

Furners Lane, Henfield

Flood Risk Assessment

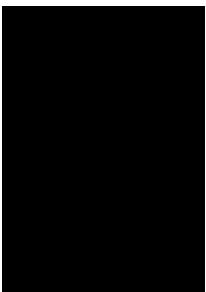
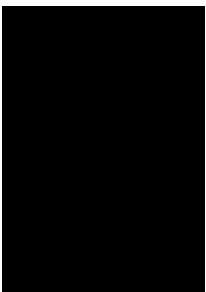
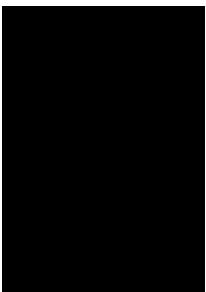
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Contents

1. Introduction	4
1.1. Site Address / Location	4
1.2. Description of Site	4
1.2.1. Site	4
1.2.2. Surrounding Area	4
1.2.3. Access	5
1.3. Description of Development	5
2. Site Information	5
2.1. Topography	5
2.2. Hydrology	5
2.3. Geology	5
2.4. Hydrogeology	5
2.5. Existing Sewer Drainage	5
2.6. Internal Drainage Board	5
3. Source of Information	6
3.1. Environment Agency	6
3.2. Local Authorities	6
4. Flood Risk	6
4.1. Fluvial / Tidal Flood Risk	6
4.2. Surface Water Flooding	6
4.3. Groundwater Flood Risk	6
4.4. Sewer Flood Risk	7
4.5. Reservoir Flood Map	7
4.6. Canals	7
4.7. Blockage of Artificial Drainage Systems	7
5. Planning Context	8
6. Surface Water Drainage Strategy	8
7. Flood Mitigation Measures and Other Constraints	8
8. Conclusions	9

Appendix A – Proposed Site Plan

Appendix B – Topographic Survey

Appendix C – Online Mapping, EA, BGS, & Magic Map

Appendix D – Southern Water Sewer Records

1. Introduction

ABSTRACT Consulting have been appointed by Elivia Homes Eastern to prepare a Flood Risk Assessment (FRA) to support a planning application for a new development of 29 dwellings.

The purpose of this FRA is to support a planning application by establishing the risk of flooding to the proposed development. Suitable mitigation methods will be recommended where required to reduce any potential risk to a more acceptable level. The FRA will show that the development will be safe for its lifetime (assumed to be 100 years) considering the vulnerability of the users, without increasing flood risk elsewhere.

This FRA will consider risk from tidal, fluvial, surface water, groundwater, sewer, and artificial sources in accordance with the National Planning Policy Framework and the corresponding Planning Practice Guidance and the Non Statutory Technical Standards for Sustainable Drainage Systems.

1.1. Site Address / Location

Furners Lane, Henfield, West Sussex, BN5 9HS

Ordnance Survey Grid TQ 217 161

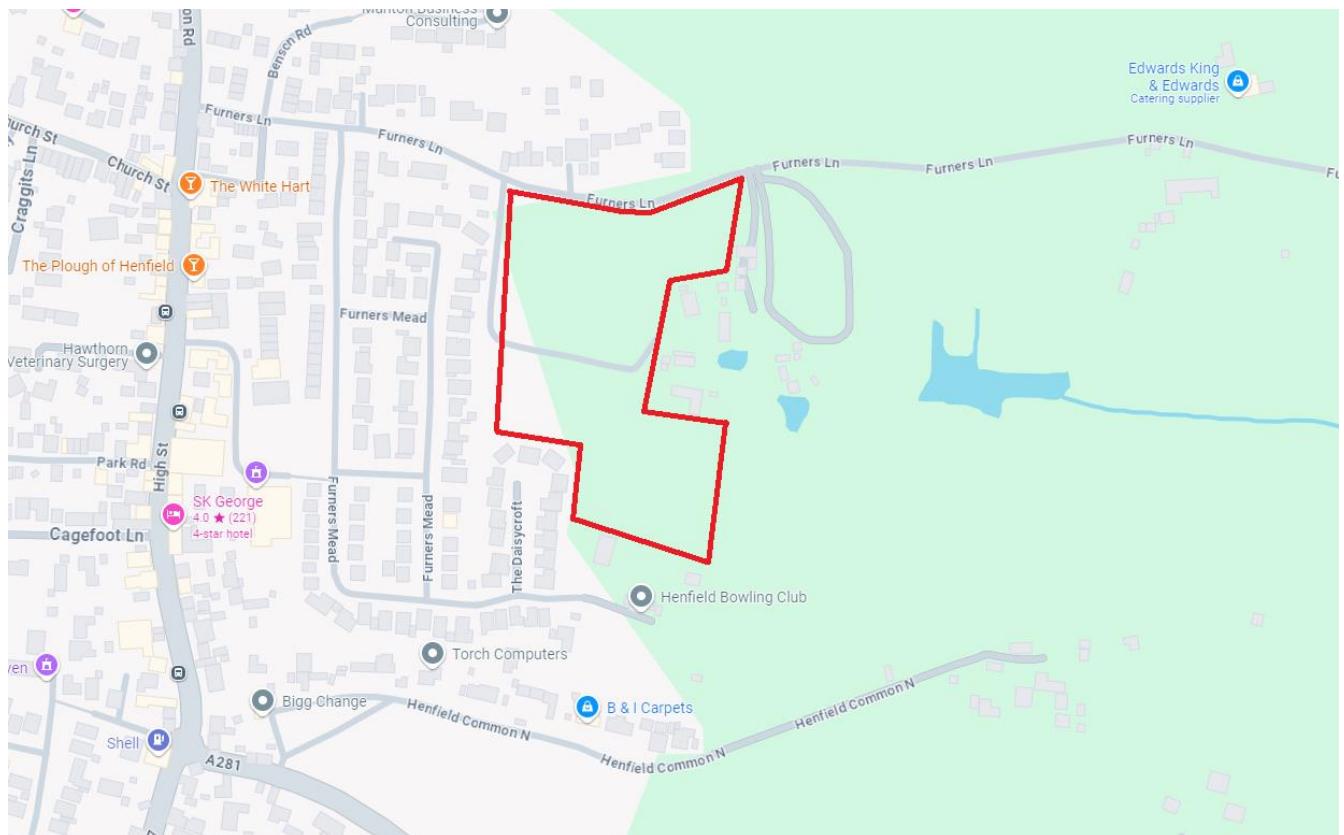


Figure 1 – Site Location Plan

1.2. Description of Site

1.2.1 Site

The site extends to 2.90ha and is located within the administrative boundary of Horsham District Council. The site comprises a greenfield with a track running through it which serves several dwellings on the eastern side of the site.

