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NPPF: Flood Risk Assessment & Drainage Strategy

Bedhampton Waterworks

E101 Hub 4 Ltd

SHF.3055.001.HY.R.001.B

'Experience and expertise working in union'

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Bedhampton Waterworks

Project:	SHF.3055.001.HY.R.001.B - NPPF: Flood Risk Assessment & Drainage Strategy
For:	E101 Hub 4 Ltd
Status:	Issued
Date:	March 2025
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Executive Summary

This report presents a Flood Risk Assessment in accordance with the National Planning Policy Framework and National Planning Practice Guidance: Flood Risk and Coastal Change ID: 7 guidance, for a proposed battery energy storage system (BESS) development located on land at Portsmouth Water Bedhampton Water Treatment Works (WTW), Meyrick Road, Havant, Hampshire.

The report includes an assessment of the surface water drainage requirements of the Site and details the flood risk and how this could be managed and mitigated to allow the Site to be developed in support of the planning application.

The FRA has demonstrated the following:

- The 0.8-hectare (ha) Site is comprised of made ground and an is part of the wider Portsmouth Water Bedhampton WTW.
- The Site slopes into the centre and is underlain by clayey soils and bedrock with low infiltration potential.
- A watercourse conveys flows southwest along the southeastern boundary of the Site.
- The risk of flooding is assessed as follows:
  - The risk of fluvial flooding is assessed as negligible.
  - The risk of tidal flooding is assessed as negligible for most of the Site and medium along the southern boundary.
  - The risk of groundwater flooding is assessed as high for the entire Site.
  - The risk of surface water flooding is assessed as negligible for most of the Site and medium to high along surface water flow pathways.
  - The risk of flooding from sewers is assessed as negligible for most of the Site and low along the reaches of the identified assets.
  - The risk of flooding from all other sources is assessed as negligible.
- Flood risk from identified sources can be mitigated to a negligible or low and acceptable level through the following approach:
  - Provide an 8m easement free from development along the side of Hermitage Stream. This easement would provide access for inspection and maintenance purposes, including vehicle access.
  - Set the surface water outfall from the proposed development at an appropriate height, i.e. above the 1 in 100-year+51%CC flood level (5.53m AOD).
  - Set vulnerable electrical equipment a minimum of +150mm above the modelled 1 in 100-year 51%+CC flood level.
  - Adoption of a surface water management strategy.
  - Fit outfall with flapped outfalls to avoid surcharging in a flood event and allow surface water to still discharge.
  - Lined attenuation to prevent groundwater ingress.
  - Sequentially develop the Site, limiting the built development outside the mapped extent of surface water flooding associated with overland flow pathways.

- Provide a development free easement (3m either side) of onsite Southern Water sewer assets, or re-direct around the Site boundary.

- The proposed battery energy storage system use is classified as essential infrastructure. Essential infrastructure uses are considered acceptable in terms of flood risk in Flood Zone 1, 2, and 3 (low to high risk). There is however a risk of flooding from other sources. Subject to the implementation of the above mitigation measures, the Sequential Test would be passed, and the Exception Test would not be required.

- The FRA has considered the potential impact of the development on surface water runoff rates, given the increase in impermeable areas post-development. These rates have been calculated, and it has been demonstrated that surface water can be managed, such that flood risk to and from the Site following development will not increase. This will be achieved through restricted discharge rates and appropriately sized attenuation tanks, with an outfall to Hermitage Stream.

The FRA demonstrates the proposed development would be operated with minimal risk from flooding and would not increase flood risk elsewhere. The development should therefore not be precluded on the grounds of flood risk, as well as surface water drainage.

1.0 Introduction

1.1 Background

1.1.1 Enzygo Ltd was commissioned by E101 Hub 4 Ltd to carry out a site-specific Flood Risk Assessment (FRA), including an outline surface water drainage strategy, in support of a planning application for a proposed battery energy storage system (BESS) development. The Site is located on land at Portsmouth Water Bedhampton Water Treatment Works (WTW), Meyrick Road, Havant, Hampshire (the 'Site').

1.1.2 The proposal is for a 150MWh battery storage facility, with associated infrastructure on the 0.8-hectare (ha) Site. A copy of the proposed layout is included in Appendix 1.

1.1.3 A site-specific FRA assesses the current and future flood risk to and from a development site. It demonstrates how flood risk will be managed now and over the development's lifetime, taking climate change, drainage, and the vulnerability of its intended users into account.

1.1.4 The objectives of a site-specific FRA are to:

- Assess whether a proposed development is likely to be affected by current or future flooding from a range of sources.
- Assess whether the development will increase flood risk elsewhere.
- Decide on measures to deal with these effects and risks and assess their appropriateness.
- Provide enough evidence for the local planning authority to apply (if necessary) the Sequential Test.
- Decide whether the development will be safe and will pass the Exception Test if applicable.

1.1.5 In England, planning applications for development need an FRA[1] for most developments including:

- In Flood Zones 2 and 3 including minor development and change of use.
- Sites of 1ha or larger in Flood Zone 1.
- Sites of less than 1ha in Flood Zone 1, including change of use to a more vulnerable class (for example from commercial to residential), and where they could be affected by sources of flooding other than rivers and the sea.
- Land in Flood Zone 1 in a Critical Drainage Area (CDA) as notified by the Environment Agency.
- Land in Flood Zone 1 identified in a strategic flood risk assessment as being at increased flood risk in future.

1.1.6 An FRA is required for this development, as initial screening using Environment Agency online indicative flood mapping shows the Site is mostly in Flood Zone 1 (low risk). The southeastern corner is within Flood Zone 3 (high risk) and the Site is more than 1ha and is at risk of surface water flooding.

[1] Department for Environment, Food & Rural Affairs and Environment Agency (published March 2014 and updated March 2025). Flood Risk Assessments if You're Applying for Planning Permission [https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications].

1.1.7 The purpose of this FRA is to assess the risk of flooding to the proposed development and where possible provide sufficient mitigation to demonstrate that future users of the development would remain safe throughout its lifetime, that the development would not increase flood risk on Site and elsewhere and, where practicable, would reduce flood risk overall.

1.2 Scope

1.2.1 Government policy on development and flood risk is set out in the National Planning Policy Framework (NPPF)[2] and is supported by National Planning Practice Guidance: Flood Risk and Coastal Change [NPPG ID7][3].

1.2.2 NPPF paragraphs 161-186 set out the need for an appropriate assessment of flood risk at all levels of the planning process and require the application of a sequential risk-based approach to assess the suitability of land for development in flood risk areas.

1.2.3 The FRA should also make allowances for climate change[4] to minimise vulnerability and provide resilience to flooding and coastal change in the future. The allowances are predictions of anticipated change in:

- Peak river flow by river basin district.
- Peak rainfall intensity.
- Sea level rise.
- Offshore wind speed and extreme wave height.

1.2.4 The allowances are based on climate change projections and different scenarios of carbon dioxide emissions to the atmosphere. There are different allowances for different periods of time over the next century.

1.2.5 Site-specific FRAs are categorised according to level. Simple Level 1 Screening studies give a general indication of the potential flood risk to a site and identify whether more detailed Level 2 assessment is required or not. A Level 2 assessment is a qualitative appraisal to develop understanding of flood risk to a site and the effects of the site on flooding elsewhere including recommended mitigation measures. Level 3 assessments are more detailed quantitative studies, for example modelling to establish flood levels at a site in the absence of Environment Agency or other data or providing detailed outline drainage designs.

1.2.6 This report is a Level 2 qualitative FRA, which includes a Level 3 assessment of the surface water and foul drainage requirements for the proposed development.

1.3 Aims

1.3.1 This FRA aims to provide enough flood risk information to satisfy the requirements of the NPPF, PPG ID7 and regional/local government plans and policies. It describes the potential for the Site to be impacted by flooding, the impacts of the proposed development on flooding

[2] Ministry of Housing, Communities & Local Government (published March 2012 and updated February 2025). National Planning Policy Framework [https://www.gov.uk/government/publications/national-planning-policy-framework--2].
[3] Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (published March 2014 and updated August 2022). Planning Practice Guidance ID7-030-20220825; Flood Risk & Coastal Change [https://www.gov.uk/guidance/flood-risk-and-coastal-change].
[4] Environment Agency (published February 2016 and updated May 2022). Flood Risk Assessments: Climate Change Allowances [https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances].

elsewhere near the Site, and the proposed measures that could be incorporated into the development to mitigate the identified risks.

1.4 Planning Context

National Policy

1.4.1 The FRA was prepared in accordance with the NPPF and NPPG ID7.

Regional/Local Policy

1.4.2 The FRA considers the following policy within the Havant Borough Council Local Plan (Core Strategy) (2011)[5]:

- Policy CS15: Flood and Erosion Risk

1.4.3 This FRA also considers the following flood risk and drainage guidance documents[6]:

- Hampshire Local Flood Risk Management Strategy.
- Hampshire Groundwater Management Plan.
- Preliminary Flood Risk Assessment.
- Hampshire Catchment Flood Management Plans (CFMP).

1.5 Report Structure

1.5.1 This report is structured as follows:

- Section 2 identifies the sources of information that were consulted.
- Section 3 describes the existing Site.
- Section 4 outlines the flood risk to the existing site and proposed development.
- Section 5 details the proposed mitigation measures against identified flooding sources.
- Section 6 assesses the surface water drainage requirements of the proposed development.
- Section 7 presents a summary and conclusions.

[5] www.havant.gov.uk/media/7437/download?inline

[6] https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/strategies

2.0 Sources of Information

2.1 Sources of Information

2.1.1 The following information was consulted:

- Ordnance Survey mapping (Drawings 001 and 002).
- Topographic Survey (Appendix 2).
- Environment Agency online mapping (Flood Map for Planning[7], Long Term Flood Risk Assessment for Locations in England[8], Catchment Data Explorer[9] and Main River Map[10]).
- Environment Agency Reduction in Risk of Flooding from Rivers and Sea online mapping[11].
- Online mapping for Climate Change Allowances for Peak River Flow and Peak Rainfall in England online mapping[12].
- National Soils Resources Institute (NSRI): Soilscapes online mapping[13].
- British Geological Survey [BGS] Geology Viewer online mapping[14].
- British Geological Survey [BGS] Borehole Records online mapping[15].
- Landmark's Promap: Flood Data package (see Drawings).
- Geosmart 1 in 100-year groundwater flood risk map (see Drawings).
- DEFRA's Magic Map for identifying Designated Sites[16].
- River Levels UK for identifying Flood Alert and Flood Warning areas[17].

2.2 Consultation and Discussion with Regulators

2.2.1 Consultation and discussions were undertaken with the relevant water regulators.

Environment Agency

2.2.2 The Environment Agency is a statutory consultee on flood risk and planning and is directly responsible for the prevention, mitigation, and remediation of flood damage for main rivers and coastal areas; and it has a strategic overview for all forms of flooding.

2.2.3 Environment Agency Standing Advice[18] and the NPPF/PPG ID: 7 was consulted and reviewed.

[7] https://flood-map-for-planning.service.gov.uk/
[8] https://flood-warning-information.service.gov.uk/long-term-flood-risk/
[9] http://environment.data.gov.uk/catchment-planning/
[10] https://environment.maps.arcgis.com/apps/webappviewer/index.html?id=17cd53dfc524433980cc333726a56386
[11] ArcGIS - My Map
[12] https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances
[13] https://www.landis.org.uk/soilscapes/
[14] https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/
[15] https://www.bgs.ac.uk/information-hub/borehole-records/
[16] https://magic.defra.gov.uk/magicmap.aspx
[17] https://riverlevels.uk/flood-map#.XclKwPn7RPZ
[18] Environment Agency and Department for Environment, Food & Rural Affairs (published April 2012 and updated March 2025). Preparing a Flood Risk Assessment: Standing Advice [https://www.gov.uk/guidance/flood-risk-assessment-standing-advice].

2.2.4 Correspondence with the Environment Agency is included in Appendix 3.

Lead Local Flood Authority

2.2.5 Hampshire County Council as the Lead Local Flood Authority (LLFA) is responsible for local flood risk management in their area and for maintaining a register of flood risk assets. They also have lead responsibility for managing the risk of flooding from surface water, groundwater, and ordinary watercourses.

2.2.6 Correspondence with the LLFA is included in Appendix 4.

Water Utility

2.2.7 Drainage and sewerage services in the UK are provided by a number of water and sewerage companies. Southern Water is responsible for sewerage within the area of the Site.

2.2.8 All sewerage undertakers maintain the 8DG5 register9of properties and external areas (such as gardens, highways, open spaces) which have suffered flooding from public foul/combined sewers. It does not include flooding caused by blockages.

2.2.9 Southern Water asset plans are included in Appendix 5.

2.3 Site Walkover

2.3.1 Enzygo staff carried out a walkover of the Site during March 2023 and April 2024. Observations made were used to inform the Site description.

3.0 Site Location and Description

3.1 Location

3.1.1 The Site is located on land at Portsmouth Water Bedhampton WTW, Havant, Hampshire, PO9 3HB.

3.1.2 The Site is centred on National Grid Reference (NGR) 470536, 106316.

3.1.3 The 0.8ha Site location is shown in Drawing 001 and in more detail in Drawing 002.

3.2 Land Use

3.2.1 The land use is comprised of made ground and an is part of the wider Portsmouth Water Bedhampton WTW (Figures 3.1 and 3.2).

3.2.2 The Site is bounded by an internal access road to the north, east, and west. There is a ground mounted solar farm and buildings associated with the wider Water Treatment Works to the north, with a railroad and residential housing beyond; an industrial estate and grassed land to the east, with residential developments beyond; Hermitage Stream to the south, with grassed land and the Havant Bypass beyond; and a railway to the west, with grassed land, trees and a quarry beyond.

3.2.3 Vehicle access is currently from Meyrick Road to the southeast of the Site.

Figure 3.1: Images of the Site





Left: View looking east across the Site. Right: Site entrance via Meyrick Road.





Left: View looking south across the Site. Right: View looking west across the Site.

Figure 3.2: Aerial Image of the Site



Image © 2025 Digital Globe.

3.3 Topographic Information

3.3.1 Flow pathway analysis was undertaken in KeyTERRA-FIRMA (KTF) software to understand watershed catchments (Drawing 007). A summary of the Site topography is included in Figure 3.3 and described below. A Site topographic survey was carried out March 2024 (Appendix 2). The survey, however, does not cover the full extents of the Site and therefore, has been used in conjunction with the KTF flow path analysis.

3.3.2 The Site is comprised of elevated bunding on all sides with a low point in the centre where there is hardstanding.

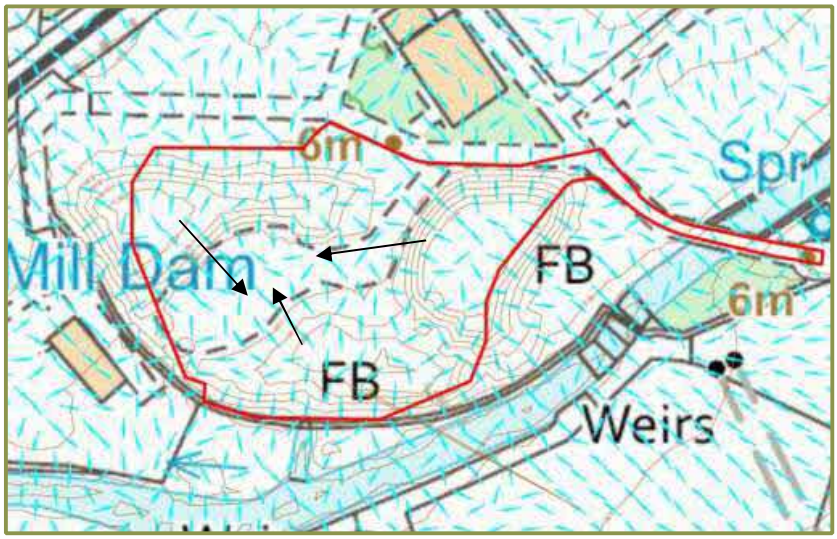
3.3.3 The northern bund sits between 7.78 metres Above Ordnance Datum (m AOD) and 11.17m AOD. The western extents of the bund fall from 11.17m AOD to 6.11m AOD at the bottom of the bund, on the hardstanding. The fall of 5.06m over 27.1m gives a gradient of 1:5. The eastern extents of the bund fall from 7.78m AOD to 6.29m AOD at the bottom of the bund on the hardstanding. The fall of 1.49m over 1.61m gives a gradient of 1:1.

3.3.4 The bund in the southwestern extents of the Site falls from 9.94m AOD to 6.17m AOD. The fall of 3.77m over 15m gives a gradient of 1:4.

3.3.5 The bund in the eastern extents of the Site falls from 12.45m AOD to 6.27m AOD at the bottom of the bund. The fall of 3.67m over 26m gives a gradient of 1:7.

3.3.6 It must be noted that post-development, it is proposed that these bunds be lowered. The bund along the southern extents of the Site, however, will be kept to aid as a flood defence.

Figure 3.3: Summary of Site Topography



3.4 Soils and Geology

Soils Mapping

3.4.1 The online NSRI Soilscapes mapping (Figure 3.4) shows the Site is underlain by loamy soils with naturally high groundwater. The soils mapping is indicative and there may be localised variation.

3.4.2 The Site walkover and previous land use shows the presence of hardstanding and made ground across the Site.

Figure 3.4: Soils Mapping



Soils Data © Cranfield University (NSRI) and for the Controller of HMSO [2025].

Geology Mapping

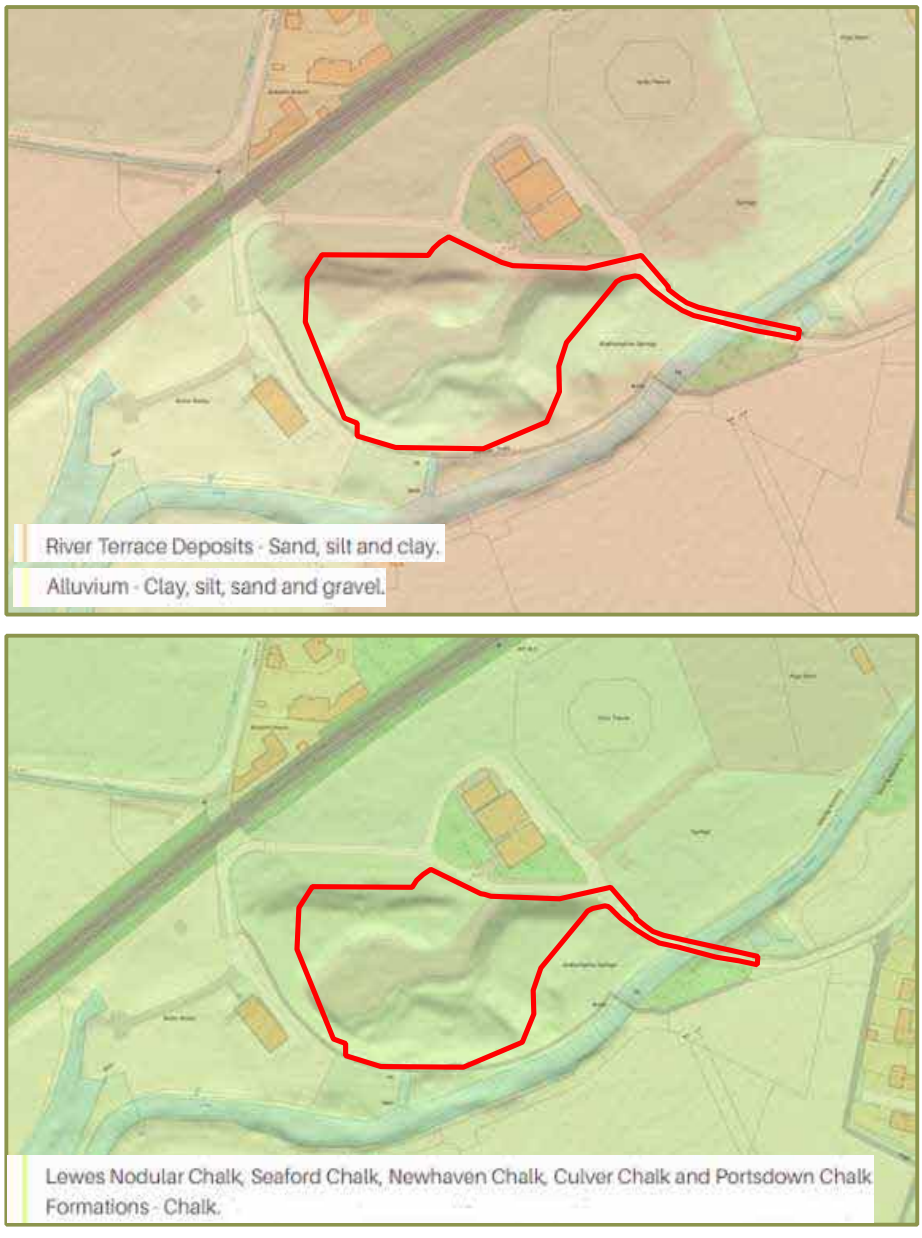
3.4.3 The online BGS Geology Viewer (Figure 3.5) shows the eastern, central, and western extents of the Site are underlain by Alluvium 3 clay, silt, sand and gravel. The northern and southern

extents of the Site are underlain by River Terrace Deposits 3 sand, silt, and clay (superficial deposits).

3.4.4 The bedrock beneath the entire Site is Lewes Nodular Chalk, Seaford Chalk, Newhaven Chalk, Culver Chalk and Portsdown Chalk Formations.

3.4.5 The geology mapping is indicative and there may be localised variation.

Figure 3.5: Geology Mapping



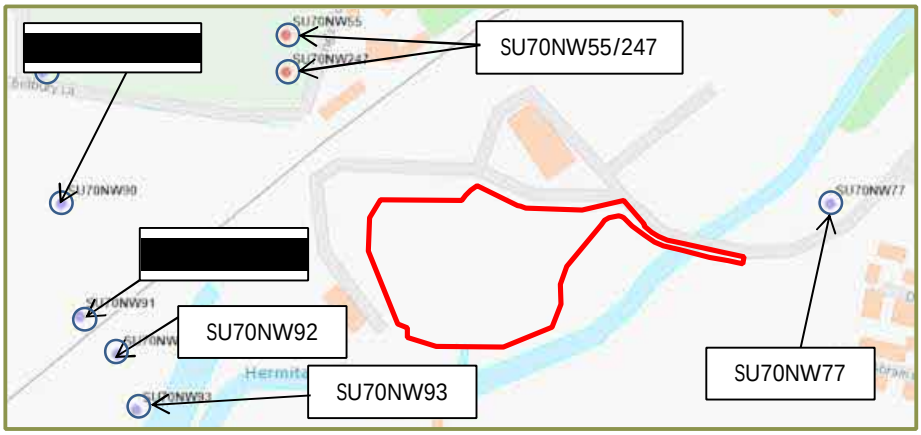
Top: Superficial deposits. Bottom: Bedrock geology. Contains British Geological Survey materials © NERC [2025].

BGS Borehole Records

3.4.6 The BGS Borehole Records online mapping (Figure 3.6) shows seven borehole records surrounding the Site (SU70NW90, SU70NW91, SU70NW92, SU70NW93, SU70NW55/247, and SU70NW77) in the superficial deposits.

3.4.7 The borehole records (Appendix 7) confirm the geology as depicted by the Geology of Britain mapping (Table 3.1).

Figure 3.6: Borehole Mapping



Contains British Geological Survey materials © NERC [2025].

Table 3.1: BGS Borehole Data

Reference	Summary of Strata	Depth (m bgl)	Groundwater Depth (m bgl)
SU70NW90	0.00 3 3.04m = clay with some chalk flints	3.04	n/a
SU70NW91	0.00 3 2.13m = clay some chalk flints 2.13 3 4.57m = chalk	4.57	2.4
SU70NW92	0.00 3 6.1m = clay with flint and chalk	6.10	1.8
SU70NW93	0.00 3 1.5m = chalky clay 1.5 3 4.57m = chalk and flint	4.57	1.2
SU70NW77	0.00 3 2.1m = clay with chalk 2.1 3 7.31m = chalk	7.31	2.1
SU70NW55/247	0.00 3 2.10m = gravel 2.10 3 36.0m = chalk	36.00	29.6

Contains British Geological Survey materials © NERC [2025].

3.5 Hydrogeology

Infiltration Potential

3.5.1 The SuDS Infiltration Potential Mapping (Drawing 005) shows the Site is in the mapped extent indicative of moderate potential, which is likely to be associated with the underlying superficial deposits.

3.5.2 The clayey soils and superficial deposits are indicative of low infiltration potential despite the bedrock having high infiltration potential.

3.5.3 Groundwater ingress was encountered in four of the boreholes between depths of 1.2m and 2.4m bgl.

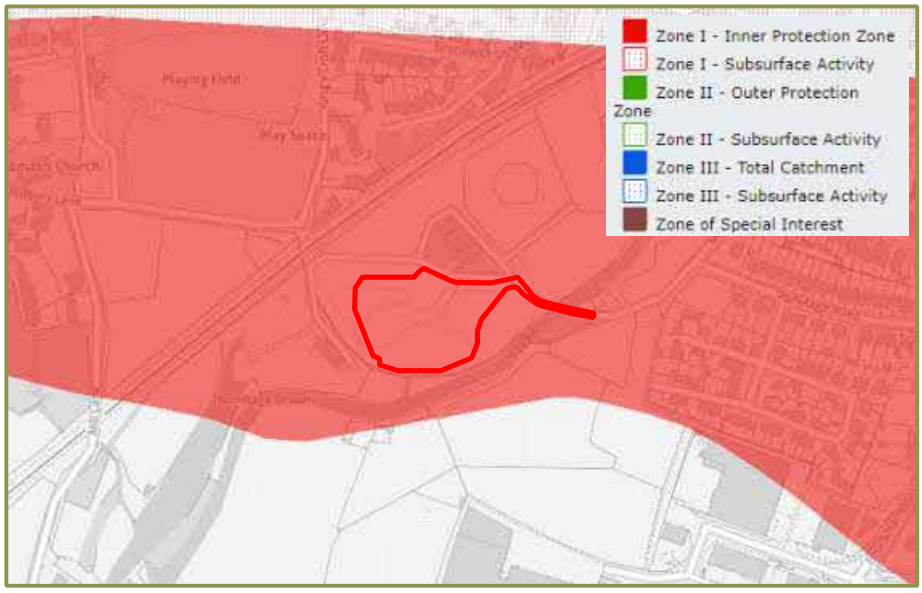
3.5.4 The groundwater is likely to be hydraulically linked to levels within Hermitage Stream.

Defra Magic Map

3.5.5 The online Defra Magic Map mapping (Figure 3.7) shows the Site is located in a groundwater Source Protection Zone (SPZ). The Site is located within the 50-day travel time 8nner Zone9 (Zone 1) of a groundwater abstraction.

3.5.6 These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. Where infiltration-based SuDS are proposed to manage surface water from a development, then direct discharge into groundwater would not be permissible. Therefore, the elevation of the groundwater table with respect to the base of the soakaway is critical, and there must be an unsaturated zone in the aquifer unit.

Figure 3.7: Source Protection Zone Map

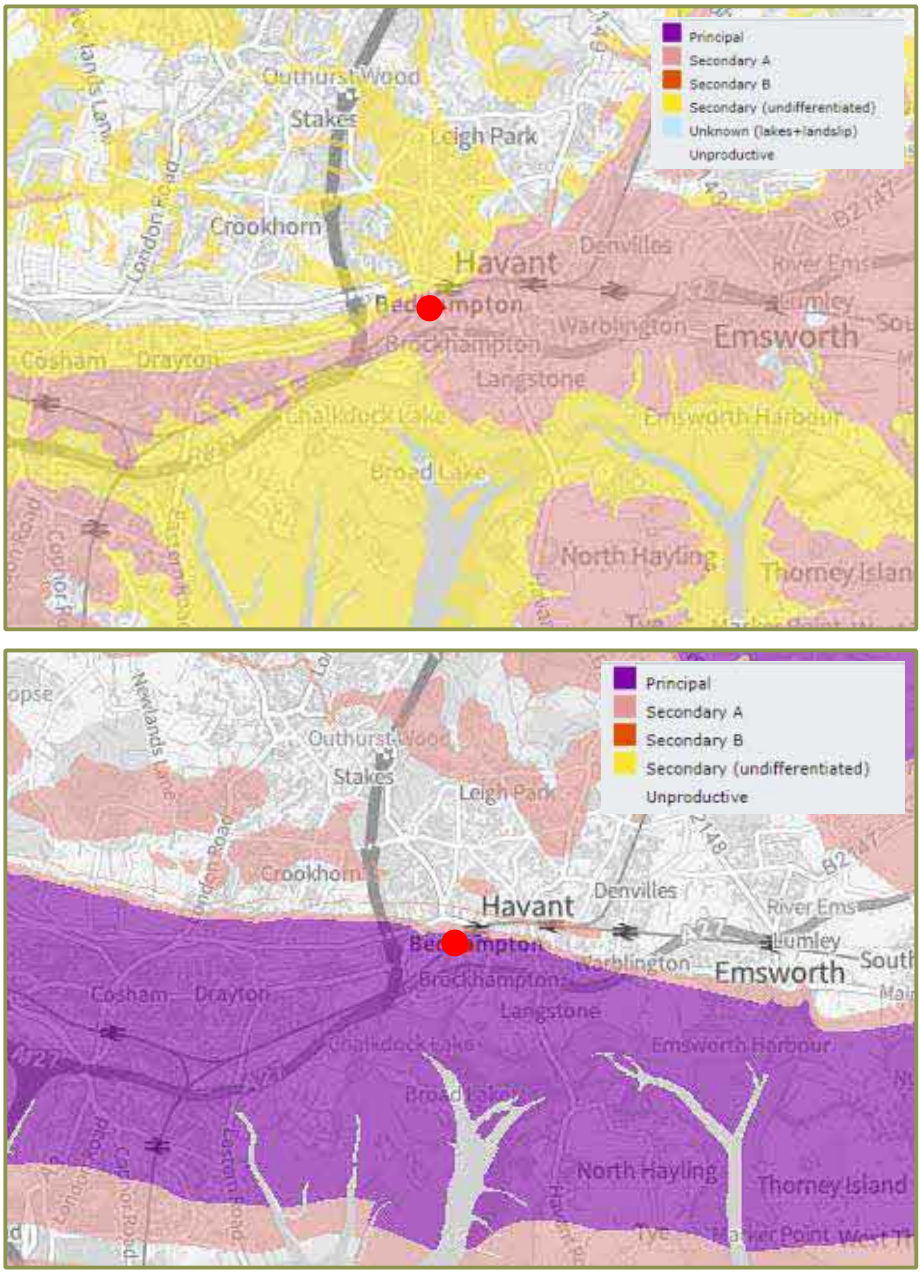


From Magic Map. Contains Environment Agency information © Environment Agency and database right [2025].

3.5.7 The Site is located above a Principal Aquifer (bedrock designation). The Site is also located above a Secondary A Aquifer (superficial drift) (Figure 3.8).

3.5.8 Indirect inputs of clean surface water to groundwater are permissible, for example where the base of the soakaway is above the water table and there is an unsaturated zone in the aquifer unit.

Figure 3.8: Aquifer Designation Map



Top: Aquifer Designation (superficial deposits). Bottom: Aquifer Designation (bedrock). From Magic Map. Contains Environment Agency information © Environment Agency and database right [2025].

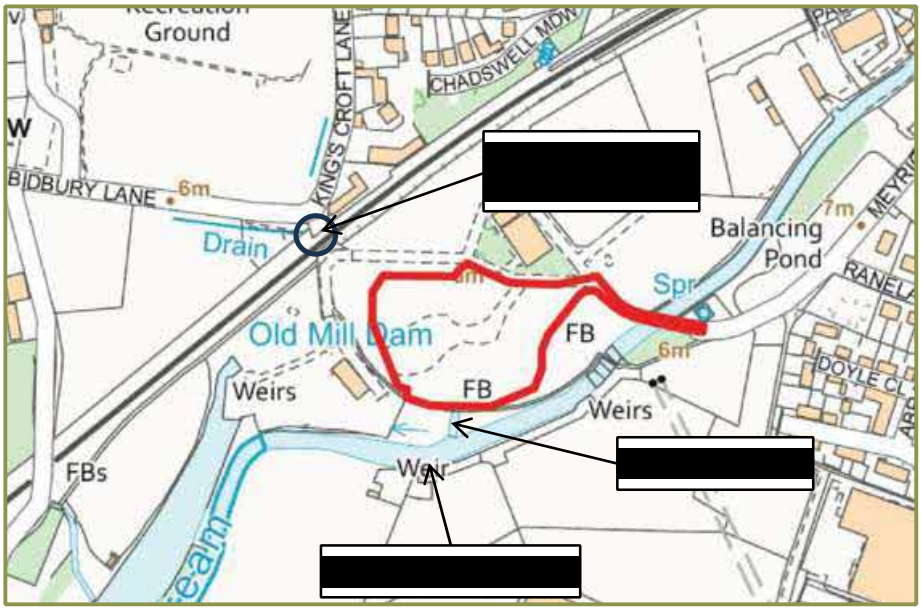
3.6 Catchment Hydrology

OS Mapping and Site Walkover Observations

3.6.1 OS mapping (Figure 3.9) shows Hermitage Stream conveys flows southwest approximately 8m from the southeastern boundary.

3.6.2 A small watercourse (Watercourse 19) is culverted beneath the Site and outfalls into Hermitage Stream from the southern central boundary of the Site.

Figure 3.9: Map of Watercourses



Hermitage Stream

3.6.3 The Site walkover observed Hermitage Stream conveying flows southwest along the southeastern boundary (Figure 3.10).

