

Flood Risk Assessment

Land North of The Oysters
Furniss Way, Hayling Island, PO11 0FG

for

Hayling Island Builders Ltd

A21078

October 2021

Flood Risk Assessment
Land North of The Oysters
for
Hayling Island Builders Ltd

Revision	Date of issue	Comments	Prepared By	Checked By
1.0	29/07/2021	Initial Issue	AJ	DB
2.0	14/10/2021	Layout Change	AJ	DB

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Executive Summary

Description	
Patrick Parsons has been instructed by Hayling Island Builders Ltd, to produce a Flood Risk Assessment under National Planning Policy Framework (NPPF) to support the Planning Application for the site at Land North of The Oysters, Furniss Way, Hayling Island, PO11 0FG.	
Flood Risk Assessment	
Coastal:	Zone 1
Fluvial:	Zone 1
Pluvial:	Low
Groundwater:	Low
Other sources:	Low
Flood Resilience Measures	
None required.	
Conclusions	
The site is not at risk of any forms of flooding.	

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Appendix E	Environment Agency Flood Map (For Planning)

1.0 Introduction

- 1.1.1 Hayling Island Builders Ltd is planning a proposed development on the site at Land North of The Oysters, Furniss Way, Hayling Island, PO11 0FG.
- 1.1.2 Patrick Parsons has been instructed by Hayling Island Builders Ltd, to produce a Flood Risk Assessment under National Planning Policy Framework (NPPF) to support the Planning Application.
- 1.1.3 This report aims to demonstrate whether the development is at risk of any form of flooding.
- 1.1.4 The general limitations of this assessment are that:
- Several data sources have been used in compiling this report. Whilst Patrick Parsons believe them to be trustworthy; it is unable to guarantee the accuracy of the information that has been provided by others.
 - This report is based on information available at the time of preparation. There is potential for further information to become available, which may create a need to modify conclusions drawn in this report.

2.0 Location of Site

- 2.1.1 The site is located north of The Oysters in Hayling Island. A location plan is enclosed in **Appendix A**.
- 2.1.2 The Local Authorities are Havant Borough Council and Hampshire County Council.

3.0 Site Description

3.1 Existing Site

- 3.1.1 The existing site is the parcel of land to the north of The Oysters. A topographical survey has been commissioned for the site and can be found in **Appendix B**.

3.2 Existing Geology

- 3.2.1 The geology of the site has been ascertained by reference to the 1:50,000 British Geological Survey website. The data provided on the website indicates the bedrock and superficial drift geology for the site.

- 3.2.2 The strata of the site (bedrock geology) comprises London Clay formation, described as follows:

“London Clay Formation - Clay, Silt and Sand. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas. These sedimentary rocks are marine in origin. They are detrital and comprise coarse- to fine-grained slurries of debris from the continental shelf flowing into a deep-sea environment, forming distinctively graded beds.”

- 3.2.3 The strata of the site (superficial drift) comprises River Terrace Deposits, described as follows:

“River Terrace Deposits (undifferentiated) - Sand, Silt and Clay. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by rivers (U). These sedimentary deposits are fluvial in origin. They are detrital, ranging from coarse- to fine-grained and form beds and lenses of deposits reflecting the channels, floodplains and levees of a river or estuary (if in a coastal setting).”

3.3 Hydrogeology Setting

- 3.3.1 The Environment Agency (EA) mapping service, as provided by Magic Map, indicates the aquifer designation for the bedrock and superficial drift geology and the groundwater vulnerability in the area. The mapping, as included at **Appendix C**, provide the following information for the site:

Geology Map	Site Description
Aquifer Designation (Bedrock)	Unproductive
Aquifer Designation (Superficial Drift)	Secondary A
Groundwater Vulnerability	Medium / Low
Groundwater Source Protection Zone	None

4.0 Proposed Development

- 4.1.1 The proposal is for up to 29 No. new residential dwellings. A proposed site plan is attached at **Appendix D**.

5.0 Flooding Information

- 5.1.1 As set out in the National Planning Policy Framework (NPPF), inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. For these purposes:
- “areas at risk of flooding” means land within Flood Zones 2 and 3; or land within Flood Zone 1 which has critical drainage problems, and which has been notified to the local planning authority by the Environment Agency;
 - “flood risk” means risk from all sources of flooding - including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources.
- 5.1.2 Flooding information for Planning from the Environment Agency (EA) has indicated the site is located within Flood Zone 1, as found in the map at **Appendix E**.
- 5.1.3 As the site is within Flood Zone 1, no further data was required from the Environment Agency.
- 5.1.4 As part of the data capture, data and mapping from the Havant Strategic Flood Risk Assessment (SFRA) was sought. This will be included and references in the relevant sections below.

6.0 Flood Risk

- 6.1.1 The data on the EA's website in their updated mapping, shows the site has a "very low" risk of flooding.
- 6.1.2 The EA confirmed that the proposed development site is located in Flood Zone 1 for Planning.
- 6.1.3 According to Table 2 of National Planning Policy Framework (NPPF), the development, being residential, is classed as 'more vulnerable'.
- 6.1.4 According to NPPF Table 3 'Flood Risk Vulnerability and Flood Zone Compatibility', the development should be permitted.