1.2.2. Surrounding Area

The site is immediately south of Furners Lane

To the west is the village of Henfield, whilst to the south is Henfield Bowling Club. There are further fields and small areas of woodland to the north and east.

1.2.3. Access

The site is accessed via an existing track, accessed off Furners Lane (public highway), beyond the existing track access Furners Lane changes to private. The existing access onto the development will be upgraded and formalised into a junction whilst the development is built out.

1.3. Description of Development

The development will comprise 29 dwellings along with associated access roads, parking areas, driveways, and landscaping. A proposed site layout can be found in Appendix A.

2. Site Information

2.1. Topography

The topographic survey of the site in Appendix B shows that the site generally falls from a high point at the south west of the site towards a low point at the north east of the site. Site levels shown on the topographic survey are to ordnance datum and generally range from 31.50 in the south western corner to 29.70 in the north eastern corner. There is a corner in the south east which is higher than this (highest level is 33.20), however this part of the site will remain green post development.

2.2. Hydrology

The nearest open water feature is a pond to the east of the site, approximately 60m away and 1m below the site. This is the first of a small series of ponds to the east of the site. However, levels continue to fall away from the site to the east as evidenced by the watercourse flowing east away from this series of ponds.

2.3. Geology

The British Geological Society (BGS) mapping for the site shows the site to underlain by the Lower Greensand Group – Sandstone, silty. Mapping is included within Appendix C.

Nearby BGS borehole backs this up and a log is presented in Appendix C which shows clay beneath the sandstone.

2.4. Hydrogeology

Online mapping provided by Magic Maps shows the site is underlain by a Principal aquifer, with a groundwater vulnerability of Medium High to High.

The mapping also shows that the site is not within a Source Protection Zone. Mapping is included within Appendix C.

2.5. Existing Sewer Drainage

The area around the proposed development is served by Southern Water for sewerage and a copy of the sewer records can be found in Appendix D. The records show that there is a Southern Water foul water sewer to the north west of the site entrance. The nearest surface water sewer is further west, along Furners Lane.

It is not anticipated that there will be any existing drainage within the site boundary.

2.6. Internal Drainage Board

The site does not lie within any internal drainage board area.

3. Source of Information

A number of online mapping services have been used to gather information on the site, these can be found in Appendix C.

3.1. Environment Agency

The EA Flood Zone mapping shows the site to be within Flood Zone 1, meaning that there is a less than 1:1000 year probability of flooding from fluvial sources.

The EA Flood Risk from Surface Water takes into account the likelihood of surface water flooding from rainfall events. This shows the site to be at Very Low risk of flooding, with some areas of High in the areas around the site.

3.2. Local Authorities

The Lead Local Flood Authority (LLFA) for the area is Horsham District Council.

The West Sussex County Council Preliminary Flood Risk Assessment shows no particular flood risk to the site.

4. Flood Risk

4.1. Fluvial / Tidal Flood Risk

The EA flood zone map shows that the site is classified as Flood Zone 1, representing a less than 1:1000 year probability of flooding from fluvial sources. The nearest open water (a pond) is approximately 60m to the east and 1m below the site. This is the first of a small series of ponds to the east of the site. However, levels continue to fall away from the site to the east as evidenced by the watercourse flowing east away from this series of ponds. Therefore, these pose a low flood risk.

As the site is within Flood Zone 1 the EA will not have any detailed flood risk modelling for the site.

The West Sussex County Council Preliminary Flood Risk Assessment Historical Flood Map information shows no record of any historic flooding within the site. However, there was a flooding incident within Henfield to the east of the site. No specific details on this event were available.

4.2. Surface Water Flooding

Large rainfall events can overwhelm the local infiltration and drainage capacity leading to localised flooding and surface water flowing overland. Surface water flooding can also be caused by a reduction in the capacity of the local surface water drainage due to blockage.

The site topographic survey shows that the site falls from a point on the south western boundary to the north eastern boundary, therefore surface water is likely to be conveyed away from the site towards the open fields and highway to the north east. The EA's surface water flood map shows the site to be at very low risk of flooding from pluvial sources.

The proposed site layout shows that impermeable area will be increased post development. However, by employing the drainage strategy discussed in Section 6 we can ensure that surface water flood risk will not be increased as a result of the development through the use of a restricted outfall, set to the Greenfield QBar runoff rate, to ensure that offsite flows are not increased post development.

Therefore, the overall risk of pluvial flooding to the site can be considered low.

Due to surface water flooding likely increasing in the future due to the effects of climate change this should be accounted for in the surface water drainage strategy.

4.3. Groundwater Flood Risk

Groundwater flooding generally occurs after long periods of sustained high rainfall. High rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas of higher ground level to areas of lower ground level. Low lying areas typically have the water table at shallower depths, but during very wet periods this can raise to the surface causing groundwater flooding.

Geological mapping shows the site to be underlain by the Lower Greensand Group – Sandstone, silty. The site is generally higher than the ground levels to the east and it is unlikely that groundwater flooding will be an issue on this site.

As the proposed development does not include any basement works and taking into account the above the risk of groundwater flooding to the site is assessed as low.

4.4. Sewer Flood Risk

Flooding of sewers is typically caused by either a blockage of the system reducing the capacity, or an excess of surface water entering the system overwhelming the sewer.

The Southern Water sewer records show that there is a Southern Water foul water sewer to the north west of the site entrance. The nearest surface water sewer is further west, along Furners Lane.

Post development all surface water will be dealt with via discharge to ground as described in Section 6 which will further decrease the flood risk.

The impact of climate change is likely to cause more regular flooding from sewers due to increased rainfall overwhelming the local network. However, this is not significant in terms of the proposed development.

4.5. Reservoir Flood Map

The EA no longer publish Reservoir Flood Maps showing the maximum extent of flooding that would occur if a reservoir were to fail.

Reservoir flooding is extremely unlikely with no loss of life in the UK from reservoir flooding since 1925. Reservoir safety legislation has been introduced since then to ensure reservoirs are maintained. Reservoirs can be further managed by controlling inflow and outflow of water, therefore helping to control the effects of climate change. It is therefore unlikely that there will be a substantial change to the risk of flooding for this site.

4.6. Canals

There are no Canal and River Trust owned canals within the vicinity of the site.

4.7. Blockage of Artificial Drainage Systems

There is a possibility that flooding may occur due to blockage of drainage systems by debris, or structural failure. This would cause water to backup and localised flooding.

The new drainage will require maintenance to reduce the risk of blockage, this is described within the Drainage Strategy Report which is issued separately.

5. Planning Context

The NPPF and PPG set out criteria for development and flood risk based on inappropriate development in high risk flood areas should be avoided with these directed towards areas of low risk.

