ENGINEERING

Flood Risk Assessment for the Proposed Demolition of an Existing Barn and Replacement with a New Residential Dwelling on Land North West of The Pastures, Conger Lane, Holywell, St Ives, Huntingdon, PE27 4TG

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3512 – FRA – June 2025

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Flood Risk Assessment
for the Proposed Demolition of an Existing Barn
and Replacement with a New Residential Dwelling on
Land North West of The Pastures, Conger Lane,
Holywell, St Ives, Huntingdon, PE27 4TG

1 Introduction

1.1 MTC Engineering (Cambridge) Ltd. has been asked to provide a Flood Risk Assessment in respect of the proposed demolition of an existing barn and replacement with a residential dwelling on land North West of The Pastures, Conger Lane, Holywell, St Ives, on behalf of James Anderson.

1.2 This Flood Risk Assessment is based on the following information:-

1.2.1 Environment Agency Modelled and Historical Flood Data;

1.2.2 Huntingdonshire District Council Strategic Flood Risk Assessment (SFRA);

1.2.3 Site Layout by Partners in Planning and Architecture;

1.2.4 Topographic Survey Provided by Partners in Planning and Architecture;

1.2.5 British Geological Survey information.

1.3 All the comments and opinions contained in this report including any conclusions are based on the information available to MTC Engineering (Cambridge) Ltd. during our investigations. The conclusions drawn could therefore differ if the information is found to be inaccurate, incomplete or misleading. MTC Engineering (Cambridge) Ltd. accept no liability should this prove to be the case, nor if additional information exists or becomes available with respect to this Site.

1.4 MTC Engineering (Cambridge) Ltd. makes no representation whatsoever concerning the legal significance of its findings or any other matters referred to in the following report. Except as otherwise requested by the client, MTC Engineering (Cambridge) Ltd. are not obliged and disclaim any obligation to update the report for events taking place after the Assessment was undertaken.

1.5 This report is a Flood Risk Assessment of flooding issues associated with the proposed development. The information presented and conclusions drawn are based on statistical data and are for guidance purposes only. This report provides no guarantee against flooding of the study Site or elsewhere, nor as to the absolute accuracy of water levels, flow rates and associated probabilities quoted.

2 Site Description

2.1 The site is located on land to the southern side of Conger Lane, just northwest of The Pastures, Holywell, PE27 4TG as shown on the site location plans provided in Appendix 1.

2.2 To the north, the site is bound by Conger Lane, past which is the garden area associated with Manor Farm, then open grass paddocks and agricultural land. To the east the site is bound by residential dwellings and garden space off Conger Lane and Back Lane.

2.3 To the south and west the site is bound by open grassland which banks down to the Marley Gap Brook which runs in a southeasterly direction approximately 50m southwest of the site at its closest point. Past this is open agricultural land in the flood plain of the River Great Ouse, which runs in an easterly direction approximately 550m south of the site at its closest point. Marley Gap Brook joins the River Great Ouse about 850m southeast of the site.

2.4 The site itself currently has an existing barn present in the northern area, with a gravel access track leading south from Conger Lane and providing an access/turning area to the south of the barn. The remainder of the site is open grassland at present, with some trees and a hedgeline present at the frontage onto Conger Lane.

2.5 Survey shows the site to fall in a southerly direction from levels of about 12.8m above Ordnance Datum (AOD) at the northeastern corner of the site (the high point) to levels a little below 12m AOD along the southern boundary.

2.6 Other than the River Great Ouse and Marley Gap Brook which are detailed above there are no further significant surface water features in the vicinity of the site.

2.7 British Geological Survey Mapping (Appendix 2) shows the site is underlain by the Oxford Clay formation, with a superficial geology of River Terrace Deposits of sand and gravel also indicated.

3 Sources of Potential Flood Risk

3.1 In accordance with The National Planning Policy Framework all forms of flood risk need to be considered in relation to any development.

3.2 The first form of flood risk to be considered in respect of The National Planning Policy Framework is fluvial flooding.

3.3 The Environment Agency Flood Map for Planning (Appendix 3) shows the site to lie entirely in Flood Zone 1, with the SFRA indicating the same risk of flooding, with the flood plain associated with the River Great Ouse remaining to the southwest of the site at the base of the bank down to Marley Gap Brook.

3.4 The SFRA also indicates that the site would not be at risk of fluvial flooding even when climate change is taken into account.

3.5 As such the overall risk of flooding to the site from fluvial sources is considered to be low.

3.6 The second form of flood risk to be considered in respect of The National Planning Policy Framework is flooding from the sea.

3.7 Holywell is well in land, upstream of the tidal limit of the River Great Ouse (normally considered as Brownshill Staunch just upstream of Earith), and with ground levels of about 12 metres AOD or higher is not considered to be at any significant risk of flooding from the sea.

