



LAND AT STATION HILL, BOTLEY

PROPOSED RESIDENTIAL DEVELOPMENT

Flood Risk Assessment & Conceptual
Drainage Strategy

Prepared on Behalf of

Foreman Homes

D2258/FRA1.1

July 2024

DOCUMENT CONTROL

Project: Land at Station Hill, Botley
Proposed Residential Development

Document: Flood Risk Assessment & Conceptual Drainage Strategy

Client: Foreman Homes

Reference: D2258/FRA1.1

Document Checking:

Author: S Burnett **Date:** 19/06/2024

Checked by: M Akmenkalns **Date:** 20/06/2024

Approved by: M Akmenkalns **Date:** 20/06/2024

Status:

Issue	Date	Status	Issued by
1.0	20/06/2024	DRAFT	SPB
1.1	18/07/2024	FINAL	SPB

© Copyright BP Civils 2024

No part of this publication may be reproduced by any means without the prior permission of BP Civils.

CONTENTS

1	INTRODUCTION	6
1.1	Background.....	6
2	SITE LOCATION AND DESCRIPTION	7
3	GROUND CONDITIONS	8
3.2	Groundwater.....	10
4	EXISTING DRAINAGE	12
4.1	Surface Water	12
4.2	Foul Water.....	13
4.3	Highway Drainage.....	14
5	PROBABILITY	15
5.1	Sources of Information	15
5.2	Flood Map Analysis.....	15
5.3	Strategic Flood Risk Assessment	20
5.4	Historic Flooding.....	21
5.5	Summary of Flood Risk.....	22
6	PROPOSED DEVELOPMENT.....	24
6.1	Description of Development	24
7	SEQUENTIAL AND EXCEPTION TESTS	25
7.1	Sequential Test	25
7.2	Exception Test	25
8	PROPOSED DRAINAGE STRATEGY	26
8.1	Surface Water	26
8.2	Treatment	28
8.3	Foul Water Drainage	28
8.4	Climate Change.....	28
8.5	Urban Creep	29
9	RESIDUAL RISK AND MITIGATION	30
9.1	Residual Risk.....	30
9.2	Mitigation.....	30
10	FLOOD RISK MANAGEMENT	32
10.1	Safe Access and Egress	32
10.2	Flood Warning.....	32



11	MAINTENANCE.....	33
12	OFFSITE IMPACTS	34
13	SUMMARY.....	35

DRAWINGS

- 001** Constraints Plan
- 002** LiDAR Banding
- 003** Infiltration Testing Location Recommendation
- 004** Topographic Survey with Contours
- 005** Surface Water Flood Map Overlay

APPENDICES

- Appendix A** Illustrative Masterplan
- Appendix B** Topographic Survey
- Appendix C** BGS Borehole Records
- Appendix D** Southern Water Public Sewer Records
- Appendix E** Winchester City Council Strategic Flood Risk Assessment Extracts
- Appendix F** Partnership for South Hampshire Strategic Flood Risk Assessment Extracts
- Appendix G** Causeway Flow Storage Volume Estimates

1 INTRODUCTION

1.1 Background

1.1.1 BP Civils is instructed by Foreman Homes ('the client') to prepare a flood risk assessment and conceptual drainage strategy to assist in the promotion of the site at Land at Station Hill, Botley for potential residential development.

1.1.2 This report has been undertaken in accordance with National Planning Policy Framework (NPPF) and The Planning Practice Guidance on the use of SuDS for achieving sustainable development.

1.1.3 The promotion of the site proposes up to 177 No. residential properties as demonstrated by the illustrative masterplan contained within **Appendix A**.

1.1.4 In preparing this report, BP Civils has referred to the following documents and information:

- British Geological Survey (BGS) Information and Records
- Environment Agency (EA) Flood Maps for Planning
- Flood Estimation Handbook (FEH) Catchment Data
- Long Term Flood Risk Maps for Rivers or the Sea, Surface Water and Reservoirs
- Southern Water Public Sewer Records
- Hampshire County Council (HCC) Strategic Flood Risk Assessment
- Partnership for South Hampshire (PUSH) Strategic Flood Risk Assessment
- Winchester City Council (WCC) Strategic Flood Risk Assessment

1.1.5 This report has been prepared to assess flood risk at the site, and to advise of any mitigation which may be required to ensure that such a scale of development remains safe for its design life in accordance with current design standards.

1.1.6 This report has been prepared for the benefit of the named client only.

2 SITE LOCATION AND DESCRIPTION

- 2.1.1 A site location plan is provided within **Appendix A**.
- 2.1.2 The National Grid Reference for the site is SU52352 12923.
- 2.1.3 The site is an undeveloped 'greenfield' parcel of land, measuring 114,270m² (11.43Ha) located to the east of Station Hill (A334), north of Botley Road (A3051) and west of Outlands Lane.
- 2.1.4 Woodview Park, which consists of c. 30 No. existing properties, is located beyond the north-western boundary of the site.
- 2.1.5 An existing railway line is located beyond the northern boundary of the site, with Botley station located c. 80m north-west of the site.
- 2.1.6 An unnamed ordinary watercourse is located on site, flowing in a south-westerly direction. This watercourse is culverted beneath Botley Road (A3051) as well as the railway line beyond the northern boundary of the site.
- 2.1.7 Access is currently available off Botley Road (A3051) via an existing vehicular crossover.
- 2.1.8 A topographical survey has been undertaken at the site by Encompass Surveys Ltd, dated June 2024. The survey is contained in **Appendix B**.
- 2.1.9 The topographical survey demonstrates levels broadly in the range of 11.750m AOD and 21.500m AOD to the east of the watercourse, with level west of the watercourse broadly in the range of 12.00m AOD and 18.00m AOD.

3 GROUND CONDITIONS

- 3.1.1 Site-specific ground investigation has not currently been undertaken at the site.
- 3.1.2 In the absence of site-specific ground investigation reference has been made to the BGS website to gain an understanding of the anticipated geology at the site.
- 3.1.3 The BGS Geology of Britain Viewer indicates a 'Wittering Formation – Sand, Silt and Clay' bedrock geology.

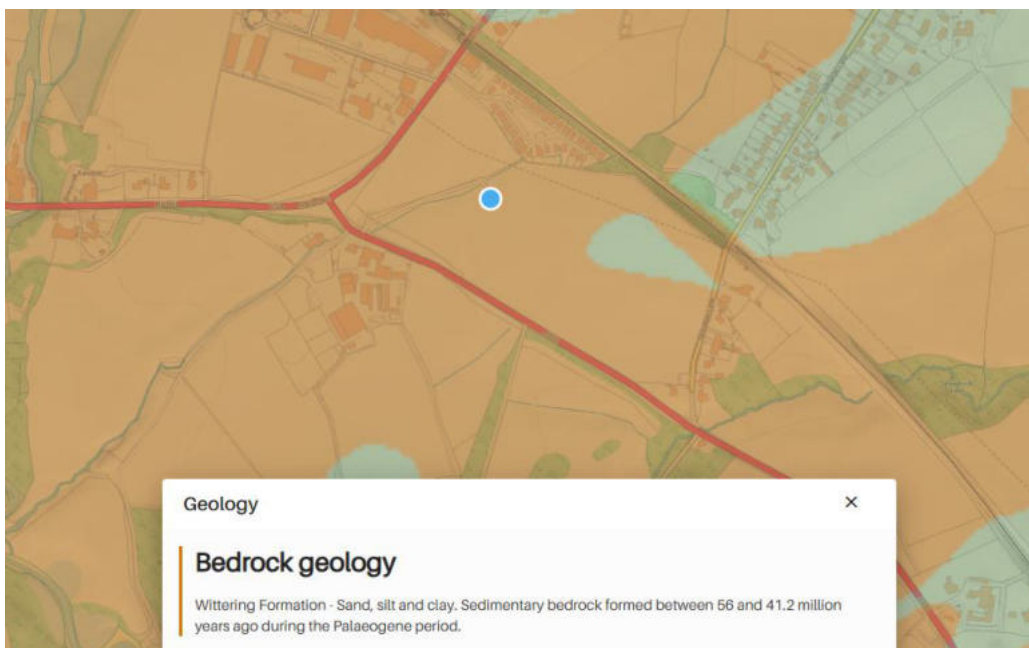


Figure 1. Geology of Britain Viewer – Bedrock Geology (BGS)

- 3.1.4 No Superficial Deposits are recorded.

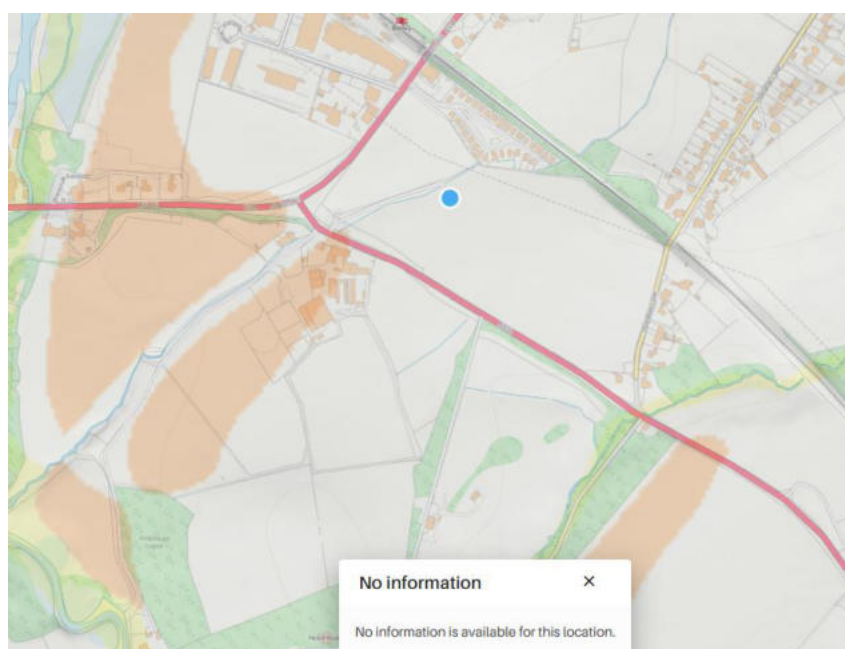


Figure 2. Geology of Britain Viewer – Superficial Deposits (BGS)

3.1.5 The BGS GeoIndex Onshore mapping tool provides information relating to historic boreholes. A borehole has been identified c. 615m south-west of the site on Church Lane (SU51SW128, Eastings: 451420, Northings: 112820) which was excavated to a depth of 15.00m below ground level.

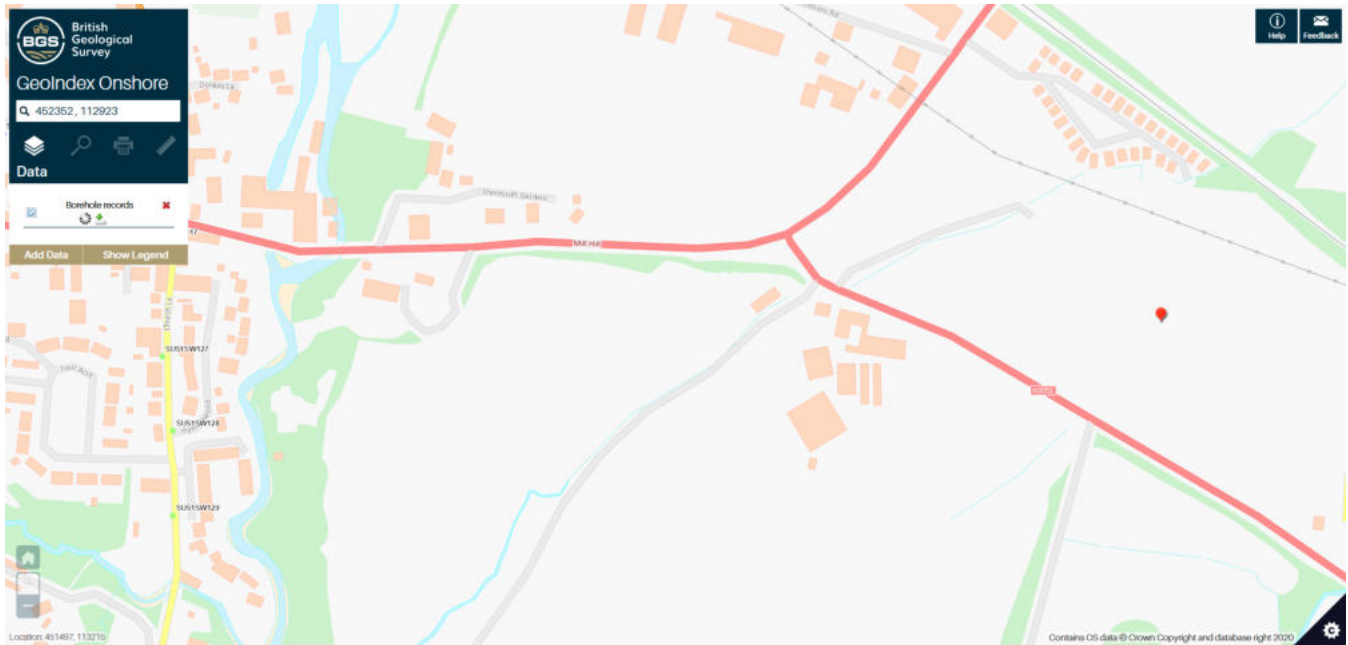


Figure 3. GeoIndex Onshore – Borehole Register (BGS)

3.1.6 A summary of the encountered geology is provided, below:

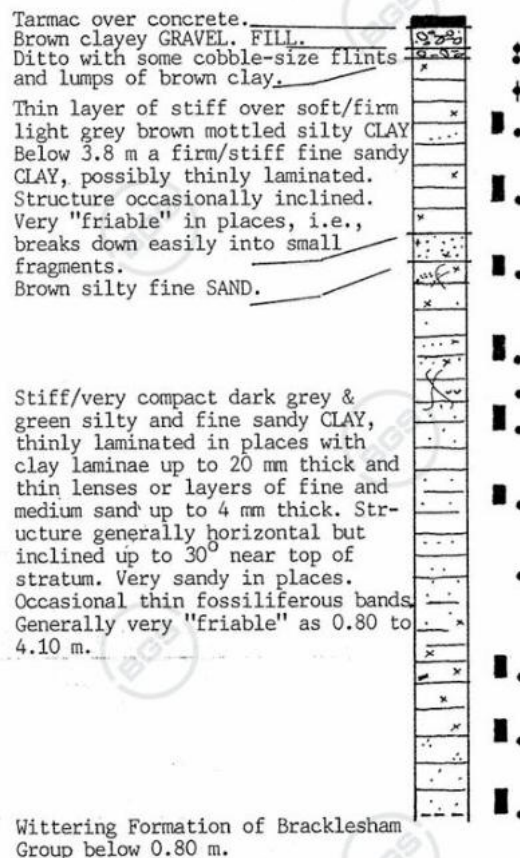


Figure 4. BGS Borehole Summary (SU51SW28)

3.1.7 The BGS records reviewed can be found within **Appendix C**.

3.2 Groundwater

3.2.1 Site-specific groundwater investigation and/or monitoring has not currently been undertaken at the site.

3.2.2 Reference has again been made to the borehole records reviewed and as detailed within 3.1.5 and 3.1.6.

3.2.3 The records relating to historic borehole SU51SW28 confirm groundwater seepage at 3.5m below ground level, with the water level rising to 3.45m below ground level within fifteen minutes.

3.2.4 Increased seepage was recorded between 4.10m and 4.60m below ground level, with slow seepage between 4.60m and 9.00m below ground level. The groundwater level rose to 7.20m below ground level within a twenty-minute period.

3.2.5 Seepage was sealed off between 11.00m and 14.50m below ground level, with slow seepage again experienced at 14.50m below ground level.

3.2.6 Mapping managed by MAGIC (magic.defra.gov.uk) provides geographic information concerning the natural environment from across government. This mapping tool has been referred to in order to confirm whether the site is located within either any groundwater source protection zones or groundwater vulnerability zones.

3.2.7 The site is shown to be located within an area identified as being a 'Secondary A' bedrock aquifer, and an 'Unproductive' superficial drift aquifer.

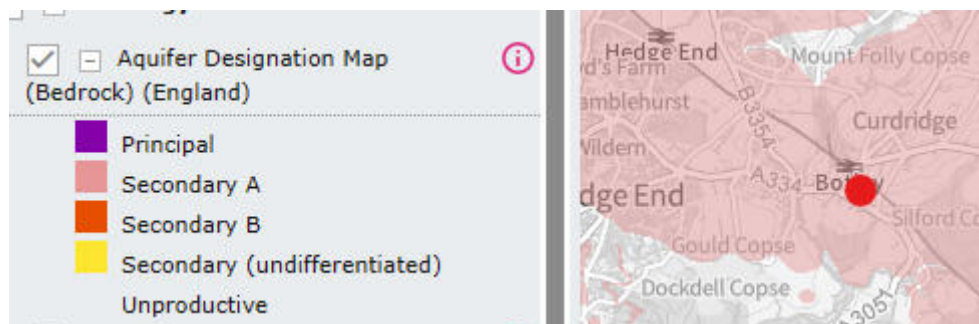


Figure 5. Aquifer Designation Map - Bedrock Aquifer (DEFRA)

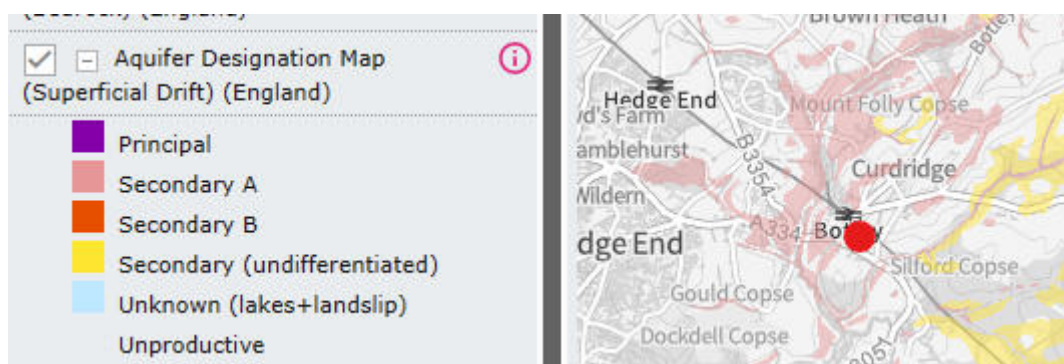


Figure 6. Aquifer Designation Map – Superficial Drift (DEFRA)

3.2.8 Secondary A aquifers comprise permeable layers that can support local water supplies and may form

an important source of base flow to rivers.

3.2.9 The site is located within a 'Medium' groundwater vulnerability zone.

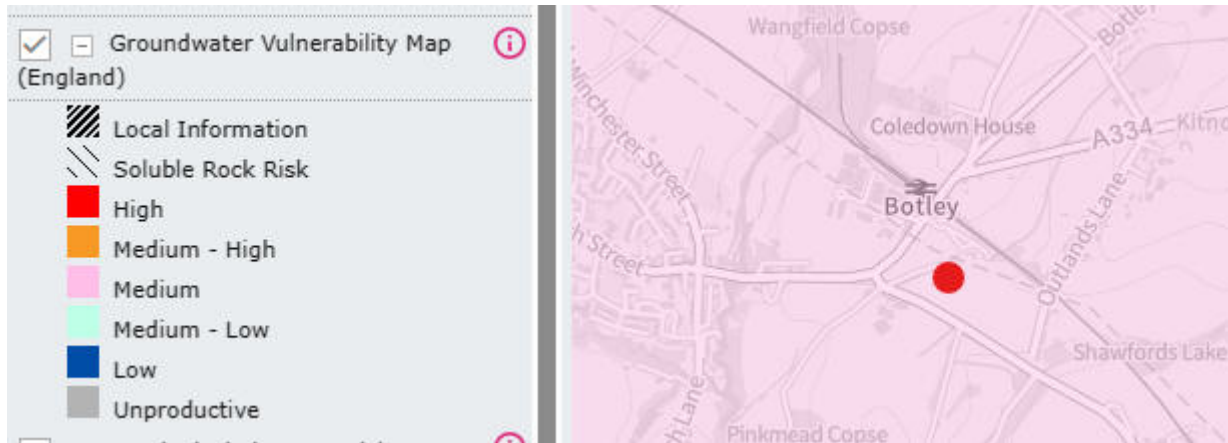


Figure 7. Groundwater Vulnerability Map (DEFRA)

3.2.10 'Medium' groundwater vulnerability zones are defined as areas that offer some groundwater protection.

3.2.11 The site does not fall within any drinking water protected areas (surface water), drinking water safeguard zones (surface water or groundwater) or source protection zones.

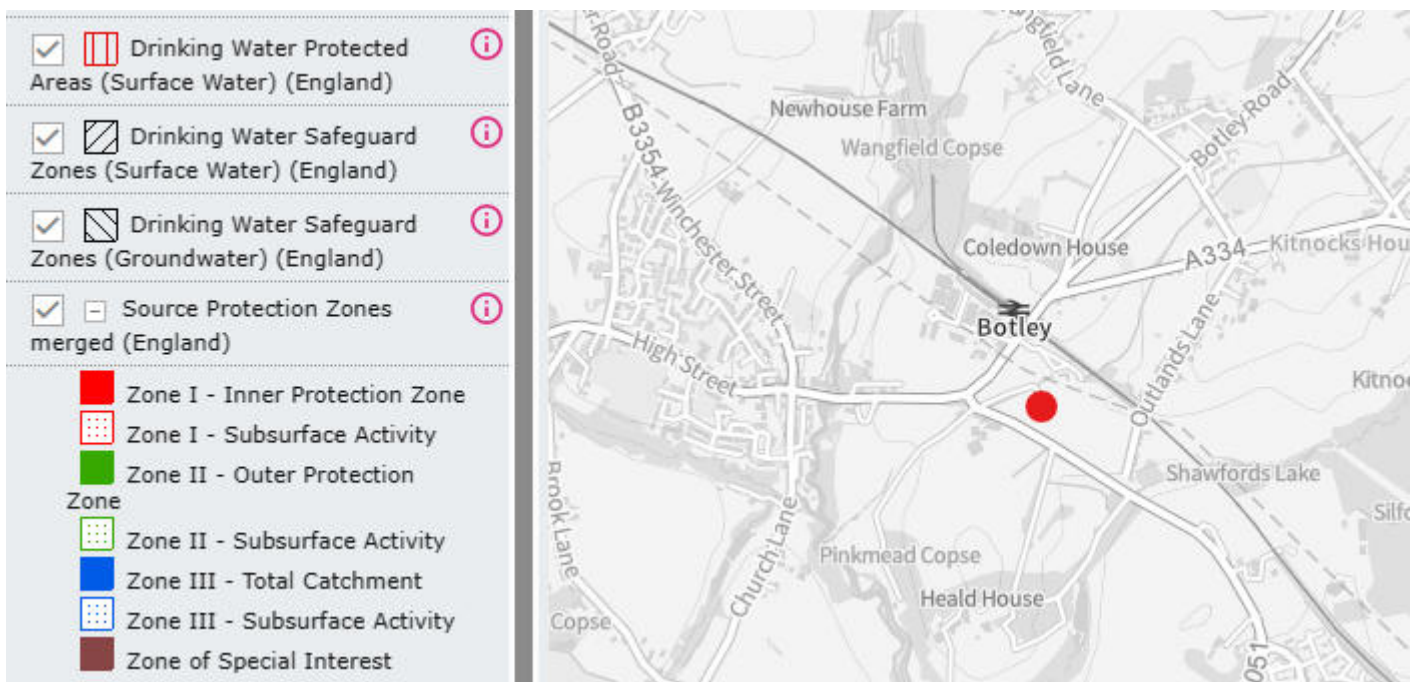


Figure 8. Drinking Water Protected Areas (Surface Water), Drinking Water Safeguard Zones (Surface Water and Groundwater) and Source Protection Zone Map (DEFRA)

4 EXISTING DRAINAGE

4.1 Surface Water

- 4.1.1 The local sewerage authority is Southern Water. Public sewer records have been obtained from Southern Water, as contained within **Appendix D**.
- 4.1.2 Southern Water's public sewer records do not identify any public surface water sewers on the site, or within the wider vicinity of the site.
- 4.1.3 An unnamed ordinary watercourse is located on site, flowing in a south-westerly direction. This watercourse is culverted beneath Botley Road (A3051) as well as the railway line beyond the northern boundary of the site.
- 4.1.4 The site is not currently served by any positive drainage infrastructure and drains naturally. Site levels demonstrate falls towards the ordinary watercourse which flows in a south-westerly direction, which will intercept run-off from parts of the site.
- 4.1.5 Extracts from SCALGO demonstrate watershed catchments, as indicated below.