PPG includes a list of land uses and their suitability in each flood zone. This is reproduced in Table 1 below with the site classification highlighted. Table 2 of the PPG shows the proposed development is classified as More Vulnerable.

Flood Risk Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	Appropriate	Appropriate	Appropriate	Appropriate	Appropriate
	Zone 2	Appropriate	Appropriate	Exception Test Required	Appropriate	Appropriate
	Zone 3a	Exception Test Required	Appropriate	Should not be permitted	Exception Test Required	Appropriate
	Zone 3b functional floodplain	Exception Test Required	Appropriate	Should not be permitted	Should not be permitted	Should not be permitted

Table 1 – Flood Risk Vulnerability and Flood Zone Compatibility

As demonstrated in Table 1 above, the usage classification of the site is suitable for the Flood Zone the sequential test can be shown as passed, with no need for an exception test.

6. Surface Water Drainage Strategy

AC23068-ABS-XX-XX-RP-C-5800 – Drainage Strategy Report (issued separately) contains details on how surface water will be managed on site.

In summary the site will use temporary storage features and a restricted, pumped, outfall to manage surface water runoff from the site to the Greenfield QBar Runoff Rate.

7. Flood Mitigation Measures and Other Constraints

As the site is within Flood Zone 1, no further measures to control external runoff to the site are recommended beyond ensuring any drainage features in this area are protected via levels to divert water flow around the attenuation.

Surface water runoff generate on site will be dealt with via controlled discharge to the sewer. The temporary storage features will be designed to cope with all storms up to and including the 1:100 year event with a 45% allowance for climate change.

As the site is in Flood Zone 1 no finished floor level requirements or further flood mitigation is required.

8. Conclusions

This document complies with the NPPF and Planning Practice Guidance and demonstrates that flood risk from all sources has been considered in the proposed development. It is also consistent with the Local Planning Authority requirements with regard to flood risk.

Based on the available information, the site is located within Flood Zone 1 and is considered to be at a low risk of flooding from all sources considered (fluvial / tidal, reservoir, surface water, groundwater, and artificial sources).

All surface water run-off generated by the site will be dealt with on site through controlled discharge of surface water to the sewer.

Therefore, this development should not be refused on grounds of flood risk.

Appendix A – Proposed Site Plan



SITE PLAN

Accommodation Schedule

Affordable Rented Dwellings [10no. - 34.5%]

2no.	1-Bedroom M4(3) Flats	AFF Type 1	Block:	607sqft
2no.	2-Bedroom Flats	AFF Type 2	Block:	716sqft
2no.	2-Bedroom Houses	AFF Type 3	Terraced	874sqft
4no.	3-Bedroom Houses	AFF Type 4		1003sqft

Open Market Dwellings [19no. - 65.5%]

3no.	2-Bedroom w/ Study Chalet Bungalows	Farleigh	Detached	1142sqft
5no.	3-Bedroom Chalet Bungalows	Birley	Detached	1231sqft
2no.	4-Bedroom Houses	Ashcombe II	Detached	1428sqft
2no.	3-Bedroom w/ Study Chalet Bungalows	Priestwood	Detached	1517sqft
4no.	4-Bedroom Houses	Bramham	Detached	1628sqft
1no.	4-Bedroom Chalet Bungalow	Brambleton	Detached	1727sqft
2no.	4-Bedroom w/ Study Houses	Goring	Detached	1889sqft

Total: 29 Dwellings

Parking

Allocated Spaces: 59 spaces
Visitor Parking: 13 spaces

Total Parking Spaces: 72 spaces

P11	19.09.24	Updated Red line boundary.	NK	TW
P10	17.09.24	Updated Site Layout.	NK	TW
P9	05.09.24	Footpath on western boundary widened to 2m	TW	AK
P8	22.08.24	Indicative planting removed.	EW	TW
P7	14.08.24	Parking added to schedule - annotations added.	NK	KE
P6	12.08.24	Updated Site Layout - drainage info added.	NK	KE
P5	29.07.24	Updated Site Layout.	TW	AK
P4	22.07.24	Updated Site Layout.	JY	AK
P3	16.07.24	Updated Site Layout.	AK	KE
P2	30.06.23	Updated Site Layout to Pre-App Comments	LD	AK
P1	05.07.23	Updated to Client Comments	LD	AK