3.6.4 The channel is free flowing, clear from overgrown vegetation or blockages and is at least 15m wide.

Figure 3.10: Hermitage Stream



Left and Right: Hermitage Stream flowing southwest along the southern boundary.

Watercourse 1

3.6.5 The Site walkover observed Watercourse 1 (Figure 3.11) flowing south, from the Site (out of culvert) and outfalling into Hermitage Stream. The channel was free flowing and banked on either side by concrete. It contained some vegetation.

3.6.6 Correspondence with Portsmouth Water (Appendix 6) confirmed that Watercourse 1 is a &conduit9that runs throughout most of the year taking excess spring water and discharging it to Hermitage Stream. The conduit originates approximately 20m north of the Site from a water distribution main.

Figure 3.11: Watercourse 1



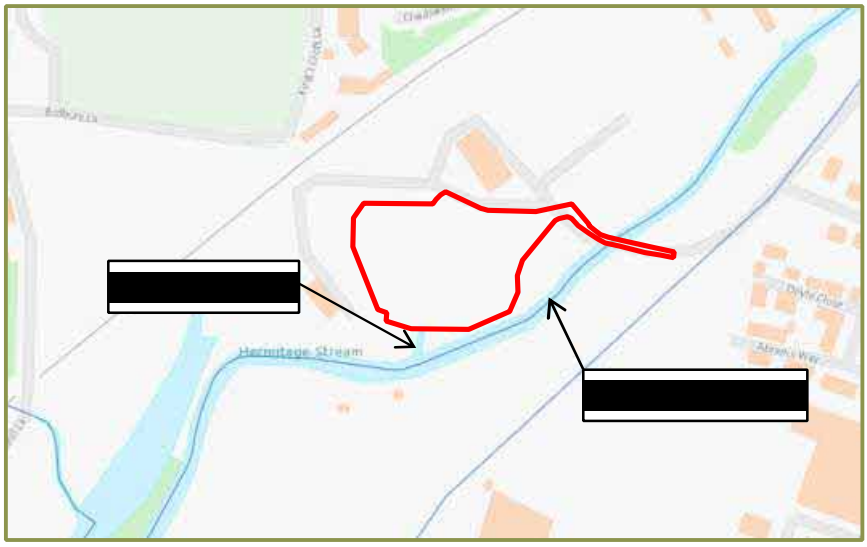
Left: Watercourse 1 out-falling into Hermitage Stream. Right: Assumed route of Watercourse 1 (orange).

Main River Map

3.6.7 The Environment Agency online main river map (Figure 3.12) identifies Hermitage Stream as a 'main river', which is a watercourse where flood risk work is carried out by the Environment Agency.

3.6.8 Watercourse 1 is classified as 'an ordinary watercourse', where flood risk work is carried out by the local drainage authority/riparian landowner.

Figure 3.12: Main River Map

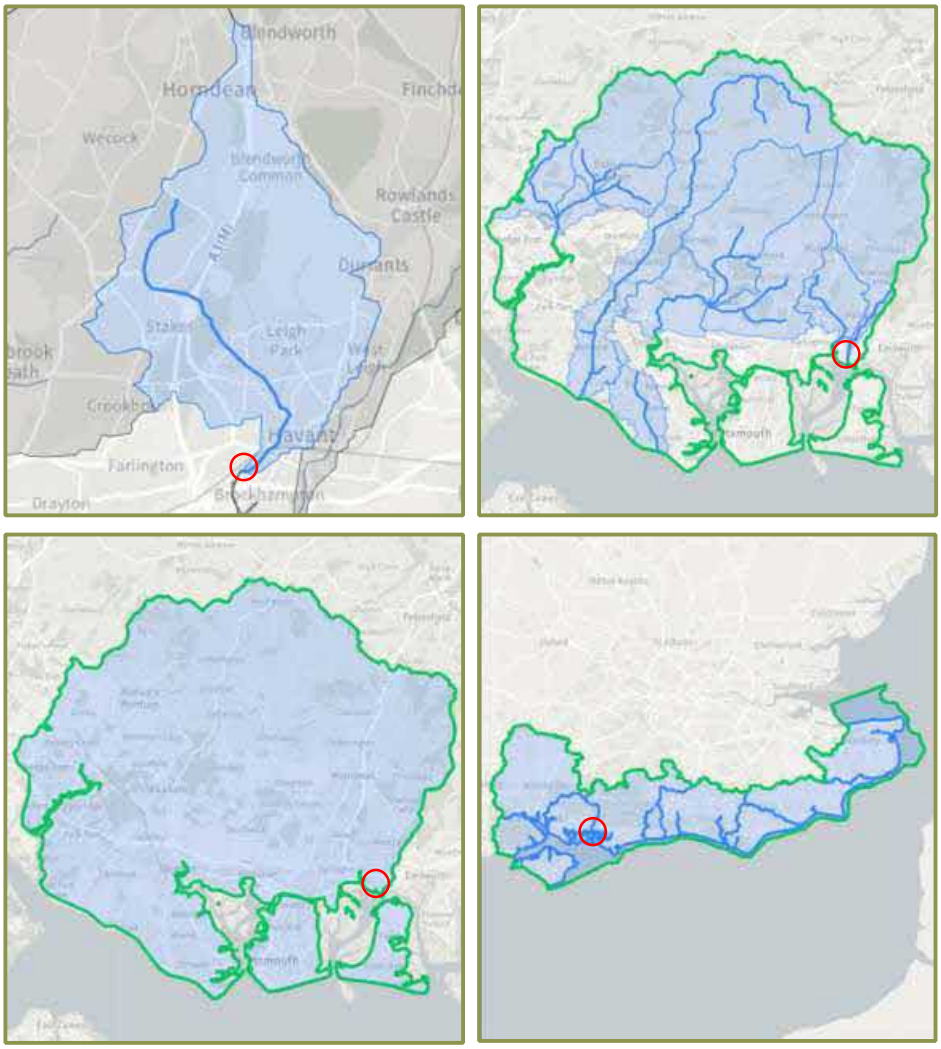


Contains Environment Agency information © Environment Agency and database right [2025].

Environment Agency Catchment Data Explorer Mapping

3.6.9 The Site resides within the Hermitage Stream Water Body (Figure 3.13), which is in the East Hampshire Rivers Operational Catchment, East Hampshire Management Catchment, and South East River Basin District.

Figure 3.13: Catchment Data Explorer



Top Left: Hermitage Stream Water Body. Top Right: East Hampshire Rivers Operational Catchment. Bottom Left: East Hampshire Management Catchment. Bottom Right: South East River Basin District. Contains Environment Agency information © Environment Agency and database right [2025].

3.7 Sewerage Asset

Public Assets

3.7.1 Southern Water asset plans (Appendix 5) show there nearest assets are a Ø225mm public surface water sewer approximately 70m northwest of the Site along Kings Croft Lane.

3.7.2 There is a Ø1650mm public foul tank sewer approximately 360m southeast of the Site adjacent to Ranelagh Road.

3.7.3 There is a distribution main running against the northeastern boundary of the Site and a raw water main conveying flows east-west through the northern extents of the Site.

3.7.4 The &conduit9that comprises Watercourse 1 (owned by Portsmouth Water) is a Ø800mm pipe that runs northeast to southwest through the centre of the Site.

3.8 Designated Sites

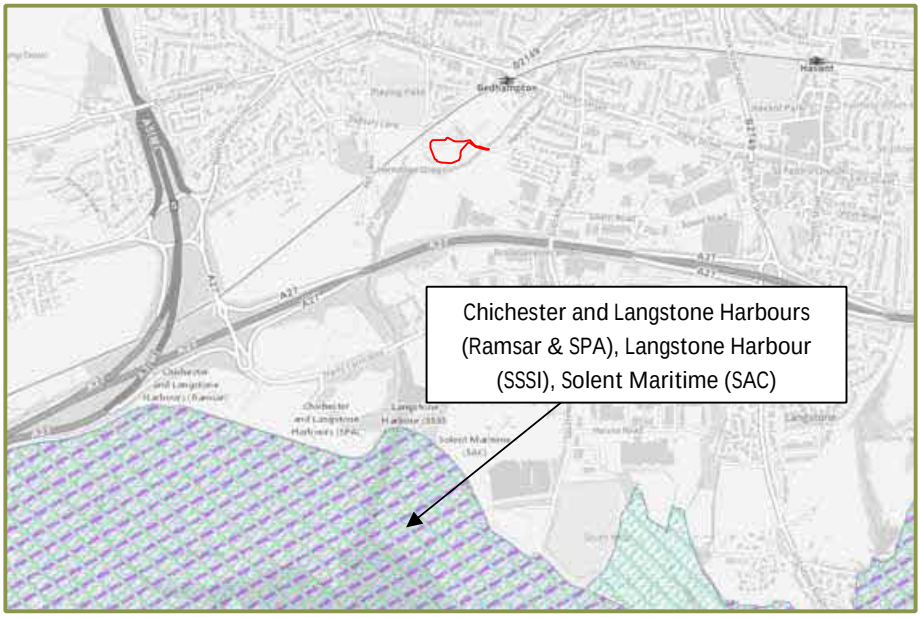
3.8.1 The online Defra Magic Map mapping (Figure 3.14) shows the nearest designated sites are Chichester and Langstone Harbours (Ramsar and Special Protection Area [SPA]), Langstone Harbour (Site of Special Scientific Interest [SSSI]), and Solent Maritime (Special Area of Conservation [SAC]) all of which are located approximately 900m south of the Site.

3.8.2 These designated sites are hydrologically connected to the proposed development as the Site drains to Hermitage Stream which flows downstream through these designated sites.

3.8.3 Correspondence with Hampshire County Council (Appendix 4) confirmed the Site is within 250m of 8Old Bedhampton Conservation Area9 This designated area includes sections of the area of Bedhampton and is hydrologically connected to the proposed development.

3.8.4 Correspondence with Portsmouth Water (Appendix 6) noted that the conduit that runs beneath the Site is an important spring water supply to the river that contains rare species of plant within its channel due to the quality and condition of the spring water.

Figure 3.14: Designated Sites



From Magic Map. Contains Environment Agency information © Environment Agency and database right [2025].

4.0 Flood Risk Assessment

4.1 Potential Sources of Flooding

4.1.1 A summary of the potential sources of flooding and the potential risk posed by each source at the Site is presented in Table 4.1. Each source of flooding and level of risk is then assessed in further detail.

Table 4.1: Potential Risk Posed by Flooding Sources

Flooding Source	Potential Flood Risk at Application Site (Yes/No)	Potential Source	Data Sources
Fluvial	Yes	Hermitage Stream and Watercourse 1	Environment Agency consultation response/data (Appendix 3) and Environment Agency Flood Zone mapping (Drawing 003).
Tidal	Yes	Hermitage Stream/Solent	Environment Agency consultation response/data (Appendix 3) and Environment Agency Flood Zone mapping (Drawing 003).
Groundwater	Yes	Principal and Secondary A Aquifer	Geosmart Groundwater (Drawing 004) and BGS Borehole Records (Appendix 7)
Surface Water	Yes	Poor permeability and Site topography	Environment Agency Complex Surface Water Flood Mapping (Drawings 006.1 to 006.4).
Sewers and Mains	Yes	Distribution mains	Southern Water asset plans (Appendix 5)
Infrastructure Failure	No	Reservoir, canal, pond failure	OS mapping (Drawings 001 to 002) and Environment Agency online mapping: Long Term Flood Risk Assessment for Locations in England.

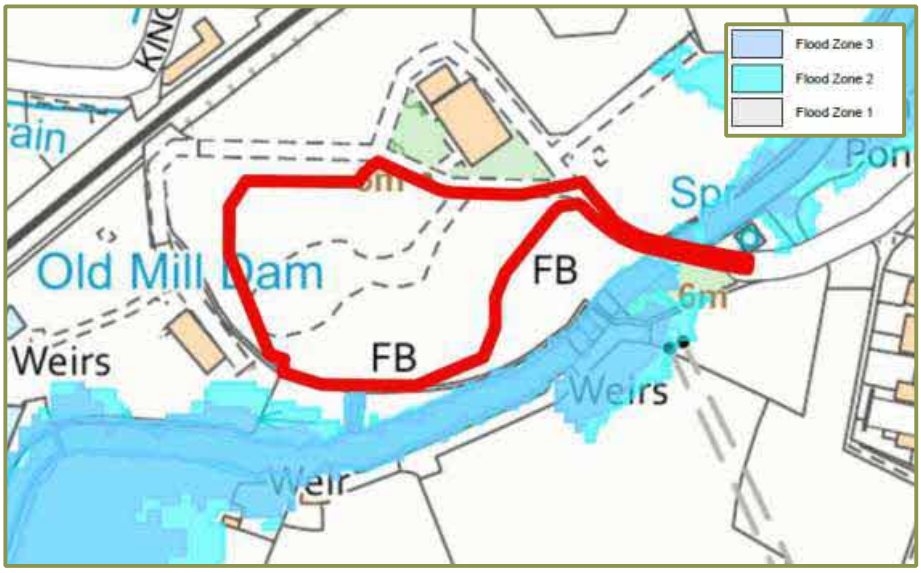
4.2 Fluvial Flooding

Environment Agency Flood Zone Mapping

4.2.1 The Environment Agency Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, since these can be breached, overtopped and may not be in existence for the lifetime of a development.

4.2.2 The Environment Agency Flood Zone mapping (Drawing 003) shows the Site is in Flood Zone 1, which is land outside the 1 in 1000-year (<0.1% Annual Exceedance Probability [AEP]) extent of fluvial (river) flooding, at 8low9risk. The Site entrance is located within Flood Zones 2 and 3. Flood Zone 2 is land between the 1 in 100-year (1% AEP) and 1 in 1000-year (0.1% AEP) probability of fluvial flooding, at 8medium9risk. Flood Zone 3 is land within the 1 in 100-year (>1% AEP) risk of fluvial flooding, at 8high9risk.

Figure 4.1: EA Flood Map for Planning

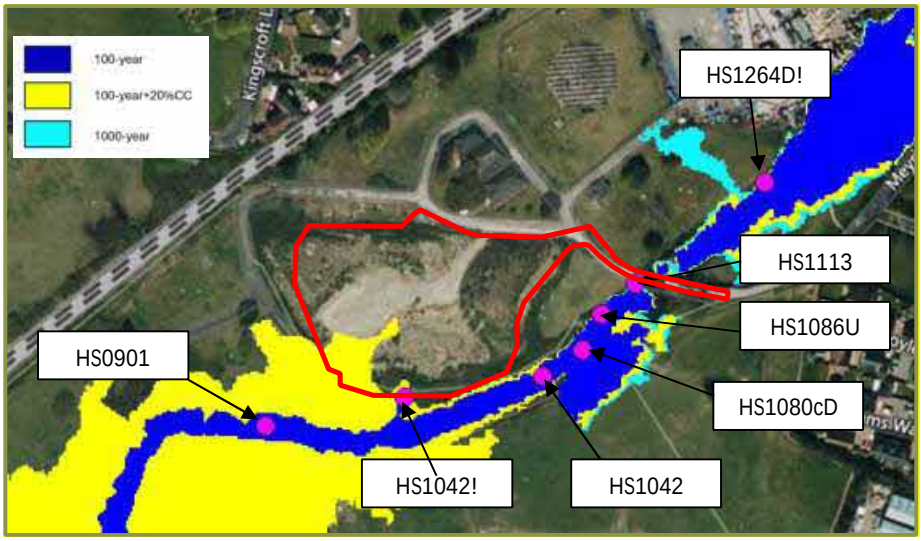


Modelled Flood Levels and Flood Outline Mapping

4.2.3 The Environment Agency provided modelled flood levels for the Hermitage Stream sourced from the 1D Infoworks Havant Flood Mapping Study (2008). A range of return periods were provided, including the 100-year, 100-year+20% climate change, and 1000-year event (Appendix 3). It is noted that the model was previously run for the 1 in 25-year return event (which is the closest thing to functional floodplain available as the 30-year layer was not provided).

4.2.4 The Environment Agency modelled flood outlines were provided and a summary of modelled flood levels is included in Table 4.2, and a node location plan is included in Figure 4.2.

Figure 4.2: Modelled Flood Outlines and Nodes



4.2.5 The node HS1086U which is the node more relevant to the Site, as it is adjacent and worse-case, was used to assess modelled flood levels.

Table 4.2: Modelled Flood Levels

Node	Location	Flood Level (m AOD) / Return Period		
		100yr (1% AEP)	100yr+20%CC (1%+CC AEP)	1000yr (0.1% AEP)
HS1264D!	Upstream from Site.	5.656	5.769	5.863
HS1113	Upstream from Site.	5.392	5.475	5.531
HS1086U	Adjacent to Site.	5.263	5.369	5.454
HS1080cD	Adjacent to Site.	3.738	3.927	3.970
HS1042	Adjacent to Site.	3.313	3.920	3.563
HS1042!	Downstream from Site	3.002	3.918	3.281
HS0901	Downstream from Site	2.830	3.917	3.024

4.2.1 The node HS1086U is adjacent to the Site and contains greater levels than the surrounding nodes, despite them also being relevant to the Site. Therefore, this node was chosen as the worse-case flood level to the Site.

i. Climate Change Interpolation

4.2.2 The allowance of 20% climate change is now superseded by latest climate change allowances (51% Higher and 88% Upper for the East Hampshire Management Catchment).

4.2.3 Given the lifetime of the development and the development is for essential infrastructure, the use of the interpolation method is considered appropriate for this type of development.

4.2.4 The flood level for a climate change increase of 51%, representing the 8higher central9 estimate was derived using the following linear interpolation calculation from the node . Note, the higher central estimate is appropriate as the Site is classified as 8essential infrastructure9

- 100-year +20% CC = 5.369mAOD 3 5.263mAOD (100-year) = 0.106m
- 0.106m/20% = 0.0053m per 1 percent increase
- 0.0053m x 51%= 0.27m (increase due to 51% climate change)
- 100-year (5.263m AOD) + 0.27m= 5.53m AOD

4.2.5 The 1 in 100-year (plus 51%CC) interpolated flood level (5.53m AOD) is greater than the 1 in 1000-year event (5.454m AOD) by 0.079m.

4.2.6 The 51% climate change interpolation is considered worst case as it is assumed that all flows reach the Site, when in reality water would be lost to the wider floodplain.

4.2.7 Scrutiny of the topographic survey and LiDAR shows that the Site sits at a minimum level of 6.04m AOD. Given the interpolated 8worse case9 flood level is 5.53m AOD it would not inundate the Site.

4.2.8 As well as this, the Site is also protected by a bund along its southern boundary which protects it from inundation. This bund will be formalised to be 2m high as part of the development.

4.2.9 It must be noted that as per the flood outlines in Figure 4.2, the Site is shown to be inundated during the 1 in 100-year +20% climate change event. The Environment Agency was consulted as to why this is occurring in the model, as in reality the climate change event would not exceed the 1 in 1000-year flood event. The Environment Agency stated that they could not find a definitive answer as to why this is occurring in the model, but that the 20% climate change event has been superseded by the updated climate change allowances (51% Higher) and is therefore more accurate. Therefore, the interpolated flood levels surrounding the Site

are considered more accurate and have been carried forward in the assessment of fluvial flood risk.

Flood History

4.2.10 The Environment Agency online historic flood map shows no historical fluvial flooding incidents within the Site boundary or immediate vicinity.

Flood Defences

4.2.11 The Environment Agency Reduction in Risk of Flooding from Rivers and Sea online mapping shows the Site does benefit from flood defences along the length of Hermitage Stream in the form of natural high ground. These defences offer protection up to the 1 in 100-year fluvial flood event. This was confirmed with correspondence with the Environment Agency.

4.2.12 It is noted that the crest levels of the defences in this area are at 6.54m and would protect the Site from inundation for all return events as per the levels included above.

Flood Warning Service

4.2.13 The River Levels UK website (Figure 4.3) shows the site benefits from flood warnings for 8Hermitage Stream from Leigh Park to Bedhampton9along the length of Hermitage Stream outside the southeastern boundary.

Figure 4.3: Flood Warning Areas



River Levels UK [2025].

Flood Risk Summary

4.2.14 The data from the Environment Agency did not include the flood outlines for the 1 in 30-year event, which defines the 8Functional Floodplain93 Flood Zone 3b. However, as the Site is not inundated for the 100-year event, 1000-year event, nor the interpolated 100-year+88% climate change event, this effectively places the Site within Flood Zone 1 regarding fluvial flooding.

4.2.15 The risk of fluvial flooding is assessed as negligible.

4.3 Tidal Flooding

Environment Agency Flood Zone Mapping

4.3.1 OS mapping (Drawings 001 to 002) shows the Site is located close to tidally affected flooding sources.

Environment Agency Flood Zone Mapping

4.3.2 The Environment Agency Flood Zone mapping (Drawing 003) shows most of the Site is in Flood Zone 1, which is land outside the 1 in 1000-year 0.1% Annual Exceedance Probability [AEP]) extent of tidal (sea) flooding, at 8low9risk. There is a negligible area along the southeastern boundary of the Site is within Flood Zones 2 and 3. Flood Zone 2 is land between the 1 in 200-year (0.5% AEP) and 1 in 1000-year (0.1% AEP) extent of tidal flooding, at 8medium9risk. Flood Zone 3 is land within the 1 in 200-year (>0.5% AEP) extent of tidal flooding, at 8high9risk.

4.3.3 The Environment Agency provided modelled flood levels for Hermitage Stream sourced from the East Solent Model (2018). Processed outlines show that Hermitage Stream is a tidally influenced watercourse and tidal flooding affects the Site along the southeastern boundary. (Appendix 3).

Modelled Flood Levels and Flood Outline Mapping

4.3.4 The Environment Agency provided modelled flood outlines for the Hermitage Stream sourced from the East Solent Model (2018). A range of return periods were provided, including the 30-year, 100-year, 200-year, 200-year plus sea level rise (UK09 2031, 2065, 2115), and 1000-year event plus sea level rise for 2065 and 2115 (Appendix 3).

4.3.5 The model included the outlines for each return period but did not include the depths for the flooding. Therefore, these outlines were compared to LiDAR to understand the levels across the Site and the areas of the Site which are outside the modelled extents of flooding. A summary of these depths is included in Table 4.3 and the locations of the points taken are shown in Figure 4.4.

4.3.6 It is noted that for most of the return periods, flooding does not reach the boundaries of the Site. The Site boundary is inundated during the 1 in 200-year 2115 event, the 1000-year 2065 event and the 1000-year 2115 event.

4.3.7 As the climate change allowances provided by the Environment Agency are for the UK09 sea-level rise, these have been updated to current NPPF sea-level rise 8higher central9allowances for the South East River Basin.

Table 4.3: Modelled Flood Levels (LiDAR)

Node	Location			Flood Level (m AOD) / Return Period			
		200yr (2115)	1000yr (2065)	1000yr (2115)	NPPF 200yr+sea-level (2035)	NPPF 200yr+sea-level (2065)	NPPF 200yr+sea-level (2095)
1	Southwestern boundary	n/a	n/a	4.23	4.2357	4.2387	4.2416
2	Southwestern boundary	3.91	3.91	3.91	3.9157	3.9187	3.9216
3	Southern boundary	n/a	n/a	4.89	4.8957	4.8987	4.9016
4	Southern boundary	n/a	3.91	3.91	3.9157	3.9187	3.9216

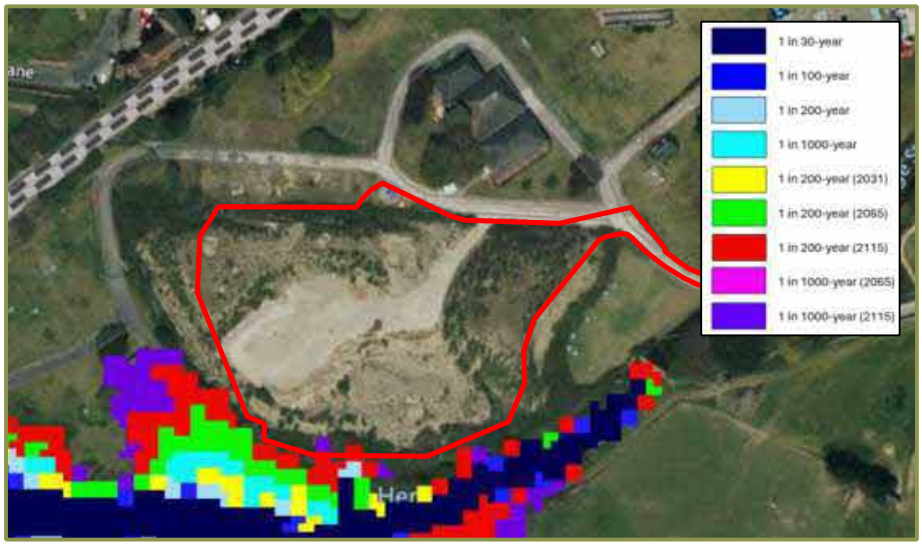
5	Southern boundary	n/a	5.13	5.13	5.1357	5.1387	5.1416
6	Southeastern boundary	n/a	4.09	4.09	4.0957	4.0987	4.1016
7	Southeastern boundary	n/a	4.01	4.01	4.0157	4.0187	4.0216

4.3.8 The flooding along the southern boundary of the Site is worst at Node 5. Here, flood levels reach a maximum of 5.1416m AOD during the 200-year (NPPF 2095) return event which is considered appropriate to assess against for a development of this lifetime.

4.3.9 The Site sits between a level of 6.17m and 12.45m AOD and a bund is proposed along the southern boundary of the Site which will sit at a height of 2m above the existing ground levels of the Site. The southern extents of the Site sit at a minimum level of 6.20m AOD, putting the proposed bund at approximately 8.20m AOD. Therefore, the Site will be protected from tidal flooding along the southern extents of the Site, where it is at risk, for all return events, including the worse-case 200-year (2095) event.

4.3.10 The Environment Agency provided their modelled outlines which are summarised in Figure 4.4.

Figure 4.4: Modelled Tidal Outlines



Flood Risk Summary

4.3.11 The risk of tidal flooding is assessed as negligible for most of the Site and medium along the southern boundary.

4.4 Groundwater Flooding

Introduction

4.4.1 Groundwater flooding occurs when subsurface water emerges either at surface or in made ground or in subsurface structures such as basements and services ducts. It occurs as diffuse seepage, emergence from new point source springs or an increase in flow from existing springs. It results from aquifer recharge from infiltrating rainfall, from sinking streams entering aquifers from adjacent non-aquifers, or from high river levels or tides driving water through near surface deposits. It tends to occur with a delay following rainfall and can last for several

weeks or months. Groundwater flooding or shallow water tables also prevent or reduce infiltration and so can worsen surface water flooding.

4.4.2 Correspondence with Hampshire County Council (Appendix 4) confirmed they hold no records of historic groundwater flooding at the Site.

Geosmart Groundwater Flood Risk Map

4.4.3 The Geosmart 1 in 100-year groundwater flood risk map (Drawing 004) shows the Site is at high risk of groundwater flooding and falls within Risk Class 1 (Table 4.4).

4.4.4 The risk of groundwater flooding is likely to be associated with the chalk bedrock and proximity to the watercourses bounding the Site.

4.4.5 Mapped classes combine understanding of likelihood, model and data uncertainty, and possible severity. Likelihood is ranked according to whether we expect groundwater flooding at a site due to extreme elevated groundwater levels with an annual probability of occurrence greater than 1%, considering model and data uncertainty. Severity relates to expectations of the amount of property damage or other harm that groundwater flooding at that location might cause (Table 4.4).

Table 4.4: Groundwater Flood Risk Classification

Risk Class	Probability of Groundwater Flooding	Effect
4: Negligible	Annual probability less than 1%.	Negligible unless unusually sensitive use.
3: Low	Annual probability greater than 1%.	Remote possibility of damage to property or harm to sensitive receptors Flooding likely to be limited to seepages and waterlogged ground, damage to basements and subsurface infrastructure, and should pose no significant risk to life. Surface water flooding may be worsened.
2: Moderate	Annual probability greater than 1%.	Significant possibility of damage to property or harm to other sensitive receptors at or near this location. flooding is likely to be in the form of shallow pools or streams. Surface water flooding and failure of drainage systems may be worsened when groundwater levels are high.
1: High	Annual probability greater than 1%.	Groundwater flooding will occur which could lead to damage to property or harm to other sensitive receptors at or near this location. Flooding may result in damage to property, road, or rail closures and, in exceptional cases, may pose a risk to life. Surface water flooding and failure of drainage systems may be worsened when groundwater levels are high.

Borehole Records

4.4.6 BGS online borehole mapping recorded groundwater ingress at depths between 1.2m to 2.4m bgl in the superficial deposits.

4.4.7 The borehole records support the presence of shallow groundwater beneath the Site.

Flood Risk Summary

4.4.8 The risk of groundwater flooding is assessed as high.

4.4.9 Mitigation measures against groundwater flooding are discussed in Section 5.

4.5 Surface Water Flooding

Introduction

4.5.1 Surface water flooding occurs following rainfall on ground where infiltration rates are less than the rainfall precipitation rate. This can occur when either:

- Soils or ground materials are naturally of low permeability or have been compacted (infiltration excess runoff).
- Soils or ground materials are saturated from previous rainfall either directly or from upslope (saturation excess runoff and return flow) or from high groundwater levels.

Environment Agency Complex Surface Water Flood Mapping

4.5.2 The Environment Agency Complex Surface Water Flood Mapping (Drawings 006.1 to 006.4) shows the centre of the Site is located outside the mapped extent of surface water flooding. There are however surface water flow pathways surrounding the Site on all sides.

4.5.3 Along the length of Hermitage Stream flood outlines are associated with the 1 in 30-year, 100-year and 1000-year events. Flood depths are up to 0.90m during the extreme 1 in 1000-year event, with velocity being up to 2.00m/s, and flood hazard being 8low9(0.50-0.75) to 8extreme9 (>2.0). This is, however, likely to be representative of fluvial flooding.

4.5.4 The southwest, west, and northern extents of the Site are associated with the 100-year and 1000-year events. Flood depths are up to 0.9m, velocities are up to 2.00m/s, and the hazard is assessed as 8low9(0.50-0.75) to 8significant9(1.25-2.00).

4.5.5 Scrutiny of LiDAR shows that the flows along the northern boundary of the Site are likely associated with topographic low points along the road bounding the Site to the north. These flows are likely fluvial, as Hermitage Stream exceeds its banks, the flows convey along the road to the north of the Site where the topography is lower than the surrounding area.

4.5.6 It is noted that the hazard rating of 8extreme9passes over the access/egress to the Site where the road crosses over Hermitage Stream. The mapping does not take into account this bridge and that the flows would be conveyed beneath it and not over it. Therefore, it is likely that the access/egress to the Site should be assessed as 8low9 The access/egress would therefore be accessible by the Emergency Services.

EA updated online Surface Water Flood Mapping

4.5.7 The Environment Agency online surface water flood mapping was updated during January 2025 (Figure 4.5), which now supersedes the surface water flood mapping within the May 2024 FRA report.