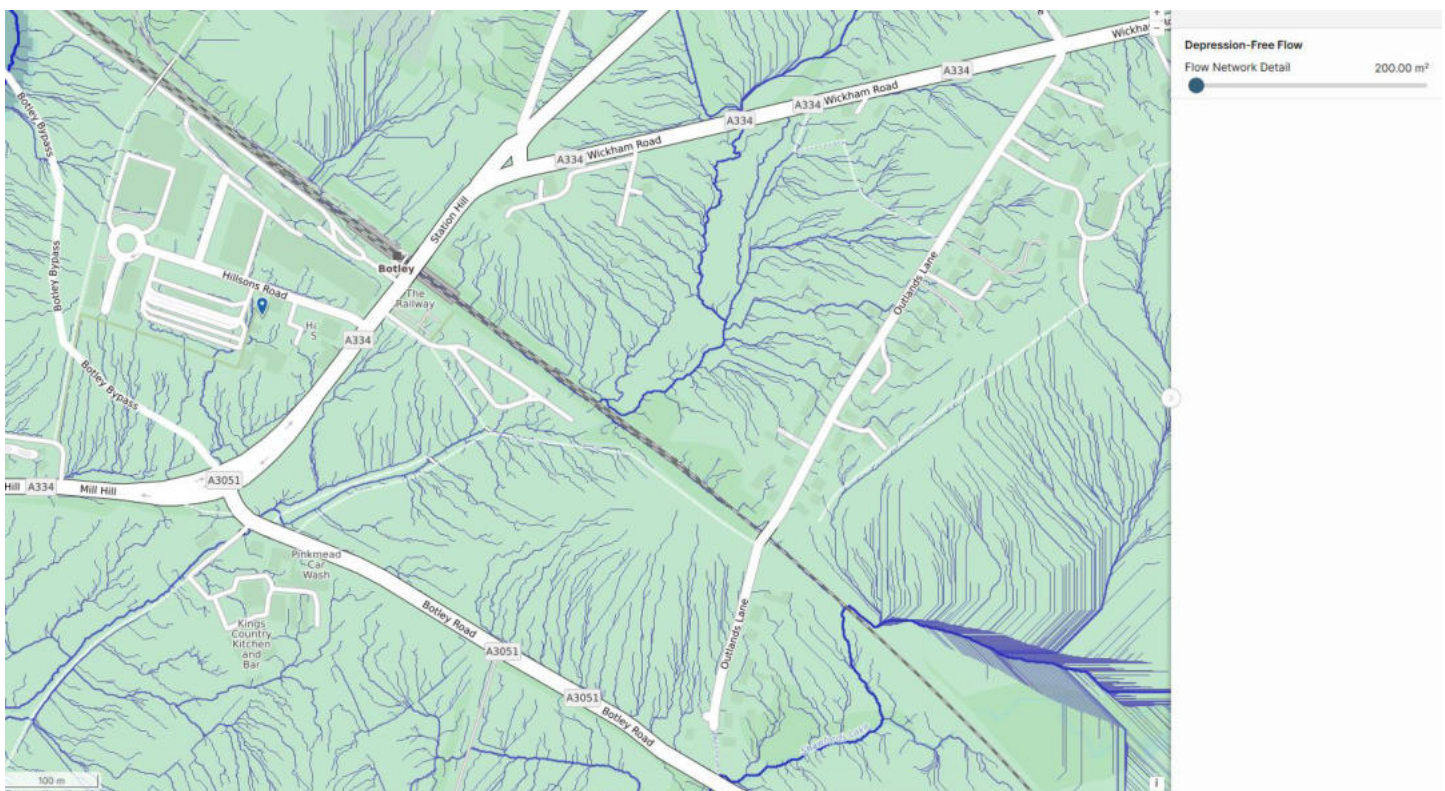


Figure 9. SCALGO Watershed Catchment



Figure 10. SCALGO Watershed Catchment

4.1.6 Greenfield run-off rates have been established in relation to the site area (11.43Ha) using HR Wallingford's 'Greenfield run-off rate estimation' tool.

4.1.7 Greenfield run-off rates have been calculated as follows:

- $Q_{BAR} = 63.95 \text{ l/s}$
- 1 in 1 Year – 54.36 l/s
- 1 in 30 Year – 147.08 l/s
- 1 in 100 Year – 203.99 l/s
- 1 in 200 Year – 239.16 l/s

4.1.8 A watercourse is located to the east of the existing site access, to the south of the existing footway/cycleway which runs parallel to the southern boundary of the site. This watercourse flows in a westerly direction.

4.2 Foul Water

4.2.1 Southern Water's public sewer records identify public foul water sewers within the confines of the site.

4.2.2 A 150mm dia. and a 300mm dia. public foul water sewer intersect in the north of the site, and a 300mm



dia. public foul water sewer continues southerly before turning east, continuing parallel to the southern boundary of the site, towards Outlands Lane.

4.3 Highway Drainage

- 4.3.1 Station Hill (A334) drains via traditional road gullies, the outfall locations of which are unconfirmed.
- 4.3.2 Botley Road (A3051) drains via a combination of traditional road gullies and kerb inlet gullies in addition to 'over the edge' drainage methods, to the adjacent verge.

5 PROBABILITY

5.1 Sources of Information

5.1.1 The National Planning Policy Framework (NPPF) requires that all sources of flooding are considered being tidal, fluvial, pluvial, groundwater, sewers and man-made canals/reservoirs.

5.1.2 The likelihood of the site flooding has been established by reviewing the following information:

- Environment Agency Flood Maps for Planning
- Long-Term Flood Risk Map for Rivers or the Sea
- Long-Term Flood Risk Map for Surface Water
- Long-Term Flood Risk Map for Reservoirs
- Hampshire County Council's Strategic Flood Risk Assessment
- Partnership for South Hampshire Strategic Flood Risk Assessment
- Winchester City Council's Strategic Flood Risk Assessment

5.2 Flood Map Analysis

5.2.1 The Environment Agency's Flood Maps for Planning confirms that the site falls fully within Flood Zone 1.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b).
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map).
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map).
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of function floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:

	<ul style="list-style-type: none"> • Land having a 3.3% or greater annual probability of flooding, with any existing flood management infrastructure operating effectively; or • Land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability flooding). <p>Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map).</p>
--	---

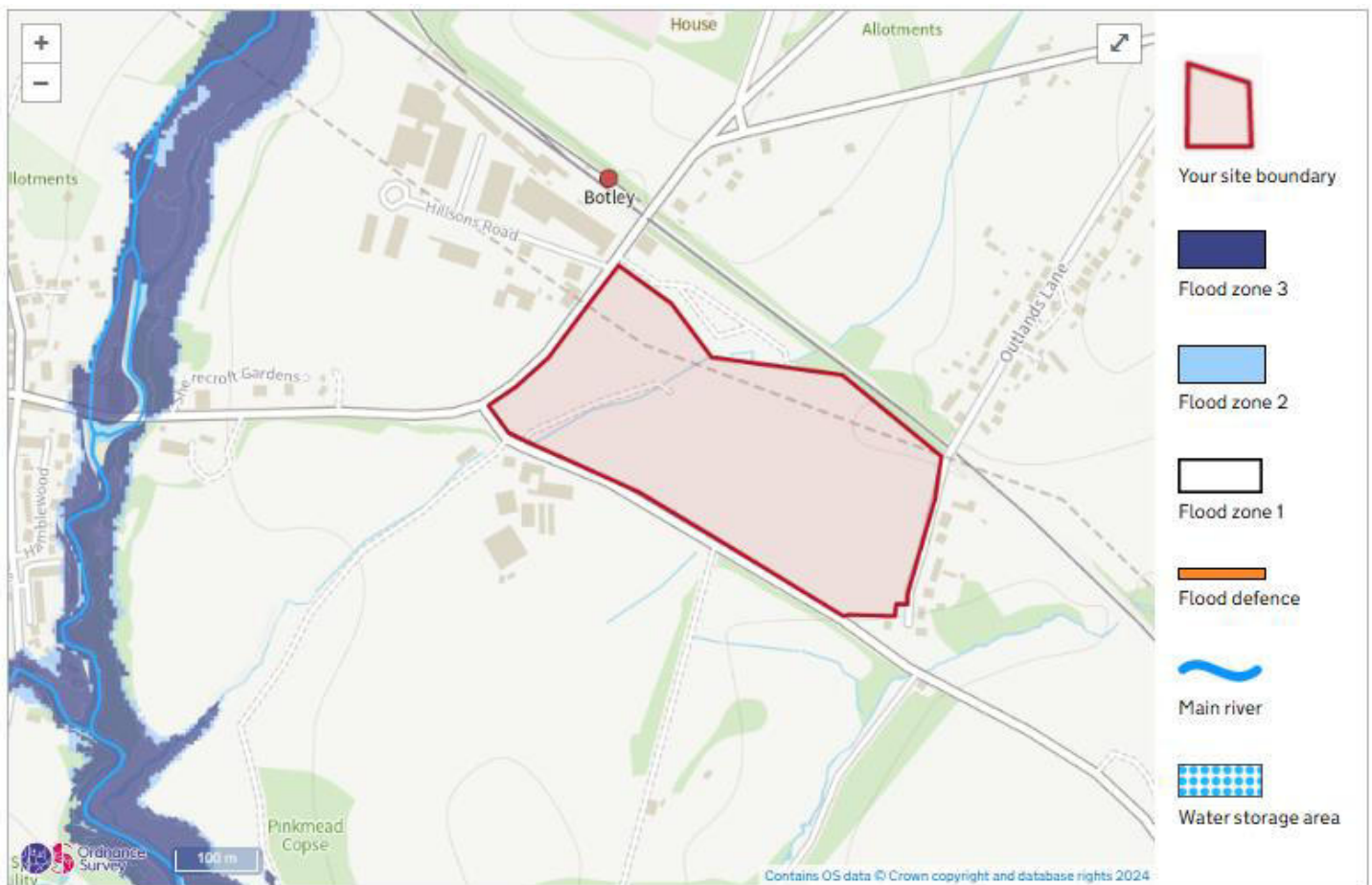


Figure 11. Flood Maps for Planning (Gov.uk)

5.2.2 The Long-Term Flood Risk Map for Rivers or the Sea does not identify the site as being at risk of flooding from such sources.

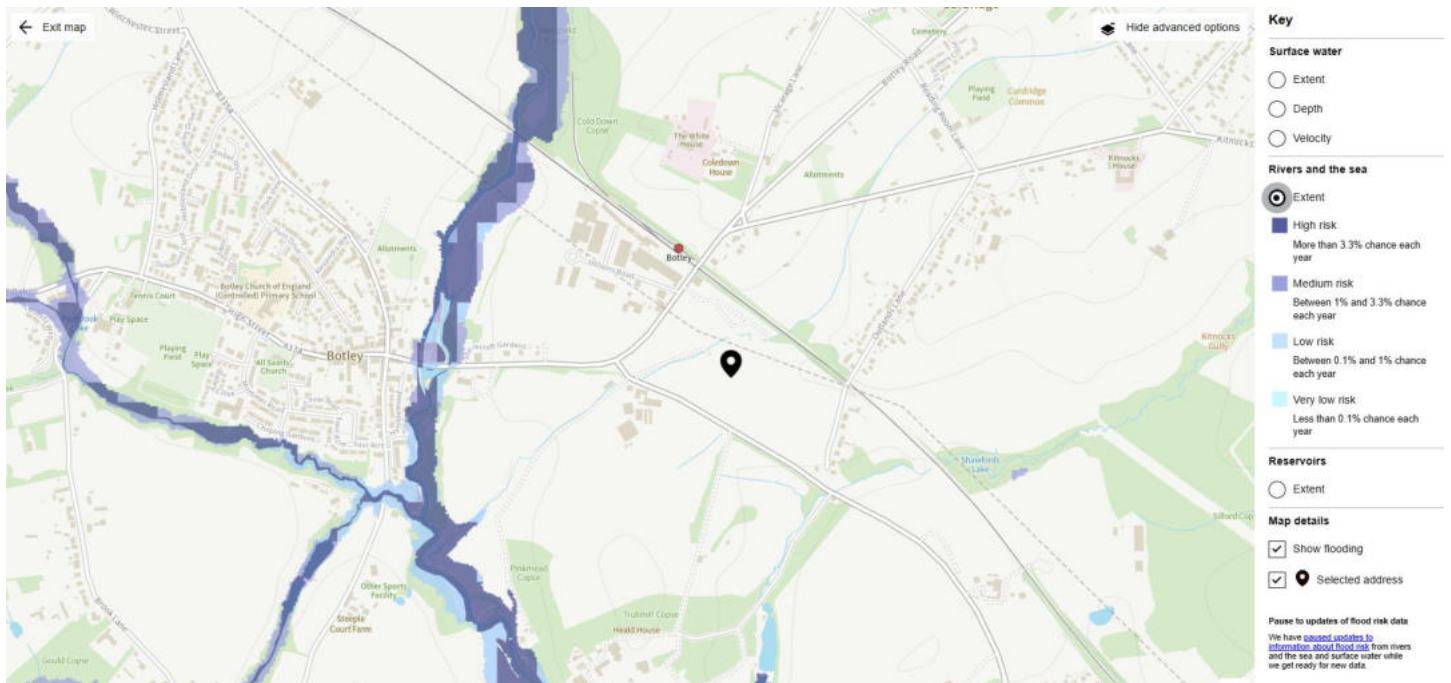


Figure 12. Long-Term Flood Risk Map – Rivers or the Sea (Gov.uk)

5.2.3 The Long-Term Flood Risk Map for Surface Water identifies the site as being at 'Very Low' risk of surface water flooding. The alignment of the ordinary watercourse corridor is identified at increased risk of surface water flooding (ranging from 'Low' to 'High').

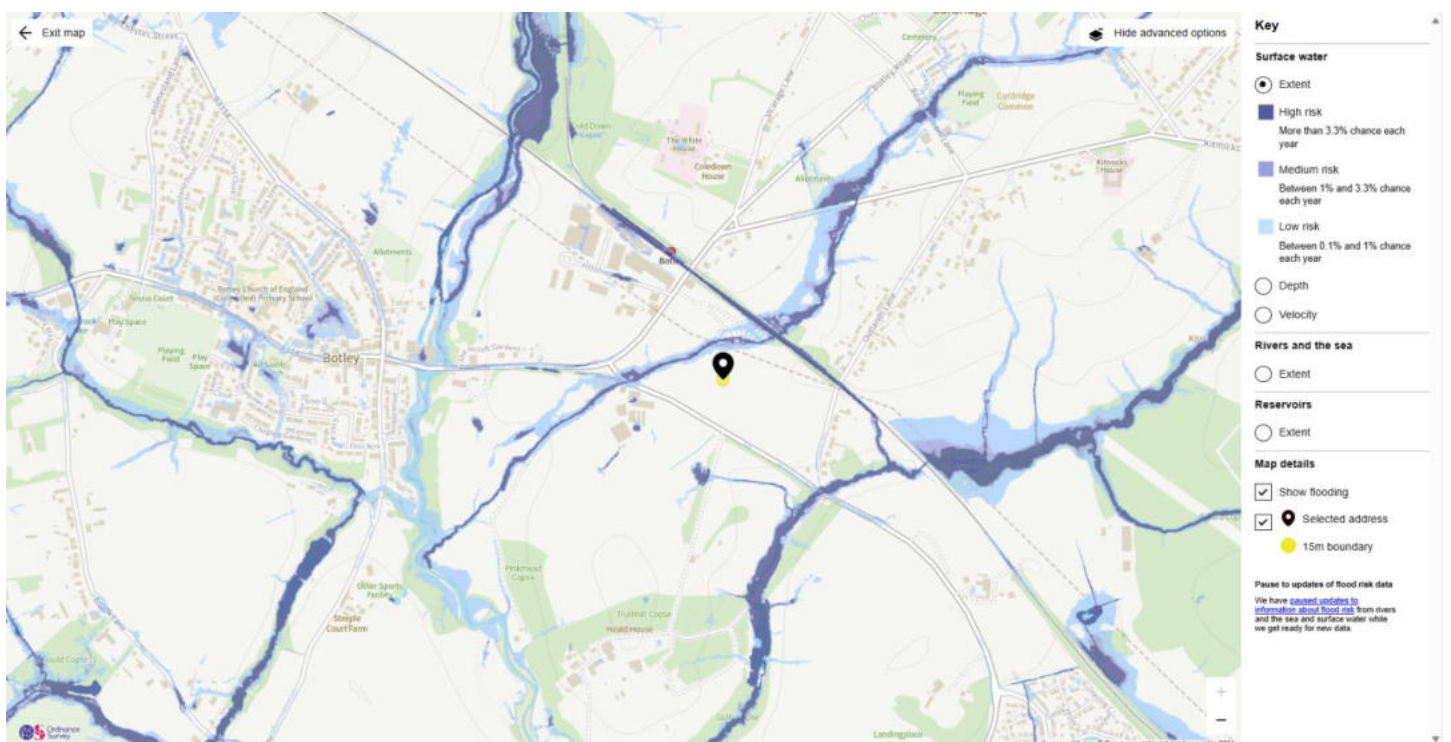


Figure 13. Long-Term Flood Risk Map – Surface Water (Gov.uk)

5.2.4 The anticipated depth of flooding has been assessed in relation to the areas identified as being at increased risk of surface water flooding ('Low' to 'High' risk), which follow the alignment of the ordinary watercourse on site.

5.2.5 In 'High' risk scenarios the anticipated depths of flooding are stated to be 'Below 30cm'.

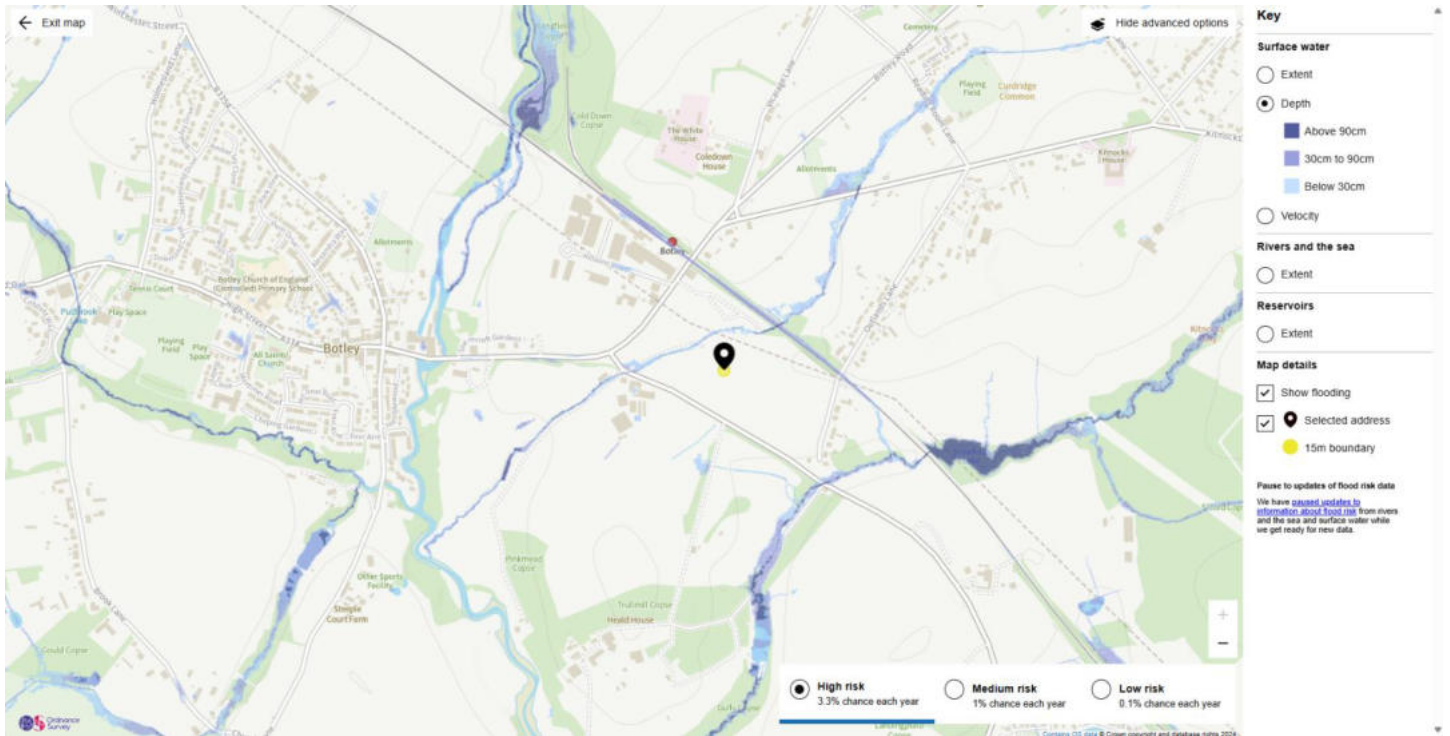


Figure 14. Long-Term Flood Risk Map – Surface Water, 'High' Risk Depths (Gov.uk)

5.2.6 In 'Medium' risk scenarios, the anticipated depths of flooding are again stated to be 'Below 30cm', with some concentration of depths in the range of '30cm to 90cm'.