Table 3: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	✗	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	✗	✗	✗

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

6.2 Sequential Test

- 6.2.1 Local Planning Authorities (LPA) are encouraged to take a risk-based approach to proposals for development in or affecting flood risk areas through the application of the Sequential Test and the objectives of this test are to steer new development away from high risk areas towards those at lower risk of flooding.
- 6.2.2 However, in some areas where developable land is in short supply, there can be an overriding need to build in areas that are at risk of flooding. In such circumstances, the application of the Sequential Test is used to ensure that the lower risk sites are developed before the higher risk ones.
- 6.2.3 NPPF (PPG25) states that the Sequential Test should be applied at all stages of the planning process and the starting point is generally the Environment Agency's flood zone maps.
- 6.2.4 These maps and the associated information are intended for guidance and cannot provide details for individual properties. They do not consider other considerations such as existing flood defences, alternative flooding mechanisms and detailed site-based surveys. They do, however, provide high level information on the type and likelihood of flood risk in any area of the country.
- 6.2.5 The site is within Flood Zone 1 and so does not require a sequential test assessment.

6.3 Exception Test

- 6.3.1 The Exception Test is an additional test to be applied by decision-makers following application of the Sequential Test. The Exception Test has two elements as shown below, both of which must be satisfied for development in a flood risk area to be considered acceptable.
- 6.3.2 The Exception Test is only appropriate for use when there are large areas in Flood Zones 2 and 3, where the Sequential Test alone cannot deliver acceptable sites, but where some continuing development is needed for wider sustainable development reasons, considering the need to avoid social or economic blight and the need for essential civil infrastructure to remain operational during floods.
- 6.3.3 For the Exception Test to be passed:
 - a. It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a SFRA; and,
 - b. A site-specific FRA must demonstrate that the development will be safe for its lifetime, without increasing flood risk elsewhere and, where possible, reducing flood risk overall.
- 6.3.4 The site does not require an exception test in accordance with NPPF.

6.4 Fluvial Flooding Risk

6.4.1 The Environment Agency flood information indicates no risk from fluvial sources on the site.

6.5 Historic Flood Data

6.5.1 The Environment Agency and Havant PUSH SFRA have no information indicating that the site was flooded historically from fluvial sources.

6.6 Groundwater

6.6.1 Groundwater flooding is caused by the emergence of water originating from sub-surface permeable strata. A ground water flood event results from a rise in ground water level, sufficient for the water table to intersect the ground surface and inundate low lying land. Groundwater floods may emerge from either a single point or diffuse locations.

6.6.2 The underlying strata throughout the area and investigations into the SFRA geology data suggest that there is a risk of groundwater emergence which is likely to relate to the geology of the area. However, groundwater flooding risks are often highly localised, and dependent upon geological interfaces between permeable and impermeable subsoils. Therefore, sustainable construction techniques for surfacing will minimise any potential groundwater risk.

6.6.3 The Havant PUSG SFRA SFRA indicates that the site is within an area with low permeability but does not identify any historic groundwater flood incidents.

6.7 Flooding from Sewers

6.7.1 Flooding from sewers can occur because of different reasons; if sewers are blocked during the heavy rainfalls, or if a sewer cannot provide adequate capacity, then flooding can cause a large amount of damage.

6.7.2 The Havant SFRA has no information indicating the site has been flooded by artificial sources historically.

6.8 Flooding from Reservoirs

6.8.1 Reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, the Environment Agency ensures that reservoirs are inspected regularly, and essential safety work is carried out.

6.8.2 However, in the unlikely event that a reservoir dam failed, a large volume of water would escape at once and flooding could happen with little or no warning. If the site is within a risk area, plans should be made for safe evacuation and escape. Residents may need to evacuate immediately, know the safest route to safety, and be ready to follow the advice of emergency services.

6.8.3 The EA data indicates that the site is at no risk from reservoir flooding.

6.9 Surface Water Flooding

6.9.1 Overland flow / surface water flooding typically arise because of intense rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems. It can run quickly off land and result in localised flooding.

6.9.2 The Environment Agency has produced illustrative mapping (Flood Map for Surface Water) relating to flooding risks from surface water. They are classified as Flood Hazard Maps for the purpose of the Flood Risk Regulations 2009. These maps are the next generation on from the previous “Area Susceptible to Surface Water Flooding” maps, which are contained within the SFRA.

6.9.3 The EA maps show high resolution image and indicative flow paths for pluvial events. The maps are based on coarse level data and indicate ridges, valleys and flat spots where water would collect. Typically, the flow paths follow valleys, rivers and watercourses.

6.9.4 The surface water maps and the associated information are intended for guidance only and cannot provide details for individual properties. They do, however, provide high level information and indicate areas in which surface water flooding issues should be investigated further. The risk categories are classified as follows:

- Very low probability of flooding – This zone is assessed as having less than a 1 in 1000 annual probability of surface water flooding.
- Low probability of flooding – This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of surface water flooding.
- Medium probability of flooding - This zone comprises land assessed as having between a 1 in 30 and 1 in 100 annual probability of surface water flooding.
- High probability of flooding – This zone is assessed as having greater than a 1 in 30 annual probability of surface water flooding.