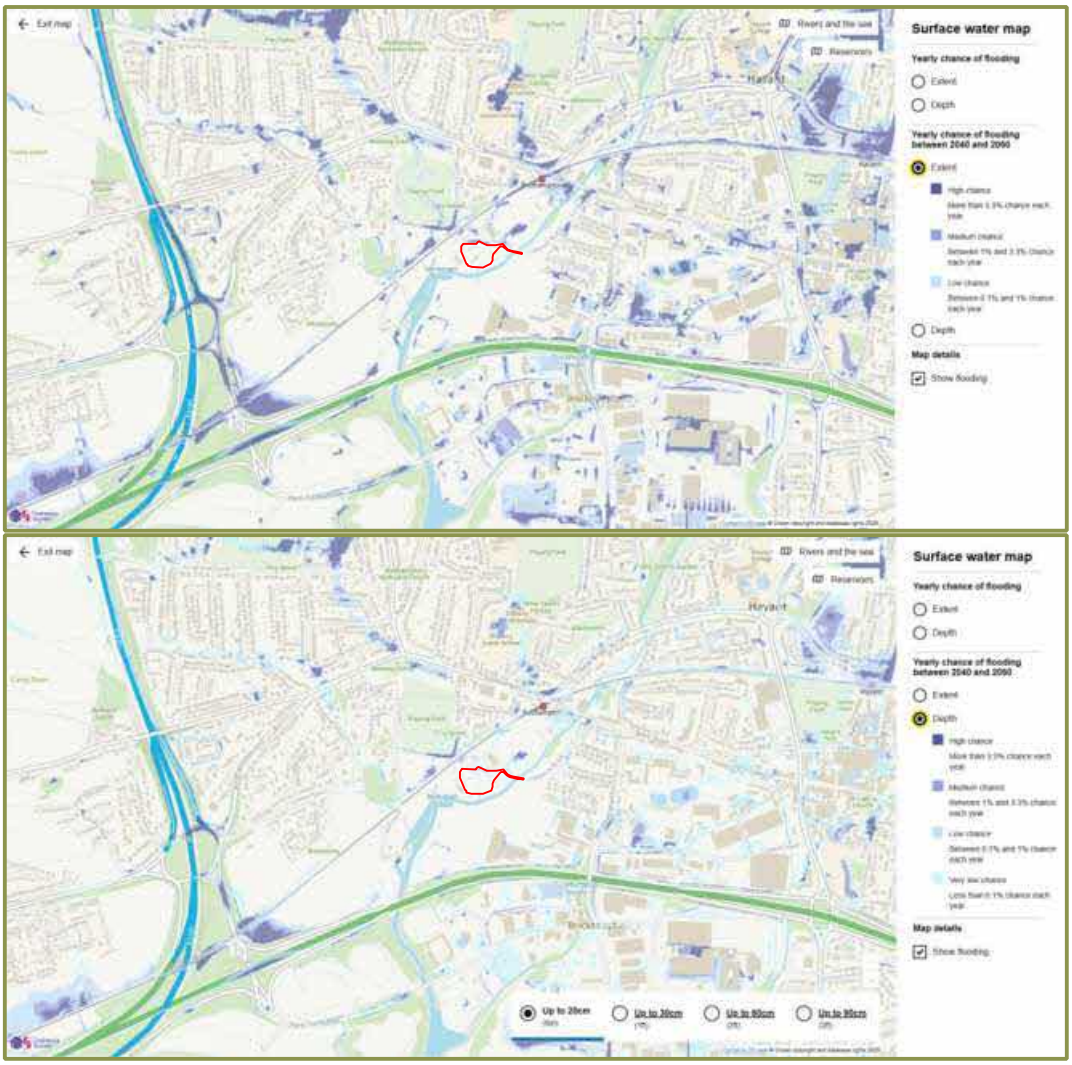
4.5.8 The surface water flood mapping shows a surface water flow pathway along the northern boundary of the Site at 8low9(0.1 to 1% AEP) to 8high (>3.3% AEP) chance of flooding between

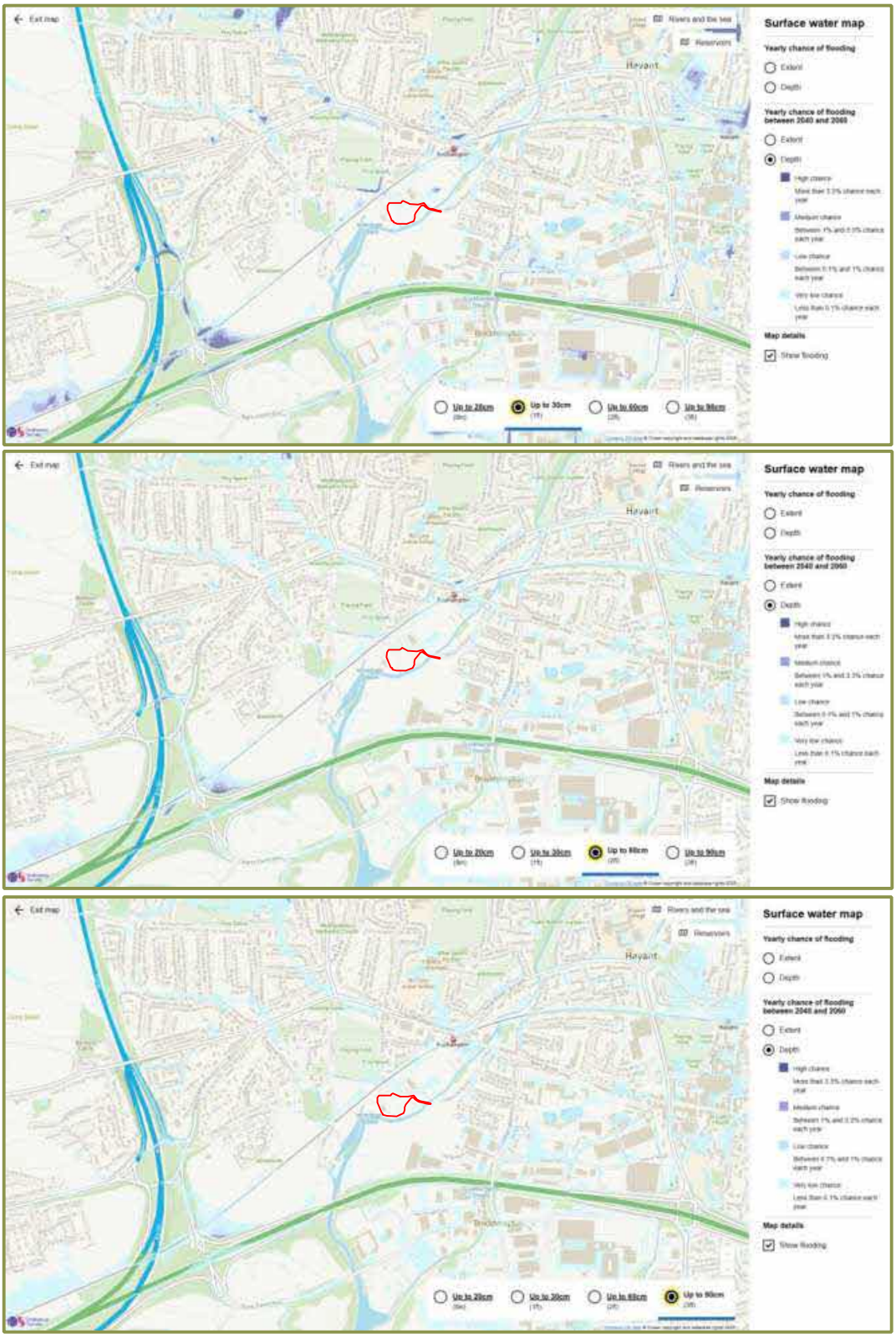
2040 to 2060. There is also a patch of ponding in the southern extent of the Site at 8low9to 8medium9(1% AEP) chance of flooding. A summary of the results is included below:

- 20cm Flood Depth: Mostly 8Very Low9with a patch of 8Medium9chance.
- 30cm Flood Depth: 8Very Low9chance.
- 60cm Flood Depth: 8Very Low9chance.
- 90cm Flood Depth: 8Very Low9chance.

4.5.9 Therefore, the is a low to high risk of flooding less than 20cm deep associated with the flow pathway and ponding.

Figure 4.5: Surface Water Mapping





Flood Risk

4.5.10 The risk of surface water flooding is assessed as negligible for most of the Site, with areas of low risk associated with surface water flow pathways and ponding.

4.5.11 Mitigation measures against surface water and fluvial flooding are discussed in Section 5.

4.6 Sewer Flooding

Introduction

4.6.1 Sewer flooding occurs when urban drainage networks become overwhelmed after heavy or prolonged rainfall due to restrictions or blockage in the sewer network or if the volume of water draining into the system exceeds the sewer design capacity.

4.6.2 New adoptable sewers are built to have a minimum design standard up to and including the 1 in 30-year rainfall event. Older sewers were not designed to any standard. Modern sewer systems will only surcharge during rainstorm events with a return period greater than 1 in 30-years (e.g. 1 in 100-years).

Asset Plans

4.6.3 Southern Water asset plans (Appendix 5) show there is a distribution main running against the northeastern boundary of the Site and a raw water main conveying flows east-west through the northern extents of the Site.

4.6.4 Any surcharged flows would be shallow (<150mm) and would shed overland, following the localised topography (Drawing 007).

4.6.5 Correspondence with Hampshire County Council (Appendix 4) confirmed that they hold one historical record of sewer flooding, however it is approximately 230m northwest of the Site. They hold no records of flooding within the Site.

Flood Risk

4.6.6 The risk of flooding from sewers is assessed as negligible for most of the Site and low along the reaches of the identified assets.

4.7 Flooding from Infrastructure Failure

Reservoir Failure

4.7.1 The Environment Agency online flood mapping shows the Site is outside the extent of flooding sourced from reservoirs. The risk of flooding from reservoirs is assessed as negligible.

Flood Risk Summary

4.7.2 The risk of flooding from reservoir failure is assessed as negligible.

5.0 Flood Risk Mitigation Measures

5.1 Introduction

5.1.1 The following sources of flooding were identified:

- Fluvial flooding (Hermitage Stream and Watercourse 1).
- Tidal flooding (Hermitage Stream/Solent).
- Groundwater flooding (below and above ground).
- Surface water flooding (overland flow pathways and ponding).
- Sewer flooding (surcharged flows from distribution mains).

5.2 Mitigation Measures

Fluvial/ Tidal Flooding

- Provide an 8m easement free from development along the side of Hermitage Stream. This easement would provide access for inspection and maintenance purposes, including vehicle access.
- Set the surface water outfall from the proposed development at an appropriate height, i.e. above the 1 in 100-year+51%CC modelled flood level (5.53m AOD).
- Set vulnerable electrical equipment a minimum of +150mm above the modelled 1 in 100-year 51%+CC flood level.
- The Site will not be permanently manned, and as such any persons on Site would be there for a short period of time. Implementation of measures such as flood alerts would give any onsite personnel enough time to leave the Site upon the issuing of a flood warning. A second means of access in an emergency can also be considered.
- Adoption of a surface water management strategy.
- Fit flapped outfalls to avoid surcharging in a flood event and allow surface water to still discharge.

Groundwater Flooding

- Set vulnerable electrical equipment above external levels as per above.
- Lined attenuation to prevent groundwater ingress.

Surface Water Flooding

- Sequentially develop the Site, limiting the built development outside the mapped extent of surface water flooding associated with overland flow pathways.
- Adoption of a surface water management strategy (see Section 6).
- Set vulnerable equipment above external levels as above.

Sewer Flooding

- Provide a development free easement (3m either side) of onsite Southern Water sewer assets, or re-direct around the Site boundary.

5.3 Summary of Flood Risk

5.3.1 Table 5.1 summarises the probability and level of risk, both with and without mitigation measures.

Table 5.1: Probability and Consequences of All Sources of Flooding

Flooding Source	Potential Source	Probability	Consequence & Impact Without Mitigation	Consequence & Impact with Mitigation
Fluvial	Hermitage Stream	Negligible for the Site and low along the southeastern boundary	Negligible for the Site and low along the southeastern boundary	Negligible
Tidal	Hermitage Stream/Solent	Negligible for most of the Site and low along the southeastern boundary	Negligible for most of the Site and low along the southeastern boundary	Negligible
Groundwater	Principal and Secondary A Aquifer	High for the entire Site	High for the entire Site	Negligible to Low
Surface Water	Poor permeability and Site topography	Negligible for most of the Site but low where there are overland flow pathways and ponding.	Negligible for most of the Site but low where there are overland flow pathways and ponding.	Negligible
Sewers and Mains	Distribution Mains	Negligible for most of the Site but low along identified assets	Negligible for most of the Site but low along identified assets	Negligible
Infrastructure Failure	None identified	Negligible	Negligible	Negligible

Key: Green - Negligible, Yellow - Low, Orange - Medium and Red - High; based on consequence and impact with mitigation from each flooding source.

5.4 Flood Guidance and Sequential Test

5.4.1 The proposal is for battery energy storage system (BESS) development. The PPG ID: 7 (not included in this report) classifies the proposed use as &essential infrastructure9

5.4.2 The Environment Agency Flood Zones and acceptable development types are listed in Table 5.2. All development types (including essential infrastructure uses) are acceptable in Flood Zone 1, 2, and 3 (low to high risk). However, as shown above the Site is not inundated during any return events and is therefore effectively within Flood Zone 1 in regard to fluvial flooding.

5.4.3 Subject to the above mitigation measures including locating the development outside of Flood Zone 2 and 3, in regard to tidal flooding, the Sequential Test would be passed and the Exception Test would not be required as indicated in Table 5.3.

Table 5.2: Environment Agency Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land use
Zone 1	Low	Less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).	All development types generally acceptable.
Zone 2	Medium	Between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% 0.1%) in any year.	Most development type are generally acceptable.
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.	Some development types not acceptable.
Zone 3b	8Functional Floodplain9	Land where water must flow or be stored in times of flood. SFRAs should identify this zone (land which would flood with an annual probability of 1 in 30 (3.33%) or greater in any year or is designed to flood in an extreme (0.1% flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes).	Some development types not acceptable.

Note: The Flood Zones are the current best information on the extent of the extreme flood from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. The identified risk of fluvial flooding is highlighted green.

Table 5.3: Vulnerability and Flood Zone 8Compatibility9as Identified in Table 2 of PPG ID: 7

Flood Risk Vulnerability classification (see Table 1 of PPG ID: 7)	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	Yes	Yes	Yes	Yes	Yes
Zone 2	Yes	Yes	Exception test required	Yes	Yes
Zone 3a	Exception test required	Yes	No	Exception test required	Yes
Zone 3b 8Functional Floodplain9	Exception test required	Yes	No	No	No

Key: Yes: Development is appropriate, No: Development should not be permitted. The identified risk of fluvial flooding is highlighted green.

6.0 Site Drainage

6.1 Surface Water Drainage

6.1.1 Consideration of flood issues is not confined to the floodplain. This is recognised in the NPPF and associated guidance where all proposed development of 1ha or more in Flood Zone 1 and so outside the floodplain nevertheless requires an FRA. The alteration of natural surface water flow patterns through development can lead to problems elsewhere in a catchment, particularly flooding downstream, and the replacement of permeable vegetated areas by low-permeability roofs, roads and other paved surfaces will increase the speed, volume, and peak flow of surface water runoff. So, the NPPF and associated guidance require an FRA for all proposed development of 1ha or more outside the floodplain in Flood Zone 1.

6.1.2 A surface water management strategy for the development is proposed to manage and reduce the flood risk posed by surface water runoff from the Site. The developer will be required to ensure that any scheme for surface water management should build in enough capacity for the entire Site.

6.1.3 The surface water drainage arrangements for any development Site should be such that the volume and peak flow rates of surface water leaving a developed Site are no greater than the rates prior to the proposed development unless specific off-Site arrangements are made and result in the same net effect.

6.1.4 An assessment of the surface water runoff rates was undertaken to determine the surface water options and attenuation requirements for the Site.

6.2 Existing Drainage System

6.2.1 The land use is comprised of made ground and an is part of the wider Portsmouth Water Bedhampton WTW.

6.2.2 The Site is underlain by low permeable soils and high permeable bedrock. Drainage is predominantly via overland flow, following the topography of the Site to the topographic low points (Watercourse 1/Hermitage Stream) with a small amount of infiltration to bedrock, and throughflow to watercourse.

6.3 Developable and Impermeable Areas

6.3.1 An impermeable area of 0.657ha was measured from the 0.8ha developable area. The existing and proposed impermeable areas are summarised in Table 6.1 and a drawing is provided; SHF-3055-001-ENZ-XX-XX-DR-D-0002.

6.3.2 The proposed development will increase the impermeable surfaces and so increase the amount of runoff.

6.3.3 It must be noted that while there is a degree of made ground on the Site, with low permeability, the Site is not impermeable.

Table 6.1: Impermeable Area

Area	Existing Buildings and Hardstanding	Proposed Buildings and Hardstanding	Difference
Area (ha)	0	0.657	+0.657

Percentage of Total Site Area (%)	0	82.1	+82.1

6.4 Greenfield Runoff Rates

6.4.1 An assessment of greenfield runoff rates was undertaken to determine the attenuation requirements for the proposed development.

6.4.2 The runoff rates were calculated using the HRWallingford UKSuDS online tool, with FEH method inputs (descriptors obtained from the FEH webservice[19]). This is a recommended methodology for Sites up to 50ha in area and the approach is in line with the current industry best practice guidelines as outlined in the Interim Code of Practice for SuDS[20], and Environment Agency Report SC030219 - Rainfall runoff management for developments.

6.4.3 The following parameters were used in the runoff calculations:

- Impermeable Area: 0.657ha
- Average Annual Rainfall (SAAR): 731mm/year
- Region No.: 7
- BFIHOST19: 0.597

6.4.4 BFIHOST was updated to BFIHOST19 (November 2019) since a number of issues were identified with BFIHOST, which including a tendency to underestimate BFI in clay-dominated catchments.

6.4.5 BFIHOST19 is the baseflow index developed using the Hydrology of Soil Types (HOST) classification and is the baseflow proportion of the flow on average. It is estimated based on the daily mean flow data. Baseflow comprises water entering the watercourse through shallow subsurface flow and groundwater flow (mechanisms other than direct surface runoff); hence permeable soils and geology tend to yield a higher baseflow.

6.4.6 The Soilscapes online soils map viewer and Geology of Britain online map viewer identified the following:

- Soils: loamy with naturally high groundwater
- Superficial Deposits: Alluvium 3 clay, silt, sand, and gravel, and River Terrace Deposits 3 sand, silt, and clay.
- Bedrock: Lewes Nodular Chalk, Seaford Chalk, Newhaven Chalk, Culvert Chalk, and Portsdown Chalk.

6.4.7 BFIHOST19 value assigned by the FEH webservice is considered to replicate on-site conditions.

6.4.8 Table 6.2 shows the calculated greenfield runoff rates. Runoff calculations are included in Appendix 8.

[19] Centre for Ecology and Hydrology, Flood Estimation Handbook Web Service [https://fehweb.ceh.ac.uk/].
[20] Office of the Deputy Prime Minister, National SuDS Working Group (July 2004) Interim Code of Practice for Sustainable Drainage Systems [https://www.susdrain.org/files/resources/other-guidance/nswg_icop_for_suds_0704.pdf].

Table 6.2: Greenfield Runoff Rates

Annual Probability (Return Period, Years)	Greenfield Runoff (l/s)
QBAR	1.8
100% (1)	1.5
3.33% (30)	4.1
1% (100)	5.6
1% Plus Climate Change	8.12

Note: 45% climate change added. The 1 in 1-year, 30-year and 100-year annual probability events are of importance to the Water Companies and the Environment Agency when looking at sewage discharge and flood risk.

6.4.9 Consultation with the LLFA stated that discharge should be restricted to a minimal practicable rate of 2l/s and as such this rate has been carried forward for the remainder of the report.

6.5 Surface Water Management Strategy

Hierarchy of Discharge

6.5.1 In accordance with requirement H3 of the Building Regulations 2010[21] rainwater runoff must discharge to one of the following, listed in order of priority:

1. An adequate soakaway or some other adequate infiltration system: The use of infiltration-based SuDS is not feasible due to low infiltration potential into the clayey soils and geology, as well as the Sites use as a landfill and the presence of made-ground creating potential contamination into the high-water table, SPZ and Principal Aquifer below the Site.
2. A watercourse: Hermitage Stream conveys flows southwest along the southeastern boundary of the Site.
3. A sewer: There are no public surface water sewers located within the immediate vicinity of the Site.

6.5.2 The potential route to discharge surface water from the proposed development will be by outfall to Hermitage Stream.

6.6 Sustainable Drainage Options (SuDS)

Choice of SuDS Options

6.6.1 Sustainable water management measures should be used to control the surface water runoff from the proposed development Site, thereby managing the flood risk to the Site and surrounding areas from surface water runoff. These measures will also improve the quality of water discharged from the Site.

6.6.2 Current guidance promotes sustainable water management using SuDS. Options applicable to this Site are identified in Table 6.3.

[21] Office of the Deputy Prime Minister, The Building Regulations 2010, amended 2021 [https://www.gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h]

Table 6.3: SuDS Options

Green roofs	Infiltration basins
Water butts	Detention basins
Permeable paving	Oversized pipes
Rainwater harvesting	Brown roofs
Filter strips	Swales
Wetland Areas	Cellular Storage

Note: SuDS appropriate to the development are highlighted green.

6.6.3 A hierarchy of SuDS techniques is identified[22]:

1. Prevention - the use of good Site design and housekeeping measures on individual Sites to prevent runoff and pollution (e.g. minimise areas of hard standing).
2. Source Control - control of runoff at or very near its source (such as the use of rainwater harvesting).
3. Site Control - management of water from several sub-catchments (including routing water from roofs and car parks to one/several large soakaways for the whole Site).
4. Regional Control - management of runoff from several Sites, typically in a detention pond or wetland.

6.6.4 Using SuDS as opposed to conventional drainage systems provides several benefits by:

- Reducing peak flows to watercourses or sewers and potentially reducing the risk of flooding downstream.
- Reducing the volumes and frequency of water flowing directly to watercourses or sewers from developed Sites.
- Improving water quality over conventional surface water sewers by removing pollutants from diffuse pollutant sources.
- Reducing potable water demand through rainwater harvesting.
- Improving amenity through the provision of public open spaces and wildlife habitat.
- Replicating natural drainage patterns, including the recharge of groundwater so that base flows are maintained.

SuDS Maintenance

6.6.5 A geocellular tank will form the main attenuation feature within the development Site.

6.6.6 Maintenance of the SuDS features would be in line with the SuDS Manual (CIRIA C753, 2015), as detailed in Figure 6.1. It is standard for SuDS features within a new development to be maintained by a private maintenance company unless the council adopt it. If the maintenance company goes into administration, the Site will be contracted to a new maintenance company. Residents will pay a surcharge to the maintenance company and a number of them would be

[22] CIRIA (2004) Report C609, Sustainable Drainage Systems 3 Hydraulic, Structural and Water Quality advice.

appointed to its board. This will ensure maintenance throughout the lifetime of the development.

6.6.7 Details of other SuDS features, and maintenance would be considered further at detailed design when a detailed layout has been produced. The level of detailed provided within this FRA should be sufficient at outline stage to demonstrate that SuDS would be deliverable.

Figure 6.1: Attenuation Storage Tanks Operation and Maintenance Requirements (Table 21.3 of the SuDS Manual)

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

Drainage Design Summary

6.6.1 Surface water runoff would be directed to the drainage system through drainage gullies located around the perimeter of the buildings and through contouring of the hardstanding areas.

6.6.2 Landscaped areas should be incorporated into the layout where possible to allow a proportion of the rainfall to infiltrate into the soil substrate.

6.6.3 Surface water will be directed to an onsite attenuation tank.

6.6.4 An indicative surface water drainage layout is in Drawing SHF-3055-001-ENZ-XX-XX-DR-D-0001.

Attenuation Requirements

6.6.5 Attenuation storage is required to reduce the post-application surface water runoff from the Site to calculated greenfield runoff rates, up to and including the 1 in 100-year (+45%CC) rainfall event, assuming no infiltration losses.

6.6.6 The following input parameters were assumed in the calculations:

- Impermeable Area: 0.657ha (82%);
- Cv (proportion of rainfall forming surface water runoff): 100% summer, 100% winter;
- Infiltration losses: 0m/hour;
- With outfall: 2l/s.

6.6.7 The attenuation volume for the 1 in 100-year event (plus climate change) is 646m^3.

6.6.8 Attenuation calculations are included in Appendix 8. The calculated runoff rates and attenuation volumes will be reviewed at detailed design stage.

6.7 Exceedance Routes

6.7.1 The attenuation tanks will be designed with a capacity up to a 1 in 100-year (plus 45% climate change) event, based on the 2l/s restricted discharge rate. This provides a betterment (reduction) in runoff when compared to existing undeveloped conditions, where runoff is uncontrolled across all return periods.

6.7.2 A storm event in excess of this design standard would be extreme and would cause the attenuation tanks to overtop (with no sudden deluge) and would then shed overland following the topography into the centre, as per existing conditions (Drawing 007).

6.7.3 Finished floor levels of vulnerable equipment will be set above external levels, which will mitigate the residual risk of overtopping.

6.8 Firewater Considerations

6.8.1 The Site will be lined to prevent any contamination of water used for fire suppression into the groundwater system.

6.8.2 The tank will be fitted with a penstock which can be shut off in the event of a fire which will prevent contaminated water entering the watercourse.

6.8.3 Water tanks have been provided on Site to provide 228,000 litres of water on Site. This is the minimum recommended amount of 1,900 litres per minute for at least 2 hours[23].

6.8.4 The Battery Storage Units will be fitted with their own fire suppression systems providing further mitigation.

6.9 Water Quality

6.9.1 Water quality improvements are achieved by decreasing flow rates, which in turn traps silt, sediment, and pollutants before discharging to Hermitage Stream.

6.9.2 The online Simple Index Approach [SIA] Tool[24] has been used to demonstrate the effectiveness of the proposed strategy to manage surface water discharging to Hermitage Stream.

6.9.3 It must be noted that due to the sites previous use as a landfill, the land-use has been entered as waste-handling management site.

6.9.4 The use of a bioretention system with the possibility of gravel attenuation would provide a sufficient level of treatment. A copy of the calculations is included in Appendix 9, and a summary of the results are included in Table 6.4.

[23] https://nfcc.org.uk/wp-content/uploads/2023/10/Grid-Scale-Battery-Energy-Storage-System-planning-Guidance-for-FRS.pdf
[24] https://www.susdrain.org/resources/SuDS_Manual.html

Table 6.4: Simple Index Approach Results Summary

	Total Suspended Solids	Metals	Hydrocarbons
Pollution Hazard Score	0.8	0.8	0.9
Pollution Mitigation Score	0.9	0.9	0.9
Sufficiency of SuDS	Sufficient	Sufficient	Sufficient

7.0 Summary and Conclusions

7.1 Introduction

7.1.1 A site-specific Flood Risk Assessment (FRA) has been undertaken for a proposed battery energy storage system (BESS) development, located on a 0.8ha Site at Portsmouth Water Bedhampton WTW, Havant, Hampshire.

7.2 Flood Risk

7.2.1 The risk of flooding is assessed as follows:

- The risk of fluvial flooding is assessed as negligible.
- The risk of tidal flooding is assessed as negligible for most of the Site and medium along the southeastern boundary.
- The risk of groundwater flooding is assessed as high for the entire Site.
- The risk of surface water flooding is assessed as negligible for most of the Site and low along surface water flow pathways and ponding.
- The risk of flooding from sewers is assessed as negligible for most of the Site and low along the reaches of the identified assets.
- The risk of flooding from all other sources is assessed as negligible.

7.3 Mitigation Measures

7.3.1 Flood risk can be mitigated to a negligible or low and acceptable level through the following approach:

- Provide an 8m easement free from development along the side of Hermitage Stream. This easement would provide access for inspection and maintenance purposes, including vehicle access.
- Set the surface water outfall from the proposed development at an appropriate height, i.e. above the 1 in 100-year+51%CC flood level (5.53m AOD).
- Set vulnerable electrical equipment a minimum of +150mm above the modelled 1 in 100-year 51%+CC flood level.
- Adoption of a surface water management strategy.
- Fit outfall with flapped outfalls to avoid surcharging in a flood event and allow surface water to still discharge.
- Lined attenuation to prevent groundwater ingress.
- Sequentially develop the Site, limiting the built development outside the mapped extent of surface water flooding associated with overland flow pathways.
- Provide a development free easement (3m either side) of onsite Southern Water sewer assets, or re-direct around the Site boundary.

7.4 Flood Guidance

7.4.1 The proposed battery energy storage system use is classified as essential infrastructure. Essential infrastructure uses are considered acceptable in terms of flood risk in Flood Zone 1, 2 and 3 (low to high risk). There is however a risk of flooding from other sources. Subject to the implementation of the above mitigation measures, the Sequential Test would be passed, and the Exception Test would not be required.

7.5 Site Drainage

Surface Water

7.5.1 The proposed development will increase the area of impermeable surfaces and therefore increase the amount of runoff without mitigation.

7.5.2 Surface water runoff from the Site will be restricted to 2l/s, which offers a betterment to existing conditions with uncontrolled runoff across all return periods.

7.5.3 Surface water runoff from the proposed development would be attenuated on-site up to and including the 1 in 100-year event, plus 45% climate change.

7.5.4 A SuDS drainage scheme is proposed to manage excess runoff from the development, comprising a geocellular attenuation tank designed to maintain runoff at pre-development rates, with an outfall to Hermitage Stream.

7.5.5 SuDS treatment, including attenuation tanks will improve water quality. A maintenance and management ensure the effectiveness of the drainage strategy during the operation phase.

7.6 Conclusion

7.6.1 This FRA demonstrates the proposed development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of national policy and guidance.

7.6.2 The development should therefore not be precluded on the grounds of flood risk, as well as surface water drainage.

DRAWINGS



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KEY:

Site Location

Rev	Date	Description			
P03	21/03/25	Redline updated	DL	EOC	EOC
P02	02/04/24	Redline updated	DL	EOC	EOC
P01	08/12/23	Issued for comment / approval	LW	DA	DA

Project
Bedhampton Waterworks

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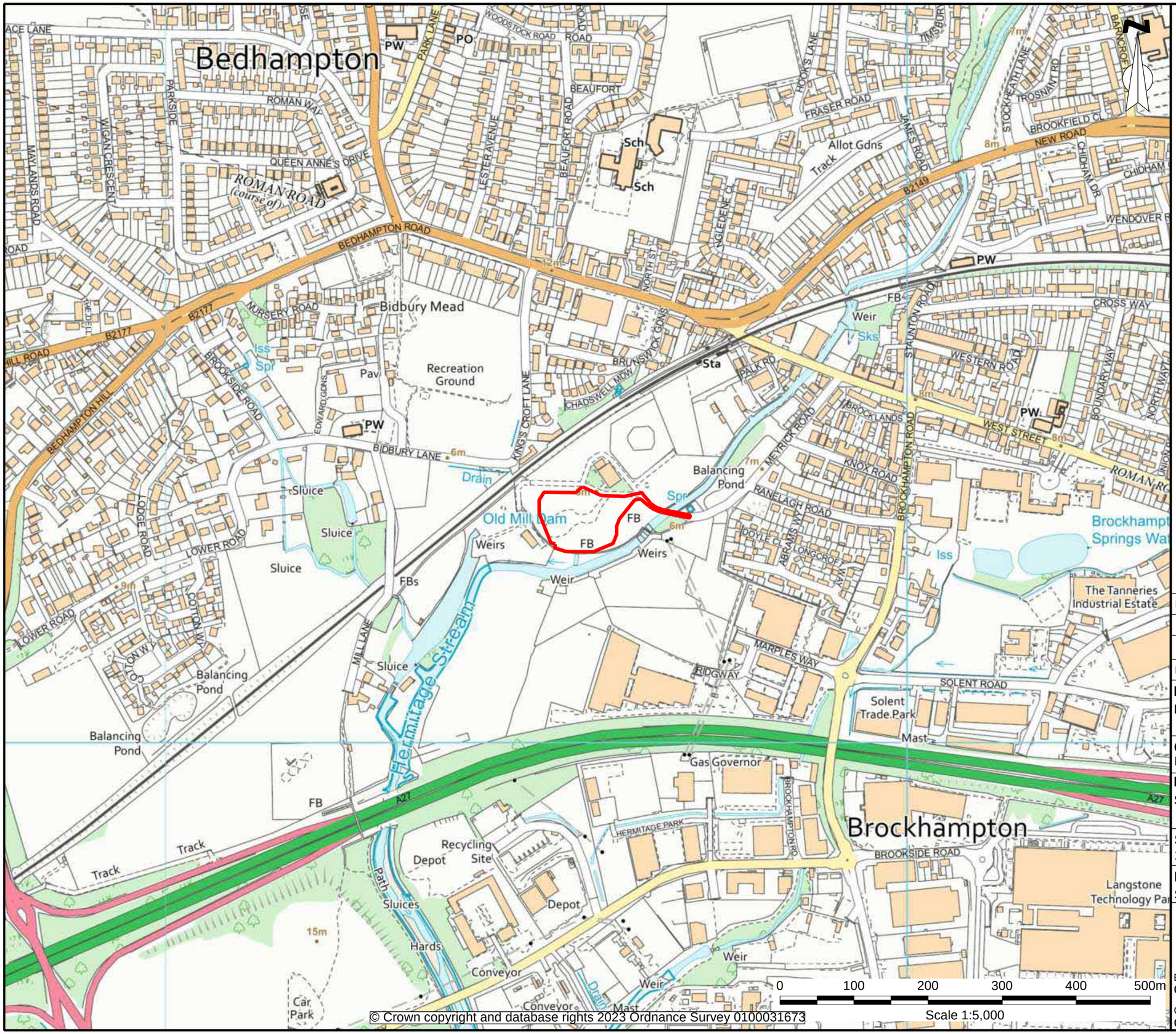
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Site Location Plan

Scale	Date	Status
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DWG No. SHF.3055.001-ENZ-XX-XX-DR-Y-0001 **Revision** P02

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KEY:

- Site Boundary
- Surface Water Features

Rev	Date	Description	DRA	CHK	APP
P03	21/03/25	Redline updated	DL	EOC	EOC
P02	02/04/24	Redline updated	DL	EOC	EOC
P01	08/12/23	Issued for comment / approval	LW	DA	DA