Rev Date Revision Details Dr Ch

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Client's Name
Elivia Homes

Job Title
Land West of Backsettown,
Furners Lane, Henfield

Drawing Title
Proposed Site Plan

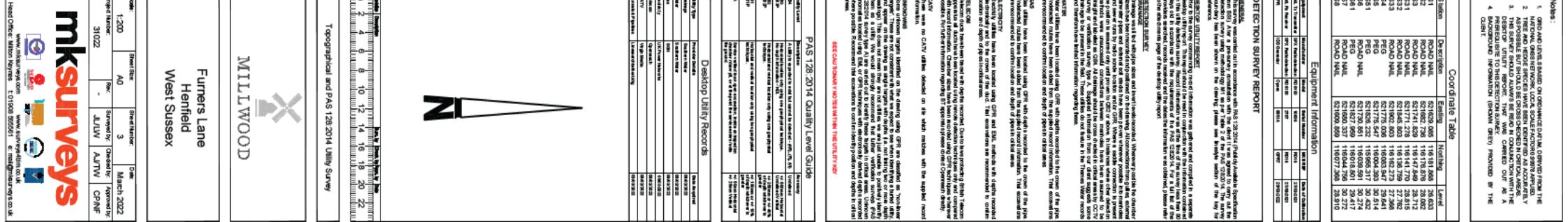
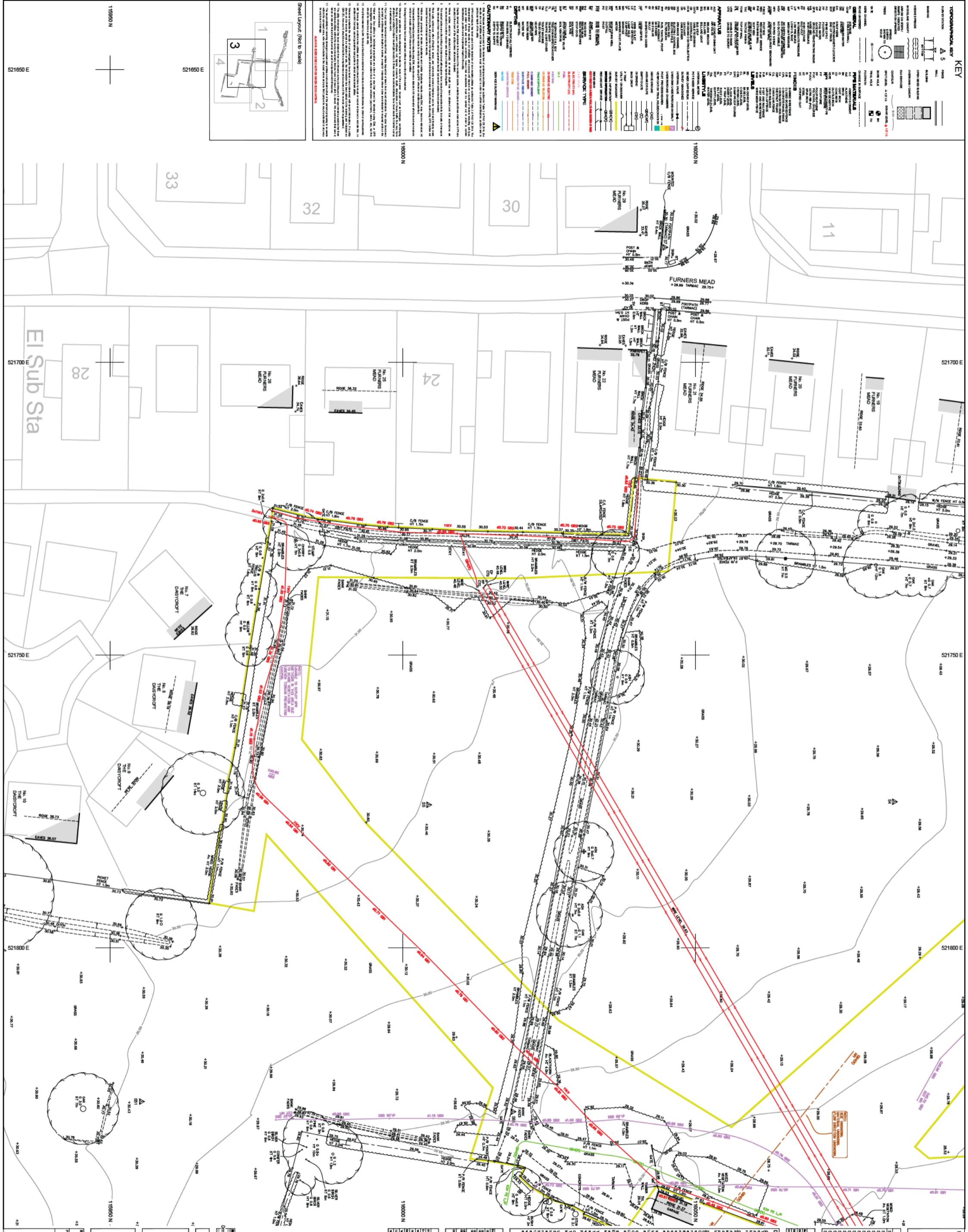
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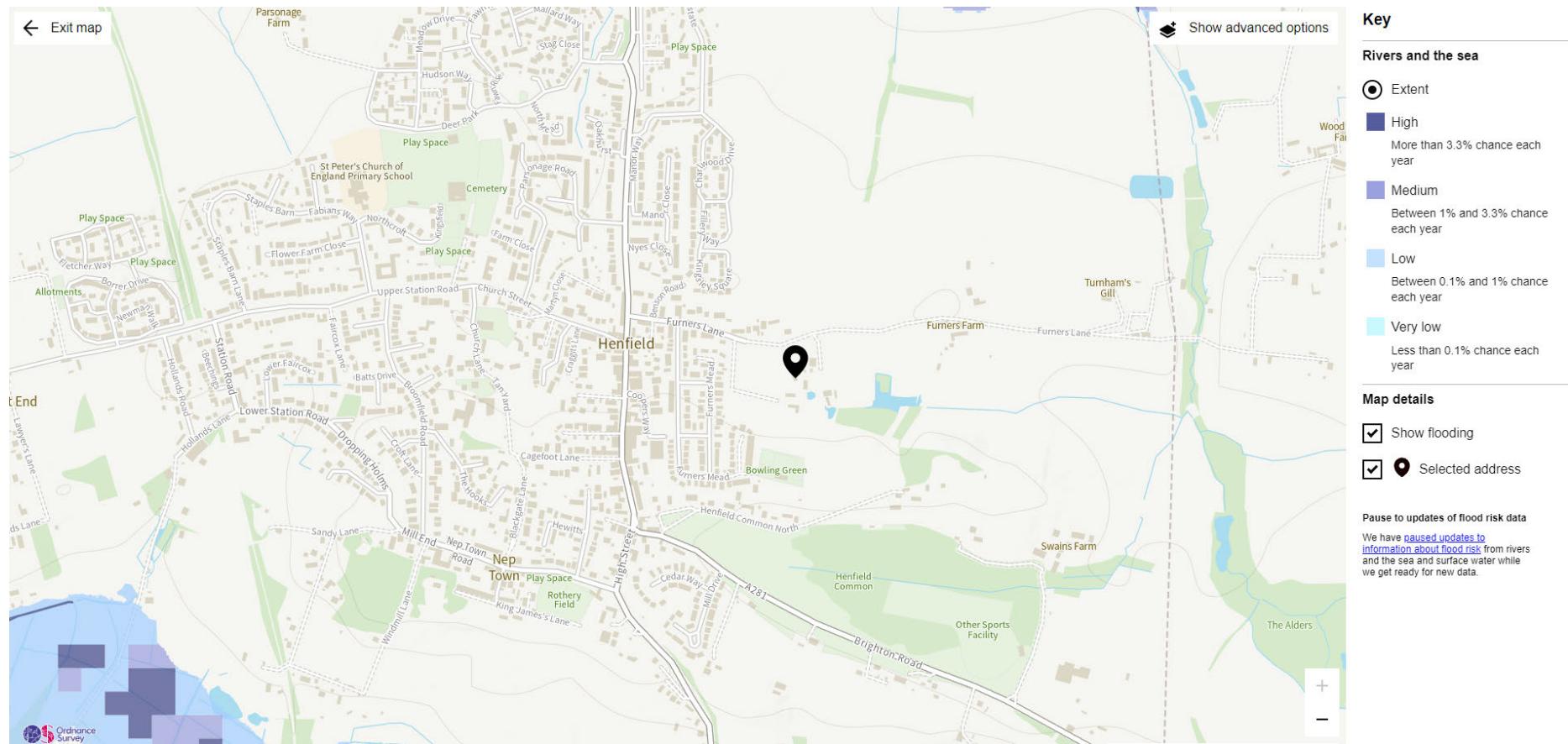
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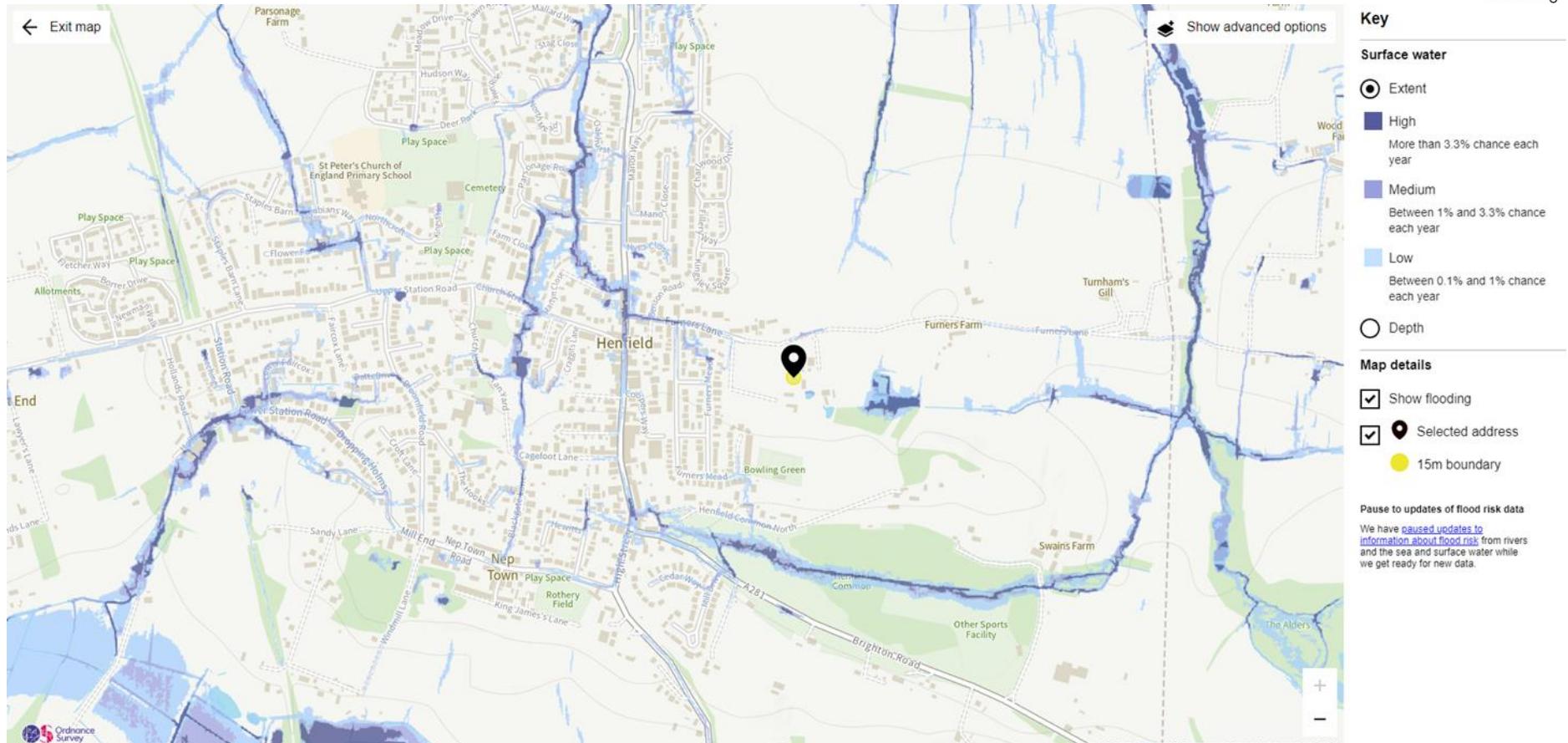
Appendix B – Topographic Survey