6.9.5 A review of the EA mapping indicates there is no/minimal risk of surface water flooding to the site.

7.0 Route of Escape

- 7.1.1 In an extreme storm event, there is not likely to be flood water on site and safe escape can be achieved via the main access to site.
- 7.1.2 It is not envisaged that there would be any problem for access of emergency vehicles in an extreme storm event as there is no flood depth unless the extreme storm scenario occurs. Emergency vehicles may operate in depths of 0.5m with velocity of 5 metres per second (with some operating at depths of 1m).
- 7.1.3 The Planning Authority must be in consultation with the emergency services as to the appropriate access and safe routes for the site during an extreme storm event, in accordance with Section 13.S3.3 of the FRA Guidance for New Developments. Emergency Response Plans for the local area are available on the council website and would require updating for the proposed residence. It is not envisaged that there will be any additional burden on emergency services during a flood event.
- 7.1.4 General Evacuation Advice:
- Avoid walking or driving through flood water, as only 150mm of fast flowing flood water is able to knock a person over and 600mm is able to float a car. Flooding can cause manhole covers to come off, leaving hidden dangers.
 - Do not walk on sea defences or riverbanks.
 - Take care or avoid crossing bridges when water levels are high.
 - Take care crossing culverts as they are dangerous when flooded.
 - Look out for other hazards such as fallen power lines and trees.
 - Keep Children away from flood water.
 - Wash hands thoroughly if you come into contact with flood water as it may be contaminated with sewage.
 - Always follow the advice provided at the time by the Emergency Services. The Emergency Services may direct you to a Local Authority Evacuation Centre, which has been specially prepared for people being evacuated from their homes. Free food and bedding is provided, however spare clothing should be taken, essential medication and any baby care products should an infant be involved in the evacuation.

8.0 Flood Compensation

- 8.1.1 The site is not within a Flood Zone for planning so there is no statutory requirement to assess the requirement for flood compensation.