3.8 The third form of flood risk to be considered in respect of The National Planning Policy Framework is flooding from land.

3.9 Intense rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems can quickly run off land and result in local flooding. In developed areas, this flood water can be polluted with domestic sewage with foul sewer surcharge

and overflow. Local topography and built form can have a strong influence on the direction and depth of flow. The design of development down to a micro level can influence or exacerbate this. Overland flow paths need to be taken into account in development to minimise the risk of flooding from overland flow.

3.10 In this instance any surface water coming onto the site from higher land to the north would simply run across the site in a southerly direction with little impact upon the site, and into Marley Gap Brook which would pick up flows and take these east to the River Great Ouse.

3.11 As such it is not considered that the site is at any significant risk of surface water flooding as confirmed by the surface water flood map for planning which shows the site to be at a very low risk of flooding from surface water with no flooding present even in the most extreme 1 in 1000 year event.

3.12 The fourth form of flood risk to be considered in accordance with The National Planning Policy Framework is flooding from rising groundwater.

3.13 Groundwater flooding occurs when water levels in the ground rise above surface elevations. It is most likely to occur in low lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands and river gravels in valley bottoms underlain by less permeable rocks. Water levels below the ground rise during wet winter months, and fall again in the summer as water flows out into rivers. In very wet winters, rising water levels may lead to the flooding of normally dry land.

3.14 British Geological Survey Mapping indicates the site is underlain by the Oxford Clay formation, with a superficial geology of River Terrace Deposits of sand and gravel also indicated.

3.15 This is a low permeability bedrock geology unlikely to have any significant ground water present, however there is a risk of a perched water table occurring above this in

the superficial geology of River Terrace Deposits of sand and gravel also present at the site.

3.16 SFRA mapping (Appendix 6) indicates that the site lies in an area on the boundary between the area not at risk of flooding from rising groundwater, and the area at risk of groundwater coming between 0.025m and 0.5m of surface levels in a 1 in 100 year return period event.

3.17 The boundary used in the SFRA mapping essentially follows the line of the superficial River Terrace Deposit geology shown in Appendix 2.

3.18 Should water be present in the superficial geology as a perched water table this would essentially outflow at the extent/boundary of this geology just southwest of the site, and flow overland to the Marley Gap Brook without significantly impacting land.

3.19 Given that outflow would occur at the geological boundary, it is unlikely that outflow would occur at ground level in higher areas such as on the site itself, and this is reflected by the fact that SFRA mapping indicates that water may come close to ground levels but would not actually exceed ground levels at the site in the most extreme 1 in 100 year event.

3.20 Below ground groundwater may therefore give rise to risks for basement areas and below ground construction, however as the proposed dwelling in this instance does not include any basement area there are no significant risks associated with groundwater in this instance.

3.21 The fifth form of flood risk to be considered in accordance with the National Planning Policy Framework is the risk of flooding from blocked, overloaded, or burst sewers and water mains.

3.22 Should any sewer or water main become blocked, overloaded or burst on Conger Lane, then any flow coming onto the site would simply flow south across the site into Marley

Gap Brook without having any significant impact upon the site and the overall risk of flooding from such sources is therefore considered to be low.

3.23 The last form of flood risk to be considered in accordance with the National Planning Policy Framework is flooding from reservoirs, canals or other artificial sources.

3.24 The only significant source of water in the area is the Grafham Water supply reservoir approximately 5.75km south-west of Huntingdon and is a major earth dam structure. Grafham Water is owned and maintained by Anglian Water Services Limited, hence it is considered that the risk of a beach occurring in the earth dam structure is very low.

3.25 In the unlikely event that overtopping or a breach of the Grafham Water dam were to occur then flood water would flow down Diddington Brook between Buckden and Diddington to the River Great Ouse, with the flood waters gradually being absorbed into the fluvial flood plain of the River Great Ouse both upstream and downstream of Diddington Brook.

3.26 Environment Agency mapping indicates that parts of Brampton, St. Neots, Little Paxton, Buxton, Offord Cluny and D'Arcy, Godmanchester, Huntingdon, Hemingford Abbots, Hemingford Grey, St. Ives, and other downstream areas on the River Great Ouse may be liable to flooding in such an event, with much of the 1 in 100 year and 1 in 1000 year flood plain of the River Great Ouse indicated as at risk during any such event.

3.27 The site itself is however shown to lie outside of the potential area of flooding in any such event thus is not considered to be at any significant risk of flooding from artificial sources.

4 The Proposal

4.1 The proposal involves the demolition of the existing barn at the site, and erection of a new residential dwelling and garage with associated access and patio areas as shown by the proposed site and floor plans provided in Appendix 6.