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Drawing Title
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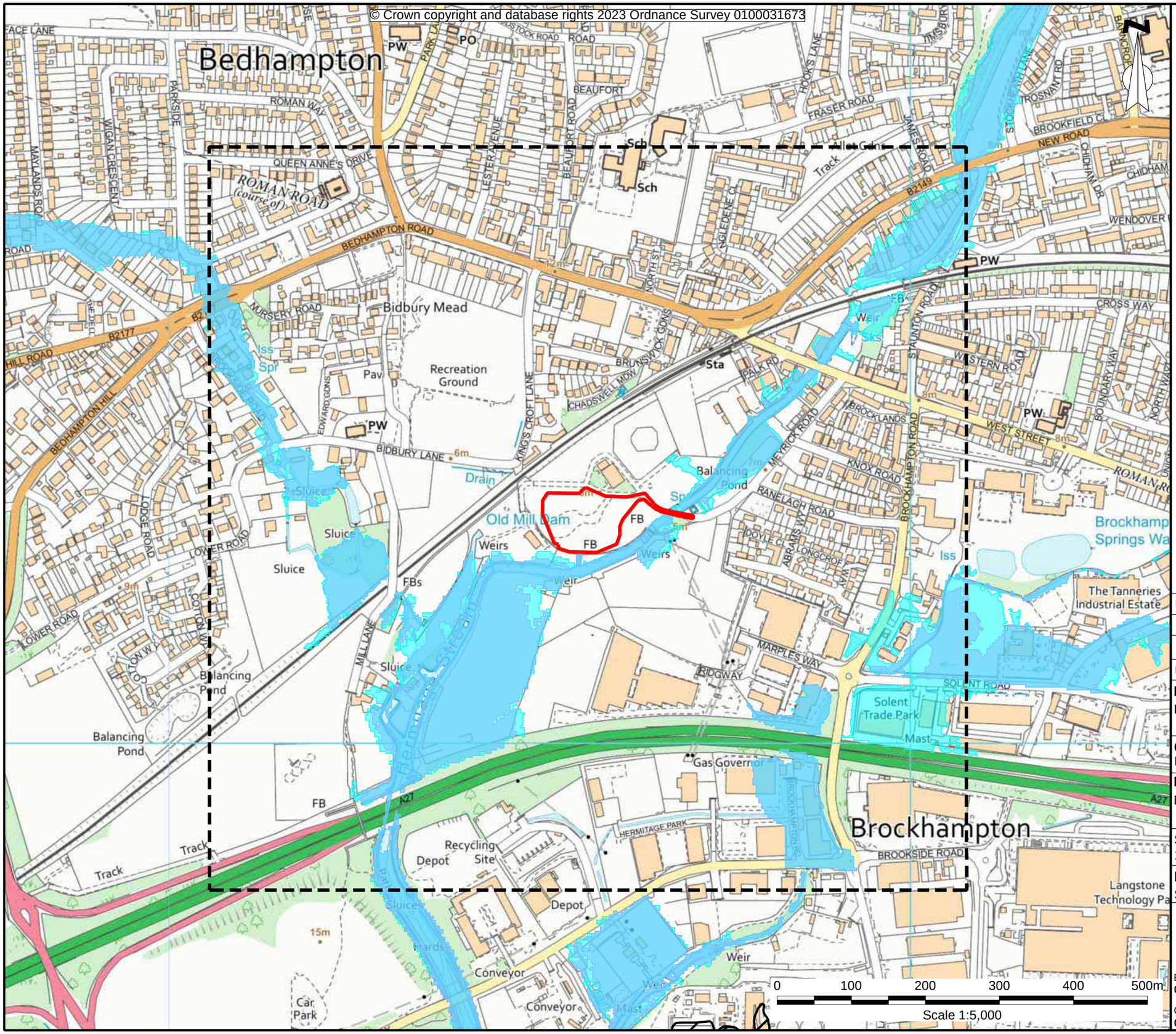
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KEY:

- Site Boundary
- Areas Benefitting From Flood Defences
- Flood Zone 3
- Flood Zone 2
- Flood Zone 1

Rev	Date	Description	DRA	CHK	APP
P03	21/03/25	Redline updated	DL	EOC	EOC
P02	02/04/24	Redline updated	DL	EOC	EOC
P01	08/12/23	Issued for comment / approval	LW	DA	DA

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Drawing Title
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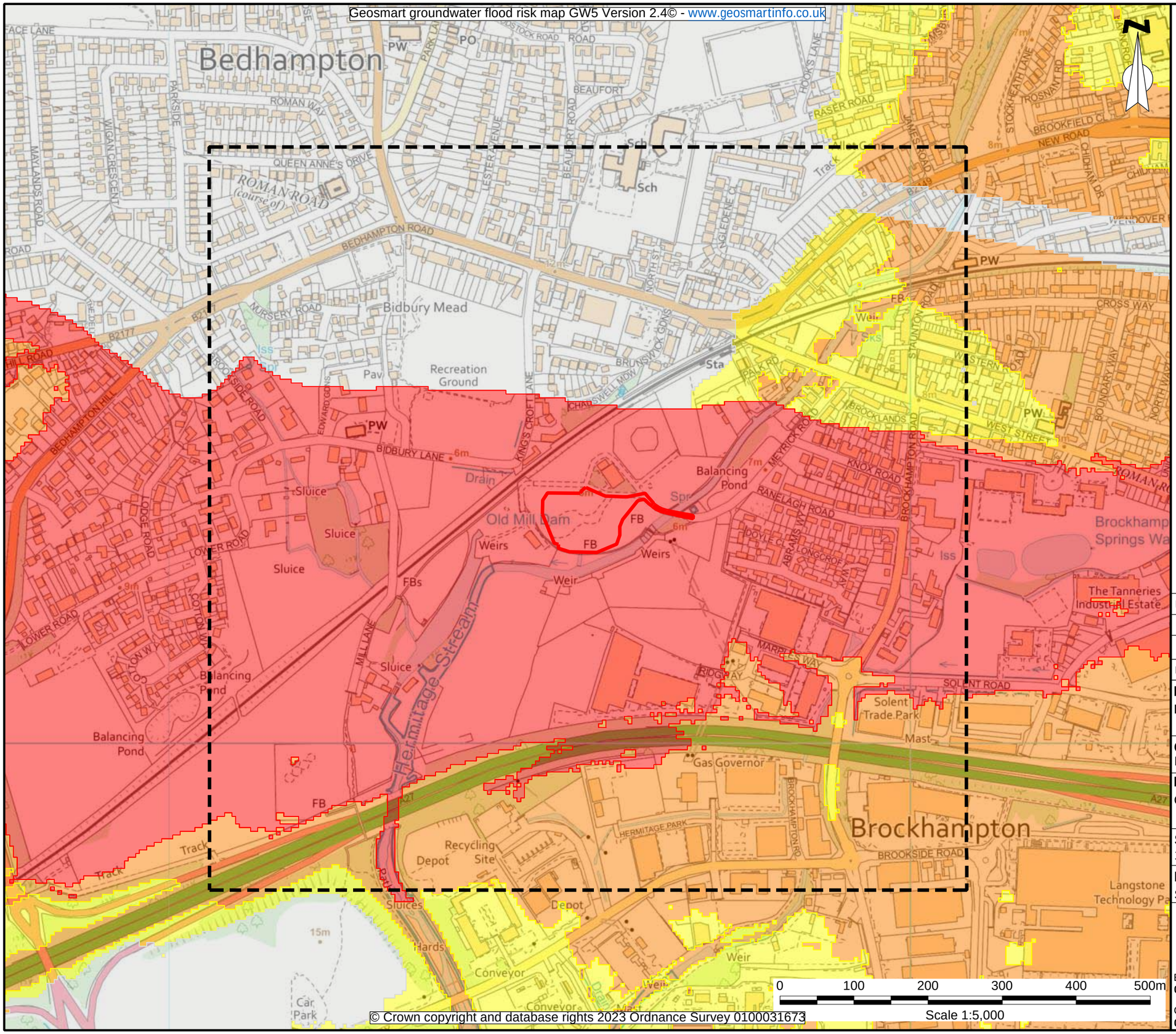
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Geosmart groundwater flood risk map GW5 Version 2.4© - www.geosmartinfo.co.uk



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KEY:

- Site Boundary
- Class 1 - High Risk
- Class 2 - Moderate Risk
- Class 3 - Low Risk
- Class 4 - Negligible Risk

Rev	Date	Description	DRA	CHK	APP
P03	21/03/25	Redline updated	DL	EOC	EOC
P02	02/04/24	Redline updated	DL	EOC	EOC
P01	08/12/23	Issued for comment / approval	LW	DA	DA

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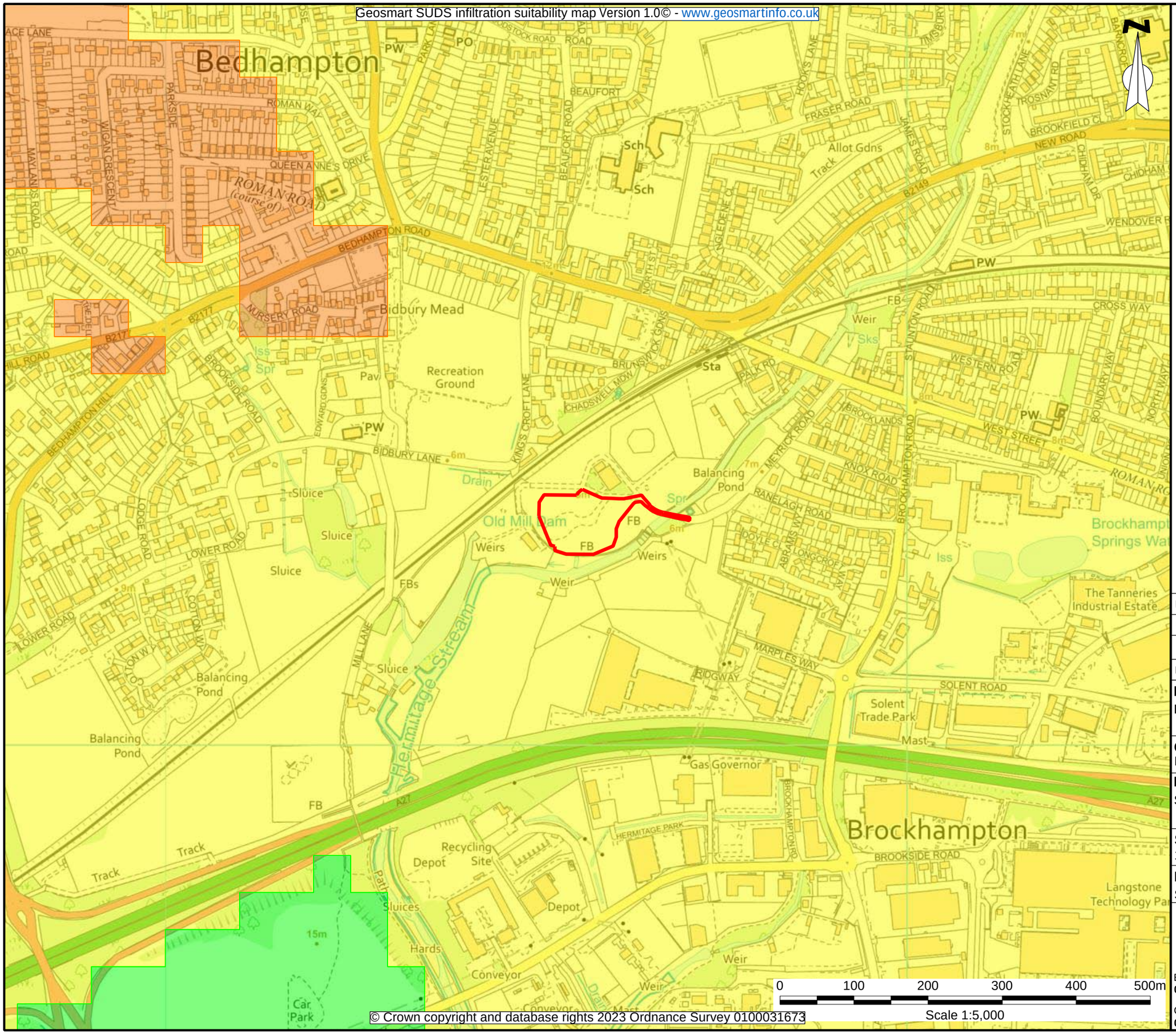
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DWG No. SHF.3055.001-ENZ-XX-XX-DR-Y-0004 **Revision** P03

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KEY:

- Site Boundary
- High Potential
- Moderate Potential
- Low Potential

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P03	21/03/25	Redline updated	DL	EOC	EOC
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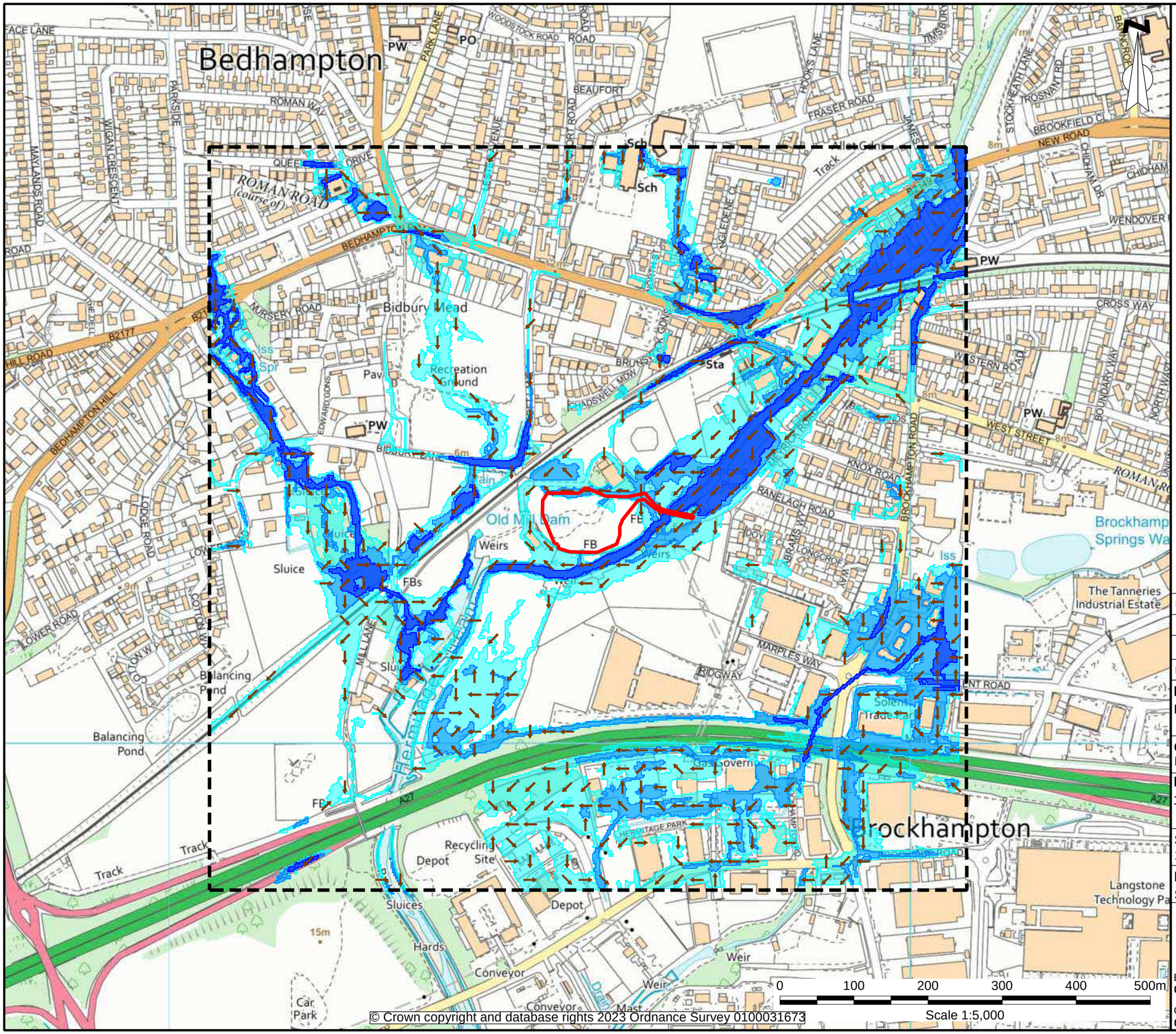
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SuDS Infiltration Potential

Scale	Date	Status
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DWG No. SHF.3055.001-ENZ-XX-XX-DR-Y-0005 **Revision** P03

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KEY:

- Site Boundary
- Search Extent
- 30 Year Extent
- 100 Year Extent
- 1000 Year Extent
- Flow Direction

Rev	Date	Description	DRA	CHK	APP
P03	21/03/25	Redline updated	DL	EOC	EOC
P02	02/04/24	Redline updated	DL	EOC	EOC
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Project
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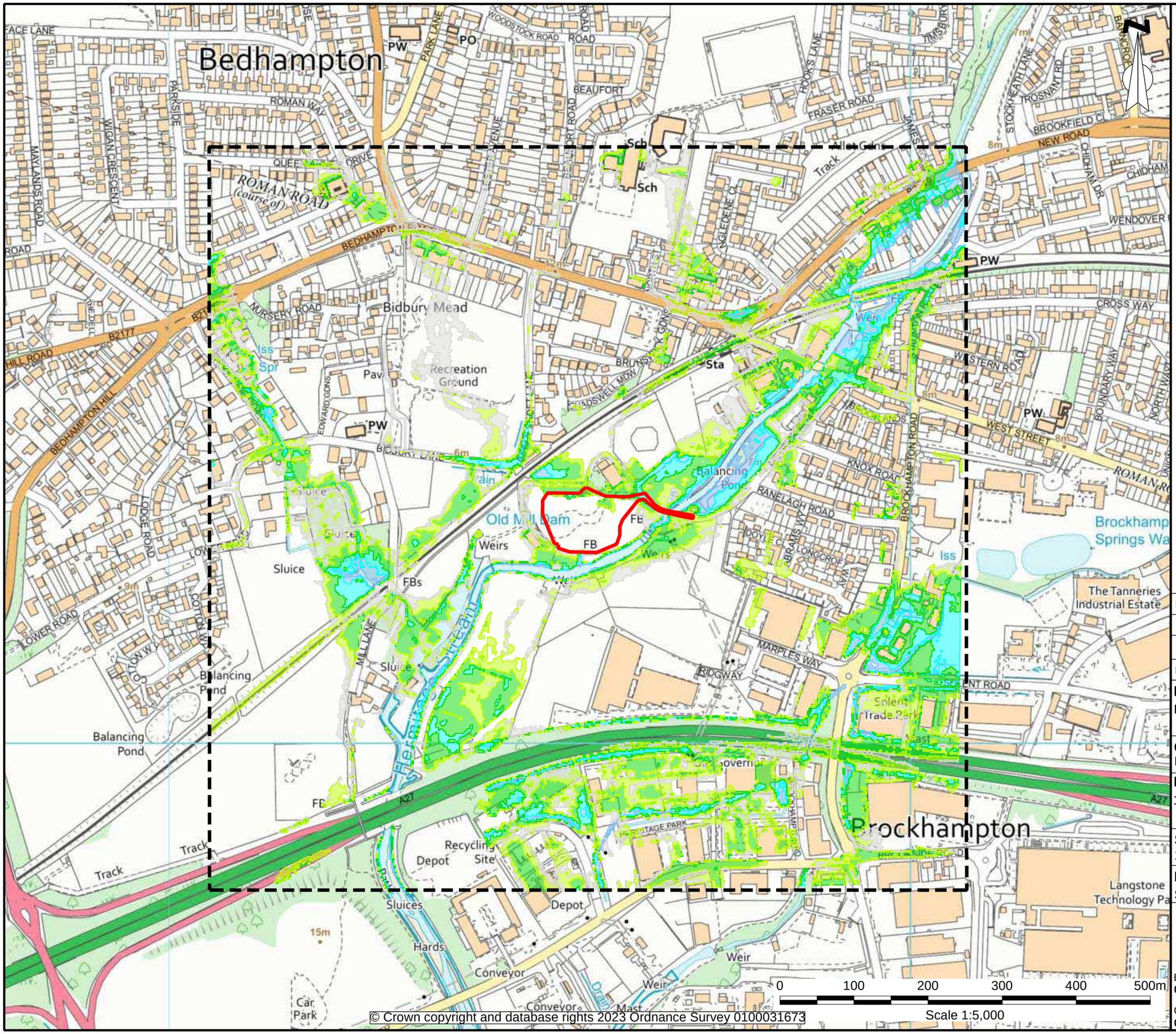
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Scale	Date	Status
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DWG No. SHF.3055.001-ENZ-XX-XX-DR-Y-0006.1 **Revision** P03

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KEY:

- Site Boundary
- Search Extent
- Depth greater than 1.20 (m)
- Depth 0.90 - 1.20 (m)
- Depth 0.60 - 0.90 (m)
- Depth 0.30 - 0.60 (m)
- Depth 0.15 - 0.30 (m)
- Depth 0.0 - 0.15 (m)

Rev	Date	Description			
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P02	02/04/24	Redline updated	DL	EOC	EOC
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Client
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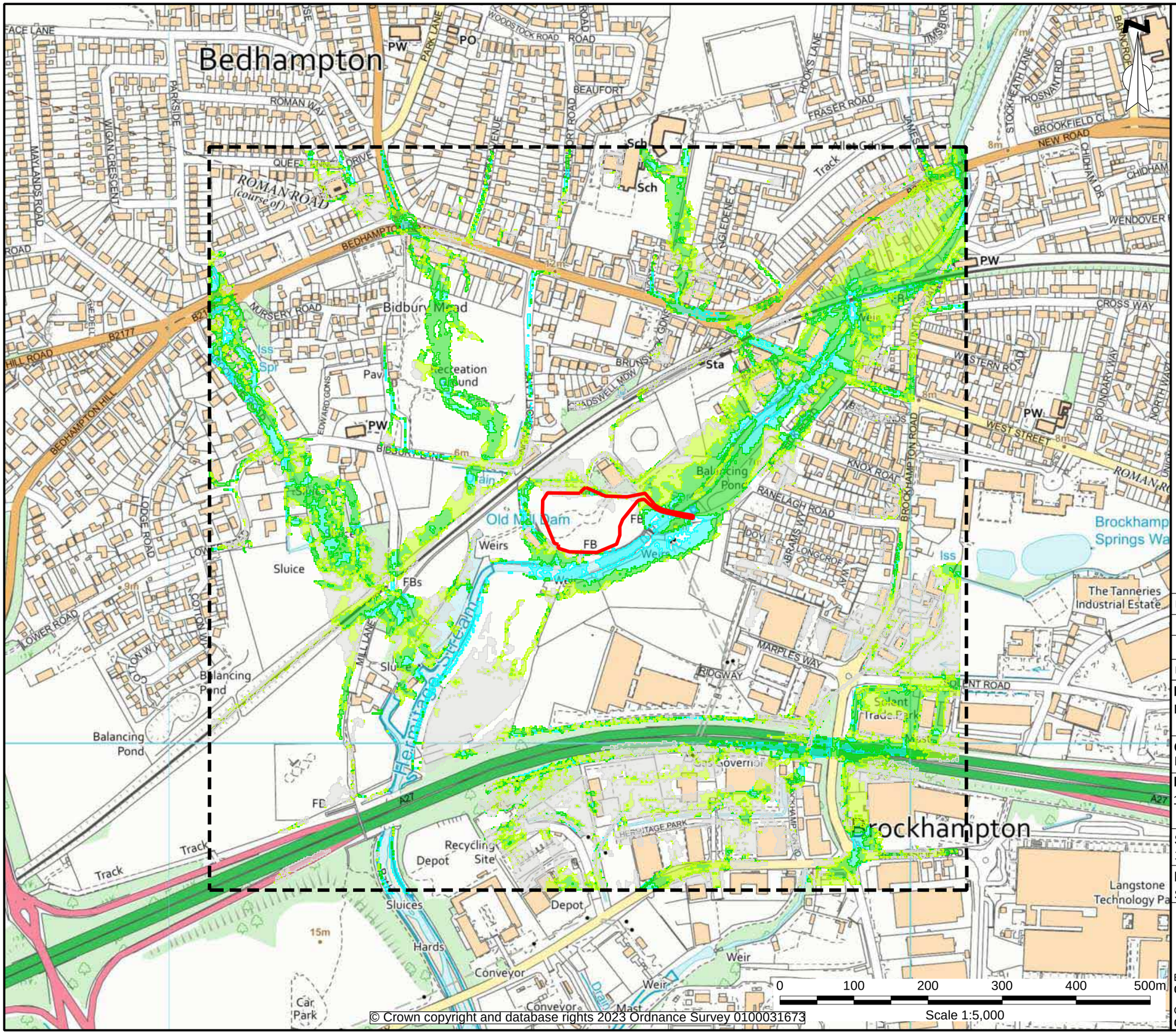
Drawing Title
1 in 1000 Year Surface Water Depth

Scale	Date	Status
1:5,000@A3	08/12/23	Preliminary

DWG No. SHF.3055.001-ENZ-XX-XX-DR-Y-0006.2 **Revision** P03

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CARDIFF 02920 023 700
www.enzygo.com hello@enzygo.com
CAMBRIDGE 01799 542 473



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KEY:

- Site Boundary
- Search Extent
- Velocity 2.00 or greater (m/s)
- Velocity 1.00 - 2.00 (m/s)
- Velocity 0.50 - 1.00 (m/s)
- Velocity 0.25 - 0.50 (m/s)
- Velocity 0.00 - 0.25 (m/s)

Rev	Date	Description	DRA	CHK	APP
P03	21/03/25	Redline updated	DL	EOC	EOC
P02	02/04/24	Redline updated	DL	EOC	EOC
P01	08/12/23	Issued for comment / approval	LW	DA	DA

Project
Bedhampton Waterworks

Client
E101 Hub 4 Ltd

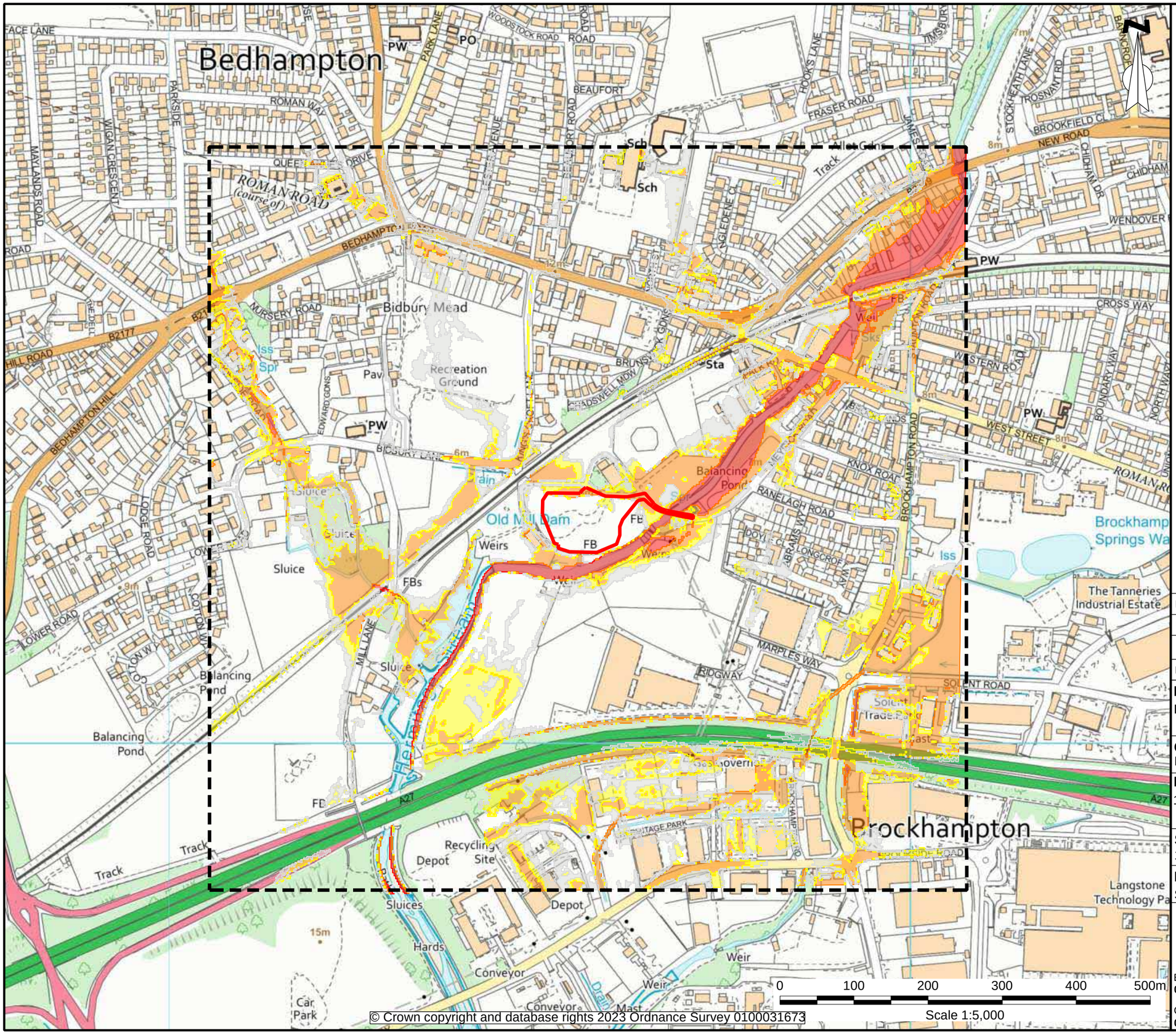
Drawing Title
1 in 1000 Year Surface Water Velocity

Scale	Date	Status
1:5,000@A3	08/12/23	Preliminary

DWG No. SHF.3055.001-ENZ-XX-XX-DR-Y-0006.3 **Revision** P03

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KEY:

- Site Boundary
- Search Extent
- Extreme Hazard (> 2.0)
- Significant Hazard (1.25 - 2.00)
- Moderate Hazard (0.75 - 1.25)
- Low Hazard (0.50 - 0.75)

Rev	Date	Description	DRA	CHK	APP
P03	21/03/25	Redline updated	DL	EOC	EOC
P02	02/04/24	Redline updated	DL	EOC	EOC
P01	08/12/23	Issued for comment / approval	LW	DA	DA

Project
Bedhampton Waterworks

Client
E101 Hub 4 Ltd

Drawing Title
1 in 1000 Year Surface Water Hazard

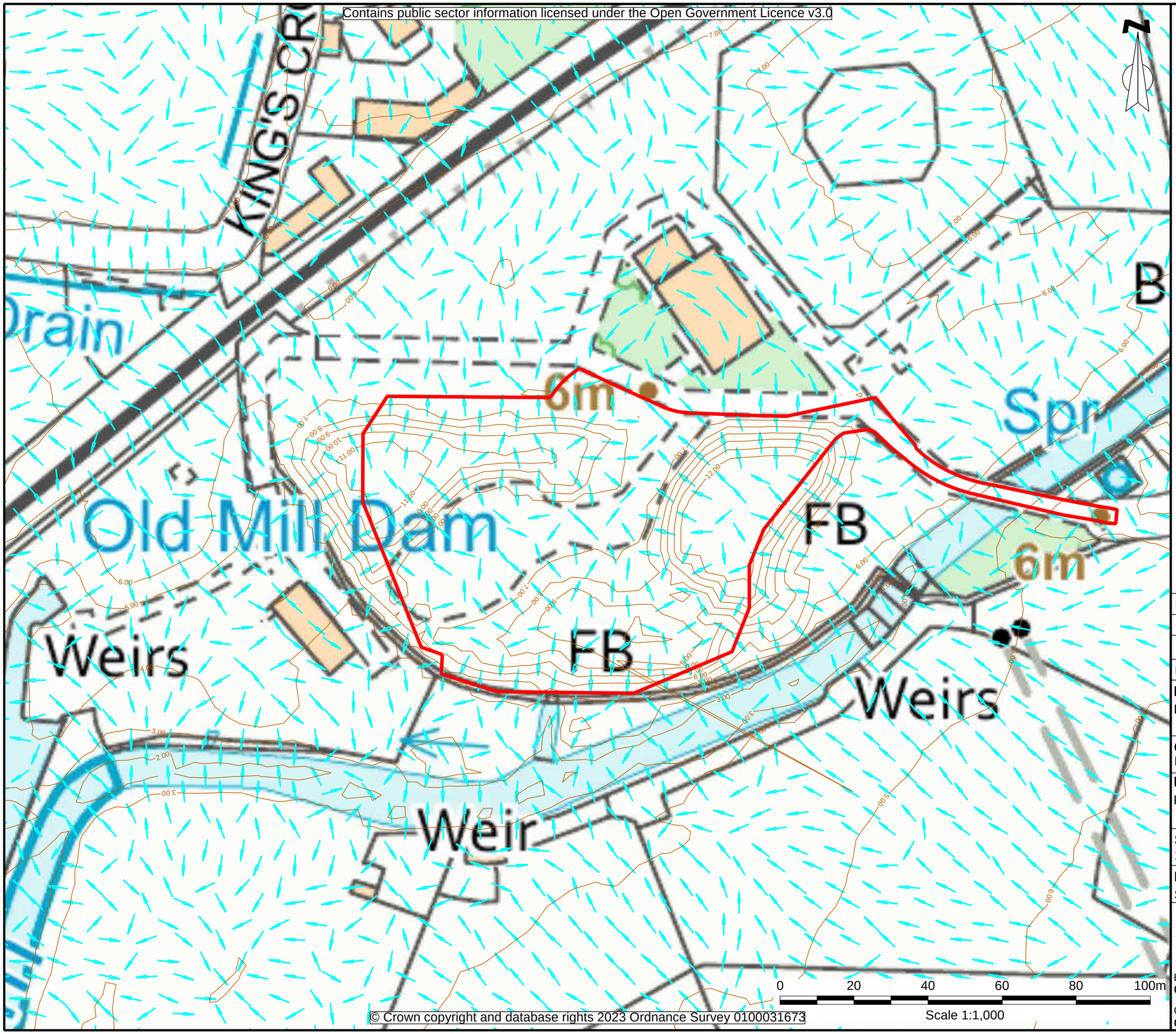
Scale	Date	Status
1:5,000@A3	08/12/23	Preliminary

DWG No. SHF.3055.001-ENZ-XX-XX-DR-Y-0006.4 **Revision** P03

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KEY:

- Site Boundary
- Contours
- Surface Water Flow Path

Notes:

Ground Model Specification:
1m DTM LIDAR Data

Rev	Date	Description	DRA	CHK	APP
P03	21/03/25	Redline updated	DL	EOC	EOC
P02	02/04/24	Redline updated	DL	EOC	EOC
P01	08/12/23	Issued for comment / approval	LW	DA	DA

Project
Bedhampton Waterworks

Client
E101 Hub 4 Ltd

Drawing Title
Flow Pathway Analysis

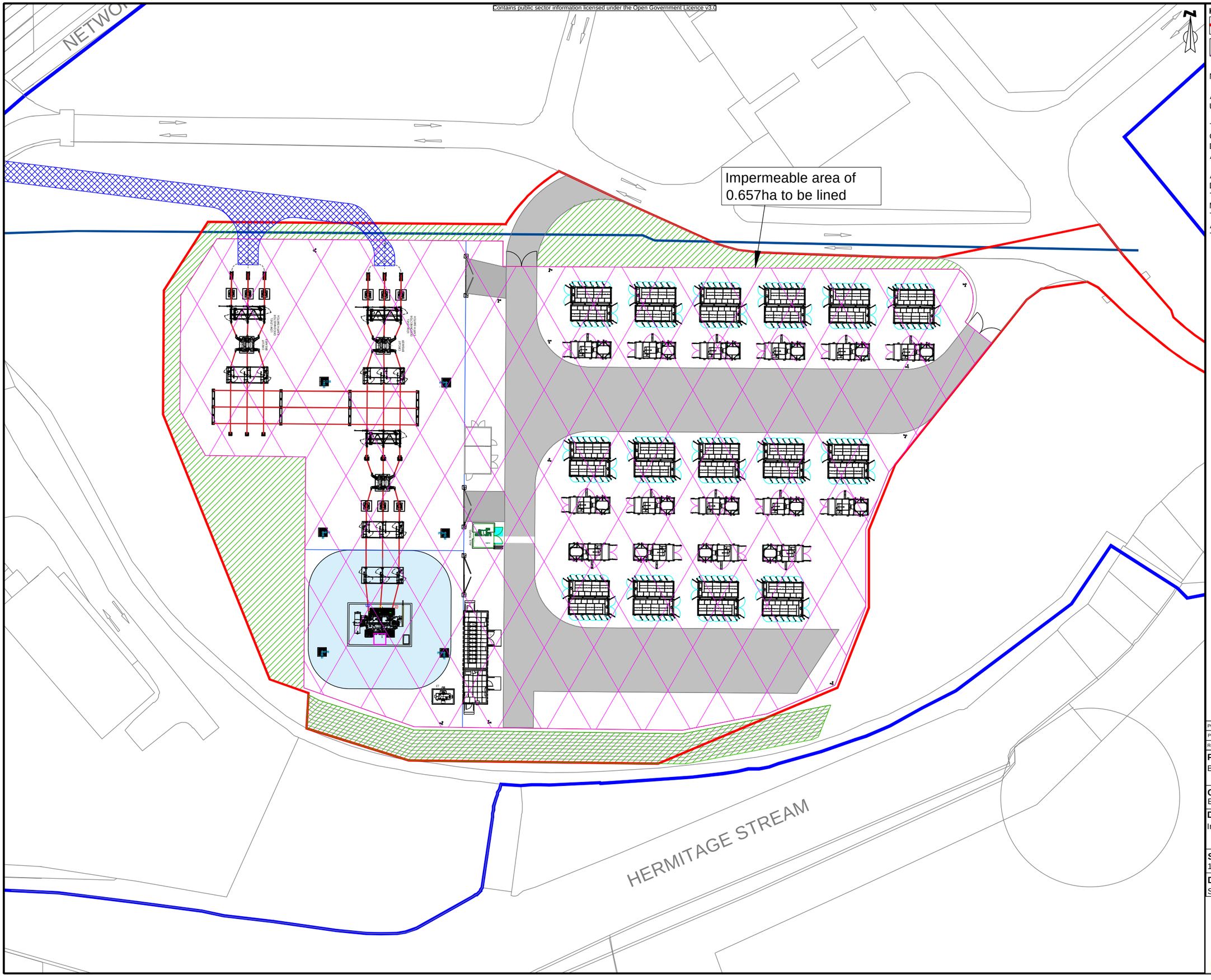
Scale	Date	Status
1:1,000@A3	08/12/23	Preliminary

DWG No. SHF.3055.001-ENZ-XX-XX-DR-Y-0007 **Revision** P03

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KEY:

Site Boundary

Impermeable Area

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND DOCUMENTS ASSOCIATED WITH THIS PROJECT.