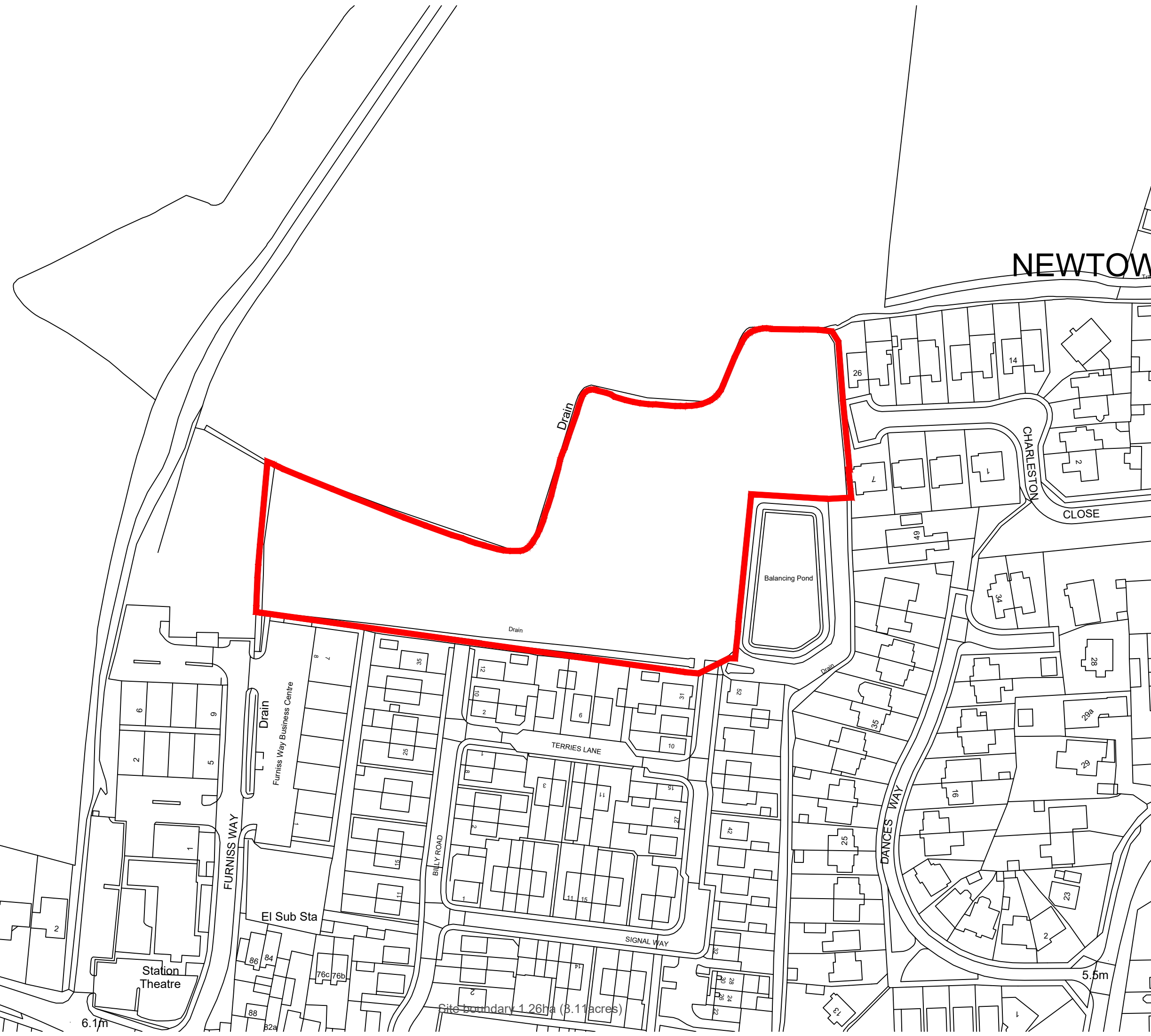
9.0 Summary and Conclusions

- 9.1.1 Hayling Island Builders Ltd is planning a proposed development on the site at Land North of The Oysters, Furniss Way, Hayling Island, PO11 0FG.
- 9.1.2 Patrick Parsons has been instructed by Hayling Island Builders Ltd, to produce a Flood Risk Assessment under National Planning Policy Framework (NPPF) to support the Planning Application.
- 9.1.3 The Environment Agency mapping indicates that the site is within Flood Zone 1 and has a very low risk of fluvial flooding.
- 9.1.4 All other sources of flooding for the site have been investigated and shown to be of minimal or no risk.
- 9.1.5 The proposed development is appropriate and sustainable in the terms as set out in NPPF.

Appendix A

Location Plan

Site boundary 1.26ha (3.11acres)



Project
Land North of the Oysters

Drawing Title
Site Location Plan

Date	Scale	Drawn by	Check by
08/03/2021	1:1,250 at A3	ML	SR
Project No	Drawing No	Revision	
1239	001	-	

Appendix B

Topographical Survey

ALL LEVELS ARE ORTHOMETRIC HEIGHTS RELATED TO OSGM15
GPS DATUM, COMPUTED USING LEICA SMARTNET RTK NETWORK

STREET FURNITURE		LEVELS & DEPTHS		INSPECTION CHAMBERS	
MB	Manhole	MB	Bottom Depth	MB	Manhole
BL	Basement Light	BD	Back Drop Depth	CBV	Catch Basin Vent
BL	Basement Light	BD	Back Drop Depth	CBV	Catch Basin Vent
BO	Bottom	CB	Chamber Depth	ED	Electric Inspection Cover
CB	Chamber	CD	Chamber Depth	EMC	Electric Manhole Cover
CPD	Covered Road	CSL	Over Side Level	FI	Fire Hydrant
CPD	Covered Road	CSL	Over Side Level	FI	Fire Hydrant
EP	Electric Pole	ESL	Event Level	GC	Gas Inspection Cover
EP	Electric Pole	ESL	Event Level	GC	Gas Inspection Cover
FR	Fire Hydrant	FL	Fire Line Level	GV	Gas Vent
FR	Fire Hydrant	FL	Fire Line Level	GV	Gas Vent
FP	Flag Pole	IO	In Depth	IC	Inspection Cover
FP	Flag Pole	IO	In Depth	IC	Inspection Cover
JS	Joint	OD	Outer Depth	LHP	Lead Hydraulic Power
JS	Joint	OD	Outer Depth	LHP	Lead Hydraulic Power
CMK	Gas Main Post	PRL	Receptacle Level	ML	Monitoring
CMK	Gas Main Post	PRL	Receptacle Level	ML	Monitoring
SD	Summit	SD	Summit Depth	NE	Non-Electric
SD	Summit	SD	Summit Depth	NE	Non-Electric
LP	Light Pole	SFL	Soft Level	SP	Stop Valve
LP	Light Pole	SFL	Soft Level	SP	Stop Valve
MC	Manhole	SL	Soft Level	SHWC	Shallow Water Inspection Cover
MC	Manhole	SL	Soft Level	SHWC	Shallow Water Inspection Cover
NP	Non-Pole	SSS	Shallow Surface	TC	Teknicon Inspection
NP	Non-Pole	SSS	Shallow Surface	TC	Teknicon Inspection
PP	Parking Meter	TFL	Thin Level	UTR	Underground Inspection Cover
PP	Parking Meter	TFL	Thin Level	UTR	Underground Inspection Cover
RS	Road Stop	USL	Underground Level	WM	Water Inspection Cover
RS	Road Stop	USL	Underground Level	WM	Water Inspection Cover
STN	Station	WFL	Water Level	WHO	Water Inspection Cover
STN	Station	WFL	Water Level	WHO	Water Inspection Cover

	Single Gate	-----	Telecom Overhead
	Double Gate	-----	Power Overhead
	Banking	-----	Foul Water
	Step Up	-----	Surface Water
	Diameter shown in mm	-----	Combined Water
	Survey Station	-----	Unsewered Services
		-----	Change of Surface
		-----	Drop Kerb
		-----	Fence
		-----	Wall
		-----	Kerb
		-----	Building Foot
		-----	Overhead Feature
		-----	Trench Scar
		-----	Tree Canopy
		-----	Burner Pothole/Overgrowth
		-----	Tree Crown

