| 30 | 40 | 0 | 0 |
| 100 | 0 | 0 | 0 |
| 100 | 40 | 0 | 0 |



Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|--------|
| 15 minute summer | 1 | 10 | 26.012 | 0.037 | 4.4 | 0.0550 | 0.0000 | OK |
| 15 minute summer | 2 | 10 | 25.740 | 0.056 | 8.7 | 0.0832 | 0.0000 | OK |
| 15 minute summer | 3 | 10 | 25.490 | 0.054 | 8.6 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute summer | 1 | 1.000 | 2 | 4.3 | 0.734 | 0.058 | 0.0850 | |
| 15 minute summer | 2 | 1.001 | 3 | 8.6 | 1.145 | 0.128 | 0.1114 | 3.8 |



Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|--------|
| 15 minute summer | 1 | 10 | 26.039 | 0.063 | 13.2 | 0.0950 | 0.0000 | OK |
| 15 minute summer | 2 | 10 | 25.788 | 0.104 | 26.2 | 0.1534 | 0.0000 | OK |
| 15 minute summer | 3 | 10 | 25.532 | 0.096 | 26.0 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|-----------------------------|---------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute summer | 1 | 1.000 | 2 | 13.1 | 0.973 | 0.175 | 0.1924 | |
| 15 minute summer | 2 | 1.001 | 3 | 26.0 | 1.524 | 0.385 | 0.2520 | 11.4 |



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|--------|
| 15 minute summer | 1 | 10 | 26.051 | 0.076 | 18.4 | 0.1139 | 0.0000 | OK |
| 15 minute summer | 2 | 10 | 25.813 | 0.129 | 36.8 | 0.1897 | 0.0000 | OK |
| 15 minute summer | 3 | 10 | 25.553 | 0.117 | 36.5 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|-----------------------------|---------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute summer | 1 | 1.000 | 2 | 18.3 | 1.044 | 0.246 | 0.2501 | |
| 15 minute summer | 2 | 1.001 | 3 | 36.5 | 1.648 | 0.541 | 0.3269 | 16.0 |



Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|--------|
| 15 minute summer | 1 | 10 | 26.048 | 0.073 | 17.0 | 0.1087 | 0.0000 | OK |
| 15 minute summer | 2 | 10 | 25.806 | 0.122 | 34.0 | 0.1802 | 0.0000 | OK |
| 15 minute summer | 3 | 10 | 25.548 | 0.112 | 33.7 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute summer | 1 | 1.000 | 2 | 16.9 | 1.030 | 0.227 | 0.2347 | |
| 15 minute summer | 2 | 1.001 | 3 | 33.7 | 1.619 | 0.499 | 0.3074 | 14.8 |



Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|--------|
| 15 minute summer | 1 | 10 | 26.064 | 0.089 | 23.8 | 0.1336 | 0.0000 | OK |
| 15 minute summer | 2 | 10 | 25.838 | 0.154 | 47.5 | 0.2267 | 0.0000 | OK |
| 15 minute summer | 3 | 10 | 25.573 | 0.137 | 47.1 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|-----------------------------|---------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute summer | 1 | 1.000 | 2 | 23.7 | 1.083 | 0.317 | 0.3090 | |
| 15 minute summer | 2 | 1.001 | 3 | 47.1 | 1.736 | 0.698 | 0.4005 | 20.7 |

Design Settings

| | | | |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology | FEH-22 | Minimum Velocity (m/s) | 1.00 |
| Return Period (years) | 100 | Connection Type | Level Soffits |
| Additional Flow (%) | 0 | Minimum Backdrop Height (m) | 0.200 |
| CV | 1.000 | Preferred Cover Depth (m) | 1.200 |
| Time of Entry (mins) | 5.00 | Include Intermediate Ground | ✓ |
| Maximum Time of Concentration (mins) | 30.00 | Enforce best practice design rules | ✓ |
| Maximum Rainfall (mm/hr) | 50.0 | | |