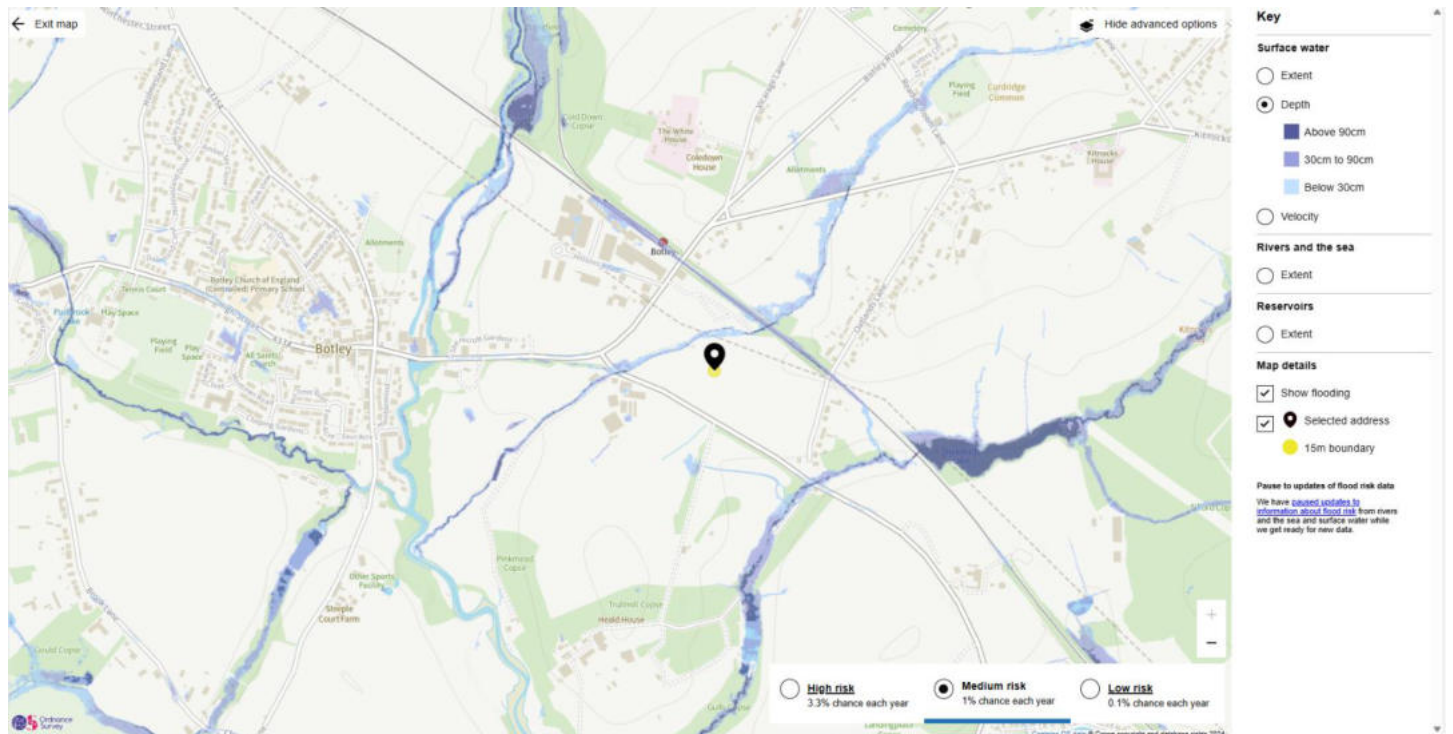


Figure 15. Long-Term Flood Risk Map – Surface Water, 'Medium' Risk Depths (Gov.uk)

5.2.7 In 'Low' risk scenarios, the anticipated depths of flooding are stated to be either 'Below 30cm' or in the range of '30cm to 90cm'.

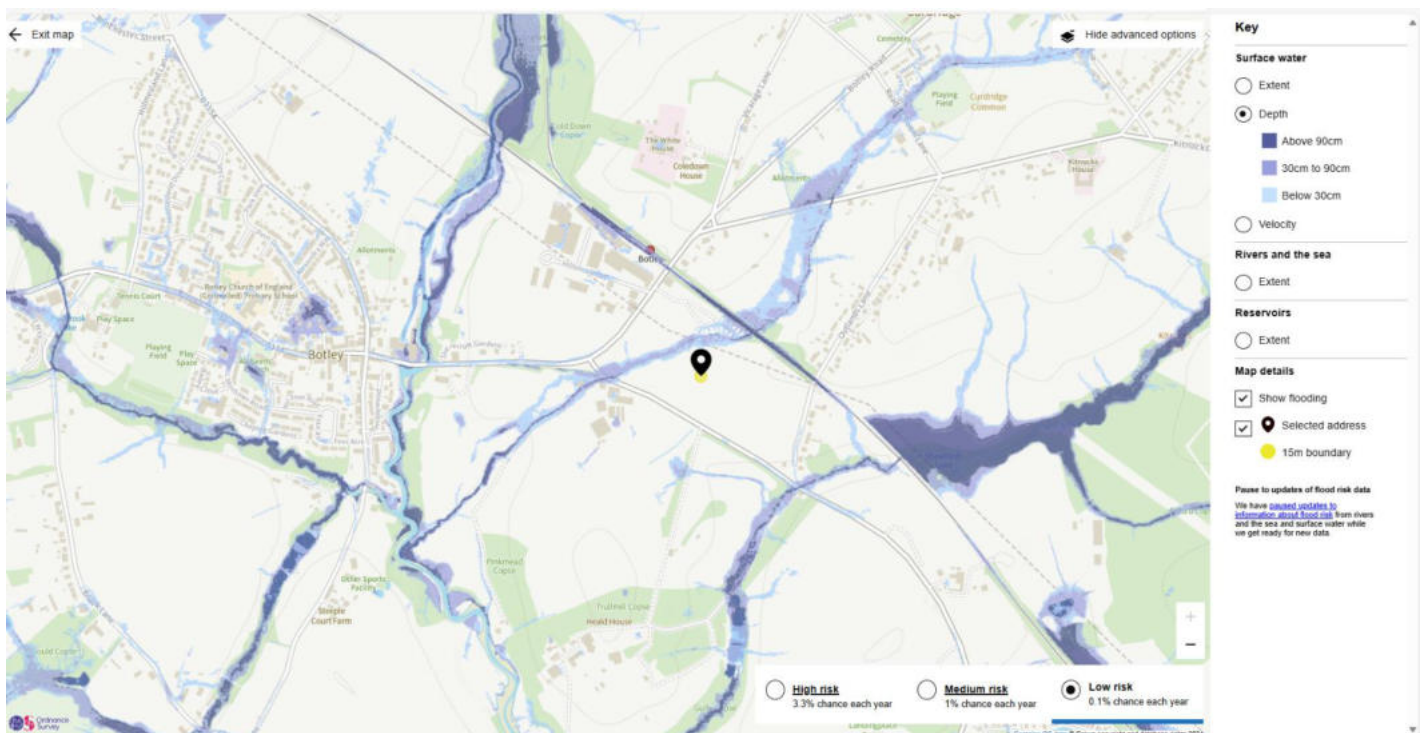


Figure 16. Long-Term Flood Risk Map – Surface Water, 'Low' Risk Depths (Gov.uk)

5.2.8 The Long-Term Flood Risk Map for Reservoirs does not identify the site as being at risk of flooding from such sources.

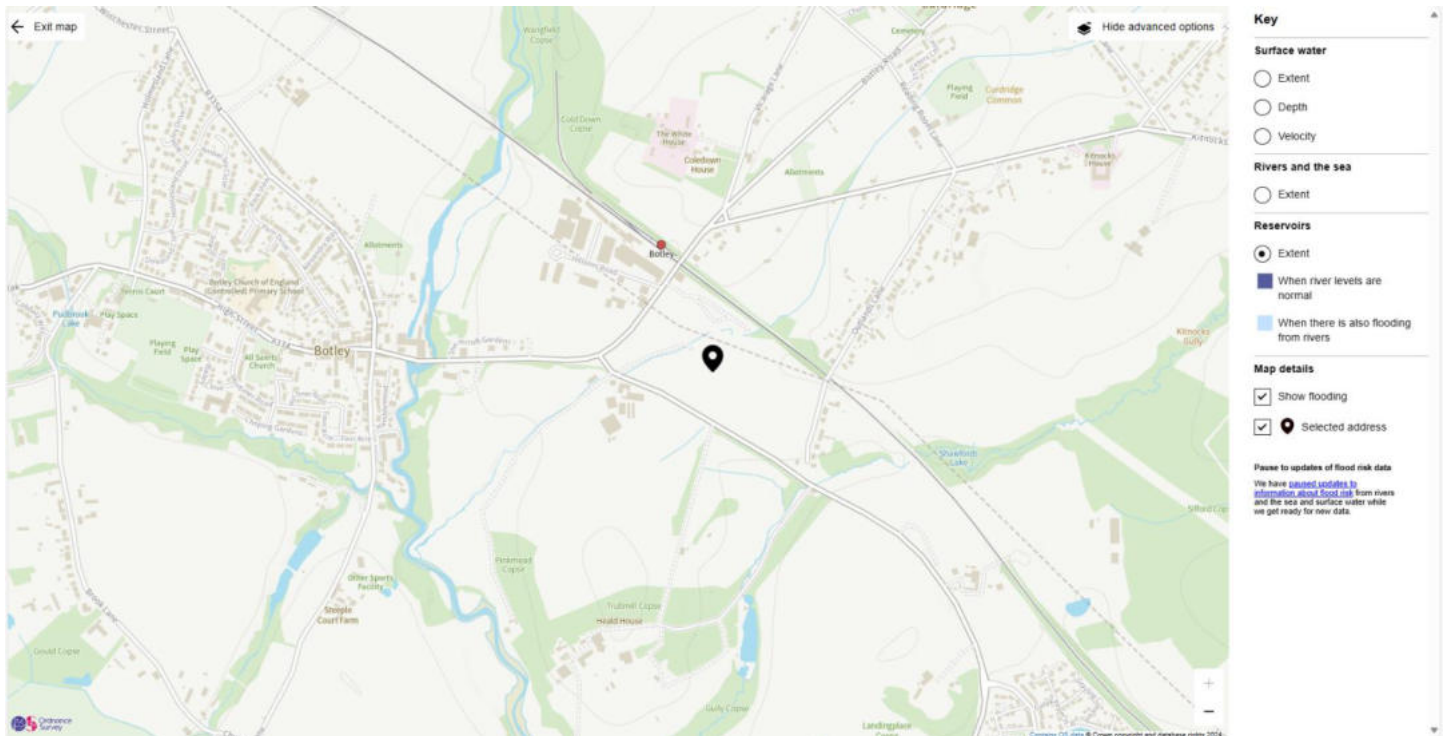


Figure 17. Long-Term Flood Risk Map – Reservoirs (Gov.uk)

5.3 Strategic Flood Risk Assessment

- 5.3.1 The site falls under the jurisdiction of Hampshire County Council and Winchester City Council.
- 5.3.2 Hampshire County Council, as Lead Local Flood Authority, has a published Strategic Flood Risk Assessment dated April 2011. The site is not specifically referenced within the Strategic Flood Risk Assessment.
- 5.3.3 Winchester City Council also has a published Strategic Flood Risk Assessment, dated September 2007. As with the Hampshire County Council Strategic Flood Risk Assessment, the site is not specifically referenced.
- 5.3.4 Mapping contained within the Winchester City Council Strategic Flood Risk Assessment identifies historic flooding off site, to the south-east of the site. Further detail is provided in Section **5.4 Historic Flooding**.
- 5.3.5 Hampshire County Council and Winchester City Council are both members of the Partnership for South Hampshire. The Partnership for South Hampshire also has a published Strategic Flood Risk Assessment, the update for which is dated February 2024 (Part 1). A dedicated report is also provided for Winchester City Council, dated June 2023 (Part 3).
- 5.3.6 The PUSH SFRA and Winchester City Council specific reports do not specifically reference the site, although reference is made to the A334 between Botley and Curdrige which is stated to be at risk of flooding in the future (2122), with hazard ratings of 'Significant' for the 0.5% AEP for 2122 upper end climate change allowance (Appendix B, Figure 13). This appendix and figure is not correct when reviewing the SFRA and appendices, however, and mapping has not been located which is reflective of this statement. BP Civils has contacted PUSH, who has advised to contact Winchester City Council. The correct appendices have been requested but not yet received.

- 5.3.7 The Partnership for South Hampshire provides an interactive mapping tool which provides information relating to flood risk. This mapping tool has been reviewed in relation to the site.
- 5.3.8 The mapping reviewed on the Partnership for South Hampshire mapping tool is consistent the flood maps reviewed on Gov.uk (Flood Maps for Planning and Long-Term Flood Risk Maps).
- 5.3.9 Climate change mapping for 2025, 2055, 2085 and 2115 shows no impact upon the site.

5.4 Historic Flooding

- 5.4.1 No instances of historic flooding have been identified at the site, upon review of the information available at the time of undertaking this flood risk assessment.
- 5.4.2 Mapping contained within the Winchester City Council Strategic Flood Risk Assessment identifies historic flooding to the south-east of the site near to Outlands Lane (Ref: SOW612). The Strategic Flood Risk Assessment confirms an historic flood event dated December 2000 with 'Highway or Open Space' flooding recorded in relation to a foul/combined sewer.

5.5 Summary of Flood Risk

5.5.1 The potential sources of flooding are:

Source of Flooding	Level of Risk
Rivers and Coastal	<p>Very Low</p> <p>The site is located fully within Flood Zone 1 and is not identified as being at risk of flooding from such sources.</p> <p>Interactive mapping from the Partnership for South Hampshire website provides information relating to climate change considerations (2025, 2055, 2085 and 2115) which does not impact upon the site.</p>
Surface Water	<p>Very Low</p> <p>The Long-Term Flood Risk Map indicates that the site is at 'Very Low' risk of surface water flooding, except for areas associated with the ordinary watercourse on site ('Low' to 'High' risk). Areas at increased risk of surface water flooding shall be avoided. These extents fall, largely, within the 3.00m buffer in relation to the ordinary watercourse, which is to be kept clear of development to allow for future access and maintenance.</p>
Groundwater	<p>Medium</p> <p>Site-specific ground investigation, including groundwater investigation and/or monitoring has not been undertaken at the site.</p> <p>The Partnership for South Hampshire interactive mapping identifies a 'Moderate Bedrock Permeability', relating to a 'Medium' risk of groundwater flooding.</p>
Sewers	<p>Very Low</p> <p>No instances of historic flooding have been identified in relation to the site itself, the only instance of historic flooding that has been identified was in December 2000, to the south-west of the site. This flood event was recorded as affecting 'Highway or Open Space' and related to a foul/combined sewer.</p>
Artificial Sources	<p>None</p> <p>The site is not identified as being at risk of flooding from such sources.</p>

5.5.2 The site has been assessed as being at 'Very Low' risk of flooding from all the potential sources of



flooding as identified in the above table, with the exception of groundwater flooding (medium risk). The risk of groundwater flooding will need to be verified further to on site groundwater investigation and monitoring.

- 5.5.3 Drainage design for the proposed development should ensure that capacity up to the design event is provided whilst potential exceedance routes should also be considered, so as to not increase the risk of surface water flooding on or off the site.

6 PROPOSED DEVELOPMENT

6.1 Description of Development

6.1.1 The promotion of the site proposes up to 177 No. residential properties as demonstrated by the illustrative masterplan contained within **Appendix A**.

6.1.2 The type of development proposed falls within the “More Vulnerable” flood risk vulnerability classification (Annex 3: Flood risk vulnerability classification, NPPF) and is appropriate in Flood Zone 1 (Flood Risk and Coastal Change Table 2).

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone 1	✓	✓	✓	✓	✓
Flood Zone 2	✓	Exception Test Required	✓	✓	✓
Flood Zone 3a+	Exception Test Required †	✗	Exception Test Required	✓	✓
Flood Zone 3b*	Exceptions Test Required *	✗	✗	✗	✓*

✓ = Development is appropriate
✗ = Development should not be permitted

6.1.3 The proposed development will see the introduction of impermeable surfaces at the site, which can lead to an increase in the rate of run-off generated. SuDS measures will be used where possible to mitigate this.

6.1.4 The illustrative masterplan indicates an impermeable area to the order of c. 7,500m² to the west of the watercourse, with an impermeable area to the order of c. 37,250m² to the east of the watercourse. Combined, this totals c. 44,750m² (4.475Ha), amounting to 39% of the overall site area (114,270m² / 11.43Ha).

6.1.5 Greenfield run-off rates have been calculated for the eastern and western parcels of land at the site, based on the impermeable areas as detailed in 6.1.4.

6.1.6 For the eastern parcel of land, with a proposed impermeable area of 37,250m², QBAR amounts to 20.84 l/s.

6.1.7 For the western parcel of land, with a proposed impermeable area of 7,500m², QBAR amounts to 4.21 l/s.

6.1.8 The use of SuDS methods and techniques, where site conditions and constraints allow, shall be utilised to assist in the management of surface water run-off generated by the proposed development, whilst adhering to the SuDS hierarchy as stated within Building Regulations (Part H) and The SuDS Manual (C753).

7 SEQUENTIAL AND EXCEPTION TESTS

7.1 Sequential Test

- 7.1.1 The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.
- 7.1.2 Where it is not possible to locate development in low-risk areas, the Sequential Test should look to compare reasonably available sites within medium risk areas, and then only where there are no reasonably available sites in low and medium risk areas, within high-risk areas.
- 7.1.3 The site is located fully within Flood Zone 1 and has been assessed as being at 'Very Low' risk of flooding from all of the potential sources of flood risk considered, with the exception of groundwater flooding (medium risk), although site specific investigation and monitoring is to be undertaken.
- 7.1.4 In view of the above factors, the Sequential Test is passed.

7.2 Exception Test

- 7.2.1 The Exception Test requires two elements to be satisfied, as set out in paragraph 164 of the NPPF before development can be permitted in situations where suitable sites at lower risk of flooding are not available following application of the Sequential Test.
- 7.2.2 The Exception Test requires the applicant to demonstrate that;
- i. development that has to be in a flood risk area will provide wider sustainability benefits to the community that outweigh flood risk, and;
 - ii. the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.
- 7.2.3 Flood Risk and Coastal Change, Table 2 (see 6.1.2) confirms that "More Vulnerable" development is acceptable in Flood Zone 1, and therefore application of the Exception Test is not required, as the site is located fully within Flood Zone 1.

8 PROPOSED DRAINAGE STRATEGY

8.1 Surface Water

8.1.1 The SUDS Manual (CIRIA C753) and Building Regulations, Approved Document H (Drainage and Waste Disposal) set out a hierarchy of drainage methods to ensure that developments maximise the use of sustainable drainage techniques. The hierarchy favours infiltration methods of disposal over other methods such as watercourse and sewers, as detailed below;

- i. Utilise infiltration techniques
- ii. Attenuate rainwater in ponds or open water features for gradual release
- iii. Attenuate rainwater by storing in tanks or sealed water features for gradual release
- iv. Discharge rainwater direct to a watercourse
- v. Discharge rainwater to a surface water sewer/drain
- vi. Discharge rainwater to a combined sewer

SUDS Technique	Suitable	Comments
Living Roof	TBC	May be suitable, depending on final development proposals and architectural design
Basins and Ponds (such as Wetlands, Balancing Ponds, Detention Basins, Retention Ponds)	Yes	No initial constraints identified
Filter strips and swales	Yes	No initial constraints identified
Infiltration Devices - Soakaways - Infiltration trenches and basins	Yes	Subject to confirmation of infiltration rates and groundwater investigation/monitoring
Permeable surfaces and filter drains (such as gravelled areas and porous block paving)	Yes	No initial constraints identified
Tanked systems (such as oversized pipes or cellular tanks)	Yes	No initial constraints, however higher-ranking drainage opportunities should be prioritised and considered before such measures are proposed.

8.1.2 Surface water drainage proposals shall follow the drainage hierarchy as detailed above, in addition to

affording consideration towards the 'Four Pillars of SuDS'; water quantity, water quality, amenity and biodiversity.

- 8.1.3 Where possible, infiltration will be maximised. Infiltration testing will need to be undertaken on site, in addition to groundwater investigation and monitoring, to confirm whether infiltration is a viable means of draining the site.
- 8.1.4 If and where infiltration is not found to be viable, for whatever reason, run-off will be discharged to the ordinary watercourse network within the vicinity of the site. Opportunities exist to discharge collected run-off to the ordinary watercourse flowing south-westerly through the site, and/or to the ordinary watercourse to the south of the site.
- 8.1.5 An assessment has been undertaken in relation to the required volumes of storage necessary to support both the eastern and western parcels of land at the site, based on the illustrative impermeable areas as detailed in 6.1.4. Greenfield run-off rates have been established in relation to these areas as detailed in 6.1.5 to 6.1.7 and have been used to determine the required volumes of storage.

	Proposed Catchment	Catchment as Percentage of Overall Site Area (114,270m² / 11.43Ha)	Greenfield Run-off Rate (QBAR)	Required Storage Volume
Eastern Parcel	37,250m ² (3.725Ha)	32.60%	20.84 l/s	2,737 – 4,156m ³ ex. urban creep 3,081 – 4,795m ³ inc. urban creep
Western Parcel	7,500m ² (0.75Ha)	6.56%	4.21 l/s	549 – 830m ³ ex. urban creep 618 – 957m ³ inc. urban creep

- 8.1.6 A 100-year storm event, inclusive of an allowance of 45% for the potential impacts of climate change have been considered in the above storage estimates, without exceedance.
- 8.1.7 At this stage, a 10% allowance on the total catchment area has also been considered for the potential impacts of urban creep. This figure would ordinarily only apply to roof areas and not roads, footways etc. however this will be refined as development proposals are confirmed.
- 8.1.8 The strategy above will ensure that there is no increase in the rate of run-off leaving the site, therefore no increase in the risk of flooding from this source.

8.2 Treatment

- 8.2.1 In accordance with the CIRIA SuDS Manual C753 regarding methods for managing pollution risks, the risk posed by surface water run-off to the receiving environment depends on the pollution hazard at the site (the source), SuDS treatment techniques (the pathway), and the sensitivity of the environment (the receptor).
- 8.2.2 The simple index approach considers whether SuDS techniques are appropriate for the site. This states that for SuDS components to deliver adequate treatment, the total pollution mitigation index for each contaminant type should equal or exceed the pollution hazard index.
- 8.2.3 Sufficient treatment shall be afforded to run-off on-site and shall be specified as development proposals are further developed and finalised.

8.3 Foul Water Drainage

- 8.3.1 Opportunities exist to discharge foul water to the public foul water sewer network. Foul sewers are located on site, as detailed within '4. Existing Drainage'.
- 8.3.2 Part of any proposed development at the site, particularly the western parcel, may require pumping, subject to confirmation of existing levels of the existing sewers.
- 8.3.3 It is recommended that a capacity check is submitted to Southern Water as proposals are refined to ascertain capacity within the existing network.

8.4 Climate Change

- 8.4.1 Gov.uk provides guidance for local planning authorities preparing strategic flood risk assessments and developers and their agents preparing flood risk assessments for planning applications, and development consent orders for nationally significant infrastructure projects.
- 8.4.2 Climate change allowances are predictions of anticipated change for peak river flow, peak rainfall intensity, sea level rise and offshore wind speed and extreme wave height.
- 8.4.3 Allowance for climate change shall be provided in the undertaking of site-specific flood risk assessments where new development is proposed to minimise vulnerability and provide resilience to flooding and coastal change.
- 8.4.4 The 'Peak Rainfall Allowances Map' shows anticipated changes in peak rainfall intensity.
- 8.4.5 Based on the latest allowances, for the 3.3% annual exceedance rainfall event, an increase of 40% should be applied to peak rainfall in relation to the proposed development.
- 8.4.6 For the 1% annual exceedance rainfall event, an increase of 45% should be applied to peak rainfall in relation to the proposed development.