AL	Alder	HL	Hemlock	RH	Rhododendron
BE	Beech	HO	Holly	RO	Rowan
CE	Cedar	HZ	Hazel	SA	Sapling
CH	Cherry	LA	Larch	SB	Silver Birch
CO	Coniferous	LB	Laburnum	SCN	Scrub Chestnut
CY	Cypress	LM	Lime	SHR	Shrub
DE	Deciduous	LO	Locust	ST	Stamp
DED	Deciduous	LU	Laurel	SY	Sycamore
ED	Elder	MA	Maple	WB	Whitebeam
EU	Eucalyptus	MG	Magnolia	WG	Willow
FR	Fruit	NS	Norway Spruce	WI	Willow
HA	Hawthorn	PI	Pine	WN	Walnut
HB	Hornbeam	PO	Poplar		
HC	Horse Chestnut	PL	Plane		

NOTES:

1. The tree species have been identified to the best of the surveyors knowledge. They have not been verified by an arborist and are not guaranteed. If they are important they should be verified.
2. Tree heights are estimated.
3. A CAD layer exists with the full tree canopies intact which is turned off.
4. Trees with bole diameters below the specified minimum size may not have been surveyed.
5. Multiple sizes are indicative.

SURVEY STATIONS			
Name	Easting	Northing	Height
1STN	471156.962	99901.025	5.685
2STN	471094.116	99889.086	5.168
3STN	471018.424	99885.366	5.350
11STN	471185.949	99911.852	5.495
12STN	471179.164	99973.795	5.23
13STN	471185.835	99851.545	5.582

CLIENT

Hayling Island Builders Limited

SITE
Parcel 1
Land North of 'The Oysters' Development
Station Road PO11 0EL

DRAWING TITLE
Topographical Survey

PROJECT NUMBER SP21219	DRAWING NUMBER SD21219-01	DATE Mar 2021
SURVEYED BY CJ	DRAWN BY CJ	CHECKED BY CJ
SCALE 1:200	SHEET SIZE A1	SHEET 2 OF 4



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Appendix C

Magic Map Geology Information

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- ☐ Access
- ☐ Administrative Geographies
- ☐ Countryside Stewardship Targeting & Scoring Layers
- ☐ Designations
- ☐ Habitats and Species
- ☐ Land Based Schemes
- ☒ Landscape

☒ Geology and Soils☒ Aquifer Designation Map (Bedrock) (England)

- Principal
- Secondary A
- Secondary B
- Secondary (undifferentiated)
- Unproductive

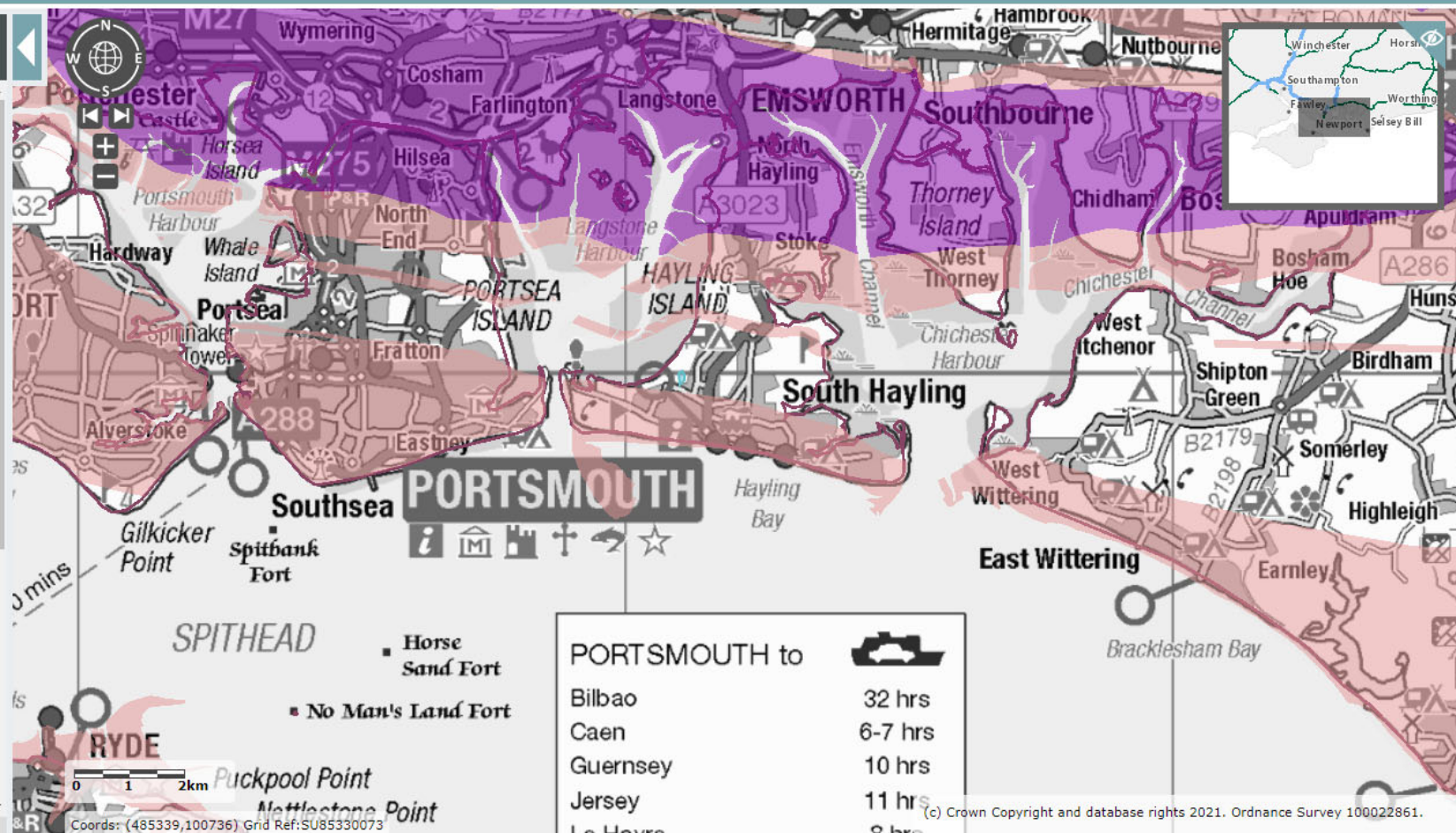
☐ Aquifer Designation Map (Superficial Drift) (England)☐ Groundwater Vulnerability Map (England)☐ Geological Places to Visit (England)☐ Geological Descriptions