ALL EXISTING AND PROPOSED DIMENSIONS, LEVELS AND LOCATIONS TO BE CHECKED AND VERIFIED BY THE MAIN CONTRACTOR ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS AND ANY ANOMALIES REPORTED TO THE ENGINEER.

Rev	Date	Description	DRA	CHK	APP
P02	27/03/25	New Layout	BD	RB	EOC
P01	09/05/24	Issued for comment / approval	BD	RB	EOC

Project
Bedhampton Waterworks

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Drawing Title
Impermeable Area

Scale	Date	Status
1:250@A1	27/03/25	Preliminary

DWG No. SHF-3055-001-ENZ-XX-XX-DR-D-0002 **Revision** P02

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Additional existing pipes across site. Obstructive pipes to be grouted/removed

Approximate location of exisiting under ground land drain and overflow pipe as seen in sketch. Levels to be determined

Survey required to determine location of existing services

Position of Tanks subject to location, depth and size of existing pipe network. Tanks to be linked together

Tank depths subject to site levels. Gravel attenuation may be possible when site levels are known.

Flow Controls:
Discharge Rate: 2 L/s

Outflow into Hermitage Stream to the South of site

HERMITAGE STREAM

Surface Water Geocellular Storage Tank 1:
Designed for 1in100year (+45% CC)
CL: TBC
IL: TBC
Attenuation Volume: 646m^3
Dimensions: 8m x 42.5m x 2m (95% void)
Impermeable Area: 0.665ha
Use: Polypipe Polystorm geoceullar attenuation or similar approved.
Minimum 600mm cover to be provided. Venting required.

KEY:

- Site Boundary
- Attenuation Tank
- Existing Landrain and Overflow Pipe
- Land Ownership Boundary
- Surface Water Pipes

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND DOCUMENTS ASSOCIATED WITH THIS PROJECT.

ALL EXISTING AND PROPOSED DIMENSIONS, LEVELS AND LOCATIONS TO BE CHECKED AND VERIFIED BY THE MAIN CONTRACTOR ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS AND ANY ANOMALIES REPORTED TO THE ENGINEER.

SITE TO BE LINED TO PREVENT GROUNDWATER INGRESS.

PENSTOCK TO BE FITTED TO OUTFALL.

Rev	Date	Description			
P02	27/03/25	New Layout	BD	RB	EOC
P01	09/05/24	Issued for comment / approval	BD	RB	EOC

Project
Bedhampton Waterworks

Client
E101 Hub 4 Ltd

Drawing Title
Indicative Attenuation Tank Layout

Scale	Date	Status
1:250@A1	27/03/25	Preliminary

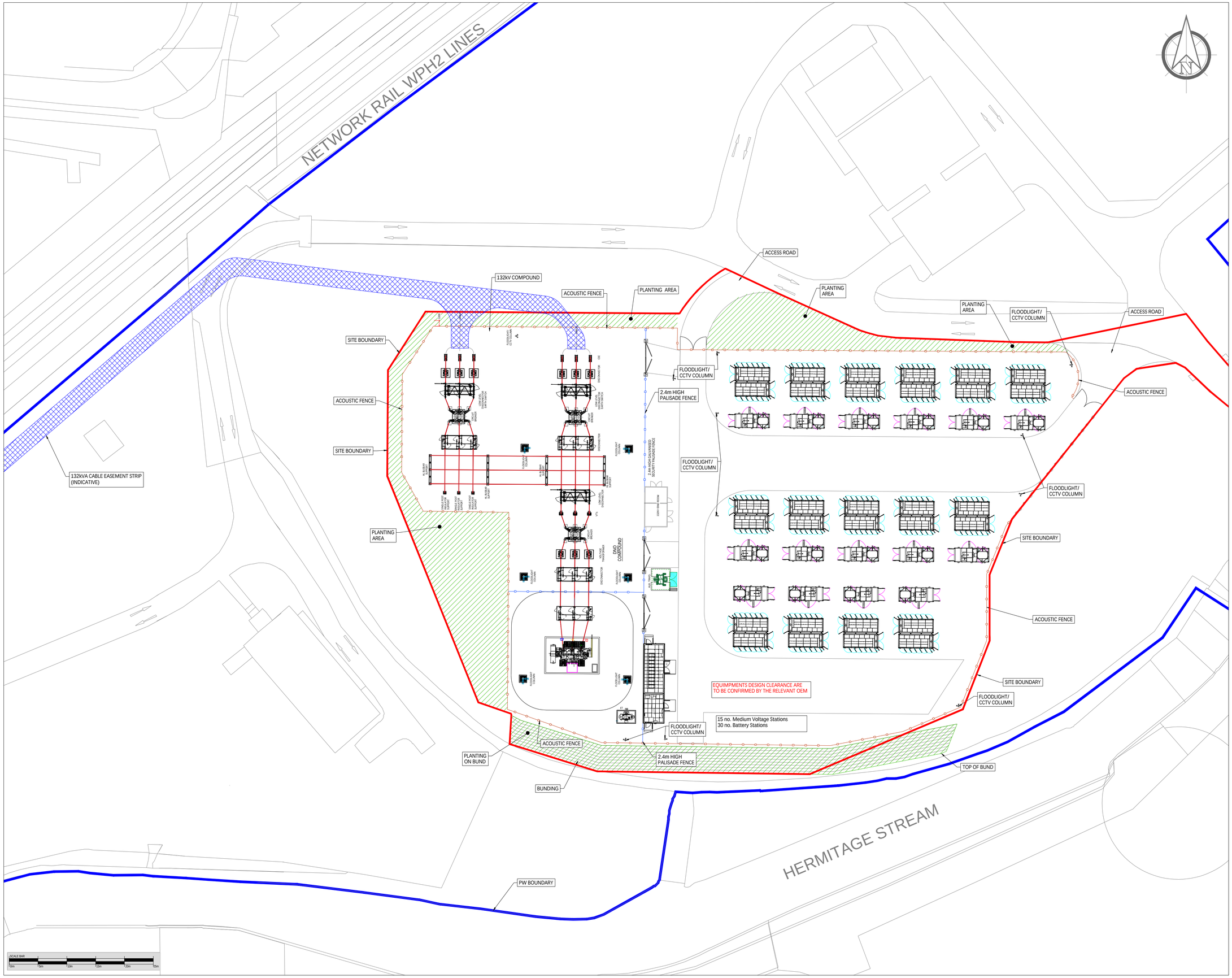
DWG No. SHF-3055-001-ENX-XX-XX-DR-D-0001 **Revision** P01

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APPENDICES

Appendix 1 3 Proposed Layout



DACI
UTILITIES ENGINEERING CONSULTANCY

DESIGN HOUSE

DACI | Utilities Engineering Consultancy Limited
1 Caxton Street, Salford, Manchester, M3 5AZ

Notes:

REV:	VO:	DESCRIPTION:	BY:	DATE:
15	-	ARRANGMENT REVISED	ZUA	23-01-25
14	-	ARRANGMENT REVISED AS PER COMMENTS	ZUA	21-10-24
13	-	RED LINE BOUNDARY AND ACOUSTIC FENCE UPDATED	ZUA	16-08-24
12	-	UPDATED TO LILO SCHEME	ZUA	27-06-24
11	-	DETAILS UPDATED	ZUA	20-05-24
10	-	DETAILS UPDATED	ZUA	13-05-24
09	-	DETAILS UPDATED	ZUA	30-04-24
08	-	DETAILS UPDATED	ZUA	23-04-24
07	-	DETAILS UPDATED	ZUA	22-04-24
06	-	- SITE BOUNDARY UPDATED - PW BOUNDARY ADDED - 132kVA EASEMENT STRIP ADDED	ZUA	05-04-24
05	-	MINOR AMENDED	ZUA	02-04-24
04	-	UPDATE TEXT AS PER COMMENT	FA	22-03-24
03	-	REVISED ARRANGEMENT	FA	21-03-24
02	-	REVISED ARRANGEMENT	FA	05-03-24
01	-	REVISED ARRANGEMENT	FA	21-02-24
00	-	FIRST DRAFT	FA	12-02-24

DRAWING STATUS:
DRAFT

DRAWING FOR INFORMATION UNLESS SIGNED!

PLANNING

ENERGY 101
Engineering | Management | Consultancy

ICP
ENERGY 101
21 DOWNSIDE AVE,
SOUTHAMPTON
SO19 7BU

SITE:
BEDHAMPTON 132kV BESS
MEYRICK ROAD, HAVANT
PO9 3HB

OS REFERENCE:
E: 470557 N: 106315

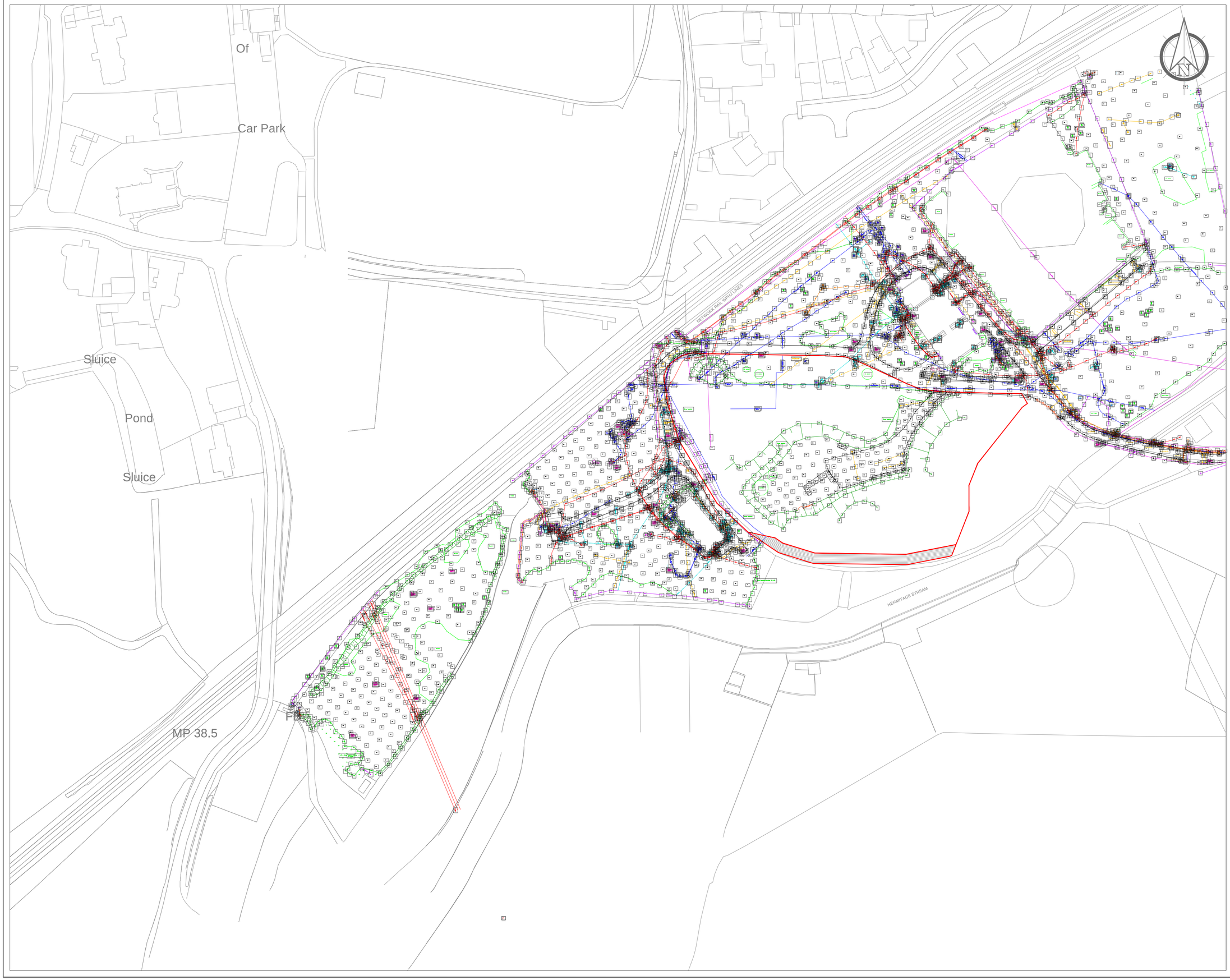
ICP NO.:	DACI NO.:
SLP_No	4402

TITLE:
GENERAL ARRANGEMENT PLAN

DRAWING NO.:	REVISION:	SCALE AT A1:
DACI-4402-E01	15	1:300

DATE:	DRAWN:	CHECKED:	APPROVED:
23-01-25	ZUA	FA	

Appendix 2 3 Topographic Survey



DACI
UTILITIES ENGINEERING CONSULTANCY

DESIGN HOUSE
DACI | Utilities Engineering Consultancy Limited
1 Caxton Street, Salford, Manchester, M3 5AZ

Notes:

REV:	VO:	DESCRIPTION:	BY:	DATE:
00	-	FIRST DRAFT	ZUA	02-04-24

DRAWING STATUS:
DRAFT

DRAWING FOR INFORMATION UNLESS SIGNED!

PLANNING

ENERGY 101
Engineering | Management | Consultancy

ICP
ENERGY 101
21 DOWNSIDE AVE,
SOUTHAMPTON
SO19 7BU

SITE:
BEDHAMPTON 132kV BESS
MEYRICK ROAD, HAVANT
PO9 3HB

O/S REFERENCE:
E: 470557 N: 106315

ICP NO.:	DACI NO.:
SLP_No	4402

TITLE:
SITE TOPOGRAPHIC DRAWING

DRAWING NO.:	REVISION:	SCALE AT A1:
DACI-4402-E04	00	1:750

DATE:	DRAWN:	CHECKED:	APPROVED:
02-04-24	ZUA	FA	

Appendix 3 3 Environment Agency Correspondence

Dani Lister

From: Partnership and Strategic Overview team, HIOW [redacted]
Sent: 03 May 2023 14:34
To: Dani Lister
Cc: SSD Enquiries
Subject: Flood Risk Information, Product 4, 5, 6 and 7 for Bedhampton Waterworks - Ref: SSD/297970
Attachments: Defences Map.pdf; Flood Map for Planning (Rivers and Sea).pdf; Risk of Flooding from Surface Water.pdf; Open Government Licence.pdf; Use of EA Information for FRAs.pdf

Dear Dani,

Enquiry regarding Product 4, 5, 6 and 7 for Bedhampton Waterworks, Meyrick Road, Havant, PO9 3HB.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

We can confirm that the above property/site is located in Flood Zone 1 - an area where the chance of flooding from both rivers and the sea has been assessed as less than 0.1% in any year (1 chance in 1,000 in any year).

The Environment Agency has no record of flooding to this property/area. Please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flooding Authority, Hampshire County Council or the Local Authority, Havant Borough Council for a more comprehensive flood history check.

Defences – See attached map.

Flood Levels – No flood levels have been provided. Flood levels can be obtained by integrating the product 6 data directly.

Product 5 and 6 – Please use the link below to download the Product 5 and Product 6 data as requested.
https://ea.sharefile.com/d-s0a680a0178bc4ae9b3ec243b213b6562

Product 7 – Product 7 data has been provided for the Havant Flood Mapping Study and can be downloaded using the link above. Unfortunately due to the size of the East Solent Coastal Model, we are unable to provide Product 7 data via our ShareFile website. If you would still like to receive the Product 7 data for the East Solent Coastal Model you will need to provide a hard drive that the model data can be uploaded onto (min 1.5 TB).

FRA advisory text

Name	Product 4
Description	Detailed Flood Risk Assessment Map for Bedhampton Waterworks, Meyrick Road, Havant, PO9 3HB.
Licence	Open Government Licence
Information Warning – Climate Change	If we have provided climate change data, it is based on UKCP09 which has now been superseded by UKCP18. We have scheduled updates to our flood models to incorporate UKCP18 data, but until this is complete the majority of our models will not provide

	appropriate climate change data for use within Flood Risk Assessments. The correct allowances will need to be calculated using the following data: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances Failure to use the correct climate change data may result in us objecting to planning applications upon which we are consulted by Local Planning Authorities.
Information Warning - OS background mapping	*The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.*
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2017 Ordnance Survey 100024198.

Name	Product 5
Description	*East Solent Coastal Model Reports and Havant Flood Mapping Study Reports*
Licence	Environment Agency Conditional Licence
Conditions	1.0 You may use the Information for your internal or personal purposes and may only sublicense others to use it if you do so under a written licence which includes the terms of these conditions and the agreement and in particular may not allow any period of use longer than the period licensed to you. 2.0 Notwithstanding the fact that the standard wording of the Environment Agency Conditional Licence indicates that it is perpetual, this Licence has a limited duration of 5 years at the end of which it will terminate automatically without notice. 3.0 We have restricted use of the Information as a result of legal restrictions placed upon us to protect the rights or confidentialities of others. In this instance it is because of third party data. If you contact us in writing (this includes email) we will, as far as confidentiality rules allow, provide you with details including, if available, how you might seek permission from a third party to extend your use rights. 4.1 The Information may contain some data that we believe is within the definition of <personal data= under the Data Protection Act 1998 but we consider that we will not be in breach of the Act if we disclose it to you with conditions set out in this condition and the conditions above. This personal data comprises names of individuals or commentary relating to property that may be owned by an individual or commentary relating to the activities of an individual. 4.2 Under the Act a person who holds and uses or passes to others personal data is responsible for any compliance with the Act and so

	we have no option but to warn you that this means you have responsibility to check that you are compliant with the Act in respect of this personal data. 5.0 The location of public water supply abstraction sources must not be published to a resolution more detailed than 1km2. Information about the operation of flood assets should not be published. 6.1 Where we have supplied model data which may include model inputs or outputs you agree to supply to the Environment Agency copies of any assessments/studies and related outputs, modifications or derivatives created pursuant to the supply to you of the Information, all of which are hereinafter referred to as <the Data=. 6.2 You agree, in the public interest to grant to the Environment Agency a perpetual royalty free non-exclusive licence to use the Data or any part thereof for its internal purposes or to use it in any way as part of Environment Agency derivative products which it supplies free of charge to others such as incorporation into the Environment Agency's Open Data mapping products.
Information Warnings	If we have provided climate change data, it is based on UKCP09 which has now been superseded by UKCP18. We have scheduled updates to our flood models to incorporate UKCP18 data, but until this is complete the majority of our models will not provide appropriate climate change data for use within Flood Risk Assessments. The correct allowances will need to be calculated using the following data: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances Failure to use the correct climate change data may result in us objecting to planning applications upon which we are consulted by Local Planning Authorities.
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Name	Product 6
Description	Model Output Data *for East Solent Coastal Model and Havant Flood Mapping Study*
Licence	Environment Agency Conditional Licence
Conditions	1.0 You may use the Information for your internal or personal purposes and may only sublicense others to use it if you do so under a written licence which includes the terms of these conditions and the agreement and in particular may not allow any period of use longer than the period licensed to you. 2.0 Notwithstanding the fact that the standard wording of the Environment Agency Conditional Licence indicates that it is perpetual, this Licence has a limited duration of 5 years at the end of which it will terminate automatically without notice. 3.0 We have restricted use of the Information as a result of legal restrictions placed upon us to protect the rights or confidentialities of others. In this instance it is because of third party data. If you contact

	us in writing (this includes email) we will, as far as confidentiality rules allow, provide you with details including, if available, how you might seek permission from a third party to extend your use rights. 4.1 The Information may contain some data that we believe is within the definition of <personal data= under the Data Protection Act 1998 but we consider that we will not be in breach of the Act if we disclose it to you with conditions set out in this condition and the conditions above. This personal data comprises names of individuals or commentary relating to property that may be owned by an individual or commentary relating to the activities of an individual. 4.2 Under the Act a person who holds and uses or passes to others personal data is responsible for any compliance with the Act and so we have no option but to warn you that this means you have responsibility to check that you are compliant with the Act in respect of this personal data. 5.0 The location of public water supply abstraction sources must not be published to a resolution more detailed than 1km2. Information about the operation of flood assets should not be published.. 6.1 Where we have supplied model data which may include model inputs or outputs you agree to supply to the Environment Agency copies of any assessments/studies and related outputs, modifications or derivatives created pursuant to the supply to you of the Information, all of which are hereinafter referred to as <the Data=. 6.2 You agree, in the public interest to grant to the Environment Agency a perpetual royalty free non-exclusive licence to use the Data or any part thereof for its internal purposes or to use it in any way as part of Environment Agency derivative products which it supplies free of charge to others such as incorporation into the Environment Agency's Open Data mapping products.
Information Warnings	Please be aware that model data is not raw, factual or measured but comprises of estimations or modelled results based on the data available to us. If we have provided climate change data, it is based on UKCP09 which has now been superseded by UKCP18. We have scheduled updates to our flood models to incorporate UKCP18 data, but until this is complete the majority of our models will not provide appropriate climate change data for use within Flood Risk Assessments. The correct allowances will need to be calculated using the following data: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances Failure to use the correct climate change data may result in us objecting to planning applications upon which we are consulted by Local Planning Authorities.
Attribution	Contains Environment Agency information © Environment Agency and/or database rights.

Name	Product 7
Description	Calibrated and Verified Model Input Data for *Havant Flood Mapping Study*

Licence	Environment Agency Conditional Licence
Conditions	1.0 You may use the Information for your internal or personal purposes and may only sublicense others to use it if you do so under a written licence which includes the terms of these conditions and the agreement and in particular may not allow any period of use longer than the period licensed to you. 2.0 Notwithstanding the fact that the standard wording of the Environment Agency Conditional Licence indicates that it is perpetual, this Licence has a limited duration of 5 years at the end of which it will terminate automatically without notice. 3.0 We have restricted use of the Information as a result of legal restrictions placed upon us to protect the rights or confidentialities of others. In this instance it is because of third party data. If you contact us in writing (this includes email) we will, as far as confidentiality rules allow, provide you with details including, if available, how you might seek permission from a third party to extend your use rights. 4.1 The Information may contain some data that we believe is within the definition of <personal data= under the Data Protection Act 1998 but we consider that we will not be in breach of the Act if we disclose it to you with conditions set out in this condition and the conditions above. This personal data comprises names of individuals or commentary relating to property that may be owned by an individual or commentary relating to the activities of an individual. 4.2 Under the Act a person who holds and uses or passes to others personal data is responsible for any compliance with the Act and so we have no option but to warn you that this means you have responsibility to check that you are compliant with the Act in respect of this personal data. 5.0 The location of public water supply abstraction sources must not be published to a resolution more detailed than 1km2. Information about the operation of flood assets should not be published.. 6.1 Where we have supplied model data which may include model inputs or outputs you agree to supply to the Environment Agency copies of any assessments/studies and related outputs, modifications or derivatives created pursuant to the supply to you of the Information, all of which are hereinafter referred to as <the Data=. 6.2 You agree, in the public interest to grant to the Environment Agency a perpetual royalty free non-exclusive licence to use the Data or any part thereof for its internal purposes or to use it in any way as part of Environment Agency derivative products which it supplies free of charge to others such as incorporation into the Environment Agency's Open Data mapping products.
Information Warnings	If we have provided climate change data, it is based on UKCP09 which has now been superseded by UKCP18. We have scheduled updates to our flood models to incorporate UKCP18 data, but until this is complete the majority of our models will not provide appropriate climate change data for use within Flood Risk Assessments. The correct allowances will need to be calculated using the following data: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

	Failure to use the correct climate change data may result in us objecting to planning applications upon which we are consulted by Local Planning Authorities.
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Data Available Online

Many of our flood datasets are available online:

- Flood Map For Planning (Flood Zone 2, Flood Zone 3 ,Flood Storage Areas, Flood Defences, Areas Benefiting from Defences, ,)
- Risk of Flooding from Rivers and Sea
- Historic Flood Map
- Current Flood Warnings

Does Your Proposal Have Environmental Issues or Opportunities? Speak To Us Early!

If you are planning a new project or development, we want to work with you to make the process as smooth as possible. Early engagement can improve subsequent planning applications to you and your clients' benefit and deliver environmental outcomes. For a cost recovery fee of £100 per hour plus VAT we will provide you with a project manager who will coordinate all meetings and reviews in order to give you detailed specialist advice with guaranteed delivery dates. More information can be found on our website here.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely

Aimee Etheridge
Partnership and Strategic Overview team, Hampshire and Isle of Wight
Environment Agency

Direct dial [redacted]
Email [redacted]

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Flood Map for Planning (Rivers and Sea) Centred on Bedhampton Waterworks
Created 3 May 2023



Environment Agency

1: 10,000

0 Metres 250

N W E S

Flood Map for Planning (Rivers & Sea)

- Defences
- Flood Storage Areas
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

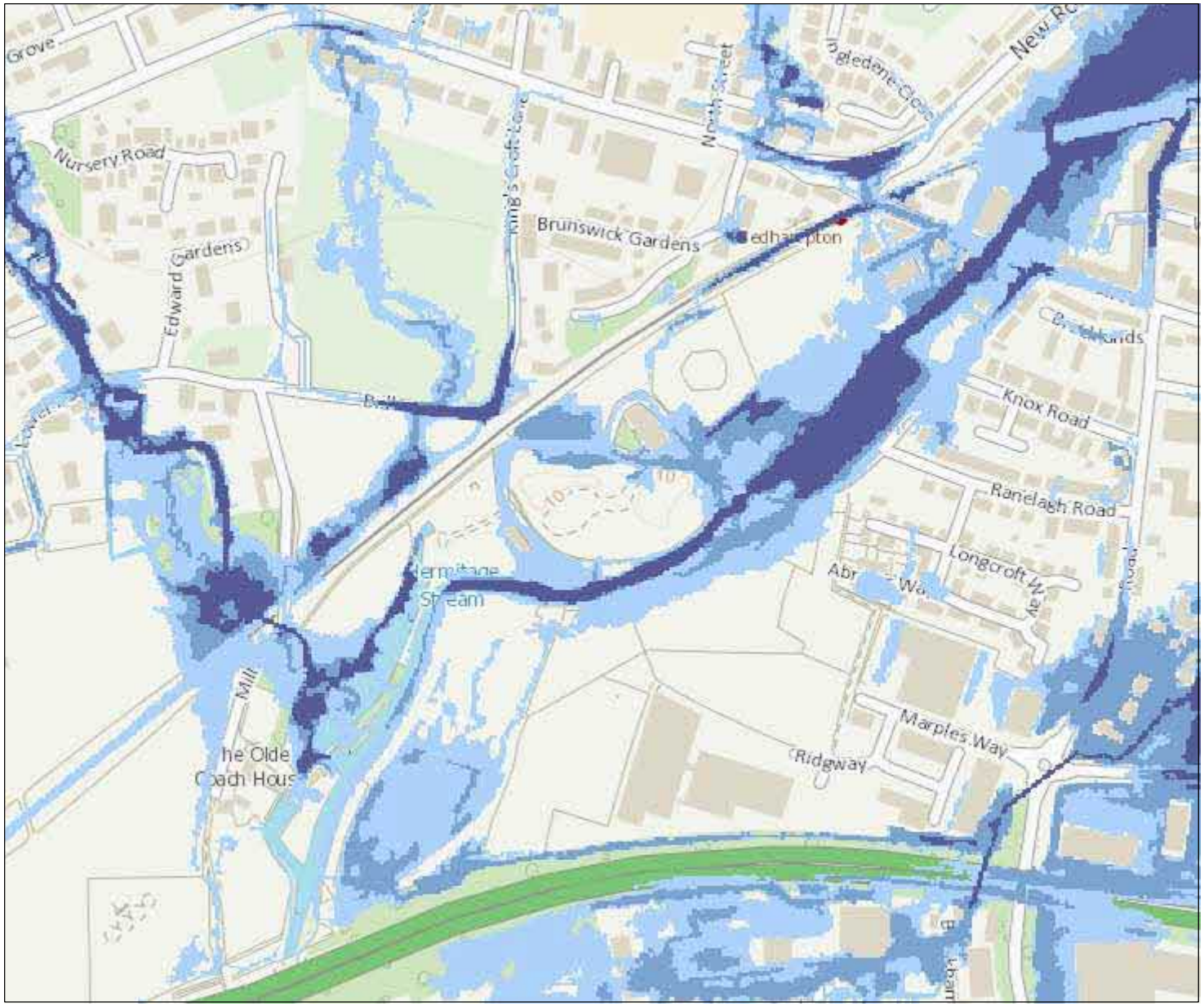
- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occuring each year.