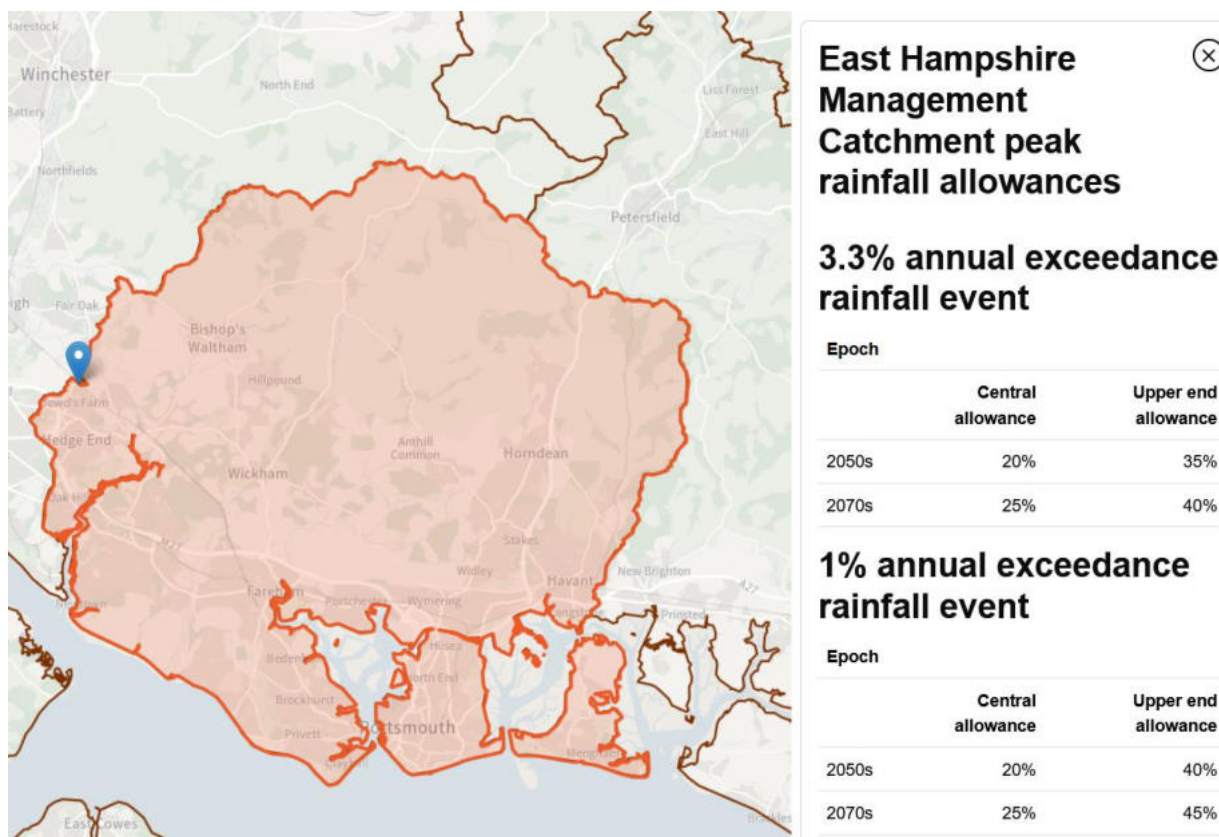


Figure 18. Climate Change Allowances – Peak Rainfall Allowances (Gov.uk)

8.5 Urban Creep

- 8.5.1 An allowance for the potential impact(s) of 'urban creep' has been considered in the surface water drainage storage volume estimates in view of the potential for an increase in the positively drained impermeable area across the site in its design life.
- 8.5.2 An allowance of 10% has been afforded in initial storage volume estimates, based on the entire catchment(s) identified. Ordinarily, this figure is to be provided on the positively drained area associated with the proposed development only, excluding the extents of footways and roads proposed.

9 RESIDUAL RISK AND MITIGATION

9.1 Residual Risk

9.1.1 The following residual risks have been identified in relation to the proposed development:

- i. Increased flow through watercourses as a result of climate change causing flooding to the site
- ii. Blockage of watercourses as a result of debris or otherwise, causing flooding to the site
- iii. Extreme rainfall events that exceed the design criteria used for the drainage system causing surface water flooding
- iv. Blockage/failure of the proposed drainage system causing flooding to the site
- v. Groundwater flooding to the site caused by groundwater levels exceeding the ground surface level
- vi. Surface water flooding of proposed buildings

9.2 Mitigation

9.2.1 Consideration has been taken to the residual risks stated in Section 9.1, and the following mitigation measures are proposed:

- i. An ordinary watercourse flows through the site in a south-westerly direction. The surface water drainage design will need to consider the impacts of climate change and specifically changes to peak rainfall intensity. Allowance has been made within the surface water drainage storage volume estimates to accommodate a 1 in 100-year storm event, inclusive of an allowance of 45% for the potential impacts of climate change. Climate change mapping has been reviewed on the Partnership for South Hampshire interactive site, which confirms that the site is not identified as being at risk of flooding when climate change is considered, up to and including the 2115 return period. Should increased flow through the watercourse occur, resulting in flooding, exceedance flows breaching the channel of the watercourse would follow the natural topography of the site. Finished floor levels will be raised above external ground level to reduce the risk of flooding from occurring.
- ii. Landowners have a riparian responsibility to maintain watercourses which run within their land ownership, or where a watercourse runs parallel to their boundaries. Maintenance includes ensuring that obstructions are not present and that any flows can be conveyed through the watercourse's channel. The watercourse is culverted both at the upstream (northern) and downstream (southern) extents of the site, therefore potentially presenting an increased maintenance issue, and risk of blockage. Ensuring that the outlets and inlets are maintained and clear of obstructions is of critical importance in reducing the risk of blockage. Maintenance plays a vital role in managing and reducing flood risk. A robust maintenance strategy will need to be developed in view of any development proposals taken forward in relation to the site.

- iii. Surface water drainage storage volume estimates have considered the current design standards, and the surface water drainage design shall be able to accommodate a 1 in 100-year storm event, inclusive of an allowance of 45% for the potential impacts of climate change. Should a more extreme storm event occur, the system will be exceeded. In exceedance events, run-off will follow the topography of the site.
- iv. As already established, maintenance plays a vital role in managing and reducing flood risk. Any proposed surface water drainage system shall be able to accommodate a 1 in 100-year storm event, inclusive of an allowance of 45% for the potential impacts of climate change. Should blockage or failure of the system occur, it is possible that flooding may occur. A detailed maintenance strategy shall be developed in view of final development proposals.
- v. Groundwater investigation and/or monitoring has not currently been undertaken on site. As such, groundwater levels have not been established. Should groundwater emergence occur at surface level, flooding would follow similar trends as with potential surface water flooding. Flows would follow the natural topography of the site.
- vi. The site has been assessed as being at 'Very Low' risk of surface water flooding, except for areas within the immediate vicinity of the ordinary watercourse on site. No dwellings are to be located within at least 3.00m of the watercourse (measured from the top of the bank) to allow for future access and maintenance, whilst the extents identified as being susceptible to an increased risk of surface water flooding will be avoided. Finished floor levels are to be raised above external ground levels to help mitigate any potential risk of surface water flood risk at the site.

10 FLOOD RISK MANAGEMENT

10.1 Safe Access and Egress

- 10.1.1 The illustrative masterplan identifies a new vehicular site access at the southern boundary of the site.
- 10.1.2 Safe access and egress routes will need to be provided for vehicles as well as pedestrians to ensure that the site is both accessible and serviceable, for example, in emergency situation.
- 10.1.3 The site is located fully within Flood Zone 1, whilst is largely identified as being at 'Very Low' risk of surface water flooding, the exception being the corridor within the vicinity of the existing ordinary watercourse located on site.

10.2 Flood Warning

- 10.2.1 The site is located fully within Flood Zone 1 as has been assessed as being at 'Very Low' risk of flooding from all of the sources of potential flood risk considered in the undertaking of this flood risk assessment, with the exception of groundwater (currently medium risk) which is to be verified further to on-site investigation and testing. As such, there is no requirement for a Flood Warning System, Flood Plan or Flood Evacuation Plan to be provided in relation to the site and/or the proposed development.

11 MAINTENANCE

- 11.1.1 Maintenance is required to ensure the long-term operational performance of any proposed surface water drainage system.
- 11.1.2 Drainage systems should be designed to minimise maintenance requirements; however, a number of key tasks will always need to be undertaken so that the system remains in optimal condition.
- 11.1.3 A detailed maintenance strategy shall be developed as site wide development proposals and the associated drainage design is finalised.

12 OFFSITE IMPACTS

- 12.1.1 Surface water will be managed on site via the highest-ranking opportunity in view of drainage hierarchy and site constraints, presenting no issues off site.
- 12.1.2 The surface water drainage design shall consider a 1 in 100-year storm event, inclusive of an allowance of 45% for the potential impact(s) of climate change, as well as allowance for the potential impact(s) of urban creep.
- 12.1.3 Foul water will discharge to Southern Water's public foul water sewer network. A capacity check shall be submitted as development proposals are finalised.

13 SUMMARY

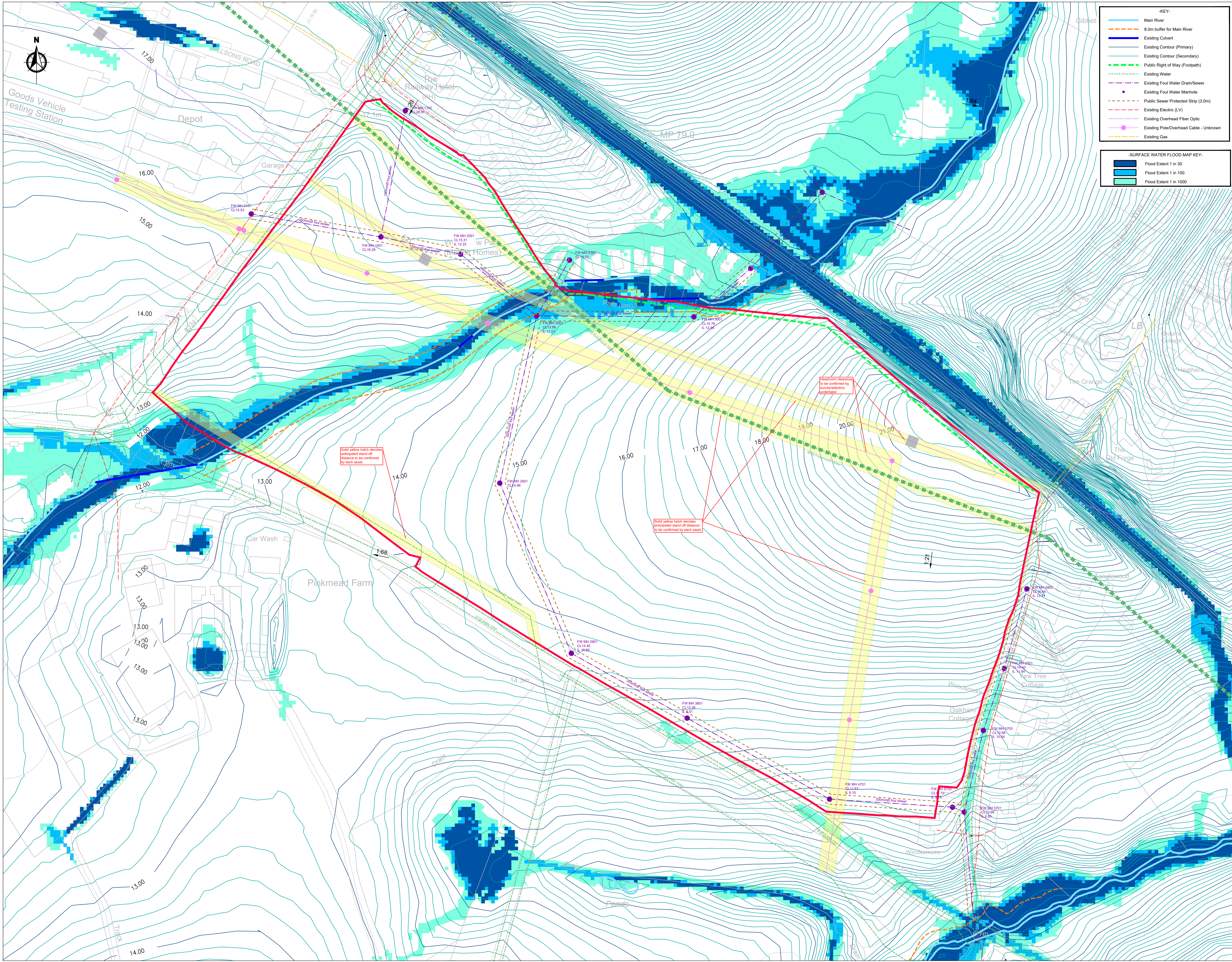
- 13.1.1 The site is an undeveloped 'greenfield' parcel of land, measuring 114,270m² (11.43Ha) located to the east of Station Hill (A334), north of Botley Road (A3051) and west of Outlands Lane.
- 13.1.2 An existing railway line is located beyond the northern boundary of the site, with Botley station located c. 80m north-west of the site.
- 13.1.3 An unnamed ordinary watercourse is located on site, flowing in a south-westerly direction. This watercourse is culverted beneath Botley Road (A3051) as well as the railway line beyond the northern boundary of the site.
- 13.1.4 Access is currently available off Botley Road (A3051) via an existing vehicular crossover.
- 13.1.5 A topographical survey has been undertaken at the site by Encompass Surveys Ltd, dated June 2024. The survey demonstrates levels broadly in the range of 11.750m AOD and 21.500m AOD to the east of the watercourse, with level west of the watercourse broadly in the range of 12.00m AOD and 18.00m AOD.
- 13.1.6 Site-specific intrusive investigation has not currently been undertaken, inclusive of infiltration testing, groundwater investigation and/or monitoring.
- 13.1.7 The local sewerage authority is Southern Water. Public sewer records do not identify any public surface water sewers on the site, or within the wider vicinity of the site.
- 13.1.8 A 150mm dia. and a 300mm dia. public foul water sewer intersect in the north of the site, and a 300mm dia. public foul water sewer continues southerly before turning east, continuing parallel to the southern boundary of the site, towards Outlands Lane.
- 13.1.9 The site is not currently served by any positive drainage infrastructure and drains naturally. Site levels demonstrate partial falls towards the ordinary watercourse which flows in a south-westerly direction, which will intercept run-off from parts of the site.
- 13.1.10 The Environment Agency's Flood Maps for Planning identifies the site falling fully within Flood Zone 1.
- 13.1.11 The site is identified as being at 'Very Low' risk of surface water flooding, with extents within the vicinity of the ordinary watercourse identified as being at increased risk of surface water flooding, ranging from 'Low' to 'High'.
- 13.1.12 No historic flood events have been identified on site in the undertaking of this flood risk assessment.
- 13.1.13 Surface water drainage proposals shall follow the drainage hierarchy for surface water drainage, in addition to affording consideration towards the 'Four Pillars of SuDS'; water quantity, water quality, amenity and biodiversity.
- 13.1.14 Where possible, infiltration will be maximised. Infiltration testing will need to be undertaken on site, in addition to groundwater investigation and monitoring, to confirm whether infiltration is a viable means of draining the site.
- 13.1.15 If and where infiltration is not found to be viable, for whatever reason, run-off will be discharged to the ordinary watercourse network within the vicinity of the site. Opportunities exist to discharge collected run-off to the ordinary watercourse flowing south-westerly through the site, and/or to the ordinary watercourse to the south of the site.



- 13.1.16 Opportunities exist to discharge foul water to the public foul water sewer network. Part of any proposed development at the site, particularly the western parcel, may require pumping, subject to confirmation of existing levels of the existing sewers.

DRAWINGS

- 001** Constraints Plan
- 002** LiDAR Banding
- 003** Infiltration Testing Location Recommendation
- 004** Topographic Survey with Contours
- 005** Surface Water Flood Map Overlay



-KEY-

- Main River
- 8.0m buffer for Main River
- Existing Culvert
- Existing Contour (Primary)
- Existing Contour (Secondary)
- Public Right of Way (Footpath)
- Existing Water
- Existing Foul Water Drain/Sewer
- Public Sewer Manhole
- Public Sewer Protected Strip (3.0m)
- Existing Electric (LV)
- Existing Overhead Fiber Optic
- Existing Pole/Overhead Cable - Unknown
- Existing Gas

-SURFACE WATER FLOOD MAP KEY-

- Flood Extent 1 in 30
- Flood Extent 1 in 100
- Flood Extent 1 in 1000

- NOTES**
1. This drawing is to be read in conjunction with all other BP Civils drawings, and with all relevant Architects and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
 2. BP Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
 3. Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
 4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
 5. All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
 6. The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BP Civils logos and company information must be removed from copies if information is re-used.
 7. Where used, this map is based on or reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of His Majesty's Stationary Office (© Crown Copyright. Licence number: 10002432. BP Civils accept no liability for any inaccuracies with the data.

Rev.	Date	Amendments
A	16/07/24	Updated site boundary to topographic survey
-	-	Original Issue



BP CIVILS
 Infrastructure Design and Transport Planning Consultants
 2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
 Tel: 0333 358 3260
 www.bpcivils.co.uk enquiries@bpcivils.co.uk

Drawing Status: **NOT FOR INFORMATION**
FOR CONSTRUCTION

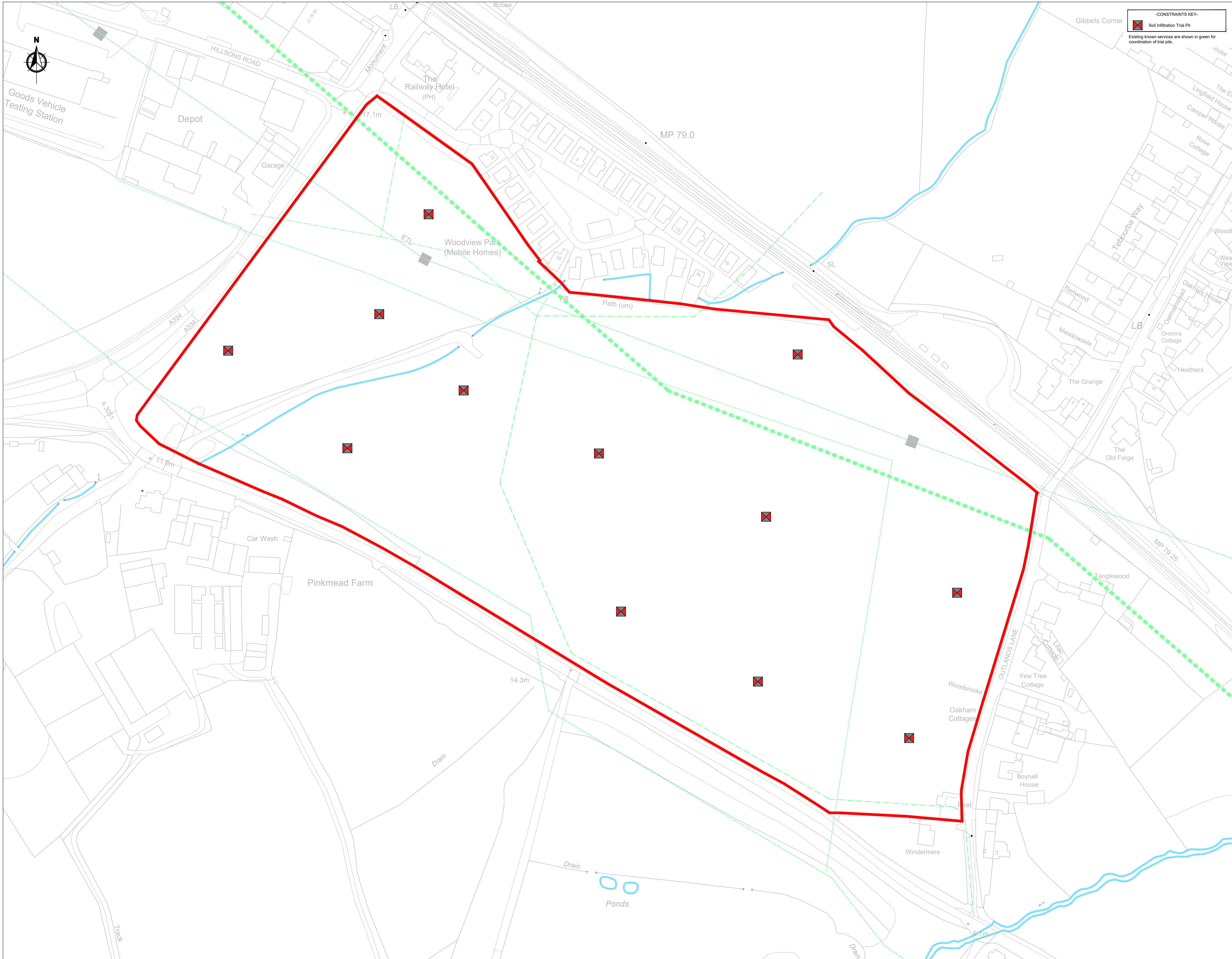
Client: **Foreman Homes Ltd**

Project: **Land at Satton Hill, Botley**

Drawing Title: **Constraints Plan**

Scale at A1	Date	Drawn By	Checked By	Project No.
1:1000	May 24	JHL	MJA	D2258

Drawing No.	Rev.
BPC-WD-ZZ-D-C-001	A



-CONSTRAINTS KEY-

Existing known services are shown in green for coordination of trial pits.

- NOTES**
- This drawing is to be read in conjunction with all other BP Civils drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
 - BP Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
 - Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
 - Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
 - All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
 - The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BP Civils logos and company information must be removed from copies if information is re-used.
 - Where used, this map is based on or reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of His Majesty's Stationary Office (© Crown Copyright. Licence number: 10002432. BP Civils accept no liability for any inaccuracies with the data.