Nodes

| Name | Area (ha) | T of E (mins) | Cover Level (m) | Diameter (mm) | Easting (m) | Northing (m) | Depth (m) | Invert Level (m) |
|------|-----------|---------------|-----------------|---------------|-------------|--------------|-----------|------------------|
| 1 | 0.026 | 5.00 | 27.400 | 1200 | 1.333 | 73.599 | 1.425 | 25.975 |
| 2 | 0.026 | 5.00 | 27.200 | 1200 | 15.513 | 73.329 | 1.516 | 25.684 |
| 3 | | | 27.000 | 1200 | 30.233 | 72.248 | 1.564 | 25.436 |

Links

| Name | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.000 | 1 | 2 | 14.183 | 0.600 | 25.975 | 25.684 | 0.291 | 48.7 | 225 | 5.13 | 50.0 |
| 1.001 | 2 | 3 | 14.760 | 0.600 | 25.684 | 25.436 | 0.248 | 59.5 | 225 | 5.27 | 50.0 |

| Name | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 1.000 | 1.878 | 74.7 | 4.7 | 1.200 | 1.291 | 0.026 | 0.0 | 38 | 1.060 |
| 1.001 | 1.698 | 67.5 | 9.4 | 1.291 | 1.339 | 0.052 | 0.0 | 57 | 1.206 |

Simulation Settings

| | | | | |
|----------------------|----------|---|--------|---------------------------|
| Rainfall Methodology | FEH-22 | Analysis Speed | Normal | Starting Level (m) |
| Rainfall Events | Singular | Skip Steady State | x | Check Discharge Rate(s) x |
| Summer CV | 1.000 | Drain Down Time (mins) | 1440 | Check Discharge Volume x |
| Winter CV | 1.000 | Additional Storage (m ³ /ha) | 20.0 | |

Storm Durations

360

| Return Period (years) | Climate Change (CC %) | Additional Area (A %) | Additional Flow (Q %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 100 | 0 | 0 | 0 |



Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|--------|
| 360 minute summer | 1 | 184 | 26.008 | 0.033 | 3.5 | 0.0494 | 0.0000 | OK |
| 360 minute summer | 2 | 184 | 25.734 | 0.050 | 7.0 | 0.0741 | 0.0000 | OK |
| 360 minute summer | 3 | 184 | 25.485 | 0.049 | 6.9 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|---------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 360 minute summer | 1 | 1.000 | 2 | 3.5 | 0.691 | 0.047 | 0.0723 | |
| 360 minute summer | 2 | 1.001 | 3 | 6.9 | 1.080 | 0.103 | 0.0950 | 38.5 |



Appendix: H – Causeway Flow Outputs: Greenfield



Design Settings

| | | | |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology | FEH-22 | Minimum Velocity (m/s) | 1.00 |
| Return Period (years) | 100 | Connection Type | Level Soffits |
| Additional Flow (%) | 0 | Minimum Backdrop Height (m) | 0.200 |
| CV | 1.000 | Preferred Cover Depth (m) | 1.200 |
| Time of Entry (mins) | 5.00 | Include Intermediate Ground | ✓ |
| Maximum Time of Concentration (mins) | 30.00 | Enforce best practice design rules | ✓ |
| Maximum Rainfall (mm/hr) | 50.0 | | |

Simulation Settings

| | | | | | |
|----------------------|----------|---|------|---------------------------------------|------|
| Rainfall Methodology | FEH-22 | Drain Down Time (mins) | 1440 | 30 year (l/s) | 7.6 |
| Rainfall Events | Singular | Additional Storage (m ³ /ha) | 20.0 | 100 year (l/s) | 10.0 |
| Summer CV | 1.000 | Starting Level (m) | | Check Discharge Volume | ✓ |
| Winter CV | 1.000 | Check Discharge Rate(s) | ✓ | 100 year 360 minute (m ³) | 119 |
| Analysis Speed | Normal | 1 year (l/s) | 2.0 | | |
| Skip Steady State | x | 2 year (l/s) | 2.5 | | |