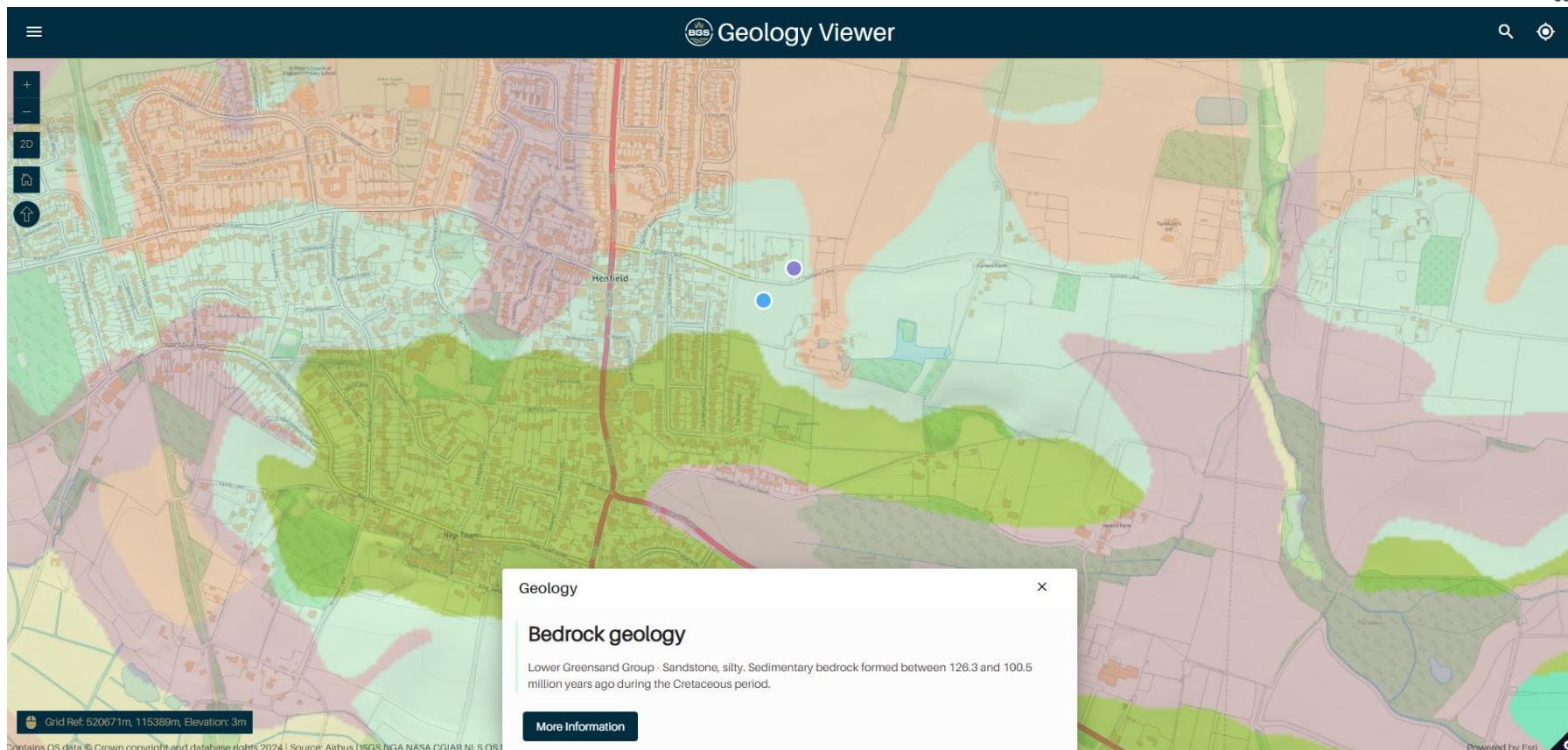
Appendix C – Online Mapping, EA, BGS, & Magic Map