Rev.	Date	Original Issue	Amendments
-	-	Original Issue	

BP CIVILS
Infrastructure Design and Transport Planning Consultants
2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
Tel: 0333 358 3260
www.bpcivils.co.uk enquiries@bpcivils.co.uk

Drawing Status
FOR INFORMATION
NOT FOR CONSTRUCTION

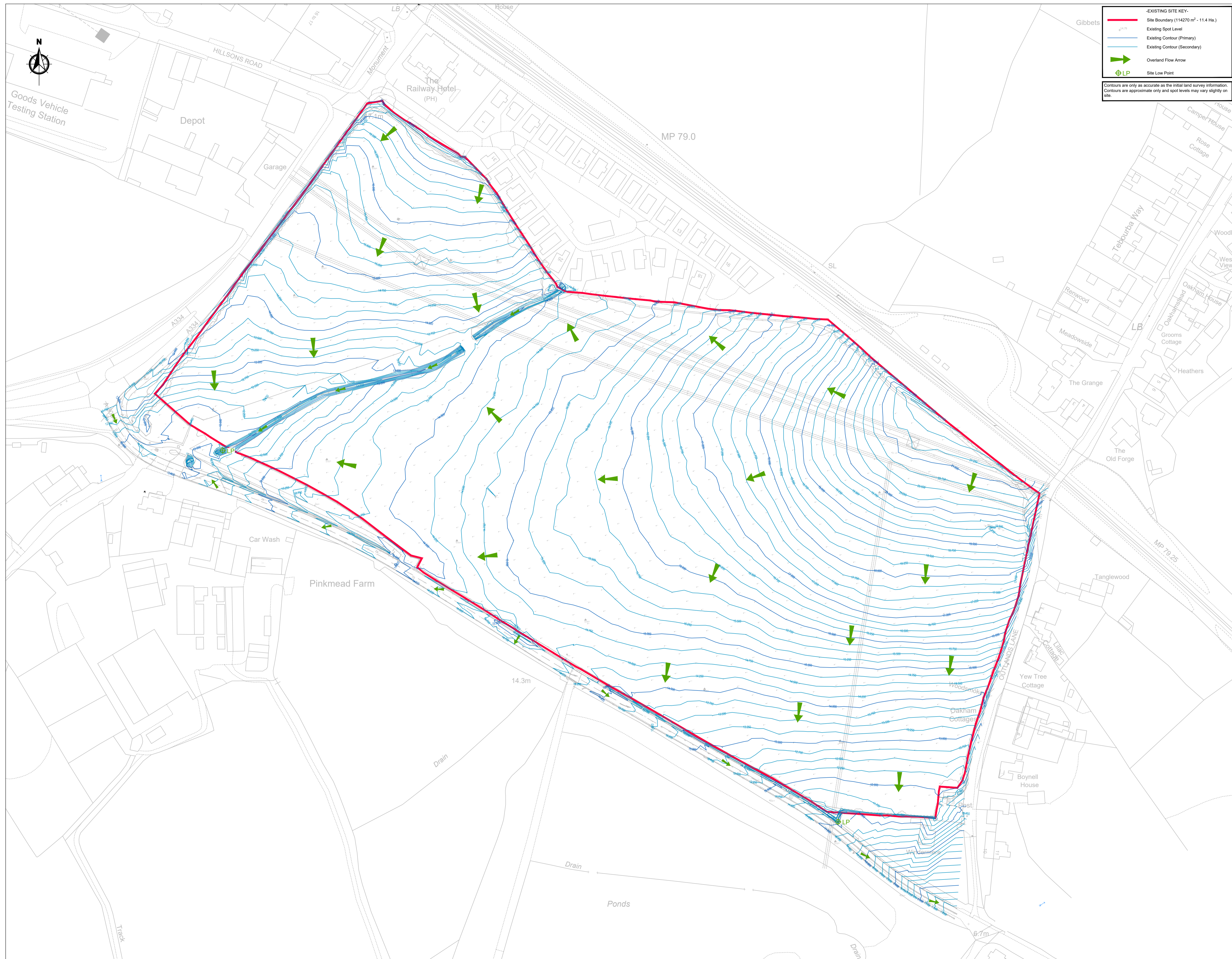
Client
Foreman Homes Ltd

Project
Land at Saton Hill, Botley

Drawing Title
Infiltration Testing Location Recommendation

Scale at A1	Date	Drawn By	Checked By	Project No.
1:1000	May 24	JHL	MJA	D2258

Drawing No.	Rev.
BPC-WD-ZZ-D-C-003	-



-EXISTING SITE KEY-

- Site Boundary (114270 m² - 11.4 Ha.)
- Existing Spot Level
- Existing Contour (Primary)
- Existing Contour (Secondary)
- Overland Flow Arrow
- ⊕ LP Site Low Point

Contours are only as accurate as the initial land survey information.
Contours are approximate only and spot levels may vary slightly on site.

- NOTES**
- This drawing is to be read in conjunction with all other BP Civils drawings, and with all relevant Architects and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
 - BP Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
 - Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
 - Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
 - All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
 - The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BP Civils logos and company information must be removed from copies if information is re-used.
 - Where used, this map is based on or reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of His Majesty's Stationary Office (© Crown Copyright. Licence number: 10002432. BP Civils accept no liability for any inaccuracies with the data.

Rev.	Date	Original Issue	Amendments
-	-	-	-

BP CIVILS
Infrastructure Design and Transport Planning Consultants
2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
Tel: 0333 358 3260
www.bpcivils.co.uk enquiries@bpcivils.co.uk

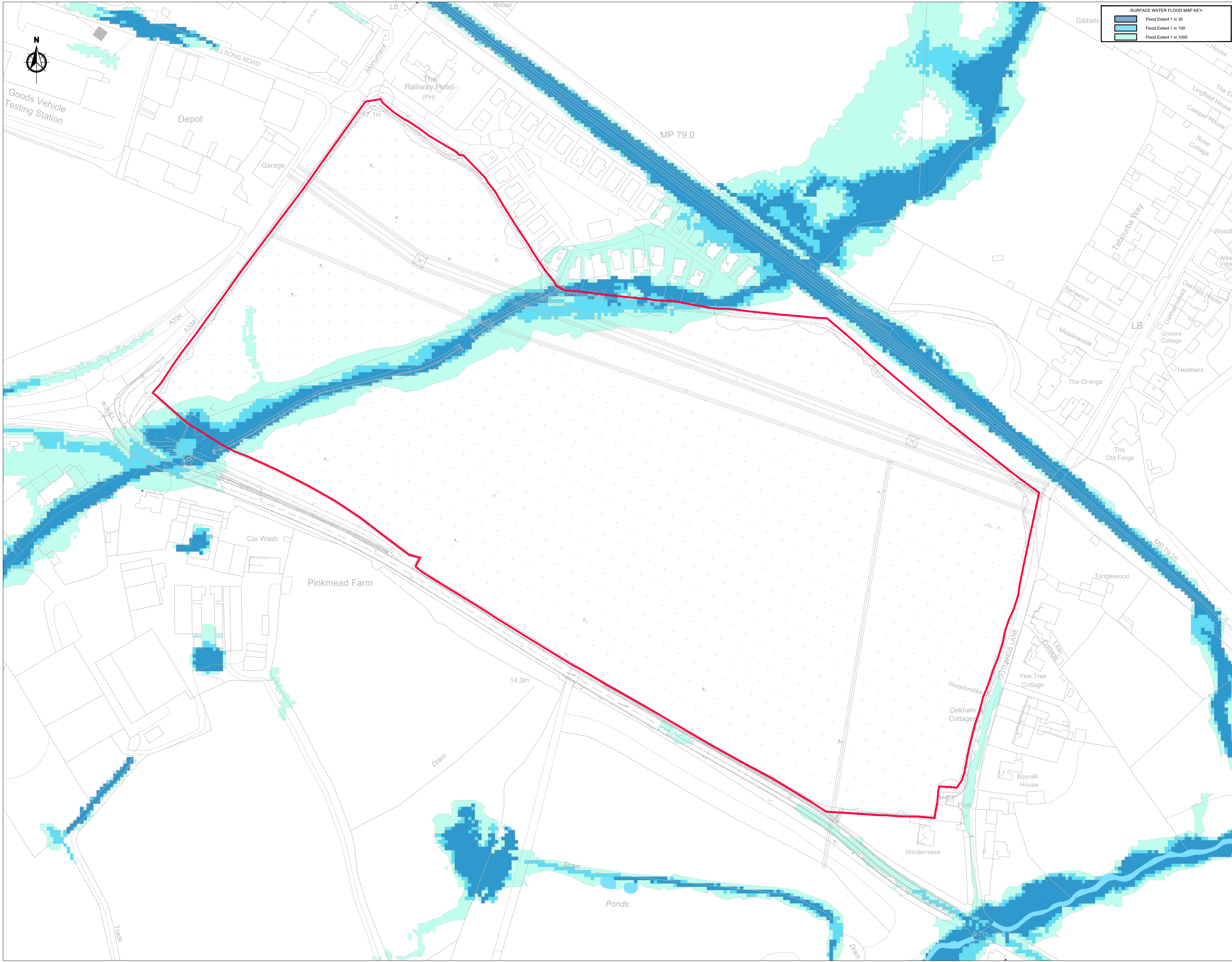
Drawing Status: **FOR INFORMATION**
NOT FOR CONSTRUCTION

Client: **Foreman Homes Ltd**

Project: **Land at Saton Hill, Botley**

Drawing Title: **Topographic Survey with Contours**

Scale at A1	Date	Drawn By	Checked By	Project No.
1:1000	Jul 24	JHL	MJA	D2258
Drawing No.	Rev.			
BPC-WD-ZZ-D-C-004	-			



-SURFACE WATER FLOOD MAP KEY-

	Flood Extent 1 in 30
	Flood Extent 1 in 100
	Flood Extent 1 in 1000

- NOTES**
- This drawing is to be read in conjunction with all other BP Civils drawings, and with all relevant Architects and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.
 - BP Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.
 - Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.
 - Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.
 - All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
 - The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BP Civils logos and company information must be removed from copies if information is re-used.
 - Where used, this map is based on or reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of His Majesty's Stationary Office (© Crown Copyright. Licence number: 10002432. BP Civils accept no liability for any inaccuracies with the data.

Rev.	Date	Original Issue	Amendments
-	-	-	-



BP CIVILS
 Infrastructure Design and Transport Planning Consultants
 2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF
 Tel: 0333 358 3260
 www.bpcivils.co.uk enquiries@bpcivils.co.uk

Drawing Status: **FOR INFORMATION**
NOT FOR CONSTRUCTION

Client: **Foreman Homes Ltd**

Project: **Land at Saton Hill, Botley**

Drawing Title: **Surface Water Flood Map Overlay**

Scale at A1	Date	Drawn By	Checked By	Project No.
1:1000	Jul 24	JHL	MJA	D2258

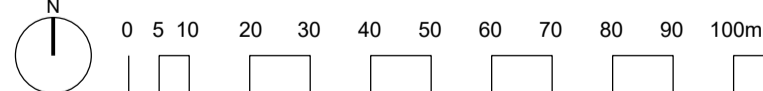
Drawing No.	Rev.
BPC-WD-ZZ-D-C-005	-



APPENDICES



Appendix A Illustrative Masterplan



Ordnance Survey, (c) Crown Copyright 2024. All rights reserved. Licence number 100022432

Please Note:
 This drawing can only be scaled for planning purposes. Dimensions to be checked on site and any discrepancies are to be highlighted to the Architect prior to construction.
 Topographical / Ordnance Survey information shown has been prepared by a third party. HGP accept no responsibility for accuracy or completeness of the survey.
 This drawing is to be read in conjunction with all other project drawings, construction notes and / or project specifications including those by other project consultants and specialists. All discrepancies should be reported immediately.
 Design subject to detail development / approval. Measurements and accommodation schedules subject to amendments following coordinated input by others. Costings cannot be finalised until approval confirmation by relevant authorities and Client.



Location Plan

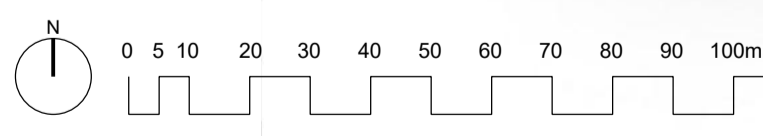
PROJECT Station Hill, Botley	JOB NO. 22.137
SCALE @A1 1:1250	DATE May '24
DRAWN BY/CHECKED BY VP /HJE	REVISION -
DWG# 01	STATUS Preliminary

Rev.	Description	DATE	DB	CB

© HGP Architects Ltd.
 Furzeshall Farm, Wickham Road
 Fareham, Hampshire, PO16 7JH

01329 283 225
 email@hgp-architects.co.uk
 hgp-architects.co.uk





Please Note:
 This drawing can only be scaled for planning purposes. Dimensions to be checked on site and any discrepancies are to be highlighted to the Architect prior to construction.
 Topographical / Ordnance Survey information shown has been prepared by a third party. HGP accept no responsibility for accuracy or completeness of the survey.
 This drawing is to be read in conjunction with all other project drawings, construction notes and / or project specifications including those by other project consultants and specialists. All discrepancies should be reported immediately.
 Design subject to detail development / approval. Measurements and accommodation schedules subject to amendments following coordinated input by others. Costings cannot be finalised until approval confirmation by relevant authorities and Client.

- Key:**
- Existing Public Right of Way
 - - - Existing Cycle Route
 - ↔ Proposed Vehicular Access
 - ↔ Proposed Pedestrian/Cyclist Access

FOREMAN HOMES

A Main Access Relocated to Match Highways' Design 12.06.24 VP DY
 Rev. Description DATE DB CB

Illustrative Masterplan

PROJECT Station Hill, Botley	JOB NO. 22.137
SCALE @A1 1:1250	DATE May '24
DRAWN BY/CHECKED BY VP /HJE	REVISION A
DWG# SK02	STATUS Preliminary

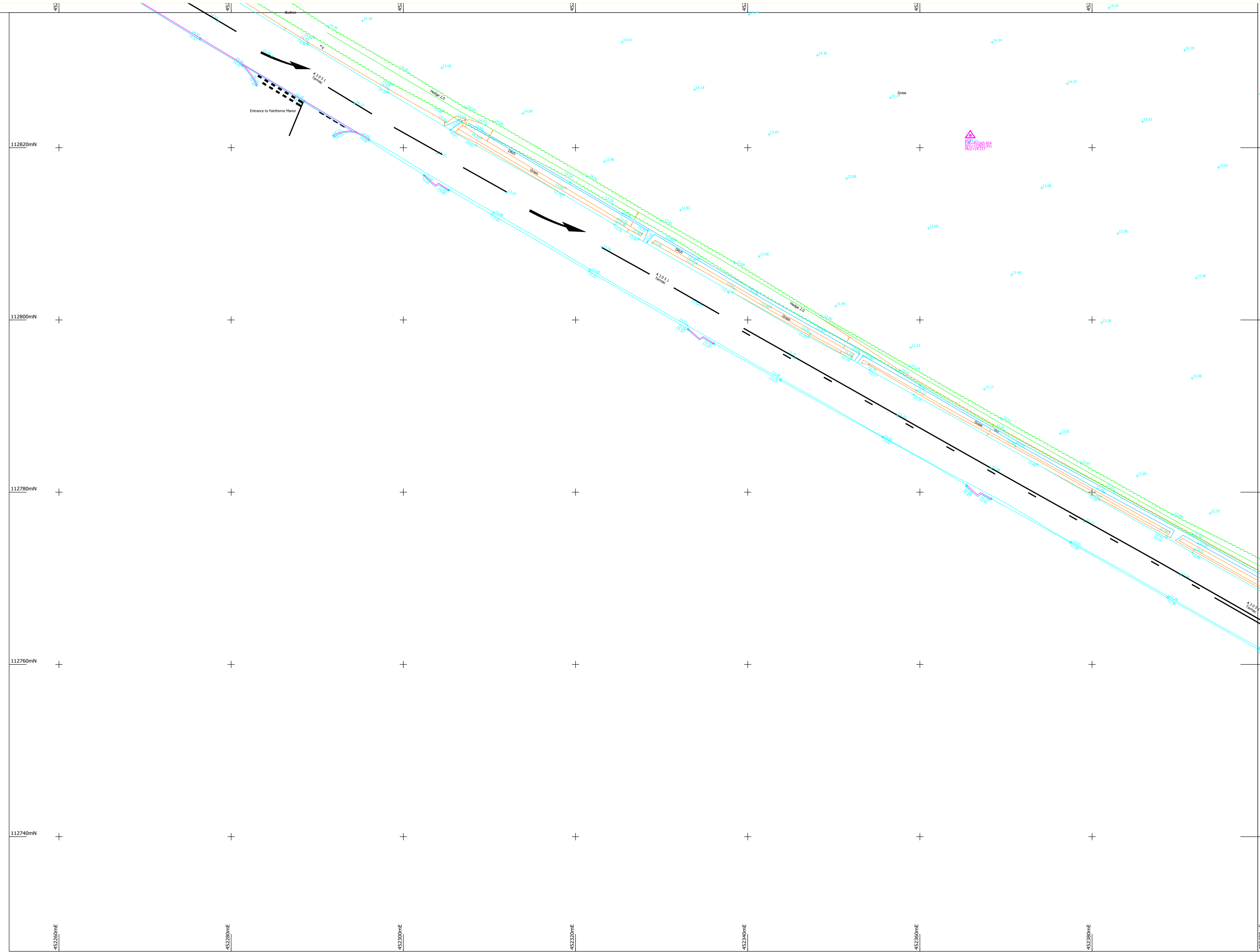
hgp

© HGP Architects Ltd.
 Furzeshall Farm, Wickham Road
 Fareham, Hampshire, PO16 7JH

01329 283 225
 email@hgp-architects.co.uk
 hgp-architects.co.uk



Appendix B Topographic Survey



NOTES:

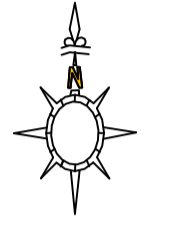
Drainage:
Inspection Covers are lifted where possible and all drainage invert information has been obtained through visual inspection only, with no entry into manholes. Therefore the complete accuracy cannot be guaranteed. Where drainage is of critical importance we suggest the services of a specialist drainage expert be used.

Trees:
Every effort has been made to identify and detail all trees on site but where trees are of critical importance we suggest the use of a specialist such as an arborist. Tree spread and heights are indicative.

GPS:
GPS detail is relative to the time and date of survey. GPS levels and grid are obtained using industry standard guidelines and can vary according to the quality of the GPS network at the time of survey. Unless stated otherwise, surveys are Scale factor 1 and Horizontal and Vertical Datums are established from a central site fix and baseline orientation station utilising GNSS correction data.

Survey notes:
Survey specification is linked to the original purpose of the survey commissioned at source and is to be used for this purpose only.
Survey is accurate within limitations of site conditions at the time of survey. In areas difficult to survey due to restricted access, lines of sight or dense vegetation, critical dimensions and positions should be verified following suitable clearance.
Survey detail obtained and shown is relative to the plotting scale.

Copyright:
This survey information is Copyright Encompass Surveys Ltd (2009). All rights reserved.



LEGEND

TREE SPECIES INFORMATION

ALDER	ALD	LOCUST	LOC
ASH	ASH	LONDON PLANE	LPI
ASPEN	ASP	MAGNOLIA	MAG
BEECH	BCH	MAPLE	MFL
CEDAR	CEO	OAK	OAK
CHERRY	CHY	PINE	PNE
CYPRESS	CYP	POPLAR	POP
ELM	ELM	PRUNUS	PNS
FIR	FIR	RHODODENDRONS	RDN
FRUIT	FRT	ROWAN	RWN
HAWTHORN	HAW	SILVER BIRCH	SIB
HAZEL	HAZ	SORBUS	SOR
HOLLY	HOL	SWEET CHESTNUT	SCN
HORSE CHESTNUT	HCH	SYCAMORE	SYC
HORNBEAM	HRM	WALNUT	WNT
LABURNUM	LBN	WILLOW	WLW
LARCH	LAR	YEW	YEW
LIME	LME	SPECIES UNKNOWN	SRU
		COPPED	COP

TREE ANNOTATIONS: Tree Species / Tree Ball Size / No of Balls
Tree Height / Tree Canopy Spread

FENCE INFORMATION

BARBED WIRE FENCE	BWF
CORRUGATED IRON FENCE	CFI
CLOSE BOARD FENCE	CBF
CHAIN LINK FENCE	CLF
CHESTNUT PALING	CPF
CRASH BARRIER	CRB
HANDRAIL	HDL
IRON RAILINGS	IRF
LARCH LIFT FENCE	LIF
MISCELLANEOUS FENCE	MSF
PALISADE FENCE	PSF
PICKET FENCE	PKF
POST AND CHAIN FENCE	PCF
POST AND RAIL FENCE	PRF
POST AND WIRE FENCE	PWF
STOCK WIRE FENCE	SWF
TRELLIS FENCING	TLF

LEVEL INFORMATION

BASEMENT LEVEL	BTL
BED LEVEL	BL
COVER LEVEL	CL
DAMP PROOF COURSE	DPC
FLOOR LEVEL	FL
INVERT LEVEL	IL
OUTFALL LEVEL	OL
THRESHOLD LEVEL	THL
FOUL WATER	FW
SURFACE WATER	SW
UNABLE TO LIFT	UTL
WATER LEVEL	WL

SURFACE INFORMATION

CONCRETE	Conc
BRICK PAVERS	BP
FLOWERBED	FB
PAVING SLABS	PS
RETAINING WALL	RWall
TACTILE PAVING	Tac

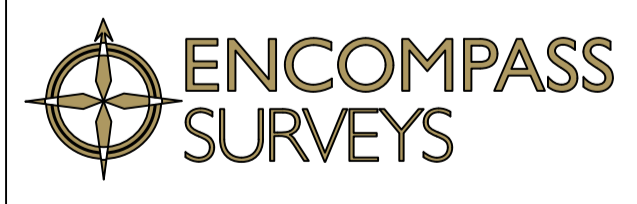
FEATURE INFORMATION

BOLLARD	BO	NOTICE BOARD	NB
BRITISH TELECOM BOX	BTB	POST	P
BRITISH TELECOM IC	BTIC	RAIN WATER PIPE	RWP
BUS STOP	BS	RAISED FLOWERBED	RFB
CABLE TELEVISION BOX	CATB	ROAD SIGN	RS
CABLE TELEVISION IC	CATV	RODDING EYE	RE
EARTHING ROD	ER	SERVICE MARKER POST	SMP
ELECTRICITY CABLE PIT	ECP	SOIL VENT PIPE	SVP
ELECTRICITY CONTROL BOX	ECB	STOP COCK	SC
ELECTRICITY POLE	EP	STOP VALVE	SV
FIRE HYDRANT	FH	TELEGRAPH POLE	TP
INSPECTION COVER	IC	TELEPHONE CALL BOX	TCB
LAMP POST	LP	TRAFFIC SIGNAL	TS
LETTER BOX	LB	TRAFFIC SIGNALS IC	TSIC
LITTER BIN	LBIN	WATER METER	WM
WATER OUTLET	WO	WATER TAP	WT
NAME PLATE	NP		

Level Datum:
Levels are related to OSGB15 derived from the GPS network

Grid:
Grid is related to OSGB15 derived from the GPS network

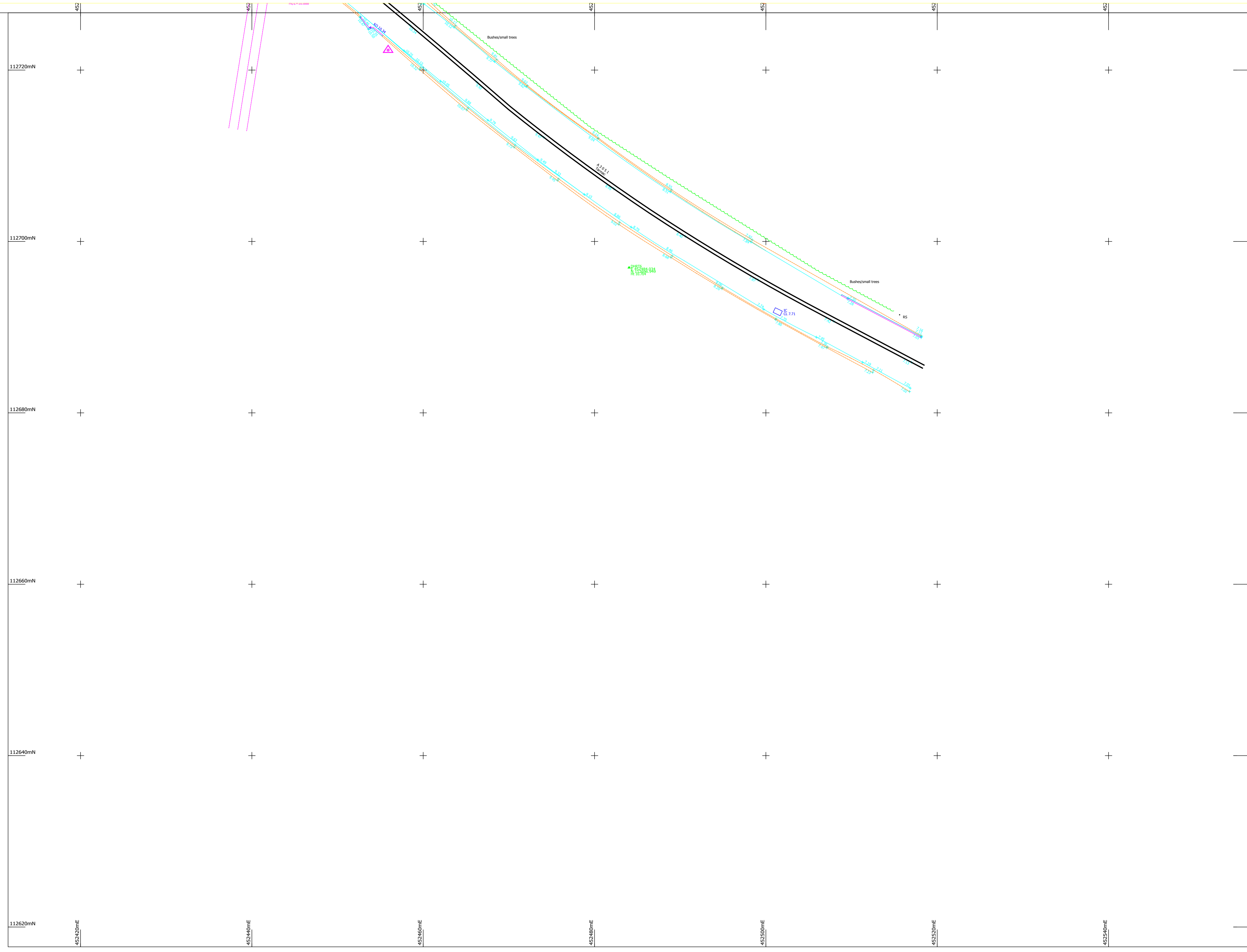
Northpoint:
The Northpoint position shown on this drawing has been located as accurately as possible, but is only indicative of true North



Encompass Surveys Ltd
Unit 2
Talisman Business Centre
Duncan Road
Park Gate, Southampton
Hampshire SO31 7GA

Tel: 023 80692002 Email: info@encompass-surveys.co.uk
Fax: 023 80697125 Website: encompass-surveys.co.uk

Client:	Foreman homes		
Survey Location:	Land at Station Hill Bosley Hampshire		
Survey type:	Topographical	Scale:	1:200@A1
Drawing ref:	ENC/30624/3380-7	Date:	June 2024
Drawn/QA:	K.G/D.H	Plot:	7 of 8



NOTES:

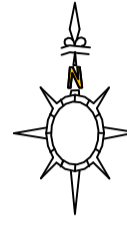
Drainage:
Inspection Covers are lifted where possible and all drainage invert information has been obtained through visual inspection only, with no entry into manholes. Therefore the complete accuracy cannot be guaranteed. Where drainage is of critical importance we suggest the services of a specialist drainage expert be used.