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

| | | | |
|----------------------|-----------------------|------------------------|------------------------|
| Return Period | Climate Change | Additional Area | Additional Flow |
| (years) | (CC %) | (A %) | (Q %) |
| 100 | 0 | 0 | 0 |

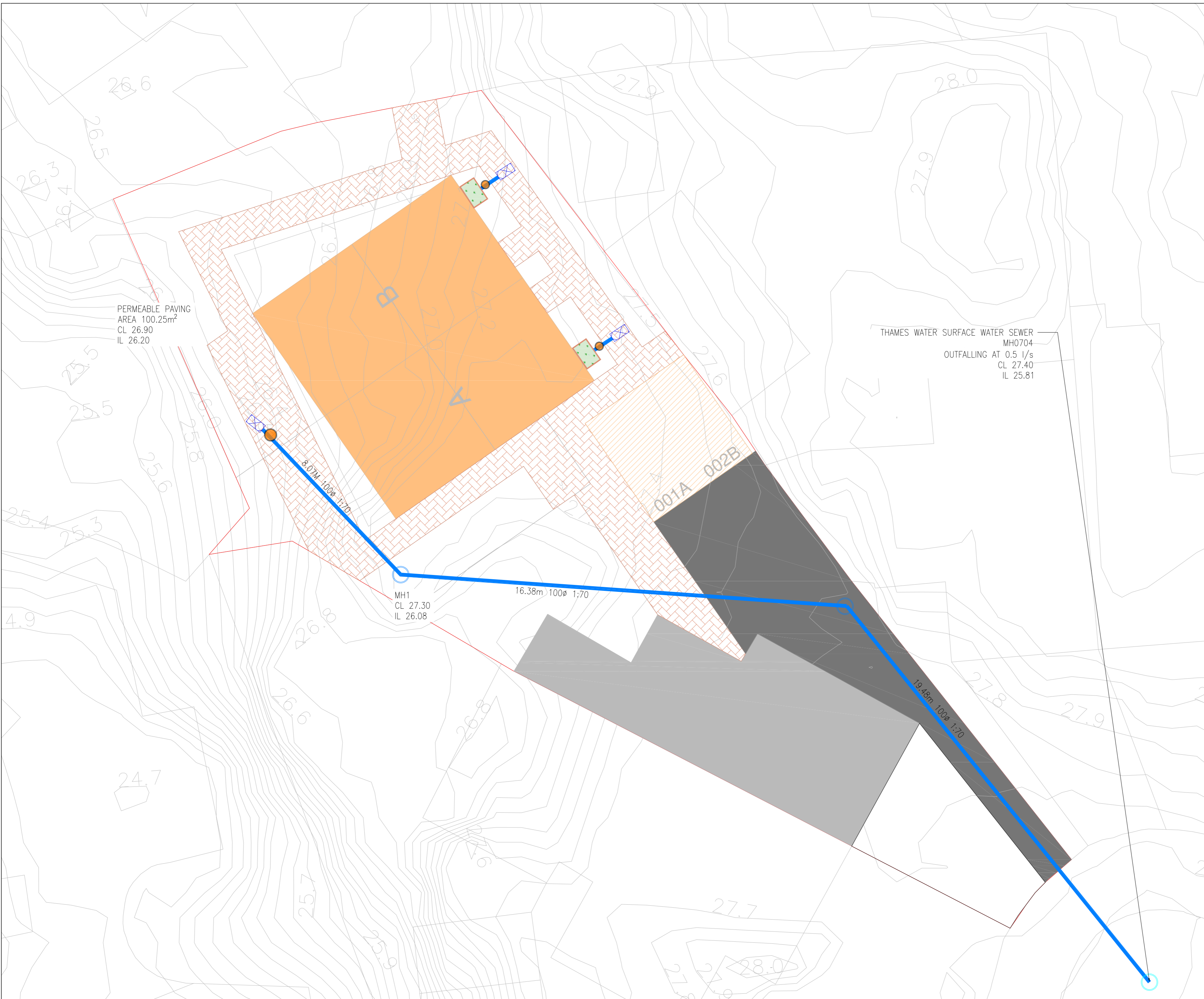
Pre-development Discharge Rate

| | | | |
|------------------------------|--------------------|------------------|------|
| Site Makeup | Greenfield | Betterment (%) | 0 |
| Greenfield Method | ReFH2 | Q 1 year (l/s) | 2.0 |
| Region | England, Wales, NI | Q 2 year (l/s) | 2.5 |
| Include Baseflow | x | Q 30 year (l/s) | 7.6 |
| Positively Drained Area (ha) | 1.000 | Q 100 year (l/s) | 10.0 |