4.2 As detailed in Section 3 there are no significant risks of flooding to the site and therefore it is not considered that any flood resilient or resistant construction is required as part of the proposed development.

4.3 All external surface levels will however be checked and it will be ensured that suitable falls area is available away from all access points to the dwelling/around the dwelling to ensure that water will not pond in the vicinity of doorways/access points under any circumstances and that the existing flow path across the site in a southerly direction would be maintained. This is a detailed level design issue and no further information is required at present.

4.4 The finished floor level of the new dwelling will be set at 12.45m AOD, which is above adjacent ground levels in the area, whilst no basement development is proposed and as such below ground groundwater will not have any significant impact.

4.5 With regards surface water drainage from the site, all external access and patio areas will remain permeable thus essentially maintain greenfield characteristics, whilst drainage from the roof area will either be to soakaway systems, through the base of the permeable paving, or to the Marley Gap Brook at existing or greenfield rates.

4.6 For a minor application of less than 10 dwellings it is appropriate to secure the full detailed surface and foul water drainage design by appending appropriate planning conditions to any approval granted.

5 Conclusion

5.1 The proposal involves the demolition of the existing barn and replacement with a new dwelling on land at The Pastures, Conger Lane, Holywell.

5.2 The site lies in Flood Zone 1 and is at a low risk of flooding from all sources as fully detailed in Section 3.

5.3 The Sequential Test is therefore passed whilst an Exception Test is not required.

5.4 No flood resistant or resilient construction is required, although external levels will be designed to ensure that there are falls away from all access points to ensure that water will not pond in the vicinity of these or enter the dwelling in an extreme rainfall event or if a drainage system were to become blocked, and that the existing flow path across the site in a southerly direction is maintained.

5.5 There will be no basement development at the dwelling thus further detailed consideration of groundwater is not required in this instance.

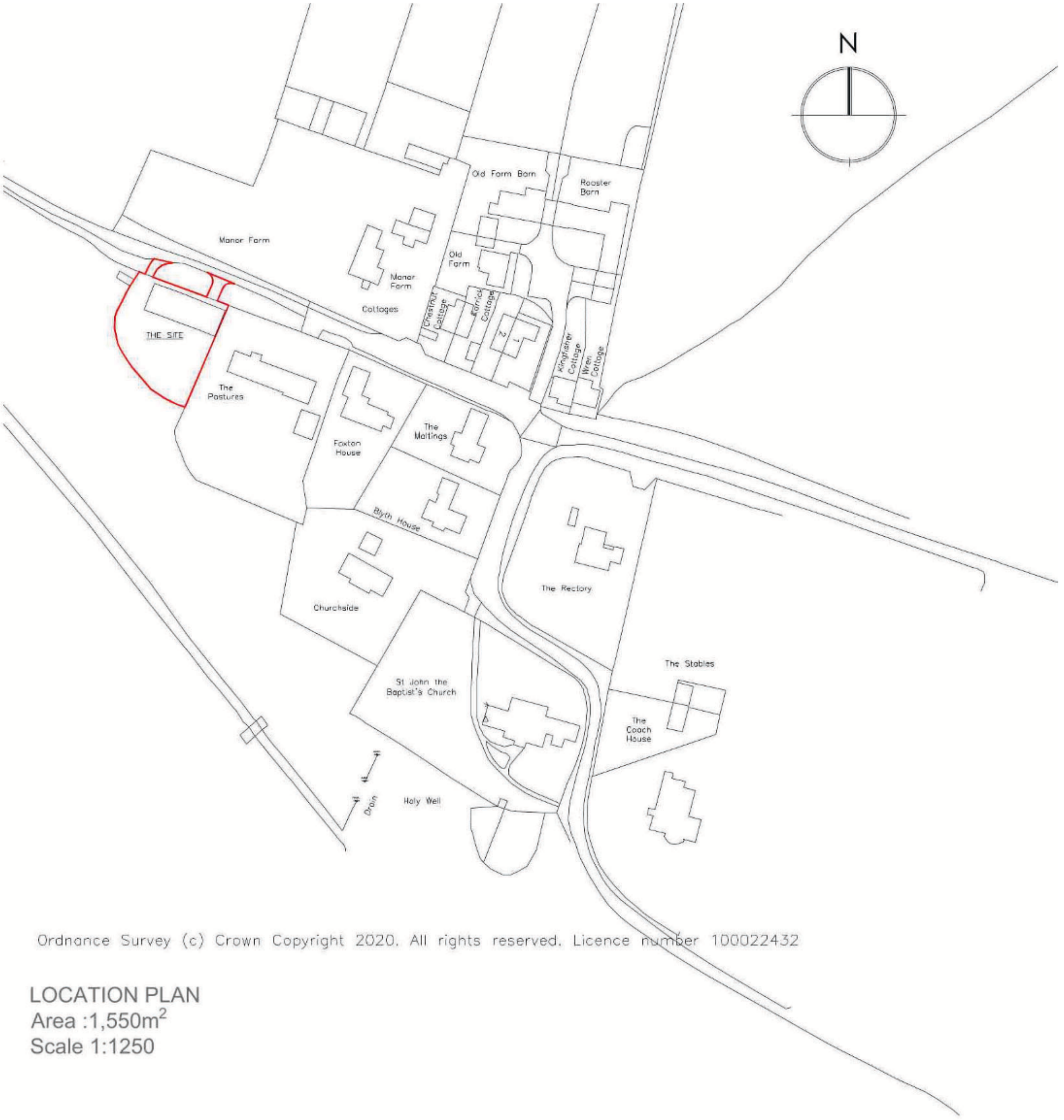
5.6 There will be no significant impact upon surface water drainage, with the vehicular access, parking and patio areas being permeable, and the roof area of the new dwelling either drainage via infiltration systems or to Marley Gap Brook at existing or greenfield rates.