Trees:
Every effort has been made to identify and detail all trees on site but where trees are of critical importance we suggest the use of a specialist such as an arborist. Tree spread and heights are indicative.

GPS:
GPS detail is relative to the time and date of survey. GPS levels and grid are obtained using industry standard guidelines and can vary according to the quality of the GPS network at the time of survey. Unless stated otherwise, surveys are Scale factor 1 and Horizontal and Vertical Datums are established from a central site fix and baseline orientation station utilising GNSS correction data.

Survey notes:
Survey specification is linked to the original purpose of the survey commissioned at source and is to be used for this purpose only. Survey is accurate within limitations of site conditions at the time of survey. In areas difficult to survey due to restricted access, lines of sight or dense vegetation, critical dimensions and positions should be verified following suitable clearance. Survey detail obtained and shown is relative to the plotting scale.

Copyright:
This survey information is Copyright Encompass Surveys Ltd (2009). All rights reserved.



LEGEND

TREE SPECIES INFORMATION

ALDER	ALD	LOCUST	LOC
ASH	ASH	LONDON PLANE	LPI
ASPEN	ASP	MAGNOLIA	MAG
BEECH	BCH	MAPLE	MPL
CEDAR	CEO	OSAK	OSK
CHERRY	CHY	PINE	PNE
CYPRESS	CYP	POPLAR	POP
ELM	ELM	PRUNUS	PNS
FIR	FIR	RHODODENDRONS	RDN
FRUIT	FRT	ROWAN	RWN
HAWTHORN	HAW	SILVER BIRCH	SIB
HAZEL	HAZ	SORBUS	SOR
HOLLY	HOL	SWEET CHESTNUT	SCN
HORSE CHESTNUT	HCH	SYCAMORE	SYC
HORNBEAM	HRM	WALNUT	WNT
LABURNUM	LBN	WILLOW	WLW
LARCH	LAR	YEW	YEW
LIME	LIM	SPECIES UNKNOWN	SRU
		COPICED	COP

TREE ANNOTATIONS: Tree Species / Tree Ball Size / No of Balls
Tree Height / Tree Canopy Spread

FENCE INFORMATION

BARBED WIRE FENCE	BWF
CORRUGATED IRON FENCE	CFI
CLOSE BOARD FENCE	CBF
CHAIN LINK FENCE	CLF
CHESTNUT PALING	CPF
CRASH BARRIER	CBR
HANDRAIL	HDL
IRON RAILINGS	IRF
LARCH LIFT FENCE	LIF
MISCELLANEOUS FENCE	MSF
PALISADE FENCE	PSF
POCKET FENCE	PKF
POST AND CHAIN FENCE	PCF
POST AND RAIL FENCE	PRF
POST AND WIRE FENCE	PWF
STOCK WIRE FENCE	SWF
TRELLIS FENCING	TLF

LEVEL INFORMATION

BTL	BASEMENT LEVEL
BL	BED LEVEL
CL	COVER LEVEL
DFC	DAMP PROOF COURSE
FL	FLOOR LEVEL
IL	INVERT LEVEL
OL	OUTFALL LEVEL
THL	THRESHOLD LEVEL
FW	FOLI WATER
SW	SURFACE WATER
UTL	UNABLE TO LIFT
WL	WATER LEVEL

SURFACE INFORMATION

Conc	CONCRETE
BP	BRICK PAVERS
FB	FLOWERBED
PS	PAVING SLABS
RWall	RETAINING WALL
Tac	TACTILE PAVING

FEATURE INFORMATION

BO	NOTICE BOARD	NB
BTB	POST	P
BTIC	RAIN WATER PIPE	RWP
BS	RANZED FLOWERBED	RFB
CATB	ROAD SIGN	RS
CATV	RODDING EYE	RE
ER	SERVICE MARKER POST	SMP
ELOP	SOIL VENT PIPE	SVP
FCB	STOP COCK	SC
EP	STOP VALVE	SV
FH	TELEGRAPH POLE	TP
IC	TELEPHONE CALL BOX	TCB
LP	TRAFFIC SIGNAL	TS
LB	TRAFFIC SIGNALS IC	TSIC
BN	WATER METER	WM
WD	WATER TAP	WT
NP		

Level Datum:
Levels are related to OSGB15 derived from the GPS network

Grid:
Grid is related to OSGB15 derived from the GPS network

Northpoint:
The Northpoint position shown on this drawing has been located as accurately as possible, but is only indicative of true North



Encompass Surveys Ltd
Unit 2
Talisman Business Centre
Duncan Road
Park Gate, Southampton
Hampshire SO31 7QA

Tel: 023 80692002 Email: info@encompass-surveys.co.uk
Fax: 023 80697125 Website: encompass-surveys.co.uk

Client:	Foreman homes		
Survey Location:	Land at Station Hill Bosley Hampshire		
Survey type:	Topographical	Scale:	1:200@A1
Drawing ref:	ENC/30624/3380-8	Date:	June 2024
Drawn/QA:	K.G/D.H	Plot:	8 of 8



Appendix C BGS Borehole Records

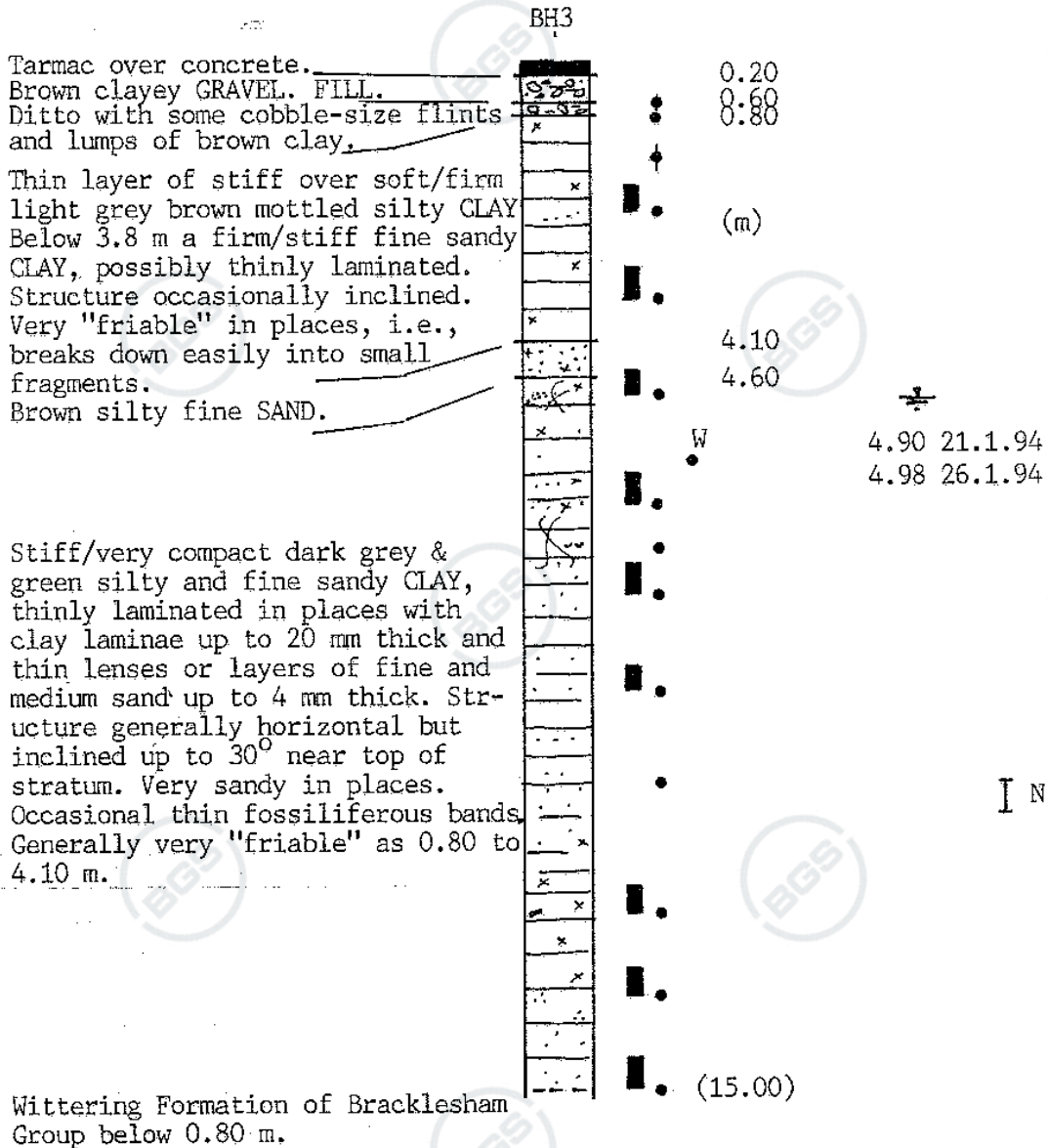
CHURCH LANE, BOTLEY

FINAL BOREHOLE LOGS

FIGURE 1c

150 mm casing to 12 m

Date: Jan.4-5, 1994



Groundwater seepage at 3.5 m. Water level rose to 3.45 m in 15 min. Increased seepage 4.10 to 4.60 m. Slow seepage 4.60 to 9.00 m. Water inflow at 9.00 m. Level rose to 7.20 m in 20 min. Seepage sealed off 11.00 to 14.50 m. Slow seepage again at 14.50 m. Standpipe installed to 6.0 m with gravel backfill to 0.40 m below ground level.

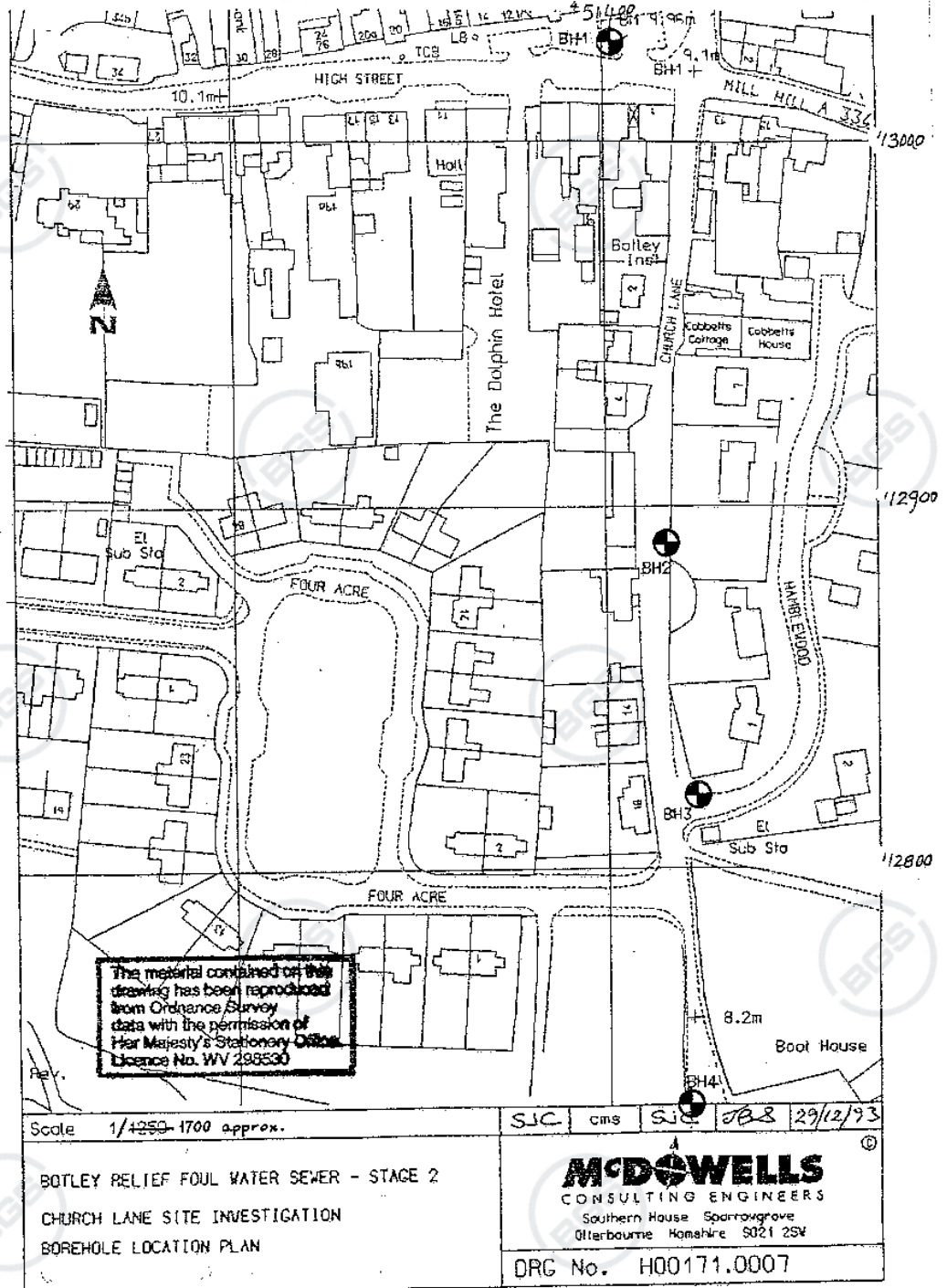
Hand digging and probing to 1.80 m. 2½ hr. Reinstated trial pit with concrete. 1 hr.

■ ... 100-mm dia. driven core samples I ... Standard Penetration Test

CHURCH LANE, BOTLEY

SITE PLAN

FIGURE 6





Appendix D Southern Water Public Sewer Records



Appendix E Winchester City Council Strategic Flood Risk Assessment Extracts

Winchester City Council

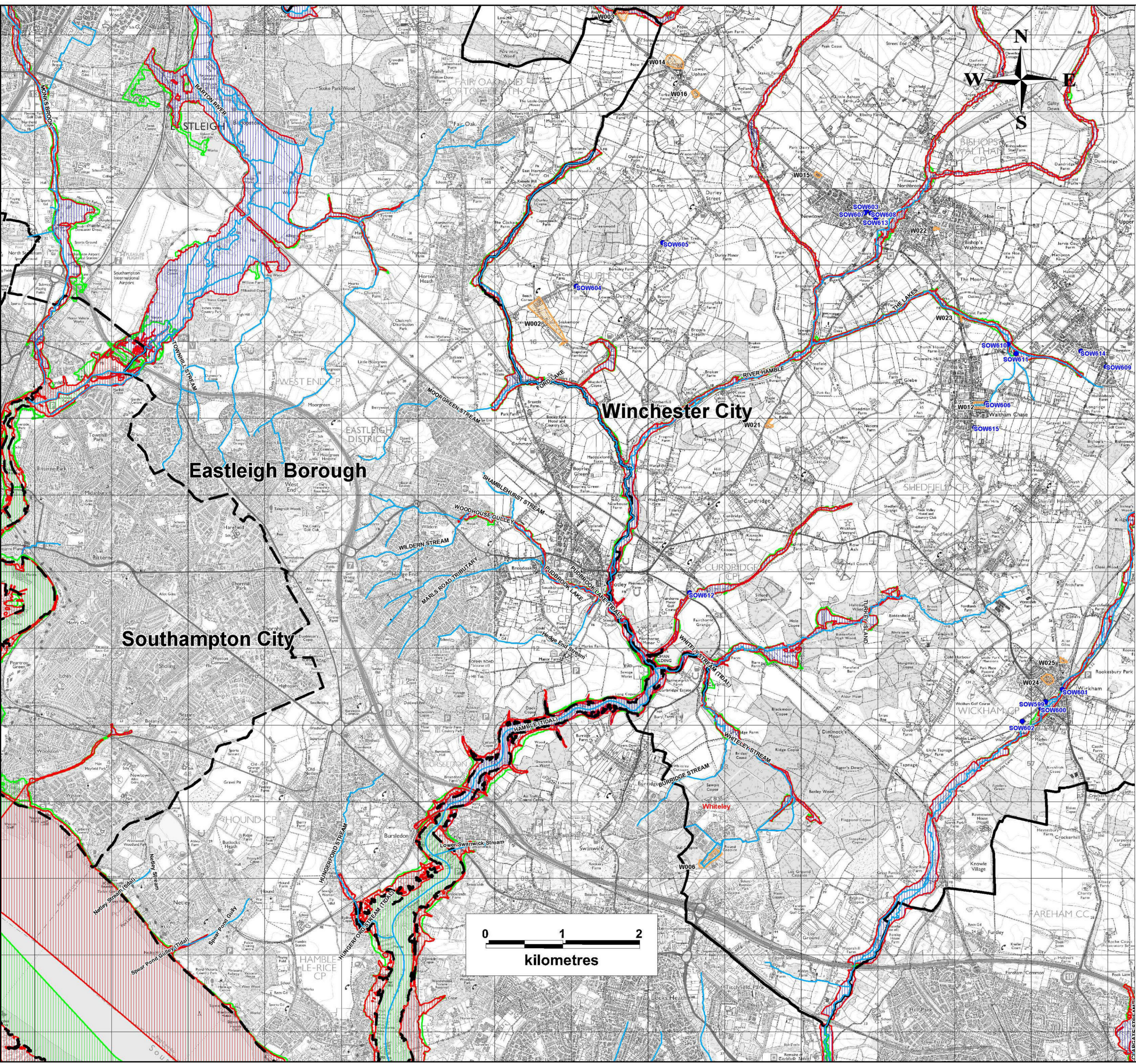
Strategic Flood Risk Assessment for Local
Development Framework

Final

September 2007

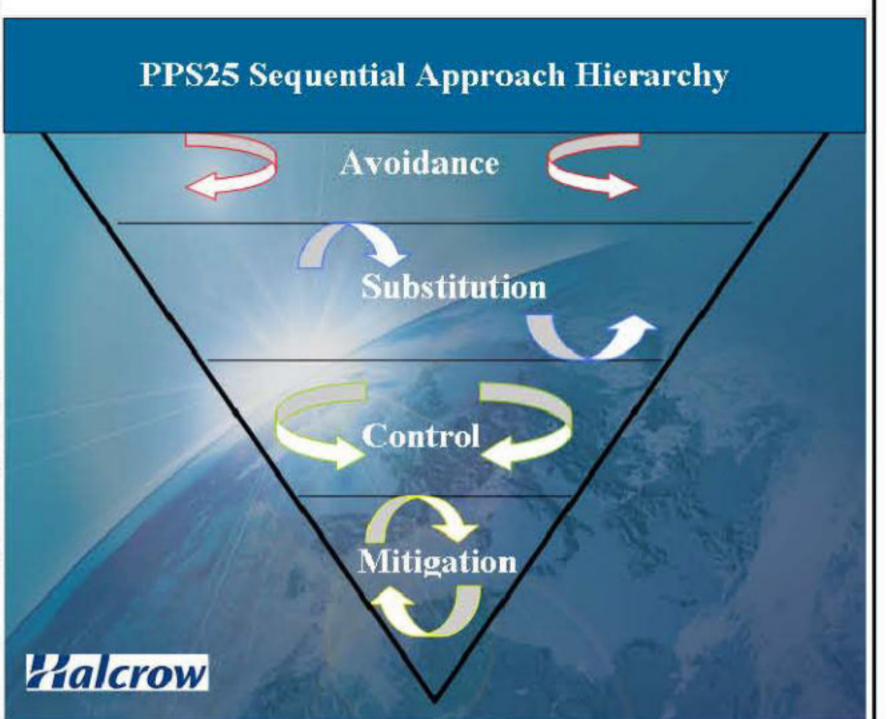
Halcrow Group Limited





This map is to be read in conjunction with the Volume II Tables and the SFRA report (Volume I) for the application of the Sequential Test. The test is the most important flood risk management tool for spatial planning, as it implements the high level measures of avoidance / prevention and substitution.

A planning authority applies the Sequential Test to demonstrate that there are no reasonably available sites in areas with less risk of flooding that would be appropriate to the type of development or land use proposed. Preference should be given to locating new development in Flood Zone 1. If there is no reasonably available site in Flood Zone 1, the flood vulnerability of the proposed development can be taken into account in locating development in Flood Zone 2 and then Flood Zone 3. Within each Flood Zone new development should be directed to sites with lower flood risk from all sources as indicated by the SFRA.



PPS25 : Flood Zones Definition

Zone 1 Low Probability

Definition
This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).

Appropriate uses
All uses of land are appropriate in this zone.

FRA requirements
For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a FRA. This need only be brief unless the factors above or other local considerations require particular attention. See Annex E for minimum requirements.

Policy aims
In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage techniques.

Zone 2 Medium Probability

Definition
This zone comprises land assessed as having 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.