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Risk of flooding from Surface Water Centred on Bedhampton Waterworks
Created 3 May 2023



Likelihood of flooding from Surface Water

High:	Greater than or equal to 3.3% (1 in 30) chance in any given year
Medium:	Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
Low:	Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
Very Low:	Less than 0.1% (1 in 1,000) chance in any given year

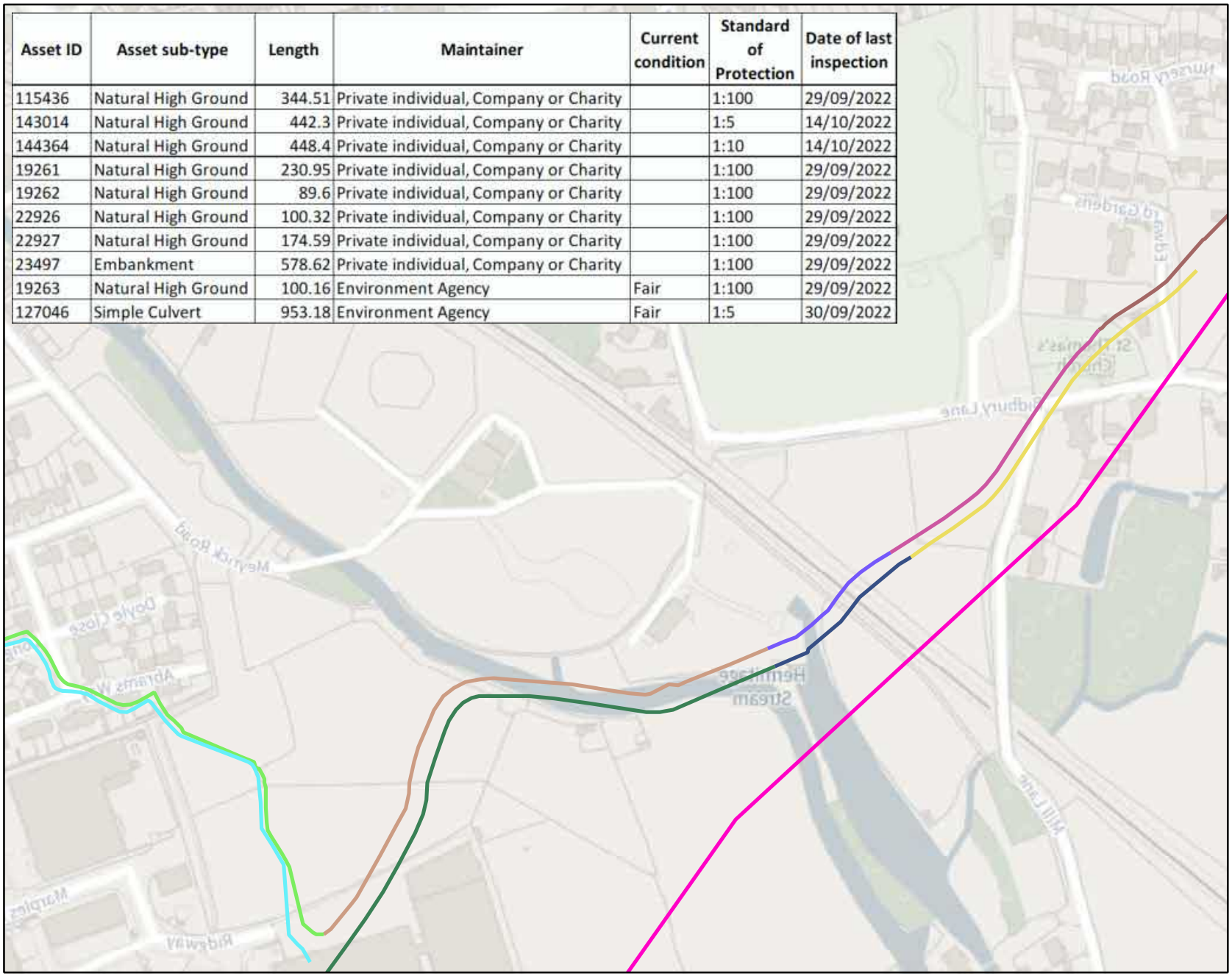
This information is shown on the Risk of Flooding from Surface Water map on GOV.UK.

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). E-mail: enquires@environment-agency.gov.uk

Defences Centred on Bedhampton Waterworks - Created 3 May 2023

Asset ID	Asset sub-type	Length	Maintainer	Current condition	Standard of Protection	Date of last inspection
115436	Natural High Ground	344.51	Private individual, Company or Charity		1:100	29/09/2022
143014	Natural High Ground	442.3	Private individual, Company or Charity		1:5	14/10/2022
144364	Natural High Ground	448.4	Private individual, Company or Charity		1:10	14/10/2022
19261	Natural High Ground	230.95	Private individual, Company or Charity		1:100	29/09/2022
19262	Natural High Ground	89.6	Private individual, Company or Charity		1:100	29/09/2022
22926	Natural High Ground	100.32	Private individual, Company or Charity		1:100	29/09/2022
22927	Natural High Ground	174.59	Private individual, Company or Charity		1:100	29/09/2022
23497	Embankment	578.62	Private individual, Company or Charity		1:100	29/09/2022
19263	Natural High Ground	100.16	Environment Agency	Fair	1:100	29/09/2022
127046	Simple Culvert	953.18	Environment Agency	Fair	1:5	30/09/2022



Legend

asset_id

- 127046
- 115436
- 143014
- 144364
- 19261
- 19262
- 22926
- 22927
- 23497
- 19263

1:3,139 *

*when printed at A4.

0 60 120

Metres

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Contact Us: National Customer Contact Centre, PO BOX 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Appendix 4 3 Hampshire County Council Correspondence

Hampshire County Council

Universal Services
The Castle
Winchester, Hampshire SO23 8UD

Tel: 0300 555 1375
Fax 01962 847055
www.hants.gov.uk

Enquiries to Thomas Callaway

Direct Line [redacted]

Date 23 January 2024

My reference SWM-PRE/2023/0701

Your reference

Email [redacted]

Dear Sir/Madam,

Proposed development/FRA at n/a West of Meyrick Road, HAVANT, HAMPSHIRE PO9 3HB(Application No.

Hampshire County Council as Lead Local Flood Authority has provided comments in relation to the above pre-application in our role as statutory consultee on surface water drainage for major developments.

In order to assist applicants in providing the correct information to their Local Planning Authority for planning permission, Hampshire County Council has set out the information it requires to provide a substantive response at https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/planning

Assessment of Flooding

The site is generally within Flood Zone 1 however there are areas of Flood Zone 2 and 3 associated with the adjacent main river that may extend into the site. Most of the site is at very low risk of surface water flooding, though low to medium risk areas of surface water flood risk are also present at the site. Areas of development should be directed to areas at the lowest risk of flooding, and consideration should also be given to the flood risk vulnerability of the development. Emergency access and egress arrangements may need to be considered by the LPA.

Surface Water Management

Infiltration is the preferred drainage strategy of the LLFA, but is dependent on successful infiltration testing and sufficiently low winter groundwater levels. The potential for infiltration may be restricted by the geology type at the site.

Director of Universal Services
Patrick Blogg

ONEOFF

This site is described as a landfill so infiltration would not be viable and drainage systems would need to be suitably lined.

An alternative drainage strategy may rely on attenuation with a restricted discharge to a watercourse or surface water sewer (subject to capacity and separate agreements) adjacent to the site if available. Attenuation storage should be an appropriate size to allow for the 1 in 100 year storm event (plus peak rainfall allowance) to be attenuated while discharging at rates no greater than greenfield runoff rates. The assumption is that the discharge would be restricted to Qbar, however it must be ensured that the discharge rate does not exceed the equivalent greenfield runoff rate for all storms up to the 1 in 100 year event. Flow control devices should have an orifice of sufficient diameter that it is not prone to blockages. Vortex flow control devices generally allow for a greater orifice diameter for equivalent flow rates when compared with a simple orifice plate.

For a full application, hydraulic calculations for the whole surface water drainage network must be provided to show that flooding does not occur for the 1 in 30 year storm event, inclusive of a peak rainfall allowance appropriate for the location and design life of the development. Any flooding modelled for the 1 in 100 year storm event (including peak rainfall allowance) should have its extent marked up on a layout. Further information on peak rainfall allowances and how to apply them can be found here: https://environment.data.gov.uk/hydrology/climate-change-allowances/rainfall and here: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#using-peak-rainfall-intensity-allowances-to-assess-surface-water-flood-risk. Urban creep allowances would not apply as this site is not proposed to be residential. Flood exceedance flow routes should also be shown on a layout, showing that overland flow routes avoid properties in the event of a failure of the drainage system.

Maintenance details will be required for the surface water drainage system components. This would need to include essential maintenance activities, the frequency of maintenance, and the responsible party for maintenance. Note that the maintenance of any ditches deemed to be the responsibility of the landowner is covered by the relevant section of the Land Drainage Act 1991, and the LLFA has enforcement powers to ensure the free flow of water. Easements for ditches are strongly recommended, and could be incorporated in open space corridors.

SuDS Design and Selection of Drainage Features

SuDS should be provided to include an element of biodiversity and amenity as well as managing water quality and quantity. Quantity should be assessed through hydraulic calculations for the relevant modelled storm events. Network calculations should be provided for a full application to determine whether flooding occurs at manholes in piped parts of the system. Water treatment must be assessed through the simple index approach, with consideration

given to each treatment train. It may be necessary to incorporate additional SuDS features to ensure that runoff quality is improved through the drainage system.

Ordinary Watercourse Consenting

Any alterations to ordinary watercourses (if present), open or culverted, may require ordinary watercourse consent from the LLFA. Maintenance works do not require consent, but any temporary works required to enable maintenance may require consent. For pre-application advice and general consenting information, please see: https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/changewatercourse.

The ownership and responsibility for the southern outfall is not known. It may be classified as an ordinary watercourse, but any works to this watercourse may require an environmental permit from the Environment Agency due to its proximity to the main river. The EA or landowner may have further information about this outfall.

Surface Water Checklist

In addition to this pre-application advice, please refer to the Surface Water Checklist for the information required by the LLFA for different types of planning application: https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/planning. This checklist is accompanied by guidance notes and details exactly what is required for the LLFA to review the surface water drainage proposals, depending on the type of planning application.

Yours faithfully,

[redacted]

Thomas Callaway
Senior FWM Project Officer

Hampshire County Council

Miss D Lister
Enzygo Ltd
Samuel House
5 Fox Valley Way
Stockbridge
South Yorkshire
S36 2AA

Universal Services
The Castle
Winchester, Hampshire SO23 8UD

Telephone 0300 555 1375
Fax 01962 847055
www.hants.gov.uk

Enquiries to Flood & Water Management

Direct line [redacted]

Date 07/12/2023

My reference HFI-2023-0055

Your reference

E-mail [redacted]

Dear Miss Lister,

Re: West of Meyrick Road, Havant.

We refer to your request for historic flood information on 04/12/2023.

Thank you for your application for historic flood information for this site. Please find below the information we have on our systems that we believe to be relevant for this request. Kindly note the declaration on the final page with regards to this information.

Historic flooding information

We have reviewed our records of flood incidents for this area and have one record of flooding within a 250m radius of the site. This does not necessarily mean that other flood events have not occurred, they either may not have been reported or events may have occurred prior to 2012 – Hampshire County Council as Lead Local Flood Authority have only been maintaining flood records since then following the establishment of the Flood and Water Management Act 2010. The Environment Agency (EA) may hold data on flood events prior to this date.

Reference	Source	Date	Flood Source	Details
21634779	FWM	23.12.22	Surface water	Blocked drain in car park

Please refer to attached map for the location of this flood event(s). Kindly note that outlines of areas highlighted as highway flooding on the map may include properties or other off-highway areas that were not impacted by flooding.

There is no flood report undertaken for this area under Section 19 of the Flood and Water Management Act where significant flooding was reported.

Flood risk from surface water

The EA's Updated Flood Map for Surface Water illustrates the potential area of surface water flooding taking into account the topography and permeability of the area. It also includes factors to take into account drainage provision. This information is designed to be high level and should not be used to indicate specific properties and risk but identify low points and potential flow routing. The mapping indicates that this address is partially within an area at medium risk of surface water flooding. Medium risk means that each year this area has a chance of flooding of between 1% and 3.3%, and some parts of the site may flood to a depth of 0.3 3 0.6m.

For more information on this flood risk, please see https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

HCC has prepared Surface Water Management Plans which are available on our website. For more detailed information on flooding in the Havant Borough Council administrative area, please see their Strategic Flood Risk Assessment, which can be found at download (havant.gov.uk).

Flood risk from watercourses

Watercourses are any natural or artificial channel above or below ground through which water flows. Watercourses are classified as either 'Ordinary Watercourse' or 'Main River'. Ordinary watercourses are watercourses that are not part of a Main River and include streams, ditches, drains, culverts etc. through which water flows. The Lead Local Flood Authority (LLFA - in this instance Hampshire County Council) are responsible for managing the risk from ordinary watercourses and have powers to ensure maintenance is undertaken by the relevant body, usually the adjacent landowner. For more information, see http://documents.hants.gov.uk/flood-water-management/HCCFloodRiskManagement-Landowners.pdf.

Main Rivers are typically larger streams and rivers, but some are smaller watercourses of local significance. Main Rivers are nationally managed by the Environment Agency, but responsibility for maintenance remains with the landowner.

There is one Main River within 250m of this site. Known Ordinary watercourses are marked on the attached map(s); however it should be noted that many ordinary watercourses are not recorded centrally (such as small ditches etc.). The site is located within the water body catchment of the Lavant and is in the Havant West Catchment Prioroty Area.

For more information regarding fluvial (river) and tidal flooding and flood risk please contact the Environment Agency or refer to the following website: https://flood-map-for-planning.service.gov.uk/

Ordinary Watercourse Consenting

Hampshire County Council is responsible for issuing Ordinary Watercourse Consents. These consents assess the flood risk of proposed changes (both permanent and temporary) to ordinary watercourses and are a legal requirement of such work. We have no records of Ordinary Watercourse Consents (OWCs) within the search area.

Please refer to the Hampshire County Council OWC website for further information and the forms for consents:

https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/changewatercourse

The consenting process has a statutory timeframe of two months from when the application is validated. To request data relating to consents prior to 2012 please contact the EA on: psohiow@environment-agency.gov.uk

Any works proposed within eight metres of a main river are likely to require a flood risk permit from the Environment Agency. Please refer to the following for further information: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits

Flood risk from sewers

For information regarding foul flooding, please contact Southern Water.

Vulnerability of site from groundwater

Groundwater is by definition hard to predict and difficult to manage. The geology of the site in question is primarily Chalk bedrock overlain with clay, silt, sand and gravel.

Hampshire County Council hold no records of groundwater flooding in the area, however this does not necessarily mean that other flood events have not occurred. It can be difficult to define flooding as a result of groundwater particularly in those areas where silt, gravel and sand can lead to a perched watertable which can prevent infiltration drainage from working as opposed to being a groundwater emergence flood event which tends to be seen linked to chalk aquifers.

Please note this information should only be used to establish relative, but not absolute, risk of groundwater flooding. A more detailed assessment including groundwater monitoring may be required.

More detailed information is available in relation to potential groundwater flood risk from the British Geological Society however it should be noted that this is a chargeable service. For further information please refer to:

https://www.bgs.ac.uk/research/groundwater/datainfo/GFSD.html

Hampshire County Council has a draft Groundwater Management Plan that is available on our website which contains useful information. It can be found at:

https://www.hants.gov.uk/landplanningandenvironment/environment/flooding/strategies/groundwater-management-plan

Environmentally designated sites

We note that the site is within 250m of 1 designated environmental site:

- Old Bedhampton Conservation Area;

Drainage Assets

We do not hold information in relation to private or third party drainage assets but are aware that Hampshire County Council as Highways Authority are responsible for many assets within and draining the Highway.

It is the responsibility of Hampshire Highways to maintain their assets on the highway, and they are on a regular cleansing schedule. If there are any issues with any highway gullies, soakaways, culverts etc. from a maintenance perspective, this can be flagged on the online system:

https://www.hants.gov.uk/transport/roadmaintenance/roadproblems

If flooding issues are reported to Highways and are in relation to Highway infrastructure, we as LLFA may not have access to these records and you may need to place a request for this information using the above link.

If you have any further queries, please contact the Flood and Water Management (FWM) Team quoting the above reference

Kind regards

FWM Team
[redacted]

Please Note: The data supplied has been compiled from a variety of sources of varying reliability. The data is constantly being revised and validated to ensure the highest accuracy possible. However, the data should not be relied upon or considered completely accurate and the data is provided on the understanding that neither the County Council nor the disclosing officer is to be held responsible should you rely on this data and consequently suffer damage.

This response has been provided using the best knowledge and information submitted as part of the planning application at the time of responding and is reliant on the accuracy of that information.

Hampshire County Council defines significant flooding as flooding that affects 20 or more properties internally in one flood event within the same location OR flooding that affects significant lengths of highways affecting 20 or more properties and lasts for a period of 3 hours from the onset of flooding. For more information on how we define flooding, please see our guidance on our website http://documents.hants.gov.uk/flood-water-management/FloodInvestigationsguidance.pdf

You may find the following websites useful:

- http://bluepages.org.uk/
- https://nationalfloodforum.org.uk
- https://nationalfloodforum.org.uk/about-flooding/reducing-your-risk/protecting-your-property/
- http://hummedia.manchester.ac.uk/institutes/mui/cure/research/documents/Property_owners_booklet_web_000.pdf (linked from the National Flood Forum)
- https://www.floodre.co.uk/

Users' Disclaimer

I understand that in using advice provided by the Hampshire Flood and Water Management Team I am aware of the following:

1. The Flood and Water Management (FWM) Team is part of Hampshire County Council (‹We/Us/Our›). The Council holds copyright of this information and advice on behalf of the FWM team except where service level agreements state otherwise. No direct reproduction of this advice will be allowed as a direct copy, except for the purpose of Environment Information Requests.

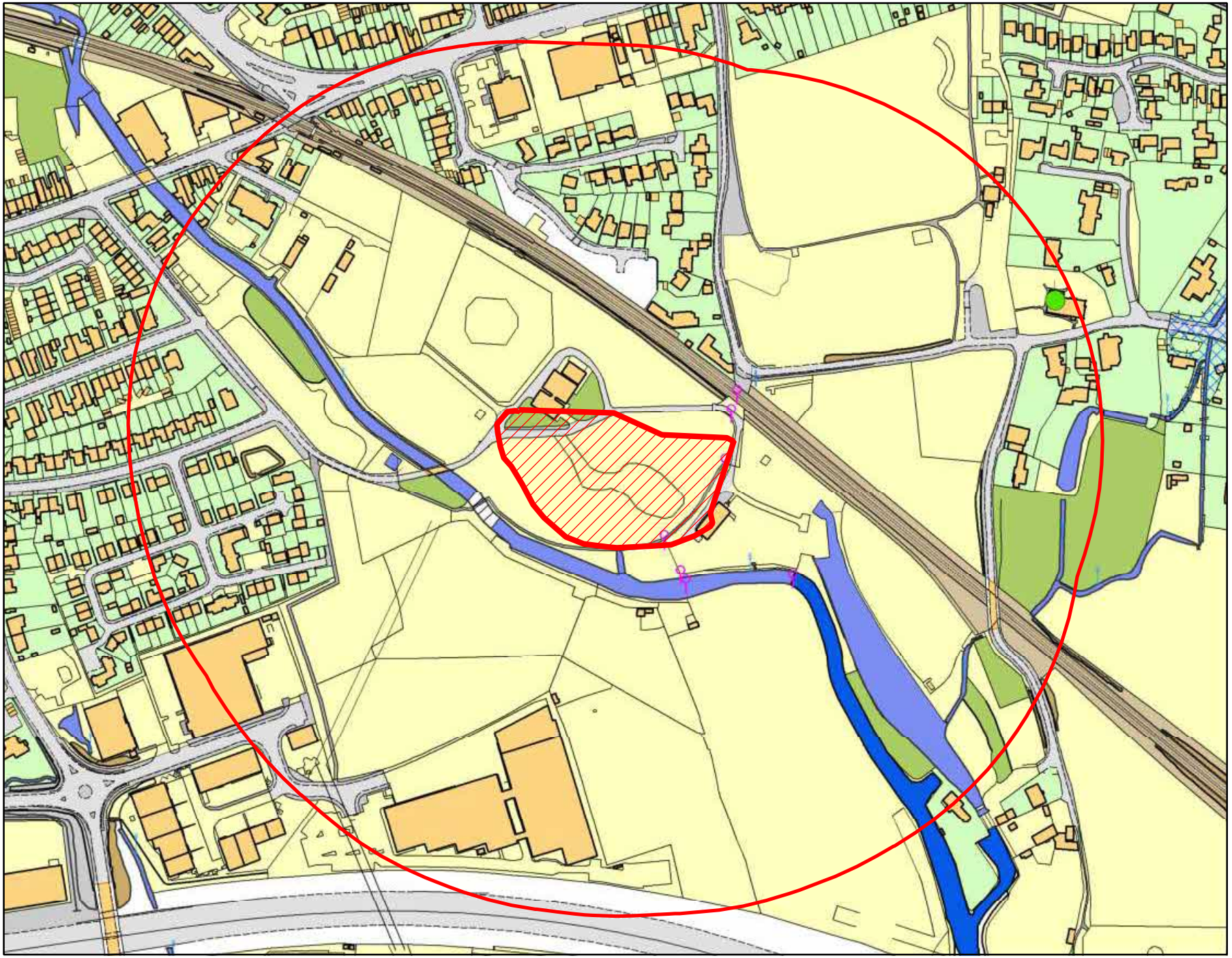
2. Advice provided by the Hampshire FWM Team will only be used for the purpose stated and will not be stored beyond the life of the project for which it was acquired.

3. Any personal information supplied in association with these records will not be used, copied, or passed to any third party without the consent of the Hampshire FWM Team and in accordance with the GDPR.

4. Whilst every reasonable effort is made to validate information supplied to and by the Hampshire FWM Team owing to the dynamic and judgmental nature of information relating to flooding, the Hampshire disclaims any responsibility for the accuracy or comprehensiveness of the information supplied, and accepts no liability for any indirect, consequential, or incidental damages or losses arising from use of the information.

5. I am aware of the Hampshire FWM Team charging schedule and understand I may be charged for the advice.

6. All web links are accurate as on the day they were accessed.



Legend

- 250m buffer
- Site
- EA Recorded Flood Outlines

Hampshire Flood Enquiries

enq_status_name

- Resolved Flood Enquiry
- Historic Flood Map

Historic Flood Information Request

Historical Flooding Records

D Lister c/o Enzygo Ltd

Site off Meyrick Road, Havant

Notes:

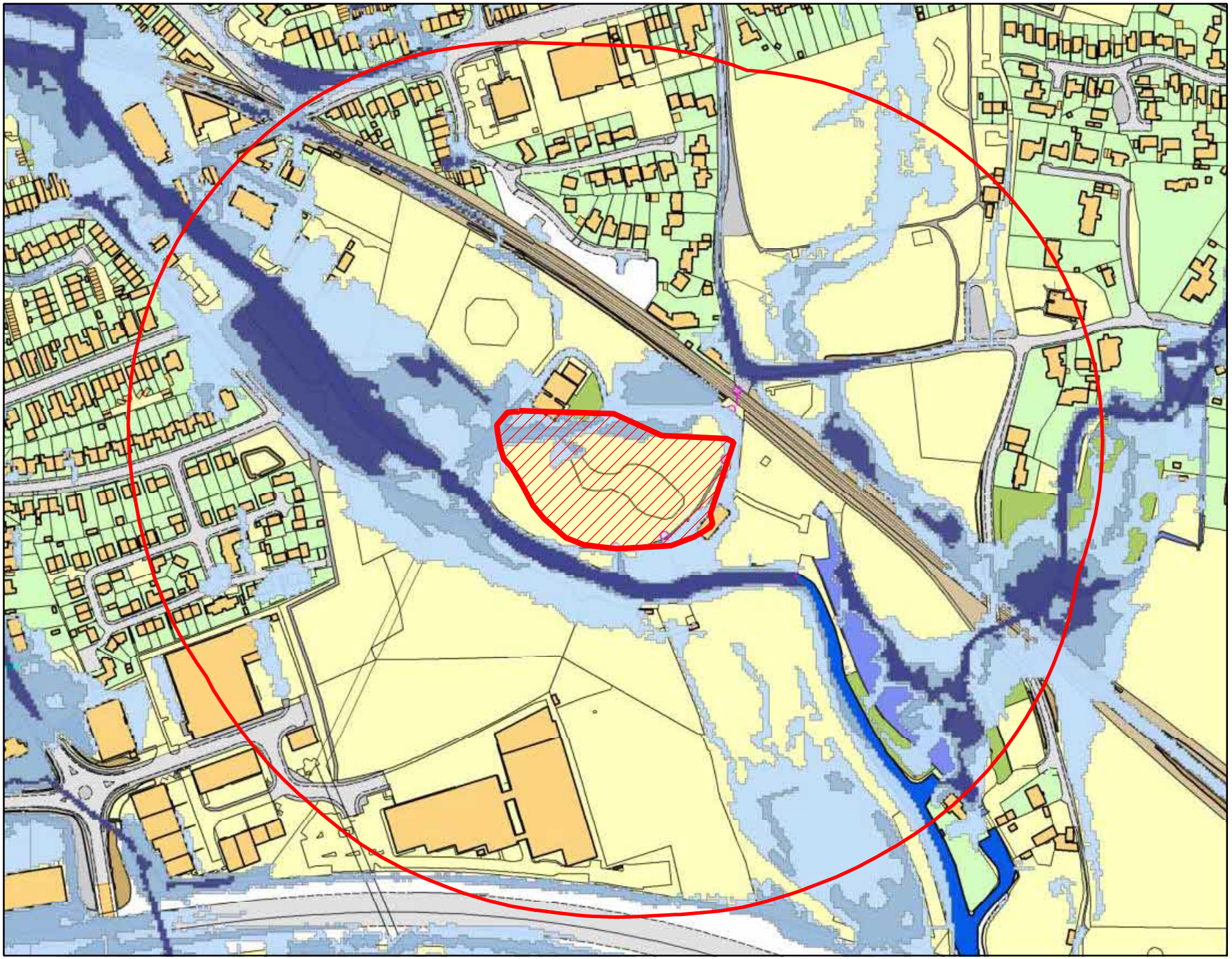
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Kilometers

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Date:	07/12/2023	Sheet:	1 of 1
Revision:	1	Initials:	CT

Hampshire County Council



Historic Flood Information Request

Flood map for Surface Water

D Lister c/o Enzygo Ltd

Site off Meyrick Road, Havant

Notes:

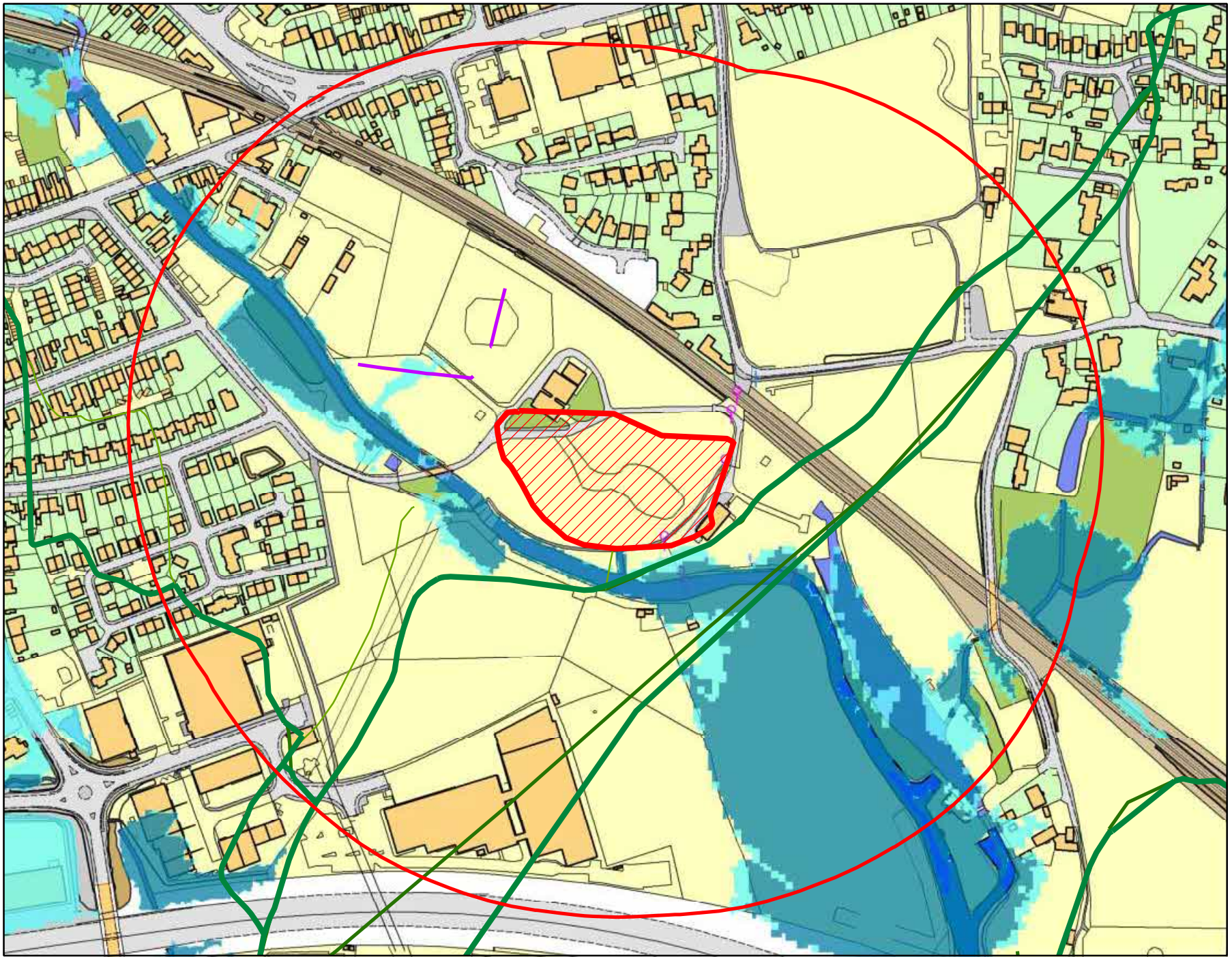
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Kilometers

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Date:	07/12/2023	Sheet:	1 of 1
Revision:	1	Initials:	CT

Hampshire County Council



Legend

- 250m buffer
- Site
- Main River (as defined by EA)
- non main river

mainriv

- FRM Indicative Main River
- Detailed River Network - Offline Drainage
- Flood Zone 3
- Flood Zone 2

Historic Flood Information Request

E A Flood Zones and Detailed River Network

D Lister c/o Enzygo Ltd

Site off Meyrick Road, Havant

Notes:

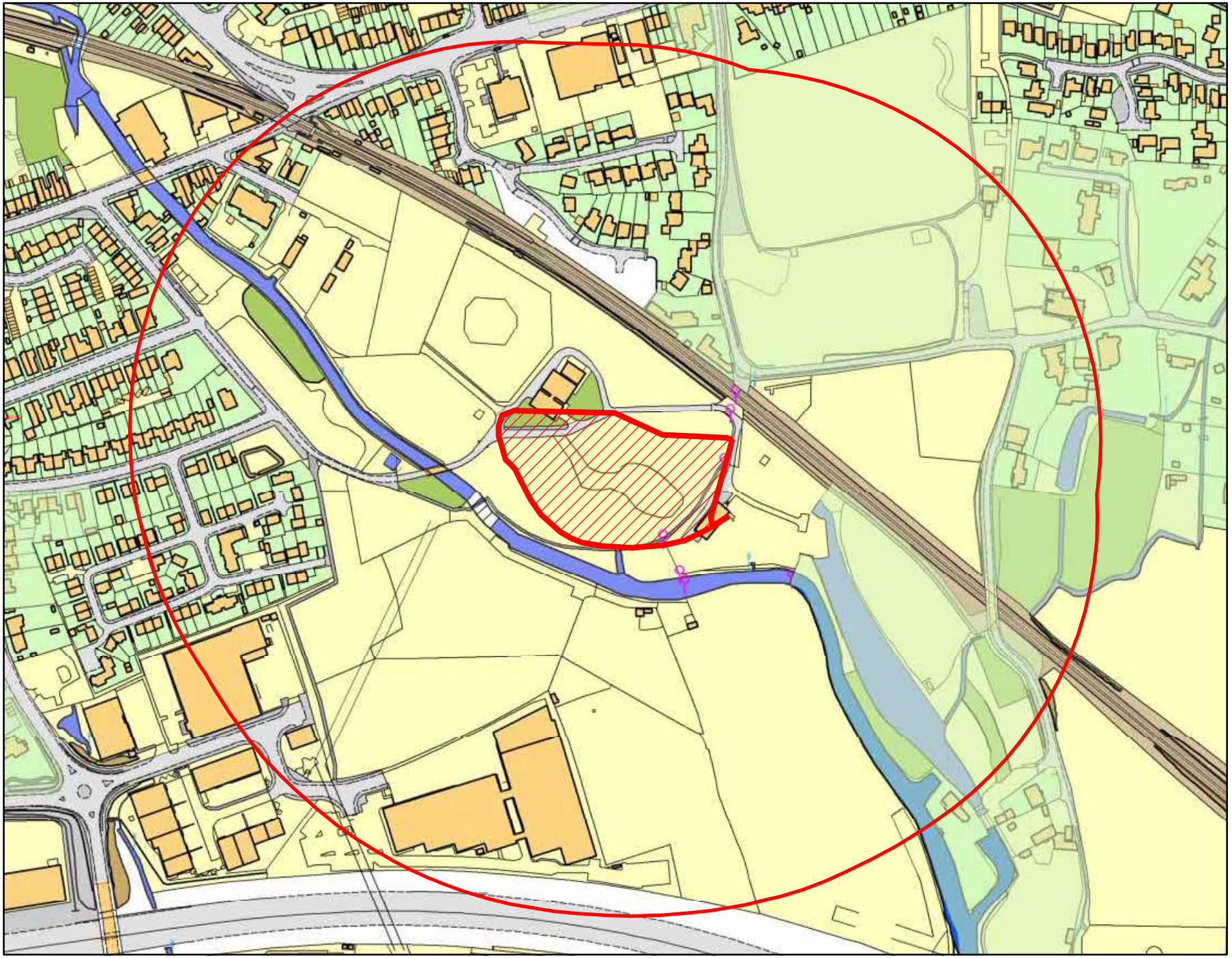
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Kilometers

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Date:	07/12/2023	Sheet:	1 of 1
Revision:	1	Initials:	CT

Hampshire County Council



Historic Flood Information Request

Environmental Designations

D Lister c/o Enzygo Ltd

Site off Meyrick Road, Havant

Notes:

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Kilometers

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Date:	07/12/2023	Sheet:	1 of 1
Revision:	1	Initials:	CT

Hampshire County Council

Appendix 5 3 Southern Water Asset Plans

Order received: 6 February 2023
Order completed: 16 February 2023

Drainage and water enquiry

CON29DW Residential

Order reference: LS/U1726215
Your reference: SHF.3055.001

Search address:

Land at Meyrick Road
Havant
Hampshire
PO9 3HB

Ordered by:

Enzygo Ltd
STEP Business Centre Wortley Road
Sheffield
S36 2UH

For enquiries regarding the information provided in this report, please contact the LandSearch team:

Tel: 0330 303 0276

Email: searches@southernwater.co.uk

Web: www.southernwater.co.uk

LandSearch
Southern Water Services
Southern House
Yeoman Road
Worthing
West Sussex
BN13 3NX

What you need to know about...