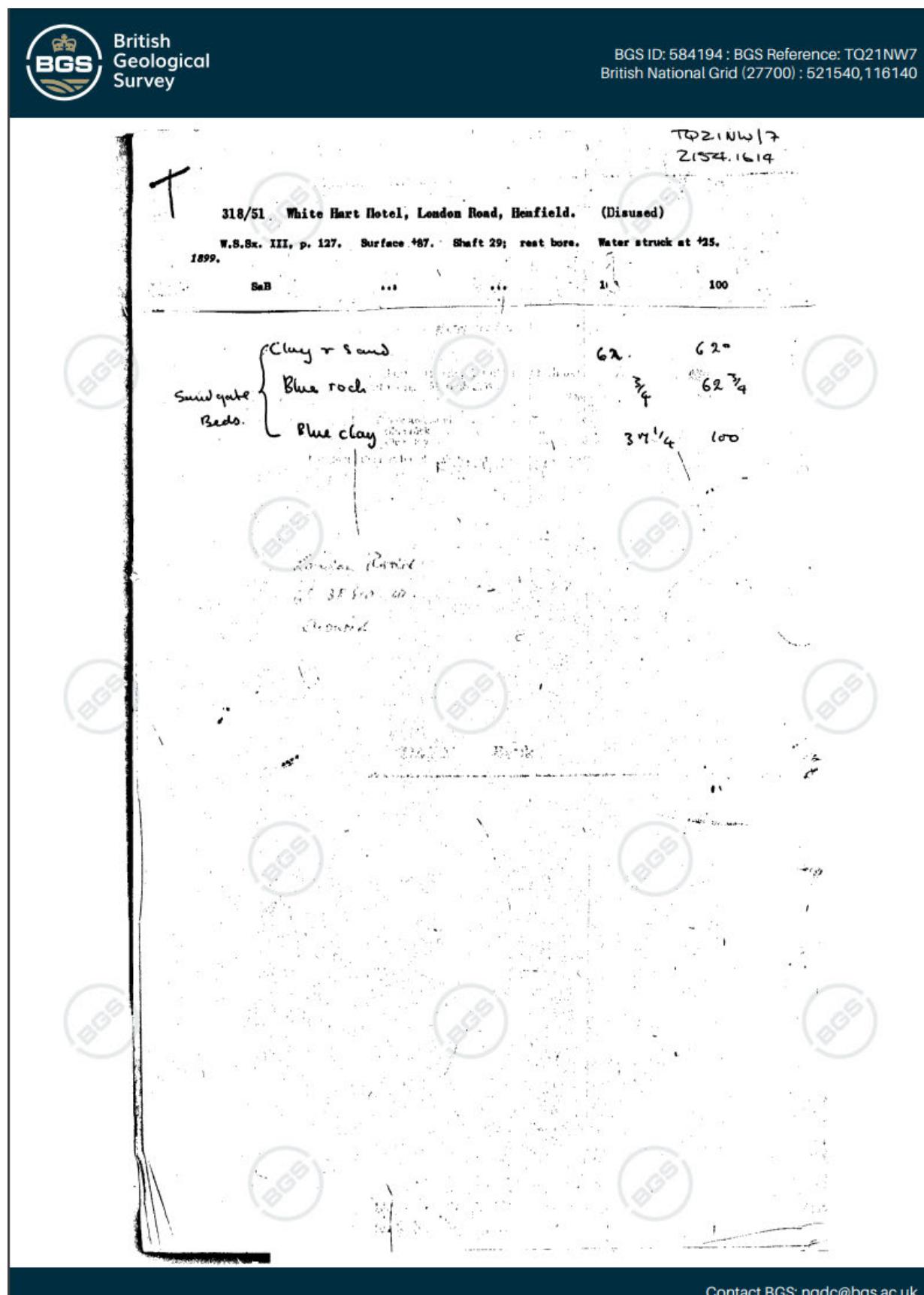
Environment Agency – Flood Risk from Rivers and Sea