Appropriate uses
The water-compatible, less vulnerable and more vulnerable uses of land and essential infrastructure in Table D.2 are appropriate in this zone. The more vulnerable and essential infrastructure uses in Table D.2 are only appropriate in this zone if the Exception Test (see para. D.9.) is passed.

FRA requirements
All development proposals in this zone should be accompanied by a FRA. See Annex E for minimum requirements.

Policy aims
In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage techniques.

Zone 3a High Probability

Definition
This zone comprises land assessed as having 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.

Appropriate uses
The water-compatible and less vulnerable uses of land in table D.2 are appropriate in this zone. The highly vulnerable uses in Table D.2 should not be permitted in this zone.

The more vulnerable and essential infrastructure uses in Table D.2 should only be permitted in this zone if the Exception Test (see para. D.9.) is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

FRA requirements
All development proposals in this zone should be accompanied by a FRA. See Annex E for minimum requirements.

Policy aims
In this zone, developers and local authorities should seek opportunities to:
i. reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques;
ii. relocate existing development to land in zones with a lower probability of flooding; and
iii. create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

Zone 3b The Functional Floodplain

Definition
This zone comprises land where water has to flow or be stored in times of flood. SFRA should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) 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).

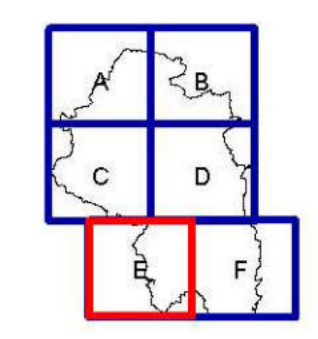
Appropriate uses
Only the water-compatible uses and the essential infrastructure listed in Table D.2 that has to be there should be permitted in this zone. It should be designed and constructed to:
- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows; and
- not increase flood risk elsewhere.

Essential infrastructure in this zone should pass the Exception Test.

FRA requirements
All development proposals in this zone should be accompanied by a FRA. See Annex E for minimum requirements.

Policy aims
In this zone, developers and local authorities should seek opportunities to:
i. reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques; and
ii. relocate existing development to land with a lower probability of flooding.

Location Plan :



PPS25 : Flood Risk Vulnerability Classification

Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water-compatible Development
<ul style="list-style-type: none"> Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, and strategic utility infrastructure, including electricity generating power stations and grid and primary substations. 	<ul style="list-style-type: none"> Police stations, Ambulance stations and Fire stations and Command Centres and telecommunications installations required to be operational during flooding. Emergency dispersal points Basement dwellings. Caravans, mobile homes and park homes intended for permanent residential use. Installations requiring hazardous substances consent. 	<ul style="list-style-type: none"> Hospitals. Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. Buildings used for dwelling houses; student halls of residence, drinking establishments, nightclubs, and hotels. Non-residential uses for health services, nurseries and educational establishments. Landfill and sites used for waste management facilities for hazardous waste. Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan. 	<ul style="list-style-type: none"> Buildings used for shops, financial, professional and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in 'more vulnerable', and assembly and leisure. Land and buildings used for agriculture and forestry. Waste treatment (except landfill and hazardous waste facilities). Minerals working and processing (except for sand and gravel working). Water treatment plants. Sewage treatment plants (if adequate pollution control measures are in place). 	<ul style="list-style-type: none"> Flood control infrastructure. Water transmission infrastructure and pumping stations. Sewage transmission infrastructure and pumping stations. Sand and gravel workings. Docks, marinas and wharves. Navigation facilities. MOD defence installations. Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. Water-based recreation (excluding sleeping accommodation). Lifeguard and coastguard stations. Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

PPS25 : Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability classification	Essential Infra structure	Water compatible	Flood Zone		
			Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception Test required	✓	✓
Zone 3a	Exception Test required	✓	✓	Exception Test required	✓
Zone 3b 'functional floodplain'	Exception Test required	✓	✓	✓	✓

✓ : Development is appropriate
 ✗ : Development should not be permitted

Winchester City Council and **Halcrow** logos and contact information.

Winchester City Council
 City Offices
 Colbrook Street
 Winchester
 Hampshire
 SO23 9LJ

Halcrow group Ltd
 Griffin House, 135 High Street
 Crawley
 West Sussex
 RH10 1DQ

Legend

- County Boundary
- District Boundary
- Watercourse Centre Line and Watercourse Name
- Localised Flooding Area
- Flood zones:
 - Zone 2 (Medium Probability)
 - Zone 3a (High Probability)
 - Zone 3b (Functional Floodplain)
- Southern Water Historical Records
- Approximate Location of Flooded Properties

Scale 1 in 25,000

This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. OS licence No. 10018301 Winchester City Council 2007

Project :
 Winchester City Council SFRA for Local Development Framework

Flood Map : Zones 2, 3a, 3b and Localised Flooding Areas Tile E

Table 2: Historical Flooding - Southern Water

Source: Southern Water

Reference	Tile	Date of most recent incident	Post town	Locality	Street	Sewer Problem Description	Sewer Type Description	Internal Flooding	Curtilage Flooding	Highway or Open Space
SOW590	D	20020808	Alresford		Mill Hill	Hydraulic	Foul/Combined	Yes	Yes	
SOW591	D	20000506	Alresford		The Dean	Hydraulic	Foul/Combined		Yes	
SOW592	C	20040209	Eastleigh	Highbridge	Highbridge Road	Hydraulic	Foul/Combined		Yes	
SOW593	C	20001201	Eastleigh	Brambridge	Kiln Lane	Hydraulic	Foul/Combined			Yes
SOW594	C	20061128	Eastleigh	Fishers Pond	Main Road	Hydraulic	Foul/Combined		Yes	Yes
SOW595	C	20010127	Eastleigh	Brambridge	The Crescent	Hydraulic	Foul/Combined		Yes	Yes
SOW596	C	20040203	Eastleigh	Fishers Pond	Winchester Road	Hydraulic	Foul/Combined		Yes	
SOW597	F	20001106	Fareham	Southwick	Back Lane	Hydraulic	Foul/Combined		Yes	
SOW598	E	20010320	Fareham	Wickham	Bridge Street	Hydraulic	Foul/Combined		Yes	
SOW599	E	20001102	Fareham	Wickham	Fareham Road	Hydraulic	Foul/Combined		Yes	Yes
SOW600	E	20030103	Fareham	Wickham	Meonside Court	Hydraulic	Foul/Combined			Yes
SOW601	E	20061207	Fareham	Wickham	Riverside Mews, Bridge Street	Hydraulic	Foul/Combined		Yes	
SOW602	E	20001218	Fareham	Wickham	Tanfield Lane	Hydraulic	Foul/Combined		Yes	
SOW603	E	19980105	Southampton	Bishops Waltham	Blanchard Road	Hydraulic	Foul/Combined		Yes	Yes
SOW604	E	20001106	Southampton	Durley	Durley Brook Road	Hydraulic	Foul/Combined			Yes
SOW605	E	20050630	Southampton	Durley	Durley Street	Hydraulic	Foul/Combined		Yes	
SOW606	E	20040114	Southampton	Waltham Chase	Forest Close	Hydraulic	Foul/Combined		Yes	
SOW607	E	20061117	Southampton	Bishops Waltham	Green Close	Hydraulic	Foul/Combined		Yes	
SOW608	E	20030107	Southampton	Bishops Waltham	Greens Close	Hydraulic	Foul/Combined		Yes	
SOW609	E	20001212	Southampton	Swanmore	Hill Pound	Hydraulic	Foul/Combined		Yes	
SOW610	E	20030103	Southampton	Waltham Chase	Lower Chase Road	Hydraulic	Foul/Combined		Yes	
SOW611	E	20011007	Southampton	Waltham Chase	Ludwells Lane	Hydraulic	Foul/Combined			Yes
SOW612	E	20001208	Southampton	Curdridge	Outlands Lane	Hydraulic	Foul/Combined			Yes
SOW613	E	20050624	Southampton	Bishops Waltham	Pondside Lane	Hydraulic	Foul/Combined		Yes	
SOW614	E	20060921	Southampton	Swanmore	Spring Lane	Hydraulic	Foul/Combined		Yes	
SOW615	E	20061117	Southampton	Waltham Chase	Winchester Road	Hydraulic	Foul/Combined	Yes	Yes	
SOW616	F	20010214	Waterlooville		Anmore Road	Hydraulic	Foul/Combined		Yes	
SOW617	F	20010105	Waterlooville		Glasspool	Hydraulic	Surface Water			
SOW618	F	20040112	Waterlooville	Denmead	Hambledon Road	Hydraulic	Foul/Combined			Yes
SOW619	F	20010101	Waterlooville		Harvest Road	Hydraulic	Foul/Combined		Yes	Yes
SOW620	F	20061211	Waterlooville		Inhams Lane	Hydraulic	Foul/Combined		Yes	
SOW621	F	20010101	Waterlooville		Mill Close	Hydraulic	Foul/Combined		Yes	Yes
SOW622	F	20001231	Waterlooville	Denmead	Mill Road	Hydraulic	Foul/Combined	Yes	Yes	
SOW623	F	20061002	Waterlooville	Denmead	School Lane	Hydraulic	Foul/Combined		Yes	Yes
SOW624	F	20061006	Waterlooville		Upper Crabbick Lane	Hydraulic	Foul/Combined		Yes	
SOW625	C	19970808	Winchester		Andover Road	Hydraulic	Surface Water		Yes	
SOW626	C	20020502	Winchester		Beaufort Road	Hydraulic	Foul/Combined		Yes	Yes
SOW627	C	19991224	Winchester	Otterbourne	Brooklyn Close	Hydraulic	Foul/Combined		Yes	Yes
SOW628	C	20021114	Winchester	Colden Common	Church Lane	Hydraulic	Foul/Combined		Yes	
SOW629	C	20001213	Winchester		College Street	Hydraulic	Foul/Combined		Yes	
SOW630	C	20061117	Winchester		College Walk	Hydraulic	Foul/Combined			Yes
SOW631	A	20060914	Winchester	South Wonston	Downlands Way	Hydraulic	Foul/Combined		Yes	
SOW632	C	20001212	Winchester	Twyford	Finches Lane	Hydraulic	Foul/Combined		Yes	Yes
SOW633	C	20010803	Winchester		Garnier Road	Hydraulic	Foul/Combined			Yes

Table 3: Localised Flooding Areas

Source: Winchester City Council

Reference	Tile	Source Of Flooding	Occurrence of Flooding in Years	Source of Outline	Date Received
W001	C	Groundwater and surface water	5 years	Workshop with council	18/01/2007
W002	E	Groundwater and bad drainage design	Yearly	Workshop with council	18/01/2007
W003	C		2	Workshop with council	18/01/2007
W004	F	Blockage on watercourse		Workshop with council	18/01/2007
W005	C	Blockage of highway drainage		Workshop with council	18/01/2007
W006	E	Highway drainage flash floods	Only once before	Workshop with council	18/01/2007
W007	D	Surface water drainage	2	Workshop with council	18/01/2007
W008	C	Surface water drainage (backwater)	5	Workshop with council	18/01/2007
W009	D	Fluvial	5	Workshop with council	18/01/2007
W010	D	Highway drainage	5	Workshop with council	18/01/2007
W011	D	Land drainage and groundwater	5	Workshop with council	18/01/2007
W012	E	Under capacity of drainage system	5	Workshop with council	18/01/2007
W013	F	Private drain lack of capacity	5	Workshop with council	18/01/2007
W014	E	Limited capacity of piped drainage system	5	Workshop with council	18/01/2007
W015	E	Insufficient capacity of piped drainage	5	Workshop with council	18/01/2007
W016	E	Obstructed culvert under road	5	Workshop with council	18/01/2007
W017	E	Highway drainage	Rare	Workshop with council	18/01/2007
W018	C	Highway drainage	1	Workshop with council	18/01/2007
W019	C	Highway drainage and high fluvial levels	2	Workshop with council	18/01/2007
W020	C	Surface water sewer block	Rare	Workshop with council	18/01/2007
W021	E	Highways drainage	2	Workshop with council	18/01/2007
W022	E	Highways drainage	2	Workshop with council	18/01/2007
W023	E	Fluvial / drainage surcharging	2	Workshop with council	18/01/2007
W024	E	Drainage blockage	5	Workshop with council	18/01/2007
W025	E	Blockage of ditch	Rare	Workshop with council	18/01/2007
W026	C	Groundwater	100	Workshop with council	18/01/2007

Note: This table is to be read in conjunction with Tiles A to F

Reference	Tile	Date of most recent incident	Post town	Locality	Street	Sewer Problem Description	Sewer Type Description	Internal Flooding	Curtilage Flooding	Highway or Open Space
SOW634	C	20010802	Winchester		Great Minster Street	Hydraulic	Foul/Combined	Yes		
SOW635	C	20061126	Winchester	Colden Common	Hawthorn Close	Hydraulic	Foul/Combined		Yes	Yes
SOW636	C	20020502	Winchester		High Street	Hydraulic	Foul/Combined			Yes
SOW637	C	20021227	Winchester	Otterbourne	Kiln Lane	Hydraulic	Foul/Combined		Yes	Yes
SOW638	A	20001219	Winchester	Kings Worthy	Kings Close	Hydraulic	Foul/Combined		Yes	Yes
SOW639	C	20001106	Winchester		Kingsgate Road	Hydraulic	Foul/Combined	Yes		
SOW640	C	19990808	Winchester		Lynford Avenue	Hydraulic	Foul/Combined	Yes	Yes	
SOW641	C	20030113	Winchester	Otterbourne	Main Road	Hydraulic	Foul/Combined		Yes	
SOW642	C	20000704	Winchester		Milland Road	Hydraulic	Foul/Combined			Yes
SOW643	C	20061126	Winchester	Otterbourne	Norlands Drive	Hydraulic	Foul/Combined		Yes	
SOW644	C	20061126	Winchester	Otterbourne	Poles Lane	Hydraulic	Foul/Combined		Yes	
SOW645	C	19990808	Winchester		Ranelagh Road	Hydraulic	Foul/Combined		Yes	
SOW646	C	20001030	Winchester		Romsey Road	Hydraulic	Foul/Combined			
SOW647	C	20011008	Winchester	Twyford	Segars Lane	Hydraulic	Foul/Combined			Yes
SOW648	C	20001222	Winchester	Hursley	South End Close	Hydraulic	Foul/Combined		Yes	Yes
SOW649	C	19990602	Winchester		Sparkford Road	Hydraulic	Foul/Combined		Yes	
SOW650	C	20040419	Winchester	Colden Common	Spring Lane	Hydraulic	Foul/Combined		Yes	Yes
SOW651	A	20001216	Winchester		Springvale Road	Hydraulic	Foul/Combined		Yes	
SOW652	C	19990922	Winchester		St. Cross Road	Hydraulic	Foul/Combined		Yes	
SOW653	C	20020502	Winchester		St. Thomas Street	Hydraulic	Foul/Combined	Yes	Yes	
SOW654	C	20030103	Winchester		Wales Street	Hydraulic	Foul/Combined	Yes		
SOW655	C	20061129	Winchester	Otterbourne	Waterworks Road	Hydraulic	Foul/Combined		Yes	

Note: This table is to be read in conjunction with Tiles A to F



Appendix F Partnership for South Hampshire Strategic Flood Risk Assessment Extracts

Partnership for South Hampshire Level 1 Strategic Flood Risk Assessment

PART 1 Main Report

Report (Version 6)

Project number: 60653132

February 2024

Partnership for South Hampshire Level 1 Strategic Flood Risk Assessment

PART 3 – Winchester City Council

Final Report

Project number: 60653132

June 2023

- 3.3.12 Flood Zones provide an indication of the risk of flooding from rivers and the sea ignoring the presence of flood defences. (Refer to Table 3-1 in the Main Report for more information on Flood Zones). Appendix A Figure 1 shows Flood Zones 2 and 3 for the study area.
- 3.3.13 As part of this SFRA, coastal modelling has been updated, to determine the impact of predicted tidal flooding. Details of the modelling undertaken are presented in SFRA Part 1 Appendix B. Maps showing the outputs for some of the key model scenarios are presented in Appendix B of this Report. (The full set of outputs have been provided to the LPAs as GIS files).
- 3.3.14 The maps show the extent of tidal flooding around Curbridge.
- 3.3.15 Appendix B Figures 3 and 10 show that for the 0.5% AEP event for the year 2022, the route along the A3051 at Curbridge is at Low hazard rating. In the future (2122) this increases to Significant and Extreme hazard rating (Appendix B Figures 4 – 7 and 11 – 14).
- 3.3.16 The route along the A334, between Botley and Curdrige, is also at risk of flooding in the future (2122), with hazard ratings of Significant for the 0.5% AEP for 2122 upper end climate change allowance (Appendix B Figure 13).

Groundwater Flooding

- 3.3.17 The BGS dataset 'Susceptibility to Groundwater Flooding' is mapped in Appendix A Figure 5. This map does not show the risk of groundwater flooding, rather it identifies areas where geological conditions could enable groundwater flooding to occur. A suite of rules founded upon geological, hydrogeological, and topographic data were used to assign a class value indicating the susceptibility to groundwater flooding to each vector polygon. The three classes are as follows:
- A: Limited potential for groundwater flooding to occur
 - B: Potential for groundwater flooding of property situated below ground level
 - C: Potential for groundwater flooding to occur at surface
- 3.3.18 The remaining areas are not considered to be prone to groundwater flooding. The 'Susceptibility to Groundwater Flooding' should be used, in conjunction with other relevant information, to establish the relative risk of groundwater flooding, and is most suitable for informing land-use planning decisions at the strategic scale. The dataset shouldn't be employed in isolation to inform land-use planning decisions at any scale and shouldn't be utilised for this purpose at the site scale.
- 3.3.19 The map shows a general pattern within the Winchester administrative area of potential for groundwater flooding to occur at the surface around watercourses; potential for groundwater flooding of property situated below ground level slightly further away from the watercourses, and limited potential for groundwater flooding to occur even further away from the watercourses. This corresponds with the Itchen CMP which notes that there is significant risk of groundwater flooding across the Central Winchester priority group.
- 3.3.20 Towards the west and south of the administrative area, the pattern still broadly follows with the vulnerability reducing further from watercourses but is less defined with some areas of higher vulnerability not close to watercourses and vice versa. There are also several areas, most notably towards the west and south, where there is not considered to be any potential for groundwater flooding to occur.
- 3.3.21 'Areas Susceptible to Groundwater Flooding' is a national dataset produced by the Environment Agency which shows the proportion of 1km squares where geological and hydrogeological conditions show that groundwater might emerge. It does not show the likelihood of groundwater flooding occurring but provides a useful tool to identify where further studies may be useful. This dataset is mapped in Appendix A Figure 4.

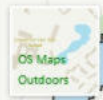
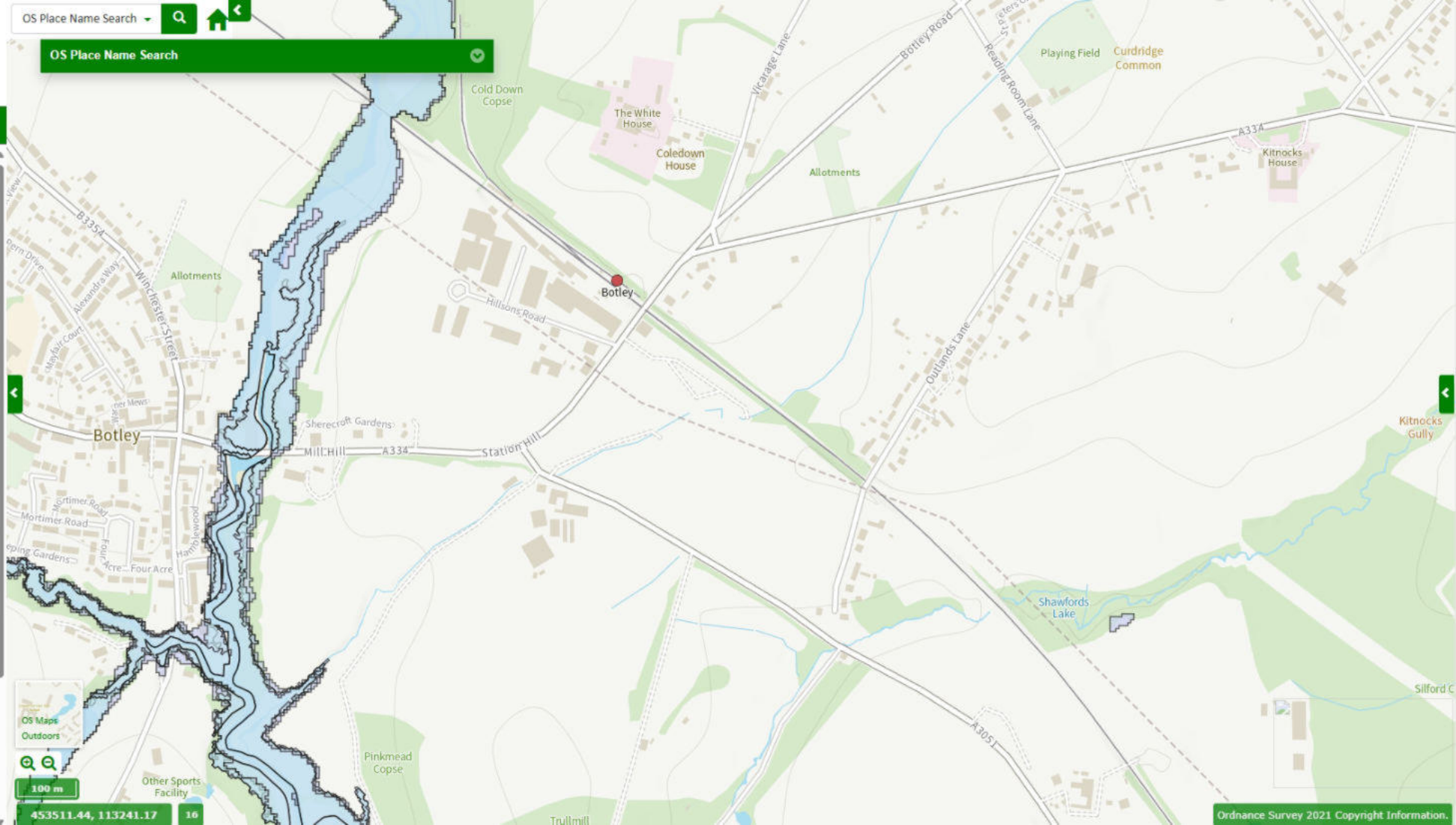
Future flood risk

- 3.3.22 Most climate change models indicate we are likely to experience drier summers, albeit with more intense rainfall when it occurs, and wetter winters. As groundwater flooding occurs primarily as a response to extended periods of rain during late autumn and early winter, there may be an increased risk of groundwater flooding arising from these changing rainfall patterns. However the complex



SHOW LAYERS

- EA Flood Mapping
- EA Floodzone 2
- EA Floodzone 3
- Flood Hazard Map
- Flooding (other sources)
- Groundwater Flooding
- Impact of land use change
- Climate Change 2025
- Climate Change 2055
- Climate Change 2085
- Climate Change 2115
- Planning (SFRA)
- Infrastructure Defence Level
- Capital Schemes etc.
- Overview
- Danger to Public and Property