Private sewer transfer

On 1 October 2011, ownership of private sewers and lateral drains changed in accordance with The Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011. The contents of this search may not reflect these changes.

For further information please visit our website: www.southernwater.co.uk/sewer-ownership-changes.

Records searched

The following records were searched in compiling this report: the Map of Public Sewers, the Map of Waterworks, water and sewerage billing records, the Register of Properties subject to Internal Foul Flooding, the Register of Properties subject to Poor Water Pressure and the Drinking Water Register. Should the property not fall entirely within Southern Water's region, a copy of the records held by the relevant water company was searched.

Moving house

All customers
There can be a lot to do and remember when you're moving home. Our online forms make it easy for you to let us know about your move. Whether you are moving within our area, moving into our area or moving out of the area, please let us know by visiting: www.southernwater.co.uk/moving-house.

Wastewater-only customers
Your water might be supplied by a separate company. If so, you'll only receive a wastewater bill from us. If your water is not supplied by Southern Water, you can find out how to contact your water company by visiting our website: www.southernwater.co.uk/wastewater-only-customers.



Your order summary

	Maps	
1.1	Where relevant, please include a copy of an extract from the public sewer map.	Map provided
1.2	Where relevant, please include a copy of an extract from the map of waterworks	Map provided
	Drainage	
2.1	Does foul water from the property drain to a public sewer?	No
2.2	Does surface water from the property drain to a public sewer?	No
2.3	Is a surface water drainage charge payable?	No
2.4	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	No
2.4.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within the boundaries of the property?	No
2.5	Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?	No
2.5.1	Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?	No
2.6	Are any sewers or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No
2.7	Has any sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	No
2.8	Is the building which is or forms part of the property at risk of internal flooding due to overloaded public sewers?	No
2.9	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	See answer
	Water	
3.1	Is the property connected to mains water supply?	No
3.2	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?	Yes
3.3	Is any water main or service pipe serving, or which is proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No
3.4	Is the property at risk of receiving low water pressure or flow?	No
3.5	What is the classification of the water supply for the property?	See answer
3.6	Please include details of the location of any water meter serving the property.	See answer
	Charging	
4.1.1	Who is responsible for providing the sewerage services for the property?	Southern Water
4.1.2	Who is responsible for providing the water services for the property?	Portsmouth Water
4.2	Who bills the property for sewerage services?	See answer
4.3	Who bills the property for water services?	See answer
4.4	What is the current basis for charging for sewerage and/or water services at the property?	No Charge
4.5	Will the basis for charging for sewerage and water services at the property change as a consequence of change of occupation?	No Change

Maps

Public sewer map

Q. 1.1: Where relevant, please include a copy of an extract from the public sewer map.

A.: A copy of an extract from the public sewer map is included in which the location of the property is identified.

Guidance Notes:

The Water Industry Act 1991 defines public sewers as those which the Company has responsibility for. Other assets and rivers, watercourses, ponds, culverts or highway drains may be shown for information purpose 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.

Map of waterworks

Q. 1.2: Where relevant, please include a copy of an extract from the map of waterworks.

A.: A copy of an extract from the map of waterworks is included in which the location of the property is identified.

Guidance Notes:

The ◃water mains=in this context are those which are vested in and maintainable by the water company under statute.

Assets other than public water mains may be shown on the plan for information only.

Water companies are not responsible for the private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller, or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

The copy extract 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.

Drainage

Foul water

Q. 2.1: Does foul water from the property drain to a public sewer?

A.: Records indicate that foul water from the property does not drain to a public sewer.

Guidance Notes:

Water companies are not normally responsible for any private drains and sewers which connect the property to the public sewerage system, and do not hold details of these.

The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility, with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

The copy extract will show known public sewers in the vicinity of the property. It should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

If foul water does not drain to the public sewerage system the property may have private facilities in the form of a cesspit, septic tank or other type of treatment plant.

The connection status of the property may have been determined by reference to billing records.

Surface water

Q. 2.2: Does surface water from the property drain to a public sewer?

A.: Records indicate that surface water from the property does not drain to a public sewer. If the property was constructed after 6 April 2015 the surface water drainage may be served by a Sustainable Drainage System. Further information may be available from the developer.

Guidance Notes:

Water companies are not normally responsible for private drains and sewers that connect the property to the public sewerage system and do not hold details of these.

The property owner will normally have sole responsibility for private drains serving the property and may have shared responsibility, with other users, if the property is served by a private sewer which also serves other properties. These may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair or renewal.

In some cases water company records do not distinguish between foul and surface water connections to the public sewerage system. If on inspection the buyer finds that the property is not connected for surface water drainage, the property may be eligible for a rebate of the surface water drainage charge. Details can be obtained from the Company.

The copy extract will show known public sewers in the vicinity of the property. It should be possible to estimate the likely length and route of any private drains and/or sewers connecting the property to the public sewerage system.

If surface water does not drain to the public sewerage system the property may have private facilities in the form of a soakaway or private connection to a watercourse.

The connection status of the property may have been determined by reference to billing records.

Surface water drainage charge

Q. 2.3: Is a surface water drainage charge payable?

A.: Records confirm that a surface water drainage charge is not payable for the property. If the property was constructed after 6 April 2015 the surface water drainage may be served by a Sustainable Drainage System. Further information may be available from the developer.

Guidance Notes:

Where surface water from a property does not drain to the public sewerage system no surface water drainage charges are payable.

Where surface water drainage charges are payable but if on inspection the buyer finds that the property is not connected for surface water drainage, the property may be eligible for rebate of the surface water drainage charge. Details can be obtained from the Company.

Public sewers within the boundary of the property

Q. 2.4: Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?

A.: The public sewer map indicates that there are no public sewers, disposal mains or lateral drains within the boundaries of the property. However, from 1 October 2011 there may be additional public sewers, disposal mains or lateral drains which are not recorded on the public sewer map but which may further prevent or restrict development of the property. It is therefore recommended that investigations are made into the drainage arrangements of the property as the owner may be liable for repairs to the drainage system.

Guidance Notes:

The approximate boundary of the property has been determined by reference to the Ordnance Survey record or the map supplied.

The presence of a public sewer within the boundary of the property may restrict further development within it.

Southern Water Services has a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of Southern Water Services or its contractors needing to enter the property to carry out work.

Please note if the property was constructed after 1 July 2011 any sewers and/or lateral drain within the boundary of the property are the responsibility of the householder.

Public pumping station within the boundary of the property

Q. 2.4.1: Does the public sewer map indicate any public pumping station or any other ancillary apparatus within the boundaries of the property?

A.: The public sewer map included indicates that there is no public pumping station within the boundaries of the property. Any other ancillary apparatus is shown on the public sewer map and referenced on the legend.

Guidance Notes:

The approximate boundary of the property has been determined by reference to the Ordnance Survey record or the map supplied.

The presence of a pumping station within the boundary of the property may restrict further development within it.

Southern Water Services has a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of Southern Water Services or its contractors needing to enter the property to carry out work.

It should be noted that only private pumping stations installed before 1 July 2011 will be transferred into the ownership of Southern Water Services.

Public sewers near to the property

Q. 2.5: Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?

A.: The public sewer map indicates that there are no public sewers within 30.48 metres (100 feet) of a building within the property.

Guidance Notes:

From 1 October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.

The presence of a public sewer within 30.48 metres (100 feet) of a building within the property can result in the local authority requiring a property to be connected to the public sewer.

The measure is estimated from the Ordnance Survey record, between a building within the boundary of the property and the nearest public sewer.

Public pumping station near to the property

Q. 2.5.1: Does the public sewer map indicate any public pumping station or any other ancillary apparatus within 50 metres of any buildings within the property?

A.: The public sewer map included indicates that there is no public pumping station within 50 metres of any buildings within the property. Any other ancillary apparatus is shown on the public sewer map and referenced on the legend.

Guidance Notes:

The measure is estimated from the Ordnance Survey record, between a building within the boundary of the property and the nearest pumping station.

It should be noted that only private pumping stations installed before 1 July 2011 will be transferred into the ownership of Southern Water Services.

Public adoption of sewers and lateral drains

Q. 2.6: Are any sewers or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?

A.: Records indicate that the sewers serving the development, of which this property forms part, are not the subject of an application for adoption under Section 104 of the Water Industry Act 1991. Where the property is part of an established development it would not normally be subject to an adoption agreement under Section 104 of the Water Industry Act 1991.

Guidance Notes:

This enquiry is of interest to purchasers of new homes who will want to know whether or not the property will be linked to a public sewer.

Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities.

Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991.

Any sewers and/or lateral drains within the boundary of the property are not the subject of an adoption agreement and remain the responsibility of the householder. Adoptable sewers are normally those situated in the public highway.

Building over a public sewer, disposal main or drain

Q. 2.7: Has the sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?

A.: There are no records in relation to any approval or consultation about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain. However, the sewerage undertaker might not be aware of a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain.

Guidance Notes:

Buildings or extensions erected over a sewer in contravention of Building Control may have to be removed or altered.

From 1 October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership and the sewerage undertaker may not have approved or been consulted about any plans to erect a building or extension on the property or in the vicinity of these.

Risk of flooding due to overloading public sewers

Q. 2.8: Is the building which is or forms part of the property at risk of internal flooding due to overloaded public sewers?

A.: The building is not recorded as being at risk of internal flooding due to overloaded public sewers. From 1 October 2011 private sewers, disposal mains and lateral drains were transferred into public ownership. It is therefore possible that a building may be at risk of internal flooding due to an overloaded public sewer which the sewerage undertaker is not aware of. For further information it is recommended that enquiries are made of the vendor.

Guidance Notes:

A sewer is <overloaded=when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.

<Internal flooding=from the public sewers is defined as flooding, which enters a building or passes below a suspended floor.

For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.

<At Risk=buildings are defined as buildings that have suffered or are likely to suffer internal flooding from the public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the sewerage undertaker9s reporting procedure.

Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included.

Buildings may be at risk of flooding but not identified where flooding incidents have not been reported to the sewerage undertaker.

Public sewers are defined as those for which the sewerage undertaker holds statutory responsibility under the Water Industry Act 1991.

It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the sewerage undertaker. This report excludes flooding from the private sewers and drains and the sewerage undertaker makes no comment upon this matter.

Sewage treatment works

Q. 2.9: Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.

A.: The nearest sewage treatment works is 0.76 kilometres South South East of the property. The name of the sewage treatment works is BUDDS FARM HAVANT WTW, which is the responsibility of Southern Water Services, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX.

Guidance Notes:

The nearest sewage treatment works will not always be the sewage treatment works serving the catchment within which the property is situated.

The sewerage undertaker's records were inspected to determine the nearest sewage treatment works.

It should be noted that there may be a private sewage treatment works closer than the one detailed above that have not been identified.

Water

Connection to mains water supply

Q. 3.1: Is the property connected to mains water supply?

A.: Records indicate that the property is not connected to mains water supply and water is therefore likely to be provided by virtue of a private supply.

Guidance Notes:

The situation should be checked with the current owner of the property.

The connection status of the property may have been determined by reference to billing records.

Details of private supplies are not kept by the water undertaker.

Water mains, resource mains or discharge pipes

Q. 3.2: Are there any water mains, resource mains or discharge pipes within the boundaries of the property?

A.: The map of waterworks is provided by Portsmouth Water whose records indicate that there are water mains, resource mains or discharge pipes within the boundaries of the property.

Guidance Notes:

The boundary of the property has been determined by reference to the Ordnance Survey record or the map supplied.

The presence of a public water main within the boundary of the property may restrict further development within it.

Water undertakers have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the water undertaker or its contractors needing to enter the property to carry out work.

Adoption of water mains and services pipes

Q. 3.3: Is any water main or service pipe serving, or which is proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?

A.: Records confirm that water mains or service pipes serving the property are not the subject of an existing adoption agreement or an application for such an agreement.

Guidance Notes:

This enquiry is of interest to purchasers of new homes who will want to know whether or not the property will be linked to the mains water supply.

Risk of low water pressure or flow

Q. 3.4: Is the property at risk of receiving low water pressure or flow?

A.: Records confirm that the property is not recorded on a register kept by the water undertaker as being at risk of receiving low water pressure or flow.

Guidance Notes:

'Low water pressure=means water pressure below the regulatory reference level which is the minimum pressure when demand on the system is not abnormal.

The reference level of service is a flow of 9 litres/minute at a pressure of 10 metres head on the customer's side of the main stop tap (mst). The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap.

The reference level applies to a single property. Where more than one property is served by a common service pipe, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served.

For two properties, a flow of 18 litres/minute at a pressure of 10 metres head on the customers' side of the mst is appropriate. For three or more properties the appropriate flow should be calculated from the standard loadings provided in BS6700 or Institute of Plumbing handbook.

Water companies include properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level). Refer to list below:

Abnormal demand: This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand which are normally expected. Companies exclude properties which are affected by low pressure only on those days with the highest peak demands. During the year companies may exclude, for each property, up to five days of low pressure caused by peak demand.

Planned maintenance: Companies exclude low pressures caused by planned maintenance. It is not intended that companies identify the number of properties affected in each instance. However, companies must maintain sufficiently accurate records to verify that low pressure incidents that are excluded because of planned maintenance are actually caused by maintenance.

One-off incidents: This exclusion covers a number of causes of low pressure; mains bursts; failures of company equipment (such as PRVs or booster pumps); firefighting; and action by a third party. However, if problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.

Low pressure incidents of short duration: Properties affected by low pressures which only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the course of the year, may be excluded.

Water hardness

Q. 3.5: What is the classification of the water supply for the property?

A.: The water supplied to the property has an average water hardness of 186 mg/l calcium carbonate which is defined as "not defined" by Portsmouth Water.

Guidance Notes:

The hardness of water depends on the amount of calcium in it 3 the more it contains, the harder the water is.

There is no UK or European standard set for the hardness of drinking water. More information on water hardness can be found on the Drinking Water Inspectorates9website: http://www.dwi.gov.uk/

Water hardness can be expressed in various indices for example the hardness settings for dishwashers are commonly expressed in Clark's degrees, but check with the manufacturer as there are also other units. The following table explains how to convert mg/l calcium and mg/l calcium carbonate classifications.

To convert from:	to Clark degrees	to French degrees	to German degrees
mg/l calcium	multiply by 0.18	multiply by 0.25	multiply by 0.14
mg/l calcium carbonate	multiply by 0.07	multiply by 0.10	multiply by 0.056

Water meters

Q. 3.6: Please include details of the location of any water meter serving the property.

A.: Records indicate that the property is not served by a water meter.

Guidance Notes:

Where the property is not served by a water meter and the customer wishes to consider this method of charging they should contact the water undertaker for their area.

If a property is measured (metered) upon change of occupation this property will remain as a metered property.

Charging

Sewerage undertakers

Q. 4.1.1: Who is responsible for providing the sewerage services for the property?

A.: Southern Water is responsible for providing the sewerage services for the property.

Water undertakers

Q. 4.1.2: Who is responsible for providing the water services for the property?

A.: Portsmouth Water is responsible for providing the water services for the property.

Sewerage bills

Q. 4.2: Who bills the property for sewerage services?

A.: The property is not billed for sewerage services.

Water bills

Q. 4.3: Who bills the property for water services?

A.: The property is not billed for water services.

Current basis for sewerage and water charges

Q. 4.4: What is the current basis for charging for sewerage and/or water services at the property?

A.: There are no charges currently made for water or sewerage to the property.

Guidance Notes:

The water undertaker may install a meter at the premises where a buyer makes a change of use of the property or where the buyer uses water: for watering the garden other than by hand (this includes the use of sprinklers); for automatically replenishing a pond or swimming pool with a capacity greater than 10,000 litres; in a bath with a capacity in excess of 230 litres; in a power shower.

If a property is measured (metered) upon change of occupation this property will remain as a metered property.

Where the property is not served by a water meter and the customer wishes to consider this method of charging they should contact the water undertaker for their area.

Water and sewerage undertakers9full charges are set out in their charges schemes which are available from the companies free of charge upon request.

The Water Industry Act 1991 Section 150, The Water Resale Order 2001, provides protection for people who buy their water and sewerage services from a person or company instead of directly from a water or sewerage company. Details are available from the Office of Water Services (Ofwat) website: www.ofwat.gov.uk.

Charges following change of occupation

Q. 4.5: Will the basis for charging for sewerage and water services at the property change as a consequence of a change of occupation?

A.: There will be no change in the current charging arrangements as a consequence of change of occupation.

Guidance Notes:

Water and sewerage undertakers9full charges are set out in their charges schemes which are available from the relevant undertaker free of charge upon request.

It is Southern Water9s policy to meter all new water connections which would result in charges being levied according to the measured tariff.

If a property is measured (metered) upon change of occupation this property will remain as a metered property.

Where the property is not served by a water meter and the customer wishes to consider this method of charging they should contact the water undertaker for their area.

The water undertaker may install a meter at the premises where a buyer makes a change of use of the property or where the buyer uses water: for watering the garden other than by hand (this includes the use of sprinklers); for automatically replenishing a pond or swimming pool with a capacity greater than 10,000 litres; in a bath with a capacity in excess of 230 litres; in a power shower.

Appendix one: Terms and expressions

"the 1991 Act" means the Water Industry Act 1991**(i)**;
"the 2000 Regulations" means the Water Supply (Water Quality) Regulations 2000**(ii)**;
"the 2001 Regulations" means the Water Supply (Water Quality) Regulations 2001**(iii)**;
"adoption agreement" means an agreement made or to be made under Section 51A (1) or 104(1) of the 1991 Act **(iv)**;
"bond" means a surety granted by a developer who is a party to an adoption agreement;
"bond waiver" means an agreement with a developer for the provision of a form of financial security as a substitute for a bond;
"calendar year" means the twelve months ending with 31 December;
"discharge pipe" means a pipe from which discharges are made or are to be made under Section 165(1) of the 1991 Act;
"disposal main" means (subject to Section 219(2) of the 1991 Act) any outfall pipe or other pipe which:
(a) Is a pipe for the conveyance of effluent to or from any sewage disposal works, whether of a sewerage undertaker or of any other person; and
(b) is not a public sewer;
"drain" means (subject to Section 219(2) of the 1991 Act) a drain used for the drainage of one building or any buildings or yards appurtenant to buildings within the same curtilage;
"effluent" means any liquid, including particles of matter and other substances in suspension in the liquid;
"financial year" means the twelve months ending with 31 March;
"lateral drain" means:
(a) That part of a drain which runs from the curtilage of a building (or buildings or yards within the same curtilage) to the sewer with which the drain communicates or is to communicate; or
(b) (if different and the context so requires) the part of a drain identified in a declaration of vesting made under Section 102 of the 1991 Act or in an agreement made under Section 104 of that Act**(v)**;
"licensed water supplier" means a company which is the holder for the time being of a water supply licence under Section 17A(1) of the 1991 Act**(vi)**;
"maintenance period" means the period so specified in an adoption agreement as a period of time:
(a) From the date of issue of a certificate by a sewerage undertaker to the effect that a developer has built (or substantially built) a private sewer or lateral drain to that undertaker's satisfaction; and
(b) Until the date that private sewer or lateral drain is vested in the sewerage undertaker;
"map of waterworks" means the map made available under section 198(3) of the 1991 Act**(vii)** in relation to the information specified in subsection (1A);
"private sewer" means a pipe or pipes which drain foul or surface water, or both, from premises, and are not vested in a sewerage undertaker;
"public sewer" means, subject to Section 106(1A) of the 1991 Act **(viii)**, a sewer for the time being vested in a sewerage undertaker in its capacity as such, whether vested in that undertaker:
(a) By virtue of a scheme under Schedule 2 to the Water Act 1989**(ix)**;
(b) By virtue of a scheme under Schedule 2 to the 1991 Act**(x)**;
(c) Under Section 179 of the 1991 Act **(xi)**; or
(d) Otherwise;
"public sewer map" means the map made available under Section 199(5) of the 1991 Act **(xii)**;
"resource main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a trunk main, which is or is to be used for the purpose of:
(a) Conveying water from one source of supply to another, from a source of supply to a regulating reservoir or from a regulating reservoir to a source of supply; or
(b) Giving or taking a supply of water in bulk;
"sewerage services" includes the collection and disposal of foul and surface water and any other services which are required to be provided by a sewerage undertaker for the purpose of carrying out its functions;
"sewerage undertaker" means the Company appointed to be the sewerage undertaker under Section 6(1) of the 1991 Act for the area in which the property is or will be situated;
"surface water" includes water from roofs and other impermeable surfaces within the curtilage of the property;
"water main" means (subject to Section 219(2) of the 1991 Act) any pipe, not being a pipe for the time being vested in a person other than the water undertaker, which is used or to be used by a water undertaker or licensed water supplier for the purpose of making a general supply of water available to customers or potential customers of the undertaker or supplier, as distinct from for the purpose of providing a supply to particular customers;
"water meter" means any apparatus for measuring or showing the volume of water supplied to, or of effluent discharged from any premises;
"water supplier" means the Company supplying water in the water supply zone, whether a water undertaker or licensed water supplier;
"water supply zone" means the names and areas designated by a water undertaker within its area of supply that are to be its water supply zones for that year; and
"water undertaker" means the Company appointed to be the water undertaker under Section 6(1) of the 1991 Act for the area in which the property is or will be situated.

In this report, references to a pipe, including references to a main, a drain or a sewer, shall include references to a tunnel or conduit which serves or is to serve as the pipe in question and to any accessories for the pipe.

(i) 1991 c.56.
(ii) S.I. 2000/3184. These Regulations apply in relation to England.
(iii) S.I. 2001/3911. These Regulations apply in relation to Wales.
(iv) Section 51A was inserted by Section 92(2) of the Water Act 2003 (c. 37). Section 104(1) was amended by Section 96(4) of that Act.
(v) Various amendments have been made to Sections 102 and 104 by section 96 of the Water Act 2003.
(vi) Inserted by Section 56 of and Schedule 4 to the Water Act 2003.
(vii) Subsection (1A) was inserted by Section 92(5) of the Water Act 2003.
(viii) Section 106(1A) was inserted by Section 99 of the Water Act 2003.
(ix) 1989 c.15.
(x) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.
(xi) To which there are various amendments made by Section 101(1) of and Schedule 8 to the Water Act 2003.
(xii) Section 199 was amended by Section 97(1) and (8) of the Water Act 2003.

Appendix two: CON29DW Residential terms and conditions

The Customer the Client and the Purchaser are asked to note these terms, which govern the basis on which this drainage and water report is supplied.

Definitions

<Client=means the person, company or body who is the intended recipient of the Report with an actual or potential interest in the Property.
<Company=means Southern Water Services Limited who produces the Report.
<Customer=means the person, company, firm or other legal body placing the Order, either on their own behalf as Client, or as an agent for a Client.
<Order=means any request completed by the Customer requesting the Report.
<Property=means the address or location supplied by the Customer in the Order.
<Purchaser=means the actual or potential purchaser of the Property including their mortgage provider.
<Report=means the drainage and/or water report prepared by Company in respect of the Property.

1.0 Agreement

1.1 The Company agrees to supply the Report to the Customer subject to these terms and the Drainage and Water Services Network (DWSN) Standards, as set out at www.dwsn.org.uk. The scope and limitations of the Report are described in paragraph 2 of these terms. Where the Customer is acting as an agent for the Client or is acting in the course of the Customer's business, trade or profession then the Customer shall be responsible for bringing these terms to the attention of the Client and/or the Purchaser.

1.2 Where the Customer is acting as an agent for the Client or is acting in the course of the Customer's business, trade or profession the Client shall be entitled to the benefit of these terms to the exclusion of the Customer.

1.3 The Customer, the Client and the Purchaser agree that the placing of an Order for a Report and the subsequent provision of a copy of the Report to the Purchaser indicates their acceptance of these terms.

1.4 If the Customer is not acting wholly or mainly in the course of its business, the Customer may cancel the Order within 14 days of placing the Order, provided that the decision to cancel is made in a clear statement by letter, fax or email. The right to cancel the Order shall expire 14 days from the date on which the Order was made.

1.5 If the Customer is not acting wholly or mainly in the course of its business, the Customer must inform the Company if the Customer requires the Company to begin producing the Report on a date sooner than 14 days from the date that the Order was received by the Company.

1.6 If the Customer is acting wholly or mainly in the course of its business, the Customer may cancel the Order before the Report is received. Cancellation must be in the form of a clear statement by letter, fax or email.

1.7 The Company will reimburse the Customer without undue delay and not later than 14 days after the day on which the Company received the statement of the decision to cancel. The amount reimbursed shall be the full cost of the Report, unless Clause 1.5 or 1.6 applies. If Clause 1.5 or 1.6 applies, the Company may reimburse the cost of the Report less any costs already outlaid in its preparation, including fees due to third parties which have been incurred by the Company in preparing the Report.

2.0 The Report

Whilst the Company will use reasonable care and skill in producing the Report, it is provided to the Customer, the Client and/or the Purchaser on the basis that they acknowledge and agree to the following:

2.1 The information contained in the Report can change on a regular basis so The Company cannot be responsible to the Customer the Client and/or the Purchaser for any change in the information contained in the Report after the date on which the Report was produced and sent to the Client.

2.2 The Report does not give details about the actual state or condition of the Property nor should it be used or taken to indicate or exclude actual suitability or unsuitability of the Property for any particular purpose, or relied upon for determining saleability or value, or used as a substitute for any physical investigation or inspection. Further advice and information from appropriate experts and professionals should always be obtained.

2.3 The information contained in the Report is based upon the accuracy of the address supplied by the Customer or Client.

2.4 The Report provides information as to the location and connection of existing services and other information in relation to drainage and water enquiries and shall not be relied on or used for any other purpose by the Customer, Client or Purchaser. The Report may contain general advice to the Customer, the Client and/or the Purchaser. The Company cannot ensure that any such general advice is accurate, complete or valid and accepts no liability therefore.

2.5 The position and depth of apparatus shown on any maps attached to the Report are indicative. The exact positions and depths of apparatus shown on any maps may be established by undertaking the Customer9s or Client9s own investigations such as excavations or trial holes. The Company is responsible for inaccuracies in the maps within the Report to the extent that such inaccuracies are a direct result of the Company9s negligence and the existence of which the Company ought reasonably to have been aware.

3.0 Liability

3.1 The Company shall not be liable to the Client or the Purchaser for any failure defect or non-performance of its obligations arising from any failure of or defect in any machine, processing system or transmission link or anything beyond The Company9s reasonable control.

3.2 The Report is produced only for use in relation to individual domestic property transactions and cannot be used for development of land, commercial development of domestic properties, or commercial properties for intended occupation by third parties.

3.3 The Company shall not be liable to the Customer, Client or Purchaser in contract, tort or otherwise for any incorrect information in the Report unless any such liability arises as a direct consequence of the Company9s negligence and the existence of which incorrect information the Company ought reasonably to have been aware.

3.4 The Company shall accept liability for death or personal injury arising from its negligence.

3.5 With the exception of liability under Clause 3.4, the liability of the Company in connection with these terms to the Customer, Client or Purchaser in contract, tort or otherwise shall not exceed the aggregate sum of Ten Million Pounds (£10,000,000).

4.0 Copyright and confidentiality

4.1 The Customer the Client and/or the Purchaser acknowledge that the Report is confidential and is intended for the personal use of the Client and the Purchaser. The copyright and any other intellectual property rights in the Report shall remain the property of the Company, save for those intellectual property rights which are the property of the Law Society or Ordnance Survey, whichever is applicable. No intellectual or other property rights are transferred or licensed to the Customer the Client or the Purchaser except to the extent expressly provided.

4.2 The Customer or Client is entitled to make copies of the Report but may only copy Ordnance Survey mapping or data contained in or attached to the Report, if they have an appropriate licence from the originating source of that mapping or data.

4.3 The Customer the Client and/or the Purchaser agree (in respect of both the original and any copies made) to respect and not to alter any trademark, copyright notice or other property marking which appears on the Report.

4.4 The maps contained in the Report are protected by Crown Copyright and must not be used for any purpose outside the context of the Report.

4.5 The Customer the Client and/or the Purchaser agree to indemnify The Company against any losses, costs, claims and damage suffered by The Company as a result of any breach by either of them of the terms of paragraphs 4.1 to 4.4 inclusive.

4.6 The enquiries contained in the Report are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL and must not be used for any purpose outside the context of the Report.

5.0 Payment

5.1 Unless otherwise stated all prices are inclusive of VAT. The Customer shall pay for the price of the Report specified by The Company, without any set off, deduction or counterclaim. Unless the Customer or Client has an account with the Company for payment for Reports, The Company must receive payments for Reports in full before the Report is produced. For Customers or Clients with accounts, payment terms will be as agreed with the Company.

6.0 General

6.1 If any provision of these terms is or becomes invalid or unenforceable, it will be taken to be removed from the rest of these terms to the extent that it is invalid or unenforceable. No other provision of these terms shall be affected.

6.2 These terms shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts.

6.3 Nothing in these terms and conditions shall in any way restrict the Customer, the Client or the Purchaser's statutory or any other rights of access to the information contained in the Report.

6.4 The Customer may make a complaint to the company using the complaints procedure which is available on the Company's website. If the Customer is dissatisfied with the outcome having followed the complaints procedures, the Customer may refer the complaint to the Property Ombudsman using The Property Ombudsman Scheme (TPOs). Further information can be obtained by visiting www.tpos.co.uk.

6.5 These terms and conditions are the only terms that shall apply in connection with the issue of the Report by the Company and save where specifically incorporated by reference shall constitute the entire agreement between the parties.

6.6 In the event of any ambiguity or inconsistency between these terms and conditions and the terms on the Company's website, these terms and conditions shall take precedence over any such terms on the website.

6.7 Save as provided for in Clause 1.2, it is not intended that any other person who is not a party to these terms has any right to enforce any term of these terms under the Contracts (Rights of Third Parties) Act 1999.

These Terms and conditions are available in larger print for those with impaired vision.

Appendix three: Complaints procedure

When we get it wrong
You deserve the highest standard of service from us, but sometimes we make mistakes. If we do, please let us know and we will investigate and review your concerns.

Whilst we always try to resolve all complaints straight away, if this is not possible and you are not happy with the course of action taken by us, you can ask us to escalate the issue internally or take your complaint to an independent third party.

How you contact us
Firstly please call us and we will try to sort out your problem straight away. You can:

Call us between 8am and 5pm, Monday to Friday on 0330 303 0276

Email us at searches@southernwater.co.uk

Write to us at LandSearch, Southern Water Services, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX.

What you can expect
You will receive a full, fair and courteous response from someone who can effectively deal with your problem.

If we can remedy the problem straight away we will do it but if we cannot immediately resolve your problem we will keep you informed of actions being taken.

The process
We will try to resolve any telephone contact or complaint at the time of the call, however, if that isn't possible, we will take the details of your complaint and we will investigate and get back to you within 10 working days.

We will respond to written complaints within 10 working days of the date received, but we will always aim to respond more quickly. Depending on the scale of investigation required, we will keep you informed of the progress and update you with new timescales if necessary.

If you are still not satisfied with our response or action we will refer the matter to a Senior Manager for resolution. At your request we will liaise with a third party representative acting on your behalf.

Our commitment to you
If we find your complaint to be justified, or we have made any errors that substantially change the outcome in your search result, we will refund the search fee. We will also provide you with a revised search and undertake the necessary action to put things right as soon as practically possible. You will be kept informed of the progress of any action required.

If you remain dissatisfied
While we aim to resolve your complaint first time, in the event that we are unable to resolve the issue to your satisfaction, ultimately you can contact a third party. Please make sure that you have followed the process above first, if not, your complaint will be passed back to us.