5.7 The full surface and foul drainage design information required is appropriate to secure by appending appropriate Planning Conditions to any approval granted.

5.8 There are no flood risk or drainage related grounds under The National Planning Policy Framework on which to object to the demolition of the existing barn at the site and erection of a replacement dwelling on land northwest of The Pastures, Conger Lane, Holywell.

APPENDIX 1

SITE LOCATION PLANS



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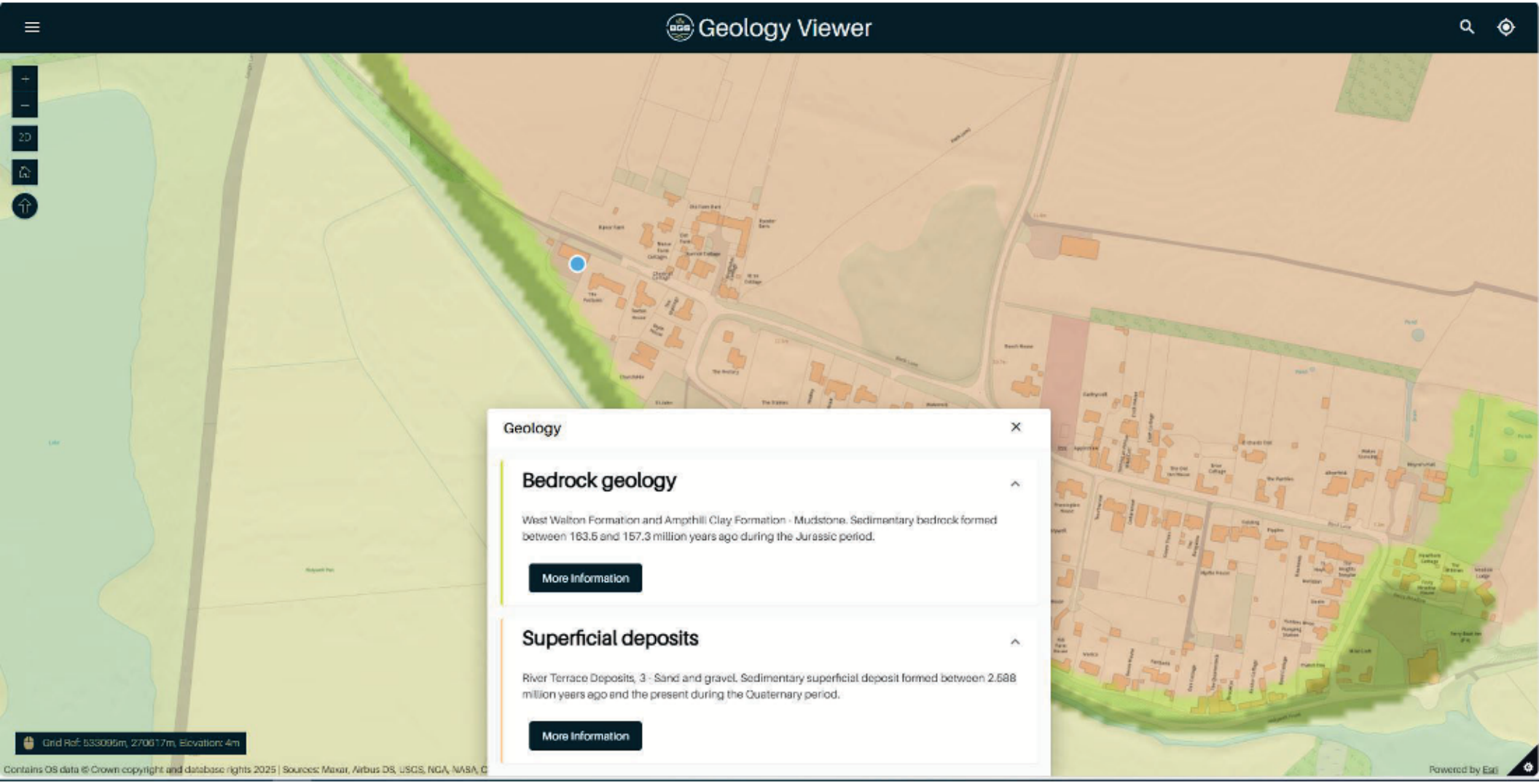
LOCATION PLAN
Area :1,550m^2
Scale 1:1250