OS Maps
Outdoors

100 m

453511.44, 113241.17

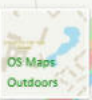
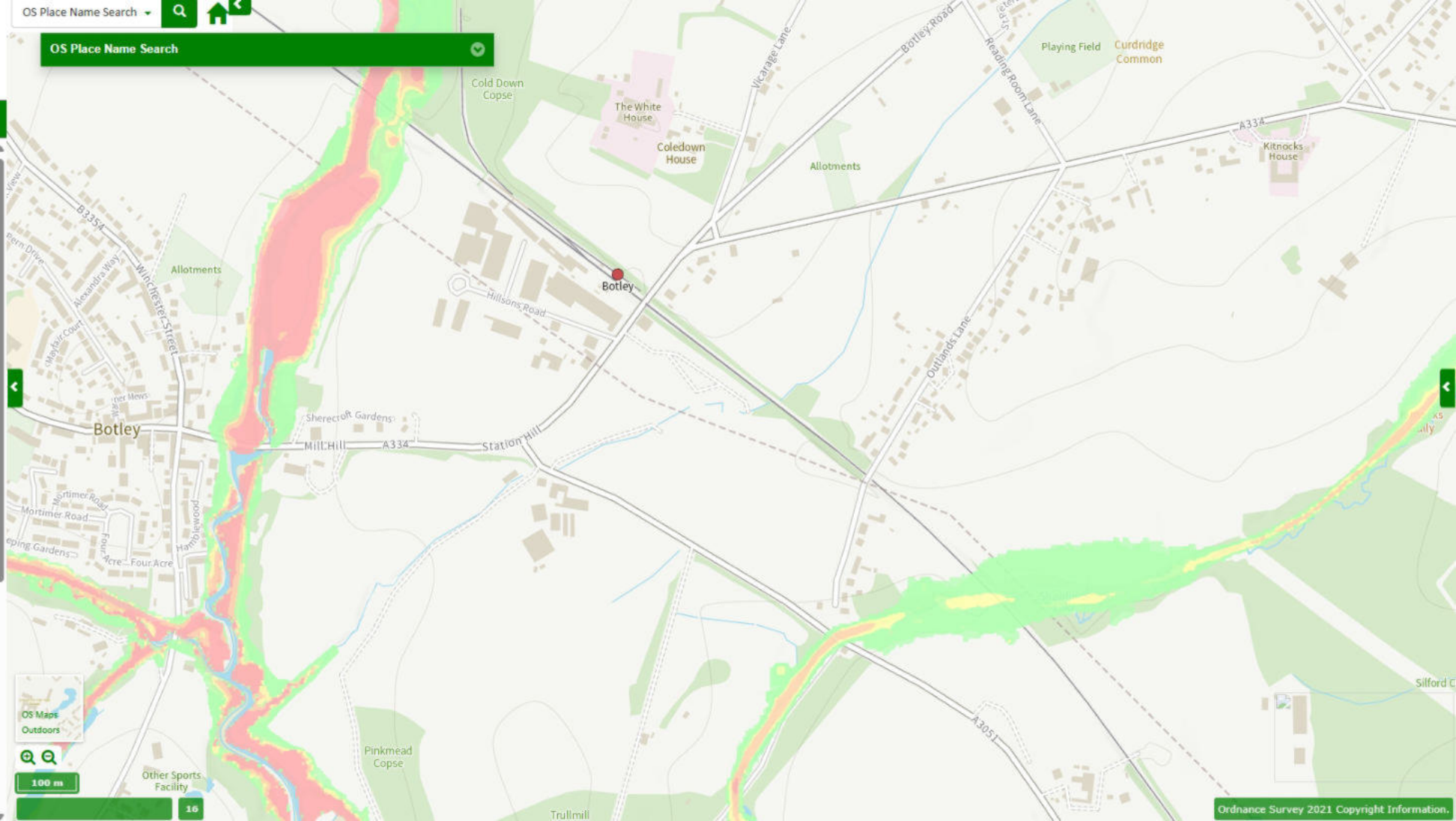
16



SHOW LAYERS

- EA Flood Mapping +
- Flood Hazard Map -
- FZ2 Undefended Hazards
 - Low Risk
 - Moderate Risk
 - High Risk
 - Very High Risk
- FZ3 Undefended Hazards
 - Low Risk
 - Moderate Risk
 - High Risk
 - Very High Risk
- Flooding (other sources) +
- Groundwater Flooding +
- Impact of land use change +
- Climate Change 2025 +
- Climate Change 2055 +
- Climate Change 2085 +
- Climate Change 2115 +
- Climate Change 2550 +

OS Place Name Search



100 m

10



SHOW LAYERS

- EA Flood Mapping +
- Flood Hazard Map +
- Flooding (other sources) -
- Flood surface water - Low (WMS)
- Flood surface water - Medium (WMS)
- Flood surface water - High (WMS)
- Southern water observed flooding (WMS)
- Potential Sources of Overland Flow (WMS)
- Groundwater Flooding +
- Impact of land use change +
- Climate Change 2025 +
- Climate Change 2055 +
- Climate Change 2085 +
- Climate Change 2115 +



100 m

453433.51, 113043.27

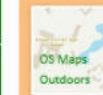
16



SHOW LAYERS

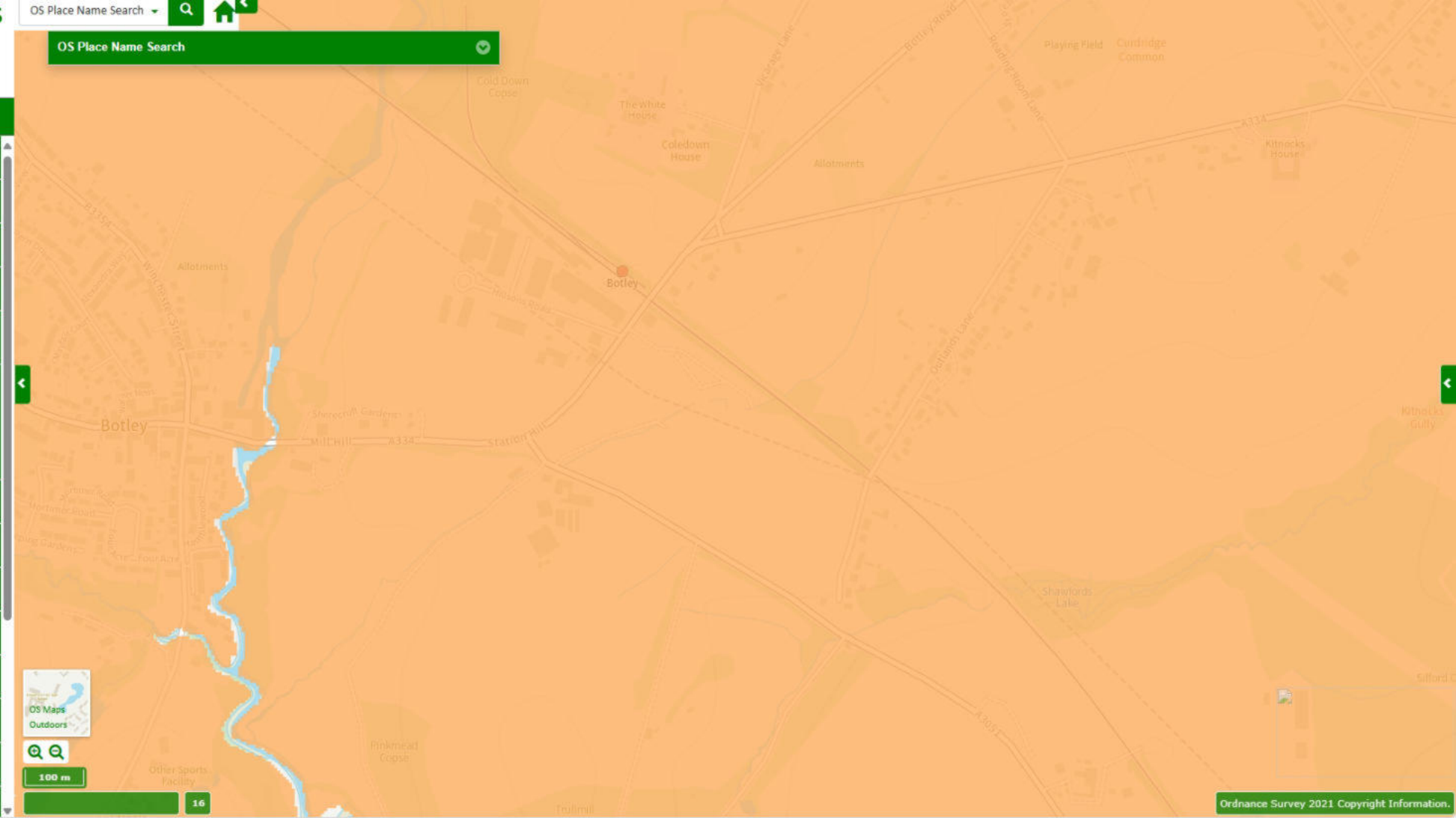
- EA Flood Mapping +
- Flood Hazard Map +
- Flooding (other sources) +
- Groundwater Flooding -
- Groundwater Flood Incidents (WMS)
- Bedrock (WMS)
- Low Bedrock Permeability
- Moderate Bedrock Permeability
- High Bedrock Permeability
- Impact of land use change +
- Climate Change 2025 +
- Climate Change 2055 +
- Climate Change 2085 +
- Climate Change 2115 +
- Planning (SFRA) +
- Infrastructure Defence Level +
- Capital Schemes etc. +

OS Place Name Search



100 m

16

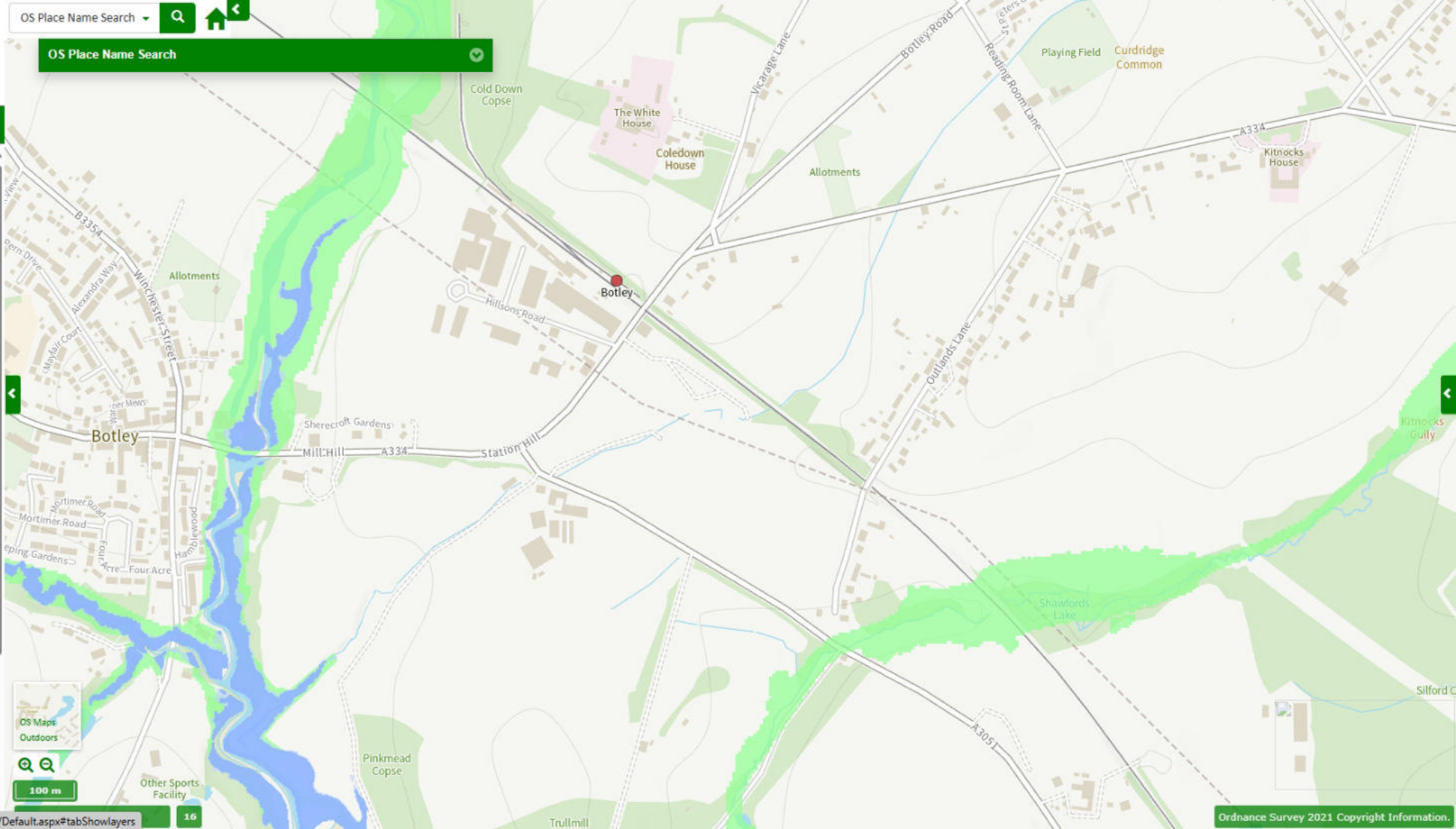




SHOW LAYERS

- EA Flood Mapping +
- Flood Hazard Map +
- Flooding (other sources) +
- Groundwater Flooding +
- Impact of land use change +
- Climate Change 2025 +
- Climate Change 2055 -
- Fluvial FZ3 2055 (WMS)
- Tidal FZ2 2055 (WMS)
- Tidal FZ3 2055 (WMS)
- Climate Change 2085 +
- Climate Change 2115 +
- Planning (SFRA) +
- Infrastructure Defence Level +
- Capital Schemes etc. +

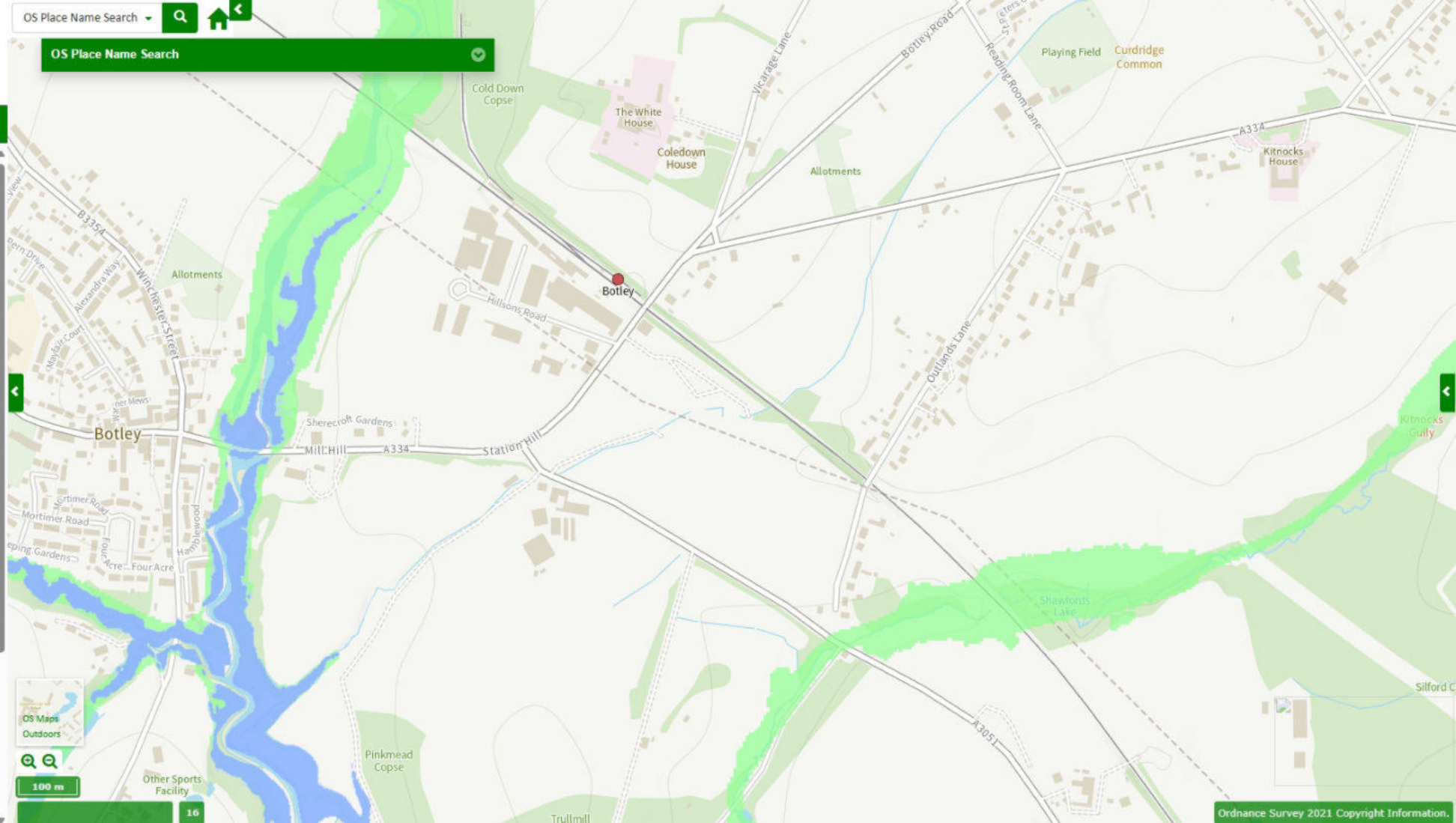
OS Place Name Search





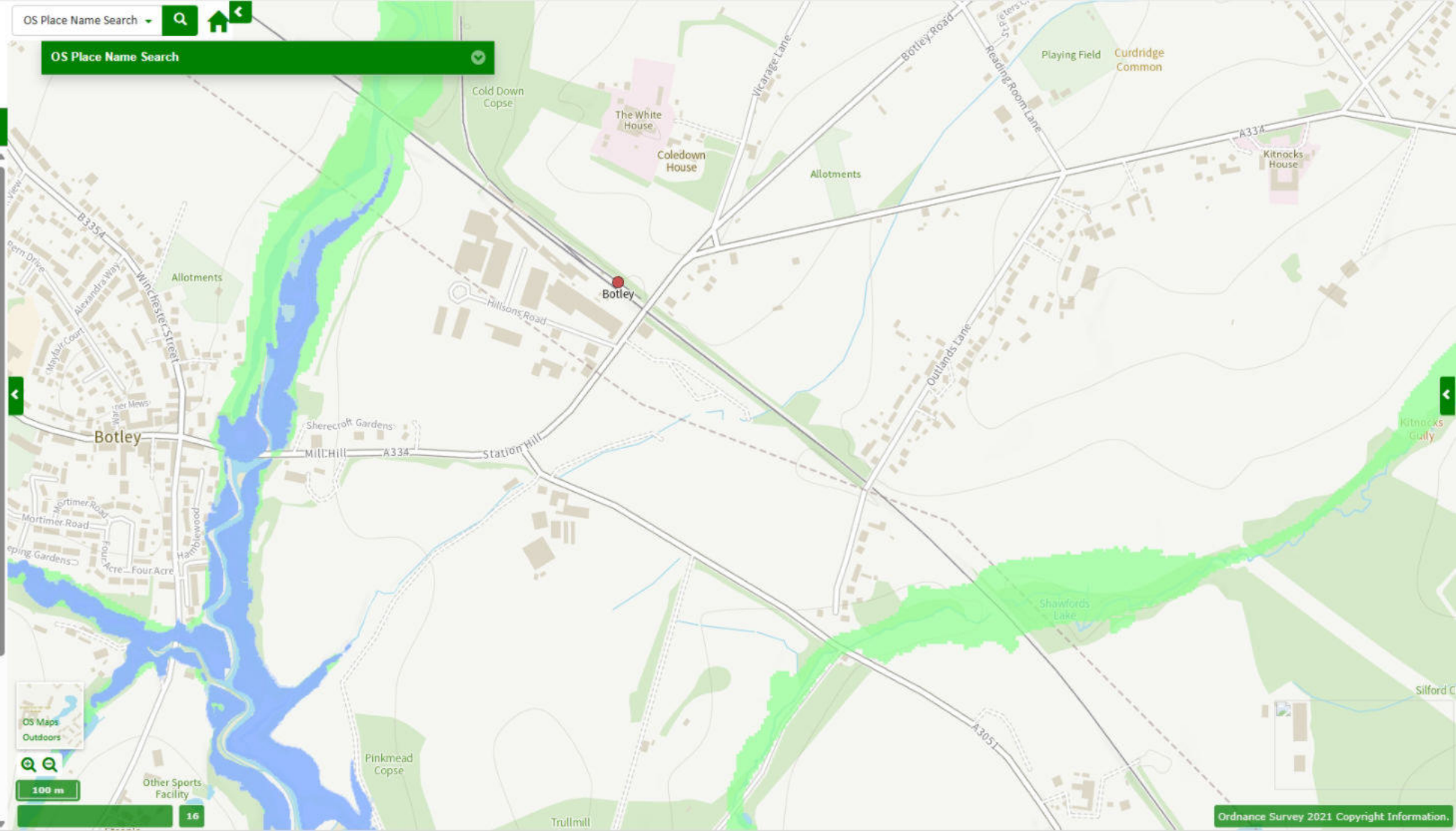
SHOW LAYERS

- EA Flood Mapping +
- Flood Hazard Map +
- Flooding (other sources) +
- Groundwater Flooding +
- Impact of land use change +
- Climate Change 2025 +
- Climate Change 2055 +
- Climate Change 2085 -
- Fluvial FZ3 2085 (WMS) +
- Tidal FZ2 2085 (WMS) +
- Tidal FZ3 2085 (WMS) +
- Climate Change 2115 +
- Planning (SFRA) +
- Infrastructure Defence Level +
- Capital Schemes etc. +
- Overview +



SHOW LAYERS

- EA Flood Mapping +
- Flood Hazard Map +
- Flooding (other sources) +
- Groundwater Flooding +
- Impact of land use change +
- Climate Change 2025 +
- Climate Change 2055 +
- Climate Change 2085 +
- Climate Change 2115 -
- Fluvial FZ3 2115 (WMS) +
- Tidal FZ2 2115 (WMS) +
- Tidal FZ3 2115 (WMS) +
- Planning (SFRA) +
- Infrastructure Defence Level +
- Capital Schemes etc. +
- Overview +



100 m

16



Appendix G Causeway Flow Storage Volume Estimates

Storage Estimate

Return Period (years)

Climate Change (%)

Impermeable Area (ha)

Peak Discharge (l/s)

Infiltration Coefficient (m/hr)
(leave blank if no infiltration)

Required Storage (m³)

from

to

With infiltration (m³)

from

to

Storage Estimate

Return Period (years)

100

OK

Climate Change (%)

45

Cancel

Impermeable Area (ha)

4.098

Update

Peak Discharge (l/s)

20.500

Infiltration Coefficient (m/hr)
(leave blank if no infiltration)

Calc

Required Storage (m³)

Calc

from

3081

to

4795

With infiltration (m³)

from

to

Storage Estimate

Return Period (years)

Climate Change (%)

Impermeable Area (ha)

Peak Discharge (l/s)

**Infiltration Coefficient (m/hr)
(leave blank if no infiltration)**

Required Storage (m³)

from

to

With infiltration (m³)

from

to

Storage Estimate

Return Period (years)

Climate Change (%)

Impermeable Area (ha)

Peak Discharge (l/s)

Infiltration Coefficient (m/hr)
(leave blank if no infiltration)

Required Storage (m³)

from

to

With infiltration (m³)

from

to