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- ☐ Access
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- ☐ Land Based Schemes
- ☒ Landscape
- ☒ Geology and Soils
 - ☐ Aquifer Designation Map (Bedrock) (England)
 - ☒ Aquifer Designation Map (Superficial Drift) (England)
 - ☐ Principal
 - ☐ Secondary A
 - ☐ Secondary B
 - ☐ Secondary (undifferentiated)
 - ☐ Unknown (lakes+landslip)
 - ☐ Unproductive
 - ☐ Groundwater Vulnerability Map (England)
 - ☐ Geological Places to Visit (England)

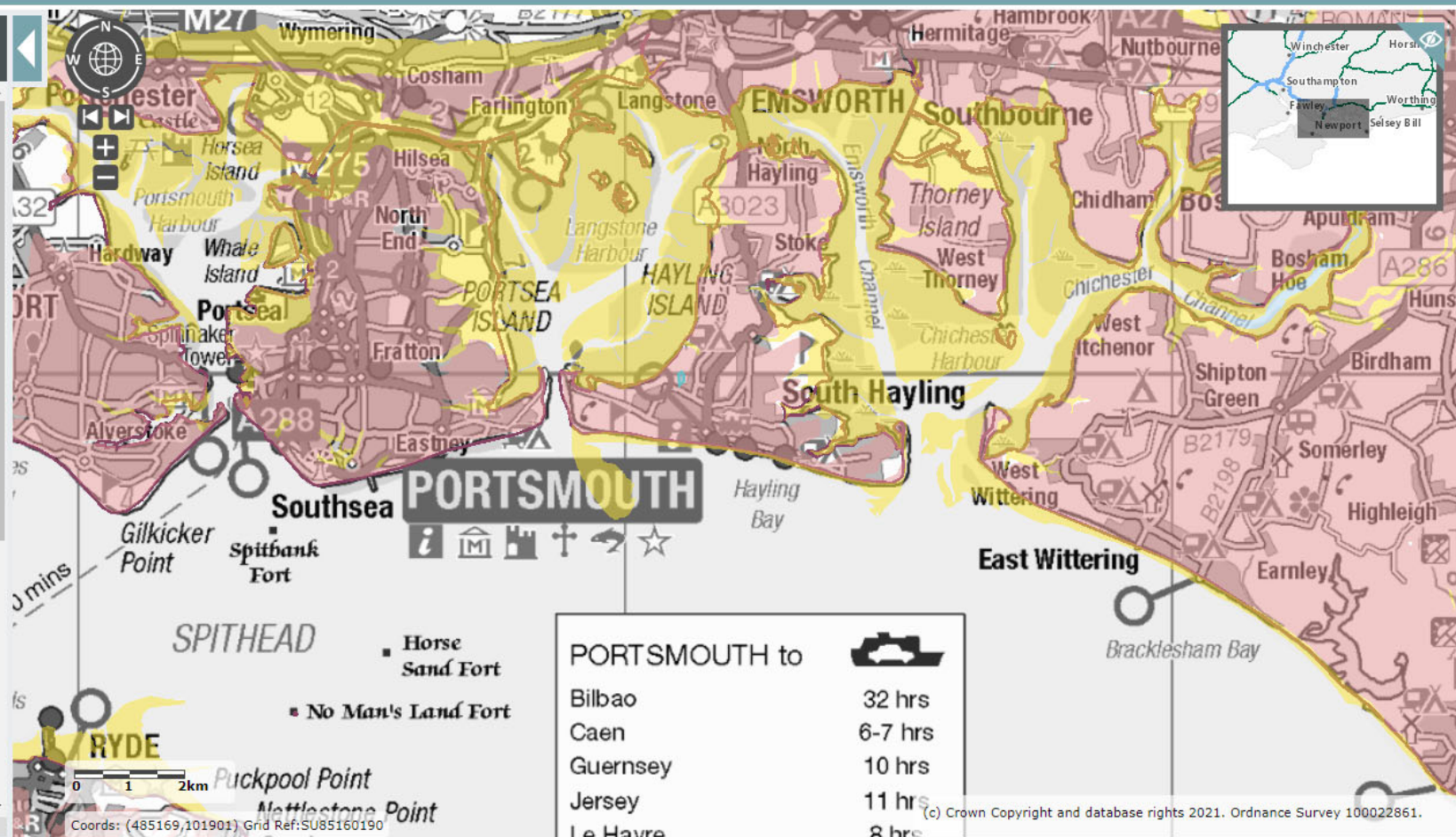