Pre-development Discharge Volume

| | | | |
|------------------------------|--------------------|---------------------------------|-----|
| Site Makeup | Greenfield | Return Period (years) | 100 |
| Greenfield Method | ReFH2 | Storm Duration (mins) | 360 |
| Region | England, Wales, NI | Betterment (%) | 0 |
| Include Baseflow | x | Runoff Volume (m ³) | 119 |
| Positively Drained Area (ha) | 1.000 | | |

Appendix: I – Proposed SuDS Layout



KEY

- SITE BOUNDARY (TOTAL SITE AREA 0.052ha)
- EXISTING BUILDING
- EXISTING HARDSTANDING
- PROPOSED BUILDING
- PROPOSED HARDSTANDING
- PERMEABLE PAVING WITH MIN. 600mm SUB-BASE
- RAISED PLANTER WITH RESTRICTED OUTFALL (1.0mX0.65mX0.9m VOLUME: 0.59m³)
- SURFACE WATER PIPE NETWORK
- SURFACE WATER MANHOLE
- PERMAVOID DIFFUSER UNIT
- RAINWATER DOWNPIPE
- 18mm ORIFICE PLATE WITHIN A SUITABLE CHAMBER WITH A SUITABLE FILTER TO RESTRICT. FINAL OUTFALL RESTRICTED TO 0.5 l/s
- EXCEEDANCE FLOW ARROW
- THAMES WATER SURFACE WATER SEWER

| REV | DATE | BY | DESCRIPTION | CHK | APD |
|-----|------|----|-------------|-----|-----|
| | | | | | |

DRAWING STATUS: FOR PLANNING

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EAS

1st Floor Millers House, Roydon Road,
Stanstead Abbots, Hertfordshire, SG12 8HN
Tel: 01920 871777
www.eastp.co.uk

CLIENT: SAZZ INVESTMENTS LIMITED

ARCHITECT:

PROJECT: 34A DRAYTON GARDENS

TITLE: ATTENUATION BASED SUDS STRATEGY

| | | |
|------------------|------------------|------------------|
| SCALE: A2: 1:100 | DESIGN-DRAWN: BS | DATE: 18.12.2025 |
|------------------|------------------|------------------|

| | |
|------------------|------------------|
| PROJECT No: 6382 | DRAWING No: SK02 |
|------------------|------------------|



Appendix: J – Causeway Flow Outputs: Proposed SuDS

Design Settings

| | | | |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology | FEH-22 | Minimum Velocity (m/s) | 1.00 |
| Return Period (years) | 100 | Connection Type | Level Soffits |
| Additional Flow (%) | 0 | Minimum Backdrop Height (m) | 0.200 |
| CV | 1.000 | Preferred Cover Depth (m) | 1.200 |
| Time of Entry (mins) | 5.00 | Include Intermediate Ground | ✓ |
| Maximum Time of Concentration (mins) | 30.00 | Enforce best practice design rules | ✓ |
| Maximum Rainfall (mm/hr) | 50.0 | | |

Nodes

| Name | Area (ha) | T of E (mins) | Cover Level (m) | Diameter (mm) | Easting (m) | Northing (m) | Depth (m) | Invert Level (m) |
|-----------|-----------|---------------|-----------------|---------------|-------------|--------------|-----------|------------------|
| Carpark 1 | 0.022 | 5.00 | 26.900 | | 6.735 | 74.544 | 0.700 | 26.200 |
| 1 | | | 27.400 | 600 | 45.583 | 65.901 | 1.590 | 25.810 |
| 2 | | | 27.300 | 600 | 21.422 | 70.985 | 1.224 | 26.076 |