APPENDIX 2

BRITISHG GEOLOGICAL SURVEY MAPPING


Geology Viewer
Geology
Bedrock geology
West Walton Formation and Ampthill Clay Formation - Mudstone. Sedimentary bedrock formed between 163.5 and 157.3 million years ago during the Jurassic period.
More Information
Superficial deposits
River Terrace Deposits, 3 - Sand and gravel. Sedimentary superficial deposit formed between 2.588 million years ago and the present during the Quaternary period.
More Information
Grid Ref: 533095m, 270617m, Elevation: 4m
Contains OS data © Crown copyright and database rights 2025 | Sources: Maxar, Airbus DS, USGS, NGA, NASA,
Powered by Esri

APPENDIX 3

ENVIRONMENT AGENCY FLUVIAL FLOOD MAP FOR PLANNING

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	**533545/270942**	**12 June 2025 12:00**

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

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

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

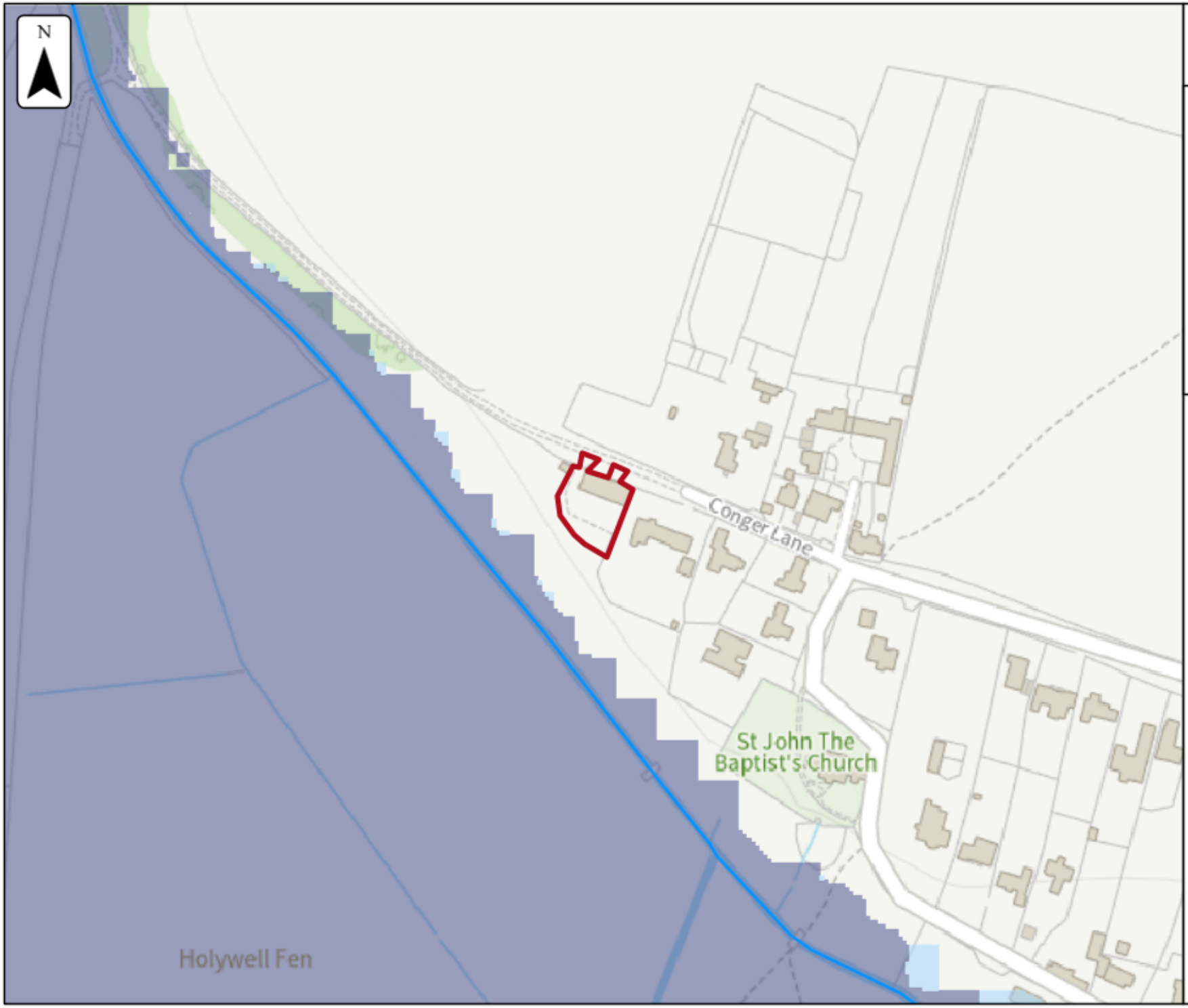
Notes

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

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

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

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



Environment Agency

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
533545/270942

Scale
1:2,500

Created
12 Jun 2025 12:00

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

0 20 40 60m

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APPENDIX 4

ENVIRONMENT AGENCY SURFACE WATER FLOOD MAP FOR PLANNING

GOV.UK

Flood map for planning

Get a boundary report

Edit

Delete

Datasets

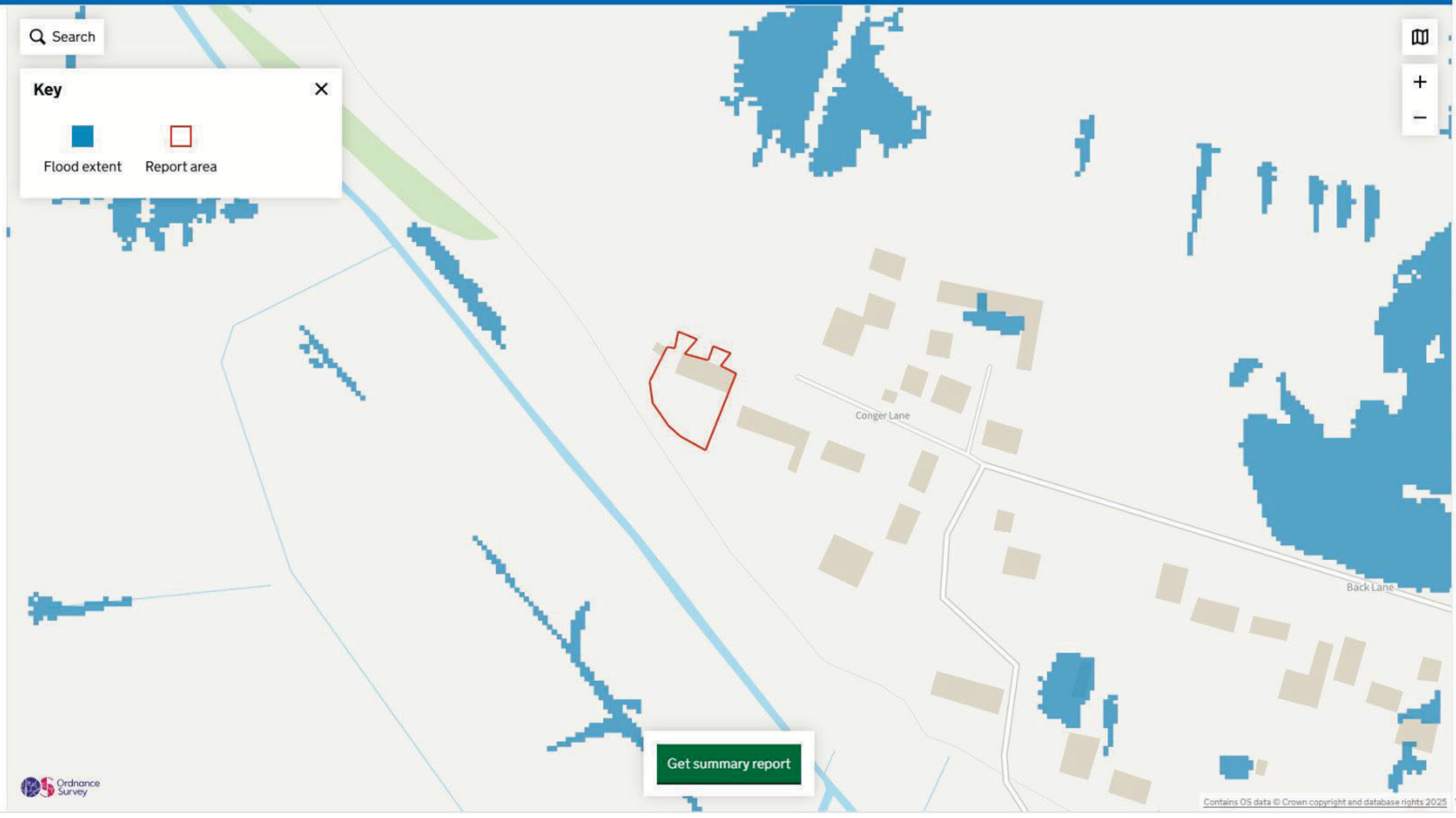
- ○ Flood zones 2 and 3
- ○ River and sea with defences
- ○ River and sea without defences
- ◉ Surface water
- ○ None