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman Scheme (TPOS):
The Property Ombudsman scheme, Milford House, 43-55 Milford Street, Salisbury SP1 2BP
Telephone: 01722 333306
Fax: 01722 332296
Website: www.tpos.co.uk
Email: admin@tpos.co.uk

VAT receipt

Ordered by:

Enzygo Ltd
STEP Business Centre Wortley Road
Sheffield
S36 2UH

VAT registration number: 813 0378 56
Order reference: LS/U1726215
Your reference: SHF.3055.001

Service	VAT Code	Costs
Search address: Land at Meyrick Road Havant Hampshire PO9 3HB	[redacted]	

Thank you for your payment:

Received on: 6 February 2023

For enquiries regarding the information provided in this receipt, please contact the LandSearch team:

[redacted]

Email: [redacted]

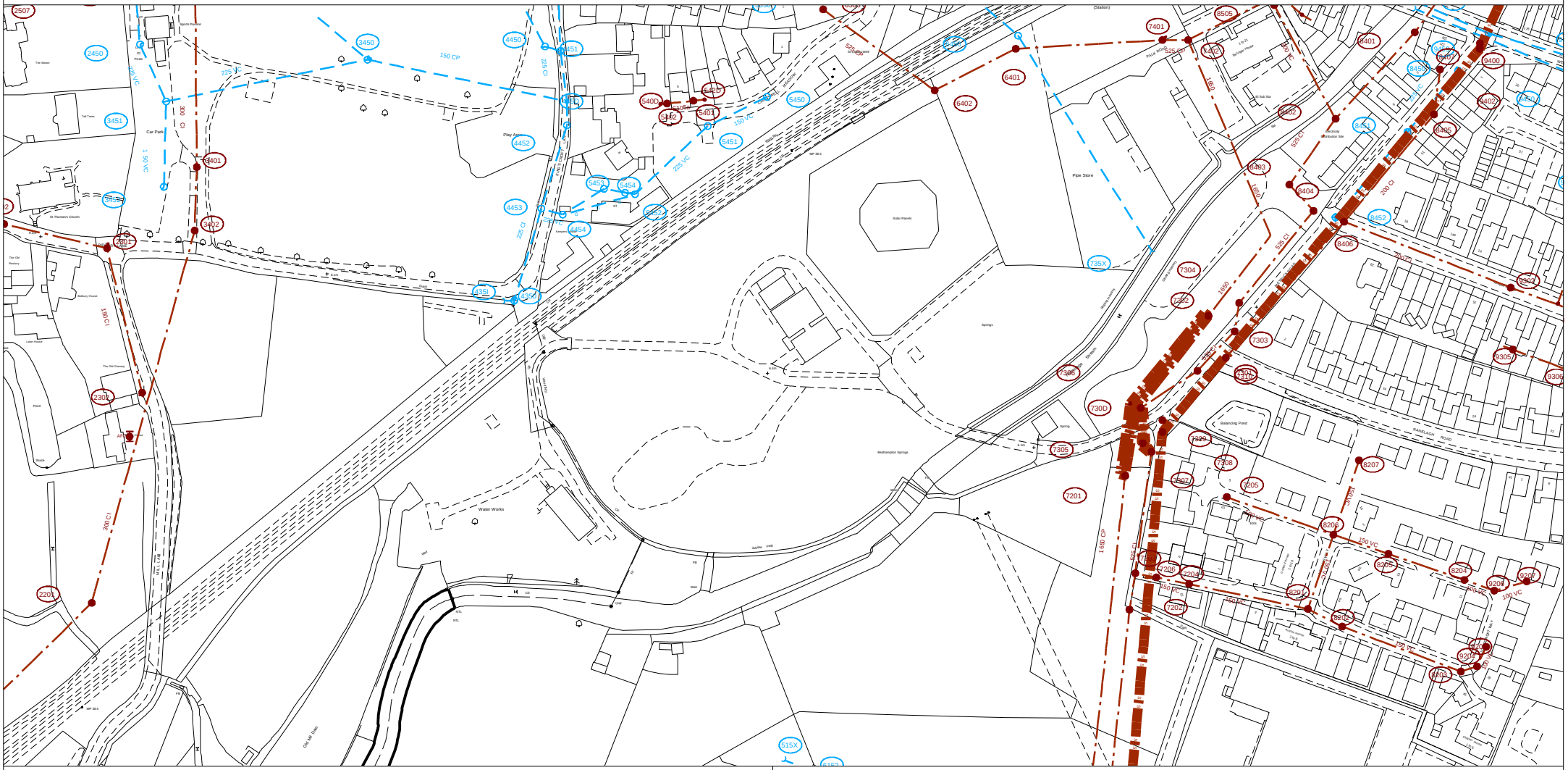
Web: www.southernwater.co.uk

LandSearch
Southern Water Services
Southern House
Yeoman Road
Worthing
West Sussex
BN13 3NX

WATER for LIFE from Southern Water

CON29DW RESIDENTIAL DRAINAGE & WATER SEARCH

SOUTHERN WATER



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site.

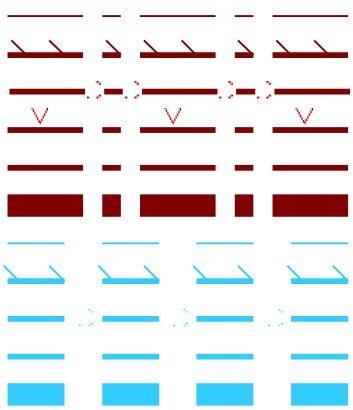
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Southern Water

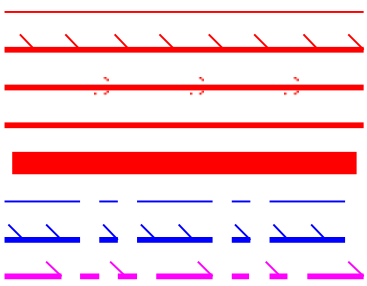
O.S. REF: SU7006SE	Scale: 1:2500	Printed By: SM	Date: 16-2-2023
Sewer Plot		Land at Meyrick Road	
WARNING: BAC pipes are constructed of Bonded Asbestos Cement		Requested By:	
WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement			

Land Searches
Map Legend

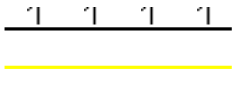
Pipe Line Styles/Colours



Foul Sewer
Foul Rising Main
Foul Syphon Sewer
Foul Vacuum Sewer
Foul Trunk Sewer
Foul Tank Sewer
Surface Water Sewer
Surface Water Rising Main
Surface Water Syphon Sewer
Surface Water Trunk Sewer
Surface Water Tank Sewer



Combined Sewer
Combined Rising Main
Combined Syphon Sewer
Combined Trunk Sewer
Combined Tank Sewer
Treated Effluent
Treated Effluent Rising Main
Sludge Rising Main



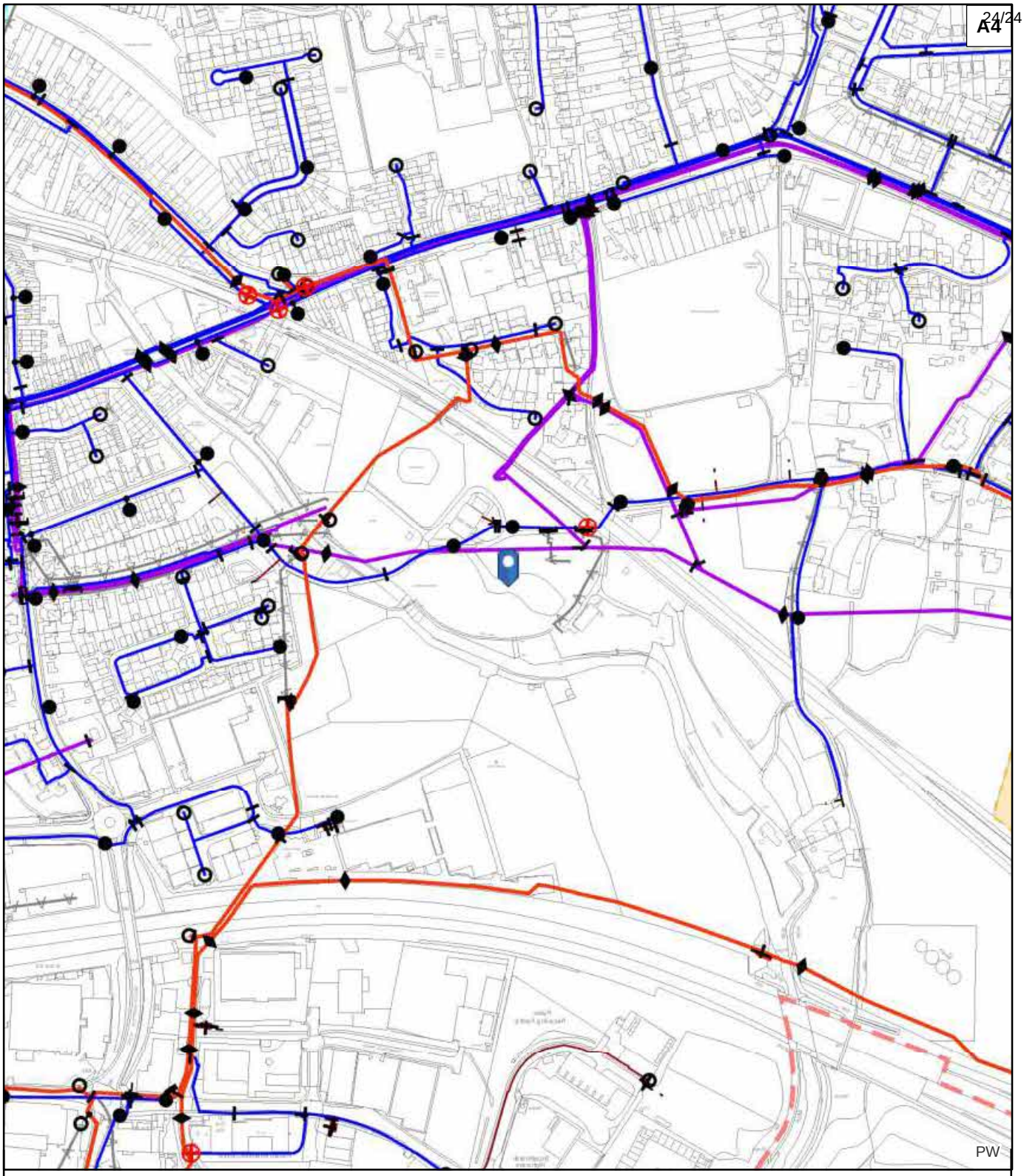
As above line styles but decommissioned
(Yellow) As above line styles but private

Boundary Line Styles/Colours



Catchment Boundary
Sub-Catchment Boundary

A4



Water Supply

- Distribution Main
- Communication Pipe
- Fire Main
- Private Main
- Raw Water Main
- Trunk Main
- Abandoned Main

Hydrant

- Company Washout Hydrant(Single)
- Fire Brigade Hydrant(Single)
- Fire Brigade Washout Hydrant

Valves / Fittings

- CappedEnd
- StopCock
- ButterflyValve
- Pressure Flow Valve
- RefluxValve
- Air Valve
- Open Valve
- Closed Valve

The information supplied is given in good faith as a guide to locating underground apparatus. Its accuracy cannot be guaranteed, nor does it include comprehensive information about the existence or location of service pipes or cables to individual premises. The responsibility for locating and avoiding damage to apparatus on site shall be that of the person proposing to excavate in the street who shall be liable to the apparatus owner and any third party who may be affected in any way for any loss or damage caused by their failure to do so.

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U1726215

Easting/Northing:
470,561 106,301

Scale:
1:5,000

Date:
15/02/2023

Registered Office
P.O. BOX NO. 8, West Street, Havant,
Hampshire. PO9 1LG.
Registered in England No. 2536455
Telephone: (023) 9249 9888
Fax: (023) 9245 3632
Website: www.portsmouthwater.co.uk

Appendix 6 3 Portsmouth Water Correspondence

Dani Lister

From: Eric O'Connor
Sent: 26 April 2024 09:10
To: Dani Lister
Subject: FW: [EXTERNAL] FW: Bedhampton

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Dani,

Along with the review could you add this information?

Thanks,

Eric

Eric O'Connor BSc (Hons), MSc, MCIWEM, C.WEM
Principal Hydrologist

Phone: [redacted]
Mobile:
Email:
Web:

From: Simon Deacon [redacted]
Sent: Friday, April 26, 2024 9:02 AM
To: John Pickford [redacted]
Cc: Eric O'Connor [redacted]
Subject: RE: [EXTERNAL] FW: Bedhampton

Apologies for not coming back sooner. The "conduit" runs most of the year – it takes excess spring water and discharges it to the Hermitage. It's an important spring water supply to the river and there are rare species of plant within the channel area (due to the spring water condition and quality). The conduit channel is made of concrete.

Regards, Simon

Simon Deacon | Catchment and Environment Manager
Portsmouth Water

Simon Deacon BSc MSc FGS CGeol
Tel: Direct dial: 023 9224 9233 Mobile: 07714 132949
Web: portsmouthwater.co.uk



08:30 – 16:45 Mon - Thurs
08:30 – 16:00 Friday

Small changes make big impact.

Please consider the environment before printing this email.

From: John Pickford [redacted]
Sent: Thursday, April 25, 2024 2:58 PM
To: [redacted]
Cc: [redacted]m; Simon Deacon <[redacted]
Subject: Fwd: [EXTERNAL] FW: Bedhampton

Hi Gary

This is the output of the conduit that runs under the site. It's often dry but during wetter periods, there is water running.

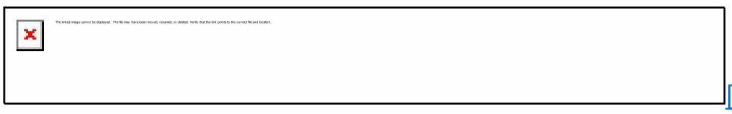
Simon - does that answer Gary's question correctly?

Thanks

John

John Pickford | Commercial Director
Portsmouth Water

Tel: [redacted]
Web: portsmouthwater.co.uk


[portsmouthwater.co.uk]

Small changes make big impact.
Please consider the environment before printing this email.

From: [redacted]
Sent: Thursday, April 25, 2024 2:35 PM
To: John Pickford [redacted]
Cc: 'Eric O'Connor [redacted]
Subject: [EXTERNAL] FW: Bedhampton

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe. If in doubt please forward the email to phishing@portsmouthwater.co.uk

Hi John.

Regards the below query from our Hydrologist. Eric O'Connor. Might you please be able to enquire internally and provide a response.

Kind Regards

Gary

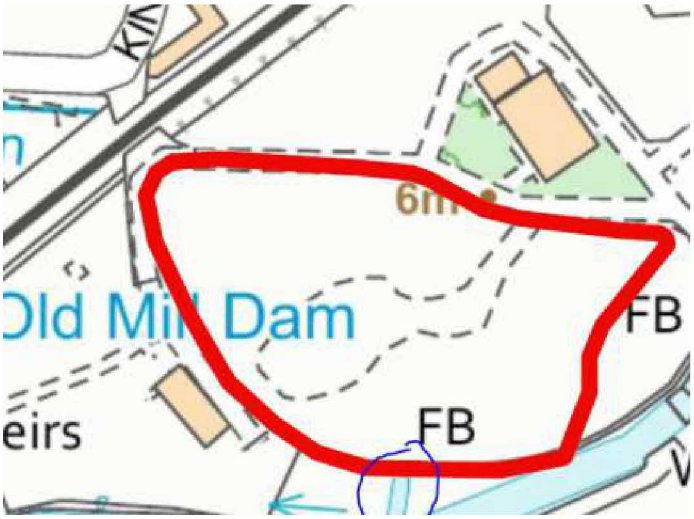
ENERGY 101
Engineering | Management | Consultancy

Gary Seward C.Eng, MSc, B.Eng, MIET
Senior Partner

T: 07562 765173
E: gary@energy-101.co.uk
W: www.energy-101.co.uk

From: Eric O'Connor [redacted]
Sent: Thursday, April 25, 2024 12:10 PM
To: [redacted]
Cc: Rob Gandy <[redacted]
Subject: FW: Bedhampton

Photo attached showing feature joining main river to south of Site and circled below.



Thanks,

Eric

Eric O'Connor BSc (Hons), MSc, MCIWEM, C.WEM
Principal Hydrologist

Phone: [redacted]
Mobile:
Email:
Web:

From: Eric O'Connor
Sent: Thursday, April 25, 2024 12:08 PM
To: [redacted]
Cc: Rob Gandy [redacted]
Subject: Bedhampton

Hi Gary,

I am working on the Flood Risk and Drainage Strategy for the above Site. We observed the above feature on Site which appears to convey flow beneath the Site. I was just wondering if you had anything information on this? i.e. Its route through the Site, what its serving (is it a watercourse / surface water sewer etc.) and what material it is.

Any information would be appreciated for our report and drainage.

Kind Regards,

Eric

Eric O'Connor BSc (Hons), MSc, MCIWEM, C.WEM
Principal Hydrologist

Phone: [redacted]
Mobile:
Email:
Web:

Air Quality | Landscape | Hydrology | Permitting | Ecology | Geo-environmental | Noise | Transport | Planning | Arboriculture

enzygo

enzygo.com

Enzygo Ltd, Enzygo GeoEnvironmental Ltd, Brown2Green Associates Ltd,
Offices in Bristol, Cardiff, Cambridge, Sheffield & Manchester

Registered Office: Gresham House, 5-7 Pauls Street, Leeds, England, LS1 2JG
Registered in England & Wales registered number: 06525159 VAT number: 283 2596 77

ISO 9001 Registered Certificate GB2004416
Association of Geotechnical & Geoenvironmental Specialists
Constructionline
SSIP Safety Schemes in Procurement
Acclaim Accreditation
CIEEM Registered Practice 2023-2024
Building with Nature Approved Assessor

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Appendix 7 3 BGS Borehole Records

British Geological Survey

BGS ID: 425459 : BGS Reference: SU70NW77
British National Grid (27700) : 470750,106330

SU 70 NW/77
7375 0633

BOREHOLE RECORD

CONTRACT No. 4196

CONTRACT HAVANT
BOREHOLE No. 106
ORDNANCE DATUM LEVEL 18.58 C.O.D.
TYPE OF BORING Shell & Auger
DIAMETER OF BORING 6"
REMARKS

DATE STARTED 17/1 FINISHED 17/1/68
OPERATOR D.Smith
TYPE OF PENETRATION TEST C.P.T.
WEIGHT 140lbs DROP 24"
STANDING WATER LEVEL 7-0"

Depth Feet	O.D Level	Type & No. of Sample	Boring Details: Penetration	Boring Details: Lining	Boring Details: Water	Legend	Description of Material and Observations
						////	Topsoil
							Dark brown clay.
							Dark brown clay with pebble & chalk inserts
5					S.W.L.		light brown clay & chalk
10		C.P.T	82 for 12"				Medium & large flint in soft chalk
15		C.P.T.	87 for 12"				
20							
25			BOREHOLE TERMINATED				

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 425437 : BGS Reference: SU70NW55
British National Grid (27700) : 470460,106420

SU70 NW 155
7046 . 0642

RECORD OF WELL (SHAFT OR BORE)

N.S.
O.S.
Grid Ref.

Town or Village [illegible] County [illegible] Six-inch quarter sheet [illegible]

(A) or a [illegible] map is required)

In parish of [illegible]

Level of ground surface above sea-level (O.D.) 17 ft. If well starts below ground surface, state how far. ft.

Shaft [illegible] ft. diameter [illegible] ft. Bore [illegible] ft. Diameter of bore: at top [illegible] ins.; at bottom [illegible] ins.

Details of permanent lining tubes (internal diameters preferred). 140' x 14½" [illegible] above 10'
N. 11½" [illegible] 7" [illegible]

Water struck at depths of (feet) 97

Rest-level of water [illegible] above top of well [illegible] feet. Suction at [illegible] feet. Yield on [illegible] hours' / days' test

30000 gallons per [illegible] (with pump of capacity [illegible] g.p.h.); depressing water level to [illegible] feet below top. Time of recovery [illegible] hrs. Amount normally pumped daily [illegible] g.p.h. for [illegible] hours.

Quality (attach copy of analysis if available) [illegible]

Sunk by [illegible] for Mr. [illegible] Date of well 1878

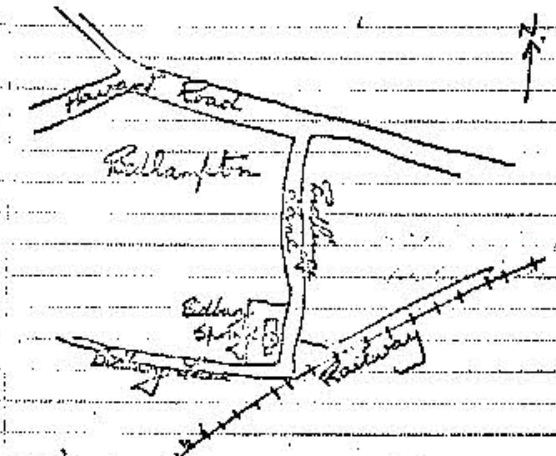
Information from [illegible] SZ 3/14C

316/12C

Draft.

(For Survey use only) GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.	
Drift	7' Gravel (Plan SE of B)	7	—	7	—	(Dft.)
Upper Chalk	Ck 111' Chalk marl & stones	29	—	36		
	" & flints	82	—	118		(Uch.)

JM 4/1/77.



O.D. 18 ft. ? 6-inch 70 SW E
This well marked at address of [illegible]
Pump & tide field at site is not
[illegible] How left shut off.
Information from Portsmouth Water Co.
Sold [illegible] 3.11.91

Also about 25 springs between Bedhampton & Havant (Bedhampton)
Tapped by Portsmouth Waters Company

GEOLOGICAL SURVEY AND MUSEUM, SOUTH KENSINGTON, LONDON S.W.7.

For Survey use only

Date received	O.S.M. (Office File No.)	Site marked on 1/2500 (also) plan(s)
JAN 10		

Contact BGS: ngdc@bgs.ac.uk

BGS ID: 425437 : BGS Reference: SU70NW55
British National Grid (27700) : 470460,106420

SU 70 NW 155
7046 0642

STRATA SHEET.

Name of person for whom well is bored) Portsmouth Waterworks

Place Havant [Bedhampton]

LE GRAND & SUTCLIFF, Hydraulic Engineers, LONDON.

No.	STRATA.	Thickness. Feet.	In.	Depth. Feet.
1	Gravel	10	6	
2	Chalk marl & flints	25	6	36
3	Chalk & flints	69		
4		105		
5				
6				
7	Thick bed of flints at 95 feet under			
8	which water was found			
9				
10	Overflow estimated at from 35000 lb			
11	40000 per hour			
12				
13	Pieces of brown clay brought up by			
14	the flint at first but soon ceased to			
15	come.			
16				
17	Boring continued to	118 feet.		
18				
19				
20				
21				
22				
23				
24				
25				
26				

Drift

Upper Chalk

July 4/11/77

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 425472 : BGS Reference: SU70NW90
British National Grid (27700) : 470340,106330

UCTURAL SOILS LTD.

SU 70 NW/90
7034 0633

SHEET No. 1 OF 17

CONTRACT No. 4195

BOREHOLE RECORD

CT Havant — DATE STARTED 30/6 FINISHED 3/8/67
HOLE No 77 — OPERATOR D.Smith
NCE DATUM LEVEL 21.0 — TYPE OF PENETRATION TEST —
OF BORING Shell & Auger — WEIGHT — DROP —
METER OF BORING 6" — STANDING WATER LEVEL No Water
ARKS

Depth Feet	O.D. Level	Type & No of Samples	Boring Details: Penetration	Lining	Water	Legend	Description of Material and Observations
		C					Dark grey/brown clay
5		C					light brown mottled clay
		D					light brown clay with flint inserts.
10.		D					Brown clay with chalk & flint.
			Borehole terminated				

RE

R.G.M. 19.10.83

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 425473 : BGS Reference: SU70NW91
British National Grid (27700) : 470350,106270

SU 70 NW/91
7035 0627

CONTRACT No 4195

BOREHOLE RECORD

AREA Havant
BOREHOLE No 78
RANGE DATUM LEVEL 18.0 mOD
TYPE OF BORING Shell & Auger
LOCATION SKETCH No 61

DATE STARTED 3/8/67 FINISHED 3/8/67
OPERATOR D Smith
TYPE OF PENETRATION TEST —
WEIGHT — DROP —
STANDING WATER LEVEL 8-0"

Depth Feet	O.D. Level	Type & No. of Samples	Boring Details: Penetration	Casing	Water	Legend	Description of Material and Observations
		D					Topsoil & chalk
		D					light grey brown clay
5		D					Brown clay with flint inserts
					Entry		
10		D					chalk & flint debris.
		D					
15							Borehole terminated

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 425474 : BGS Reference: SU70NW92
British National Grid (27700) : 470370,106250

RUCTURAL SOILS LTD.

SU 70 NW/92
7037 0625

SHEET No. 2 OF 17

CONTRACT No 4195

BOREHOLE RECORD

RACT Havant — TE STARTED 4/8/67 FINISHED 4/8/67
EHOLE No 79 — OPERATOR D Smith
HANCE DATUM LEVEL 148 — TYPE OF PENETRATION TEST —
OF BOR NG Shell & Auger — WEIGHT — DROP —
ETER OF HOLE 6" — STANDING WATER LEVEL 6'0"
ARKS

Depth Feet	O.D. Level	Type & No of Samples	Boring Details: Penetration	Casing	Water	Legend	Description of Material and Observations
		D					Topsoil
		D					Flint bound firm brown clay
		D					Brown mottled clay with inserts of flint
5							
F		U4/2'0"		Entry			Brown sandy clay with flint & chalk
10.		D					
		D					
							Borehole terminated

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 425475 : BGS Reference: SU70NW93
British National Grid (27700) : 470380,106220

SU 70 NW/93
7038 0622

SHEET No 10 OF 17

CONTRACT No 4195

BOREHOLE RECORD

CONTRACT Havant
BOREHOLE No 80
GROUND DATUM LEVEL 12.0
TYPE OF BORING Shell & Auger
DIAMETER OF BORING
WORKS

DATE STARTED 4/8/67 FINISHED 4/8/67
OPERATOR D Smith
TYPE OF PENETRATION TEST
WEIGHT DROP
STANDING WATER LEVEL 4.0

Depth (m)	Thickness (m)	Nature & No. of Sample	Boring Method: Penetration Rate	Boring Method: Casing	Water	Depth of Strata	Description of Material and Observations
		D					Topsoil
		D					light brown chalky clay
5				Entry			
		D					Chalk & flint
10		D					
15							Borehole terminated

Contact BGS: ngdc@bgs.ac.uk

Appendix 8 3 Drainage Calculations

Greenûeld runoœp rate estimation tool

www.uksuds.com | Greenûeld runoœp rate estimation tool (https://www.uksuds.com/)

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

Project details

	28/03/2025
	Dani Lister
	SHF.3055.001
	0.6.5

Location

	Bedhampton Waterworks
	Havant



	470563
	106290

Site details

	0.657 ha

Greenûeld runoφ

Method

	FEH statistical

FEH statistical

	My value		Map value
	731	mm	731
	0.597		
	1.136		1.136
	156	l/s	
	18	l/s	

Growth curve factors

	My value	Map value
	7	7
	0.85	
	0.88	
	1.62	
	2.3	
	3.19	
	3.74	

Results

	FEH statistical
	15 l/s
	16 l/s
	2.9 l/s
	4.1 l/s
	5.6 l/s
	6.6 l/s

Disclaimer

This report was produced using the Greenûeld runoφ rate estimation tool (0.6.5) developed by HR Wallingford and available at uksuds.com (https://www.uksuds.com/). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at uksuds.com/terms-conditions (https://www.uksuds.com/terms-conditions). The outputs from this tool have been used to estimate Greenûeld runoφ rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 3125 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max £ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	0.718	0.718	0.0	1.3	1.3	231.9	O K
30 min Summer	0.953	0.953	0.0	1.4	1.4	307.9	O K
60 min Summer	1.207	1.207	0.0	1.6	1.6	389.8	O K
120 min Summer	1.395	1.395	0.0	1.7	1.7	450.7	O K
180 min Summer	1.513	1.513	0.0	1.8	1.8	488.7	O K
240 min Summer	1.597	1.597	0.0	1.8	1.8	515.8	O K
360 min Summer	1.711	1.711	0.0	1.9	1.9	552.6	O K
480 min Summer	1.785	1.785	0.0	1.9	1.9	576.7	O K
600 min Summer	1.838	1.838	0.0	1.9	1.9	593.7	O K
720 min Summer	1.876	1.876	0.0	1.9	1.9	606.0	O K
960 min Summer	1.926	1.926	0.0	2.0	2.0	621.9	O K
1440 min Summer	1.964	1.964	0.0	2.0	2.0	634.4	O K
2160 min Summer	1.957	1.957	0.0	2.0	2.0	632.1	O K
2880 min Summer	1.931	1.931	0.0	2.0	2.0	623.8	O K
4320 min Summer	1.903	1.903	0.0	2.0	2.0	614.7	O K
5760 min Summer	1.892	1.892	0.0	1.9	1.9	611.2	O K
7200 min Summer	1.902	1.902	0.0	2.0	2.0	614.3	O K
8640 min Summer	1.923	1.923	0.0	2.0	2.0	621.2	O K
10080 min Summer	1.955	1.955	0.0	2.0	2.0	631.4	O K
15 min Winter	0.718	0.718	0.0	1.3	1.3	231.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	142.084	0.0	100.7	27
30 min Summer	94.513	0.0	111.7	42
60 min Summer	60.089	0.0	230.1	72
120 min Summer	35.056	0.0	249.4	132
180 min Summer	25.551	0.0	260.6	190
240 min Summer	20.392	0.0	268.2	250
360 min Summer	14.796	0.0	277.9	370
480 min Summer	11.759	0.0	283.6	488
600 min Summer	9.830	0.0	287.2	608
720 min Summer	8.487	0.0	289.4	728
960 min Summer	6.724	0.0	291.1	966
1440 min Summer	4.838	0.0	288.2	1444
2160 min Summer	3.491	0.0	553.1	2160
2880 min Summer	2.784	0.0	553.4	2508
4320 min Summer	2.051	0.0	537.9	3252
5760 min Summer	1.672	0.0	996.2	4088
7200 min Summer	1.446	0.0	993.6	4904
8640 min Summer	1.296	0.0	999.2	5792
10080 min Summer	1.190	0.0	991.7	6648
15 min Winter	142.084	0.0	100.7	27

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Summary of Results for 100 year Return Period (+45%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max £ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	0.953	0.953	0.0	1.4	1.4	307.9	O K
60 min Winter	1.207	1.207	0.0	1.6	1.6	389.9	O K
120 min Winter	1.396	1.396	0.0	1.7	1.7	451.0	O K
180 min Winter	1.514	1.514	0.0	1.8	1.8	489.1	O K
240 min Winter	1.599	1.599	0.0	1.8	1.8	516.4	O K
360 min Winter	1.714	1.714	0.0	1.9	1.9	553.5	O K
480 min Winter	1.789	1.789	0.0	1.9	1.9	578.0	O K
600 min Winter	1.843	1.843	0.0	1.9	1.9	595.3	O K
720 min Winter	1.882	1.882	0.0	1.9	1.9	608.0	O K
960 min Winter	1.934	1.934	0.0	2.0	2.0	624.7	O K
1440 min Winter	1.978	1.978	0.0	2.0	2.0	638.8	O K
2160 min Winter	1.981	1.981	0.0	2.0	2.0	639.8	O K
2880 min Winter	1.957	1.957	0.0	2.0	2.0	632.1	O K
4320 min Winter	1.915	1.915	0.0	2.0	2.0	618.5	O K
5760 min Winter	1.891	1.891	0.0	1.9	1.9	610.8	O K
7200 min Winter	1.882	1.882	0.0	1.9	1.9	607.8	O K
8640 min Winter	1.883	1.883	0.0	1.9	1.9	608.1	O K
10080 min Winter	1.893	1.893	0.0	1.9	1.9	611.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	94.513	0.0	111.7	41
60 min Winter	60.089	0.0	230.0	70
120 min Winter	35.056	0.0	249.3	130
180 min Winter	25.551	0.0	260.4	188
240 min Winter	20.392	0.0	267.9	246
360 min Winter	14.796	0.0	277.5	364
480 min Winter	11.759	0.0	283.1	482
600 min Winter	9.830	0.0	286.5	598
720 min Winter	8.487	0.0	288.6	716
960 min Winter	6.724	0.0	290.0	948
1440 min Winter	4.838	0.0	286.5	1406
2160 min Winter	3.491	0.0	551.2	2076
2880 min Winter	2.784	0.0	550.9	2708
4320 min Winter	2.051	0.0	534.4	3376
5760 min Winter	1.672	0.0	993.6	4320
7200 min Winter	1.446	0.0	991.6	5256
8640 min Winter	1.296	0.0	997.7	6152
10080 min Winter	1.190	0.0	990.5	7064

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 470549 106308 SU 70549 06308
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.657

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.219	4	8	0.219	8	12	0.219

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Model Details

Storage is Online Cover Level (m) 3.000

Cellular Storage Structure

Invert Level (m)	0.000	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	340.0	0.0	2.001	0.0	0.0
2.000	340.0	0.0			

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0057-2000-2000-2000
Design Head (m)	2.000
Design Flow (l/s)	2.0
Flush-Flo#	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	57
Invert Level (m)	0.000
Minimum Outlet Pipe Diameter (mm)	75
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.000	2.0
Flush-Flo#	0.247	1.3
Kick-Flo®	0.506	1.1
Mean Flow over Head Range	-	1.5

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.2	1.200	1.6	3.000	2.4	7.000	3.6
0.200	1.3	1.400	1.7	3.500	2.6	7.500	3.7
0.300	1.3	1.600	1.8	4.000	2.7	8.000	3.8
0.400	1.3	1.800	1.9	4.500	2.9	8.500	3.9
0.500	1.1	2.000	2.0	5.000	3.0	9.000	4.0
0.600	1.2	2.200	2.1	5.500	3.2	9.500	4.1
0.800	1.3	2.400	2.2	6.000	3.3		
1.000	1.5	2.600	2.3	6.500	3.4		

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Appendix 9 3 Simple Index Approach Tool

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Waste handling/management/distribution site	These indices should only be used if considered appropriate by the required risk assessment and where approved by the regulator. If they are not considered appropriate, the risk assessment should use alternative measures of pollution hazard for the site.	In Scotland and Northern Ireland, the environmental regulator should be consulted as part of the licensing process required for High Risk sites. In England and Wales, the environmental regulator should be consulted prior to design (for pre-permitting advice) to determine the most appropriate design approach and requirements for risk assessment.		
Pollution Hazard Level	High				
Pollution Hazard Indices					
TSS	0.8				
Metals	0.8				
Hydrocarbons	0.9				
SuDS components proposed					
Component 1	Bioretention system (where the system is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Gravel Attenuation	Detailed assessment of performance of designed component in reducing inflow concentrations of each pollutant type required as evidence of adopted indices. Enter indices approved by the environmental regulator in appropriate 'User Defined Indices' row below			
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.9				
Metals	0.9				
Hydrocarbons	0.9				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.9	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	0.9				
Hydrocarbons	0.9				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				



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