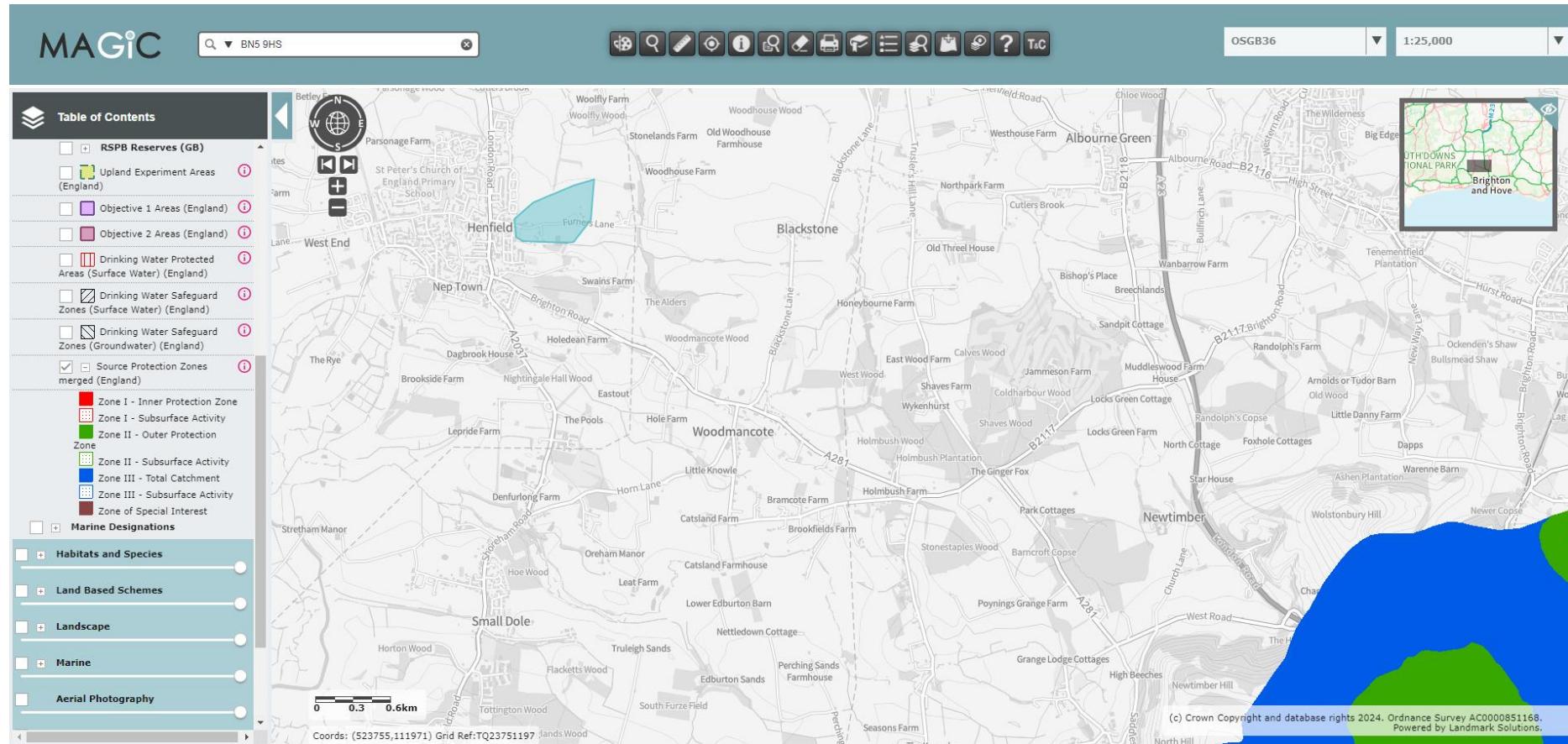


Environment Agency – Flood Risk from Surface Water

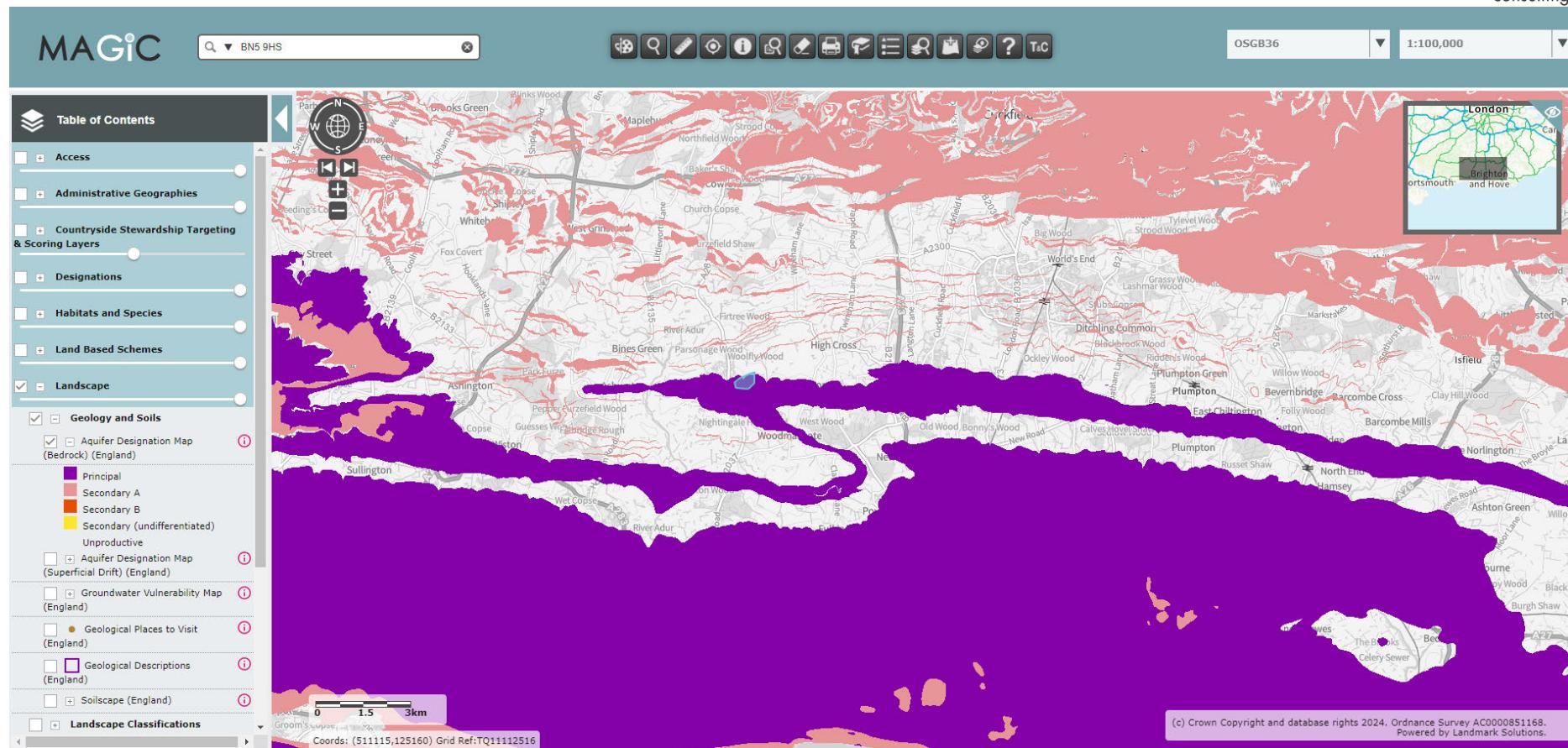


British Geological Society – Bedrock and Superficial Deposits

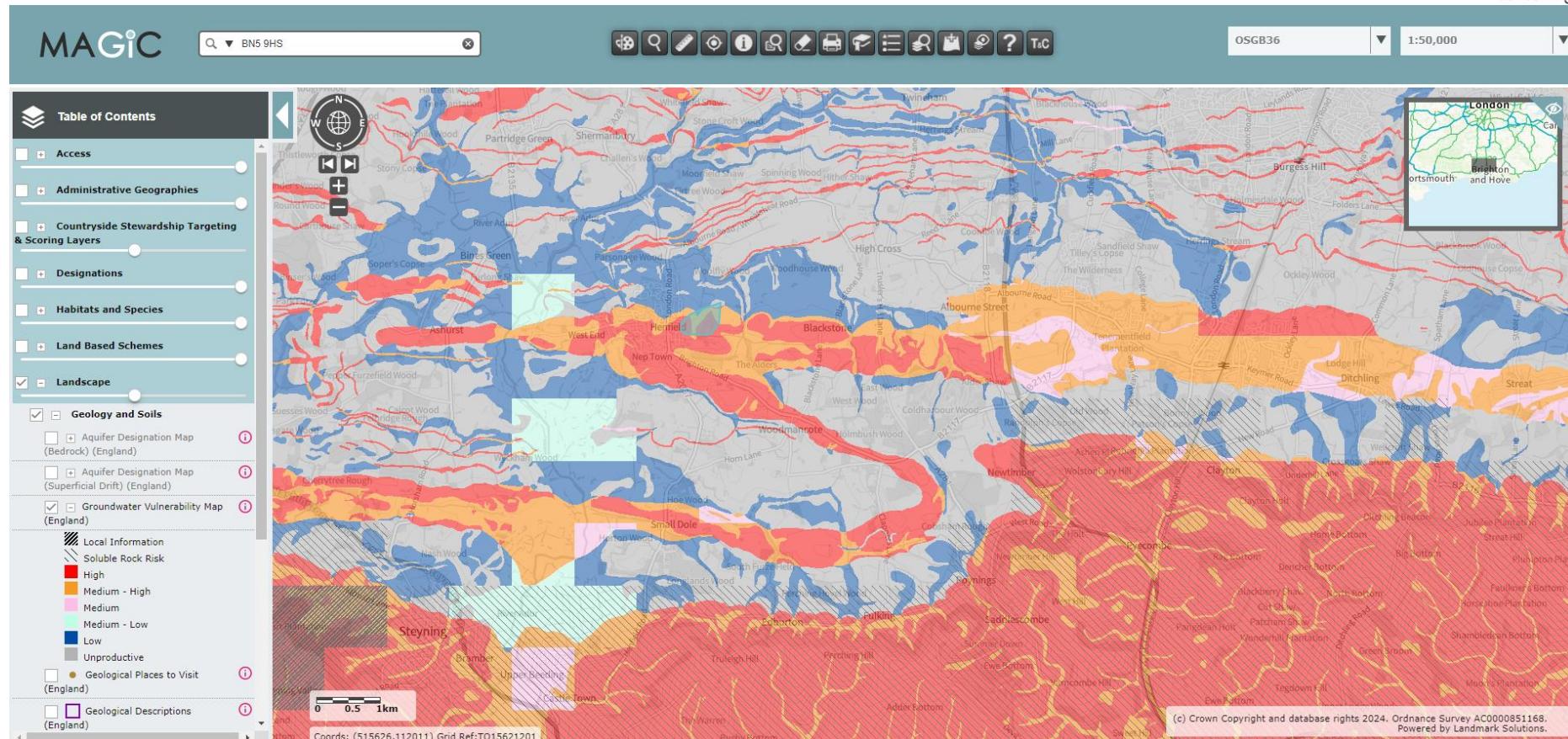
Contact BGS: ngdc@bgs.ac.uk



Magic Map – Source Protection Zones