Links

| Name | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|-----------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.000 | Carpark 1 | 2 | 8.700 | 0.600 | 26.200 | 26.076 | 0.124 | 70.0 | 100 | 5.16 | 50.0 |
| 1.001 | 2 | 1 | 17.070 | 0.600 | 26.076 | 25.810 | 0.266 | 64.2 | 100 | 5.45 | 50.0 |

| Name | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 1.000 | 0.921 | 7.2 | 4.0 | 0.600 | 1.124 | 0.022 | 0.0 | 53 | 0.942 |
| 1.001 | 0.963 | 7.6 | 4.0 | 1.124 | 1.490 | 0.022 | 0.0 | 51 | 0.972 |

Simulation Settings

| | | | | |
|----------------------|----------|----------------------------|--------|---------------------------|
| Rainfall Methodology | FEH-22 | Analysis Speed | Normal | Starting Level (m) |
| Rainfall Events | Singular | Skip Steady State | x | Check Discharge Rate(s) x |
| Summer CV | 1.000 | Drain Down Time (mins) | 1440 | Check Discharge Volume x |
| Winter CV | 1.000 | Additional Storage (m³/ha) | 20.0 | |

Storm Durations

| | | | | | | | | | | | |
|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440 |
|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|------|

| Return Period (years) | Climate Change (CC %) | Additional Area (A %) | Additional Flow (Q %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 2 | 0 | 0 | 0 |
| 30 | 0 | 0 | 0 |
| 30 | 40 | 0 | 0 |
| 100 | 0 | 0 | 0 |
| 100 | 40 | 0 | 0 |

Node 1 Surcharged Outfall

| | | | | | |
|------------------------------------|---|-------------------------------|---|------------------------------|---|
| Overrides Design Area | x | Depression Storage Area (m²) | 0 | Evapo-transpiration (mm/day) | 0 |
| Overrides Design Additional Inflow | x | Depression Storage Depth (mm) | 0 | | |

Applies to All storms



| Time (mins) | Depth (m) | Time (mins) | Depth (m) | Time (mins) | Depth (m) | Time (mins) | Depth (m) | Time (mins) | Depth (m) |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| 0 | 0.150 | 300 | 0.150 | 600 | 0.150 | 900 | 0.150 | 1200 | 0.150 |
| 60 | 0.150 | 360 | 0.150 | 660 | 0.150 | 960 | 0.150 | 1260 | 0.150 |
| 120 | 0.150 | 420 | 0.150 | 720 | 0.150 | 1020 | 0.150 | 1320 | 0.150 |
| 180 | 0.150 | 480 | 0.150 | 780 | 0.150 | 1080 | 0.150 | 1380 | 0.150 |
| 240 | 0.150 | 540 | 0.150 | 840 | 0.150 | 1140 | 0.150 | 1440 | 0.150 |

Node Carpark 1 Online Orifice Control

| | | | | | |
|--------------------------|---|------------------|--------|-----------------------|-------|
| Flap Valve | x | Invert Level (m) | 26.200 | Discharge Coefficient | 0.600 |
| Replaces Downstream Link | x | Diameter (m) | 0.018 | | |

Node Carpark 1 Carpark Storage Structure

| | | | | | |
|-----------------------------|---------|---------------------------|--------|---------------|-------|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 26.200 | Slope (1:X) | 200.0 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | 456 | Depth (m) | 0.600 |
| Safety Factor | 2.0 | Width (m) | 10.010 | Inf Depth (m) | |
| Porosity | 0.30 | Length (m) | 10.010 | | |



Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|-----------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|------------|
| 240 minute summer | Carpark 1 | 172 | 26.325 | 0.125 | 1.3 | 3.0926 | 0.0000 | SURCHARGED |
| 15 minute summer | 1 | 1 | 25.960 | 0.150 | 0.2 | 0.0000 | 0.0000 | OK |
| 240 minute summer | 2 | 172 | 26.088 | 0.012 | 0.2 | 0.0034 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|-----------------------------|-----------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 240 minute summer | Carpark 1 | 1.000 | 2 | 0.2 | 0.422 | 0.031 | 0.0047 | |
| 240 minute summer | 2 | 1.001 | 1 | 0.2 | 0.045 | 0.030 | 0.0713 | 5.0 |



Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|-----------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|------------|
| 240 minute winter | Carpark 1 | 220 | 26.501 | 0.301 | 2.0 | 8.4874 | 0.0000 | SURCHARGED |
| 15 minute summer | 1 | 1 | 25.960 | 0.150 | 0.3 | 0.0000 | 0.0000 | OK |
| 240 minute winter | 2 | 224 | 26.091 | 0.015 | 0.4 | 0.0042 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|-----------------------------|-----------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 240 minute winter | Carpark 1 | 1.000 | 2 | 0.4 | 0.486 | 0.050 | 0.0065 | |
| 240 minute winter | 2 | 1.001 | 1 | 0.4 | 0.070 | 0.048 | 0.0730 | 11.9 |



Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|-----------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|------------|
| 180 minute winter | Carpark 1 | 176 | 26.625 | 0.425 | 3.5 | 12.2726 | 0.0000 | FLOOD RISK |
| 15 minute summer | 1 | 1 | 25.960 | 0.150 | 0.3 | 0.0000 | 0.0000 | OK |
| 180 minute winter | 2 | 176 | 26.092 | 0.016 | 0.4 | 0.0046 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|-----------------------------|-----------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 180 minute winter | Carpark 1 | 1.000 | 2 | 0.4 | 0.511 | 0.060 | 0.0074 | |
| 180 minute winter | 2 | 1.001 | 1 | 0.4 | 0.083 | 0.057 | 0.0738 | 15.3 |

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status |
|-------------------|----------------|--------------------|------------------|------------------|---------------------|----------------------|-------------------|-------------------|
| 180 minute winter | Carpark 1 | 176 | 26.591 | 0.391 | 3.3 | 11.2296 | 0.0000 | SURCHARGED |
| 15 minute summer | 1 | 1 | 25.960 | 0.150 | 0.3 | 0.0000 | 0.0000 | OK |
| 180 minute winter | 2 | 176 | 26.092 | 0.016 | 0.4 | 0.0045 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|------------------------------------|----------------|-------------|----------------|----------------------|-----------------------|-----------------|----------------------|---------------------------|
| 180 minute winter | Carpark 1 | 1.000 | 2 | 0.4 | 0.505 | 0.057 | 0.0071 | |
| 180 minute winter | 2 | 1.001 | 1 | 0.4 | 0.080 | 0.055 | 0.0736 | 14.1 |



Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|-----------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|------------|
| 240 minute winter | Carpark 1 | 232 | 26.761 | 0.561 | 3.7 | 16.4437 | 0.0000 | FLOOD RISK |
| 15 minute summer | 1 | 1 | 25.960 | 0.150 | 0.4 | 0.0000 | 0.0000 | OK |
| 240 minute winter | 2 | 232 | 26.093 | 0.017 | 0.5 | 0.0049 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|-----------------------------|-----------|-------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 240 minute winter | Carpark 1 | 1.000 | 2 | 0.5 | 0.533 | 0.069 | 0.0081 | |
| 240 minute winter | 2 | 1.001 | 1 | 0.5 | 0.095 | 0.066 | 0.0746 | 21.1 |



Appendix: K – SuDS Proforma

| | | | |
|---------------------------|---|---|----------------|
| 1. Project & Site Details | Project / Site Name (including sub-catchment / stage / phase where appropriate) | 34A Drayton Gardens | |
| | Address & post code | 34A Drayton Gardens, West Drayton, UB7 7LG | |
| | OS Grid ref. (Easting, Northing) | E 506071 | |
| | | N 179743 | |
| | LPA reference (if applicable) | | |
| | Brief description of proposed work | Addition of two dwellings into the garden area of the existing property | |
| | Total site Area | 521.34 | m ² |
| | Total existing impervious area | 182.39 | m ² |
| | Total proposed impervious area | 410 | m ² |
| | Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)? | No | |
| | Existing drainage connection type and location | Presumed Surface Water Sewer Connection | |
| | Designer Name | Ben Shaw | |
| Designer Position | Graduate Consultant | | |