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☐ Countryside Stewardship Targeting & Scoring Layers☐ Designations☐ Habitats and Species☐ Land Based Schemes☒ Landscape☒ Geology and Soils☐ Aquifer Designation Map (Bedrock) (England)☐ Aquifer Designation Map (Superficial Drift) (England)☒ Groundwater Vulnerability Map (England)

Local Information

Soluble Rock Risk

High

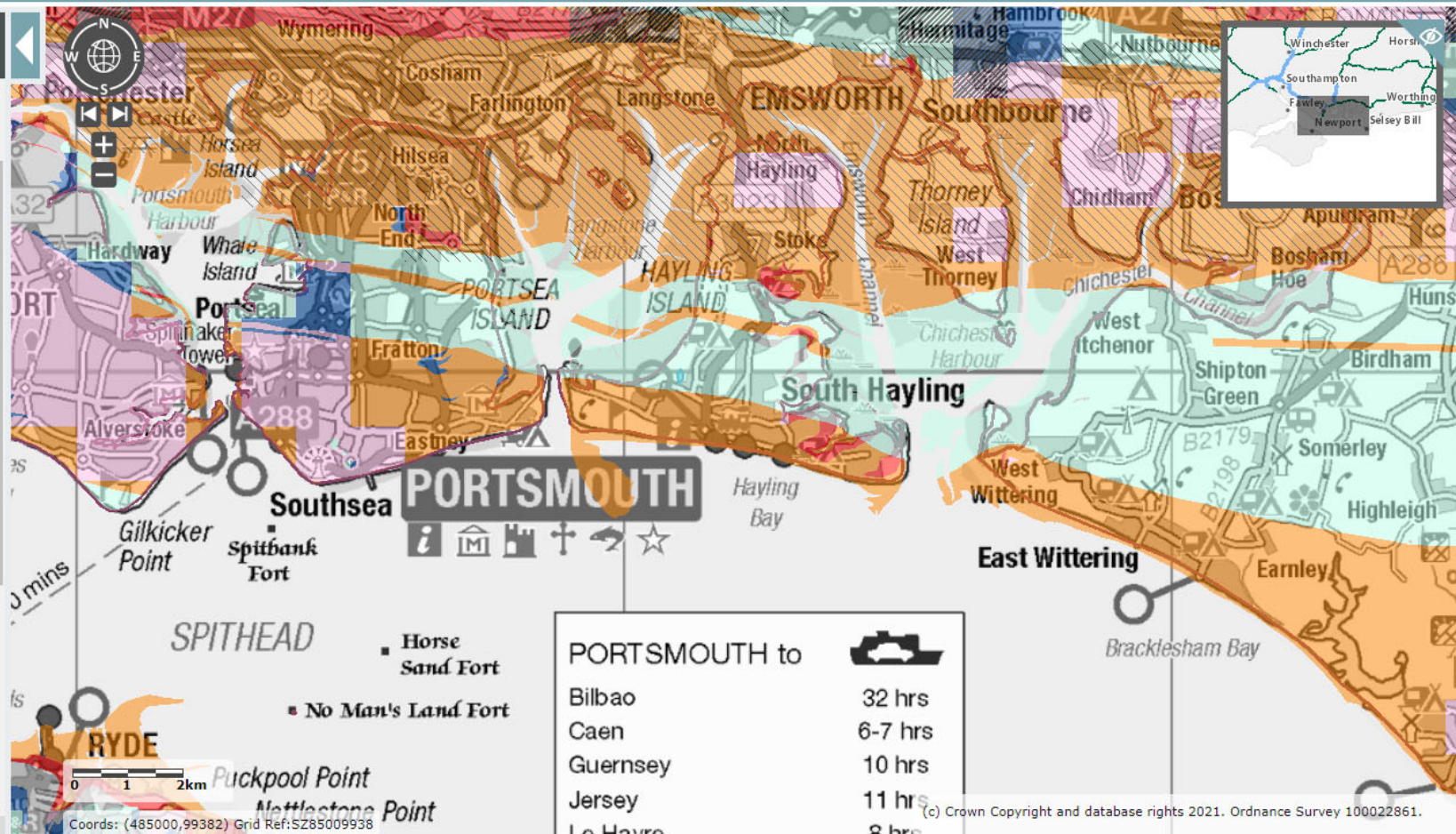
Medium - High

Medium

Medium - Low

Low

Unproductive

☐ Geological Places to Visit (England)☐ Geological Descriptions (England)