Annual likelihood of flooding

- ○ 1 in 30
- ○ 1 in 100
- ◉ 1 in 1000

Map features

- ☐ Water storage
- ☐ Flood defence
- ☐ Main Rivers

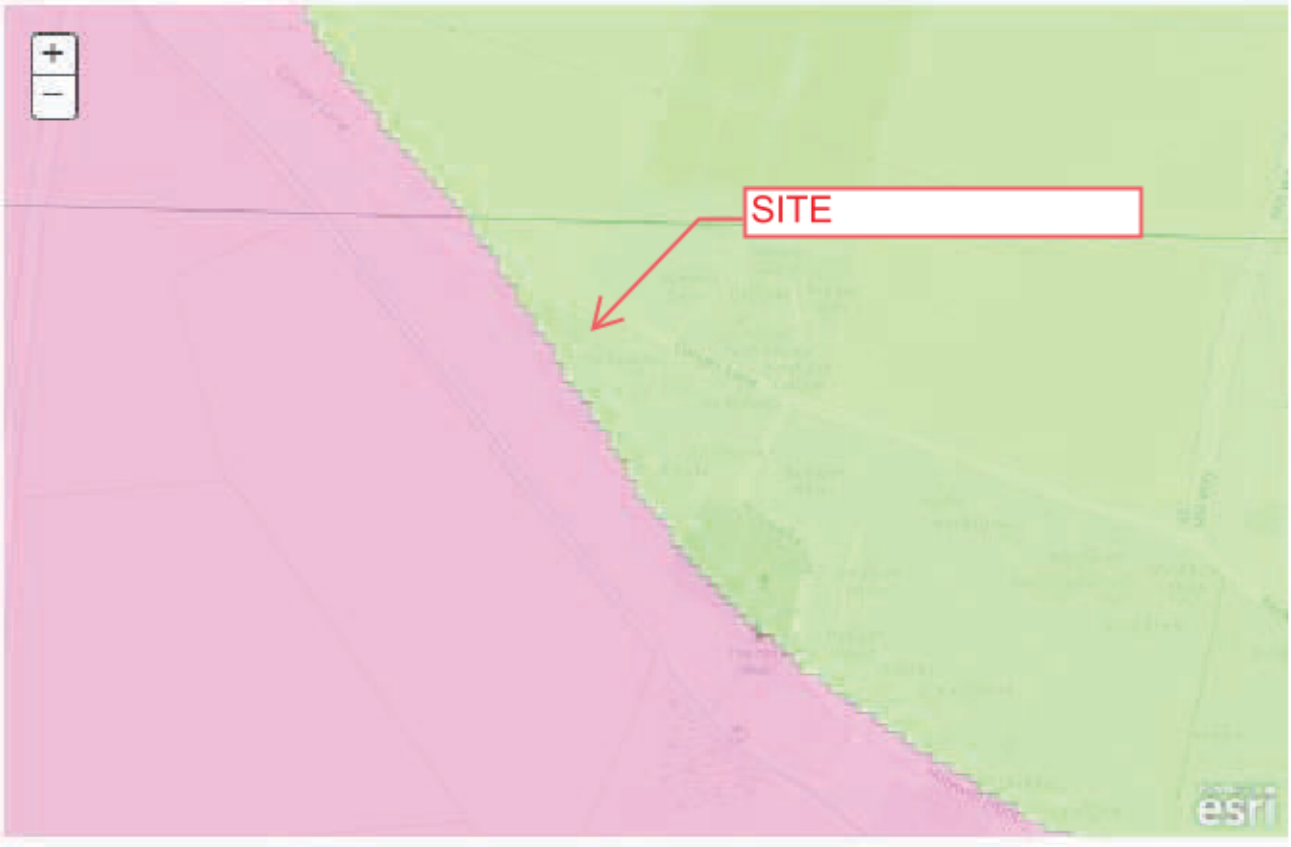


APPENDIX 5

SFRA GROUNDWATER FLOOD MAPPING

☑	**Areas Susceptible to Ground Water Flooding**	No Risk	Groundwater levels are either at or very near (within 0.025m of) the ground surface in the 100-year return period event.	Groundwater levels are between 0.5m and 5m below the ground surface in the 100-year return period event.	Groundwater levels are between 0.025m and 0.5m below the ground surface in the 100-year return period event.	Groundwater levels are at least 5m below the ground surface. in the 100-year return period event.
☐	**Updated flood map for surface water - Depth**	30 Year Extent	100 Year Extent	1000 Year Extent		
☐	**Updated flood map for surface water - Hazard**	30 Year Extent	100 Year Extent	1000 Year Extent		
☐	**Risk of flooding from rivers and sea**	Risk Areas				
☐	**Historic Flooding - Recorded Flood Outlines**	Historic Recorded Flood outlines				
☐	**Flood Risk Management**	Spatial flood defences including standardised attributes	Flood Alert Areas	Flood Warning Areas		
☐	**Working with Natural Processes**	WNPP Runoff attenuation features 3.3% AEP	WWNP Runoff Attenuation features 1% AEP	WWNP Riparian Woodland Potential	WWNP Floodplain Woodland Potential	WWNP Floodplain Reconnection Potential