| | | | |
|--|--|-----------------------|-----------------------|
| 2. Proposed Discharge Arrangements | 2a. Infiltration Feasibility | | |
| | Superficial geology classification | London Clay | |
| | Bedrock geology classification | London Clay | |
| | Site infiltration rate | N/A | m/s |
| | Depth to groundwater level | N/A | m below ground level |
| | Is infiltration feasible? | No | |
| | 2b. Drainage Hierarchy | | |
| | | <i>Feasible (Y/N)</i> | <i>Proposed (Y/N)</i> |
| | 1 store rainwater for later use | N | N |
| | 2 use infiltration techniques, such as porous surfaces in non-clay areas | N | N |
| | 3 attenuate rainwater in ponds or open water features for gradual release | N | N |
| | 4 attenuate rainwater by storing in tanks or sealed water features for gradual release | N | N |
| | 5 discharge rainwater direct to a watercourse | N | N |
| | 6 discharge rainwater to a surface water sewer/drain | Y | Y |
| | 7 discharge rainwater to the combined sewer. | Y | Y |
| 2c. Proposed Discharge Details | | | |
| Proposed discharge location | Thames Water Surface Water Sewer | | |
| Has the owner/regulator of the discharge location been | No | | |



GREATERLONDONAUTHORITY



| | |
|------------------|------------------------|
| Designer Company | EAS Transport Planning |
|------------------|------------------------|

| | |
|------------|--|
| consulted? | |
|------------|--|

| 3a. Discharge Rates & Required Storage | | | | |
|--|-----------------------------------|-------------------------------|--|-------------------------------|
| | Greenfield (GF) runoff rate (l/s) | Existing discharge rate (l/s) | Required storage for GF rate (m ³) | Proposed discharge rate (l/s) |
| Q _{bar} | 2.5 | | | |
| 1 in 1 | 2 | 8.6 | | 0.2 |
| 1 in 30 | 7.6 | 26 | | 0.4 |
| 1 in 100 | 10 | 33.7 | | 0.4 |
| 1 in 100 + CC | | | 119 | 0.5 |
| Climate change allowance used | | 40% | | |
| 3b. Principal Method of Flow Control | | 18mm Orifice Plate | | |
| 3c. Proposed SuDS Measures | | | | |
| | Catchment area (m ²) | Plan area (m ²) | Storage vol. (m ³) | |
| Rainwater harvesting | 0 | | 0 | |
| Infiltration systems | 0 | | 0 | |
| Green roofs | 0 | 0 | 0 | |
| Blue roofs | 0 | 0 | 0 | |
| Filter strips | 0 | 0 | 0 | |
| Filter drains | 0 | 0 | 0 | |
| Bioretention / tree pits | 0 | 0.65 | 0.58 | |
| Pervious pavements | 220 | 100 | 18 | |
| Swales | 0 | 0 | 0 | |
| Basins/ponds | 0 | 0 | 0 | |
| Attenuation tanks | 0 | | 0 | |
| Total | 220 | 100.65 | 18.58 | |

| 4a. Discharge & Drainage Strategy | Page/section of drainage report |
|---|---------------------------------|
| Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results | 12 |
| Drainage hierarchy (2b) | 18 |
| Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location | 18 |
| Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations | 20 |
| Proposed SuDS measures & specifications (3b) | 20 |
| 4b. Other Supporting Details | Page/section of drainage report |
| Detailed Development Layout | Appendix B |
| Detailed drainage design drawings, including exceedance flow routes | Appendix I |
| Detailed landscaping plans | Appendix B |
| Maintenance strategy | |
| Demonstration of how the proposed SuDS measures improve: | |
| a) water quality of the runoff? | 22 |
| b) biodiversity? | 20 |
| c) amenity? | 20 |