PORTSMOUTH to

Bilbao	32 hrs
Caen	6-7 hrs
Guernsey	10 hrs
Jersey	11 hrs
Le Havre	8 hrs

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Appendix D

Site Plan



0 50
metres
(1:1,250)

Site boundary 1.24ha (3.06acres)

Project
Land North of the Oysters

Drawing Title
Illustrative Masterplan

Date 13/10/2021	Scale 1:1,250 at A3	Drawn by CT	Check by SR
Project No 1239	Drawing No 003	Revision J	

Mosaic

Appendix E

Environment Agency Flood Map (For Planning)

Flood map for planning

Your reference
A21078

Location (easting/northing)
471093/99915

Created
24 Mar 2021 12:43

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

This means:

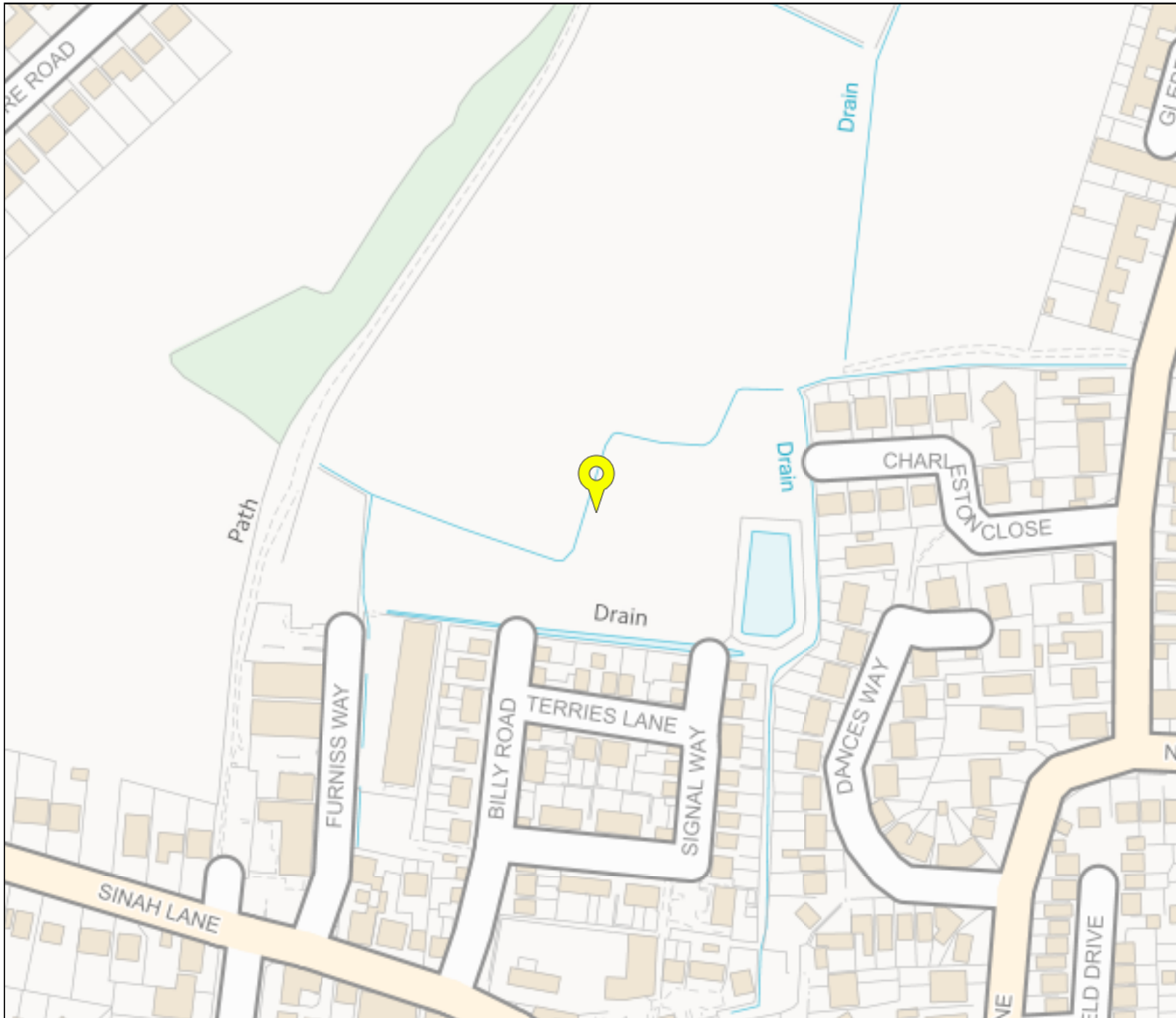
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

Notes

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

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

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



Flood map for planning

Your reference

A21078

Location (easting/northing)

471093/99915

Scale

1:2500

Created

24 Mar 2021 12:43

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

0 20 40 60m

UK locations:

London

Huddersfield

Birmingham

Guildford

International locations:

Dubai



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