Find address or place



APPENDIX 6

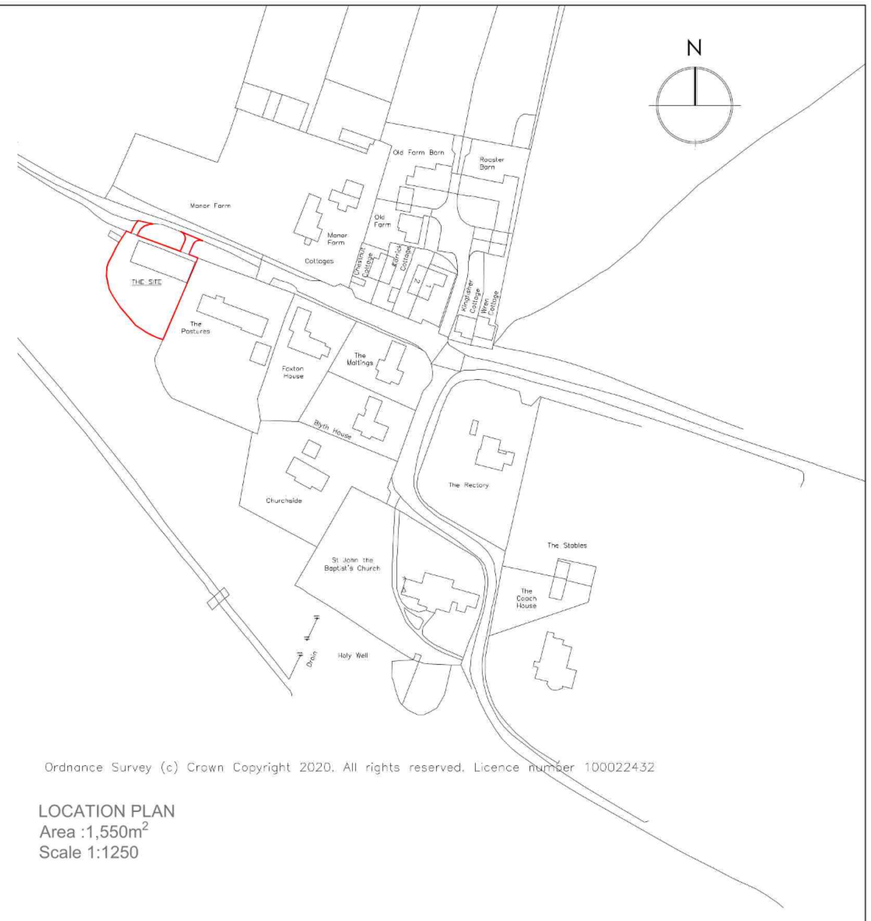
PROPOSED SITE LAYOUT



PROPOSED STREET SCENE
Scale 1:200



PROPOSED BLOCK PLAN
Scale 1:200



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LOCATION PLAN
Area :1,550m^2
Scale 1:1250

KEY

- PL 00.00 — Existing floor level in accordance with site survey / Proposed level
- Existing trees to be retained
- Proposed new tree
- Existing hedge to be retained
- Overgrowth / Brambles to be cut back
- Proposed new hedgerow
- Proposed new soft landscaping
- Proposed 1.8m high C/B fence
- Proposed 1.4m high post & rail fence
- Indian Sandstone patio slabs
- Grass
- Gravel
- Grey Tarmac
- Paviours

REV	DATE	BY	REVISION NOTES
B	12-05-25	SD	Amendments made following LID comments
A	09-01-25	LJ	Proposed design and street scene adapted and reduced in scale

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Parsons Green,
St Ives,
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PARTNERS in PLANNING and ARCHITECTURE

PROJECT
Erection of replacement dwelling at
Conger Lane,
Holywell,
PE27 4TG

CLIENT
Mr Anderson

DRAWING TITLE
Proposed Location Plan, Block Plan, and Street Scene

DRAWN BY	SCALE	REV.
SD	1:200, 1:1250 @ A1	
DATE	DWG. No.	
27-03-24	2020.11.200	B