Magic Map – Aquifer Designation



Magic Map – Groundwater Vulnerability

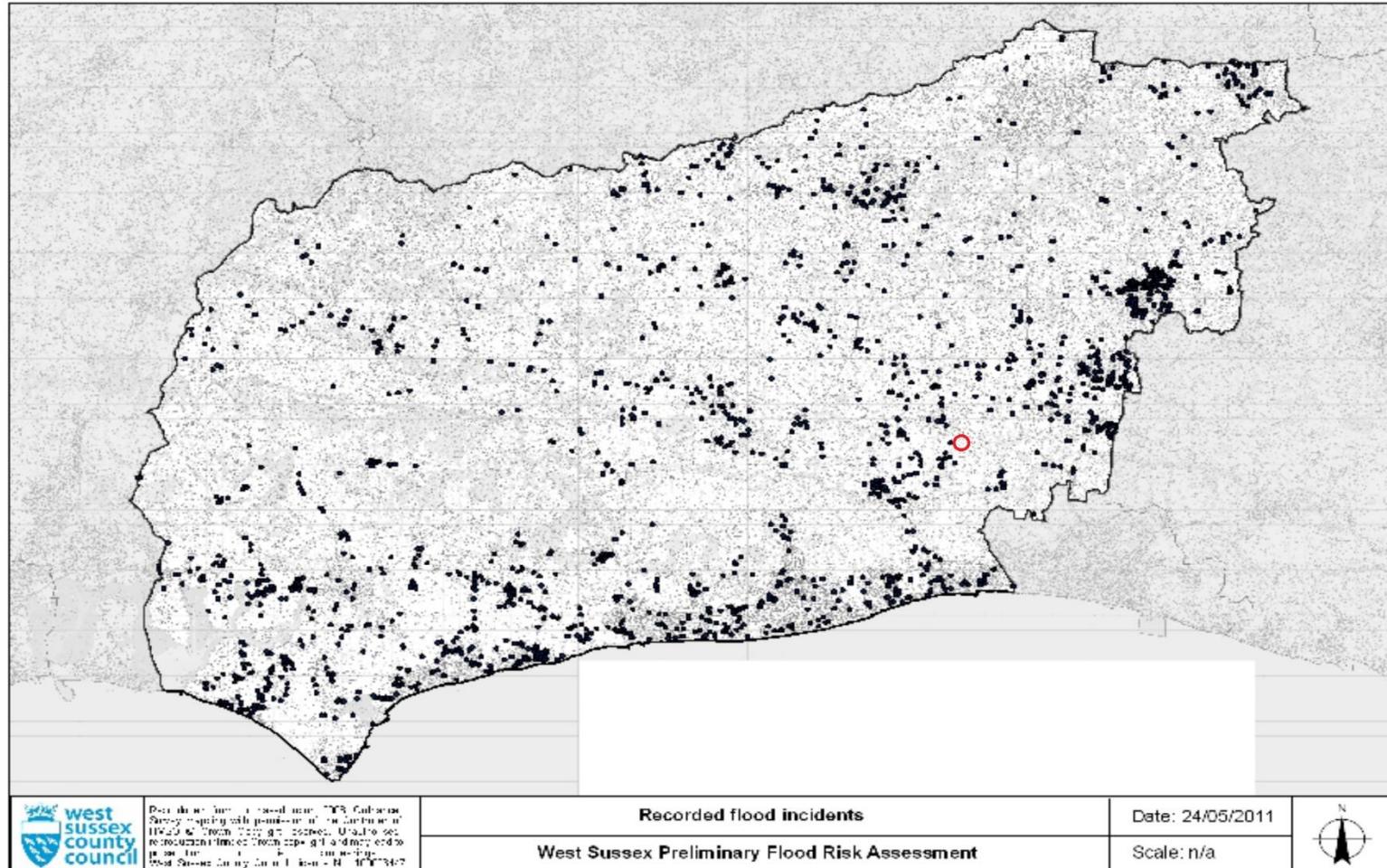


Figure 4.1 Recorded flood incidents across West Sussex from all local sources

West Sussex County Council Preliminary Flood Risk Assessment – Historic Flooding Summary

Appendix D – Southern Water Sewer Records

