

Our Ref: J-15270 - AG

Date: 17/07/2023

Mr & Mrs Beauchamp
37 Sunhill Crescent
Alresford
Hampshire
SO24 9NJ

RE: Proposed extension of use to 2 pre-existing caravans, from 8 months of the year to 10 months – Flood Risk Assessment

Introduction

Mr & Mrs Beauchamp are proposing to extend the use of two pre-existing caravans at 94 Eastoke Avenue, Hayling Island, PO11 9QR.

A planning application has been submitted under planning application reference APP/22/00938 for the extension of use. It has become apparent that the Environment Agency have issued a holding objection on the application, due to the absence of a suitable Flood Risk Assessment.

An initial inspection of the Environment Agency (EA) indicative flood map (Figure 2 below) shows that the entire site is located within Flood Zone 3. Therefore, Nijhuis Industries Ltd. have been commissioned to undertake a Flood Risk Assessment (FRA) for the site. This will assess the potential flood depths and levels and also determine the suitability of potential development on this site.

This report comprises the FRA for the site, in line with the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG).

Site Description

The proposal is to extend the use of the two caravans at 94 Eastoke Avenue from 8 months of the year to 10 months to allow for maintenance during the winter months. The approximate OSGR for the site is SZ 74443 98703. The site location is shown in **Figure 1** below.

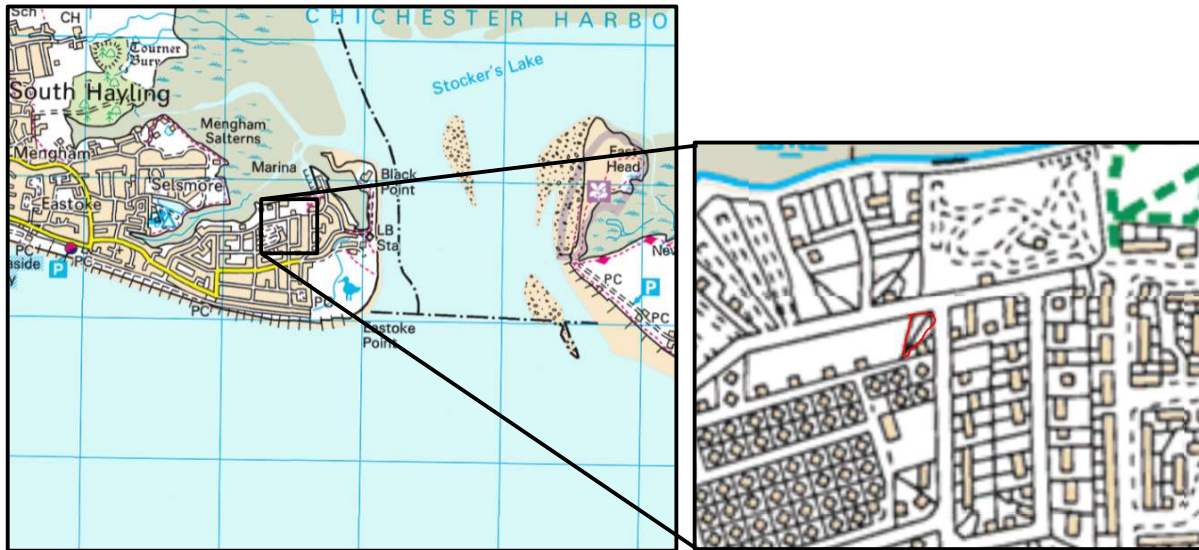


Figure 1. Site Location

Environment Agency Information

An extract from the EA indicative flood map is shown in **Figure 2** below. Inspection of the EA indicative flood map shows that the site is located within Flood Zone 3, to get a better understanding of the depth and extent of flooding EA data was applied for.

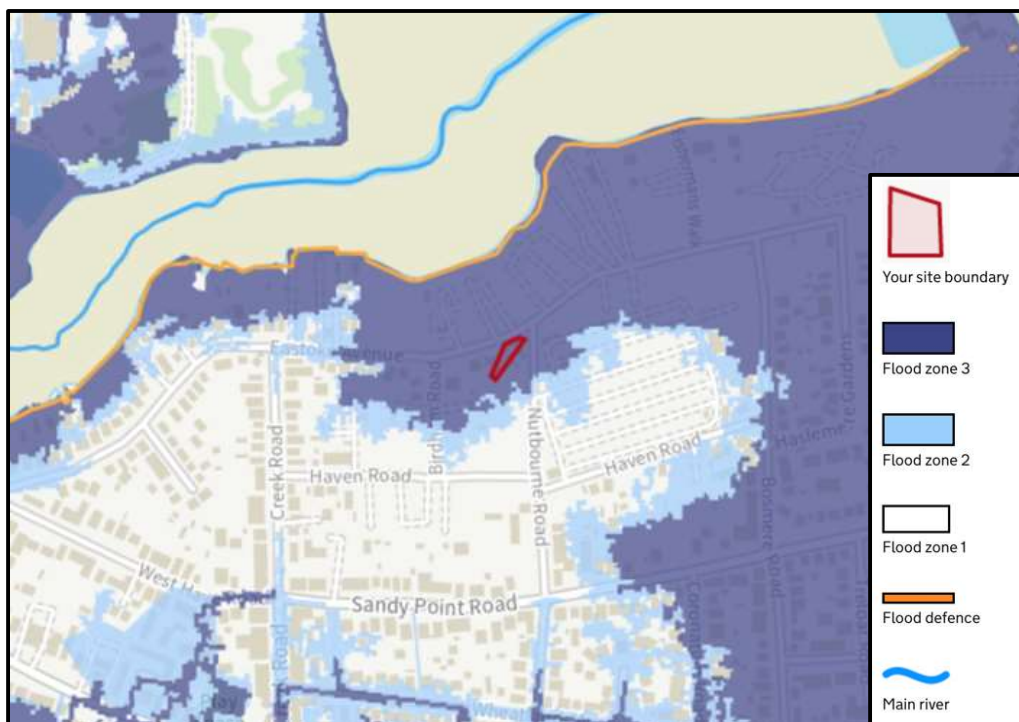


Figure 2. EA Flood Map for Planning

The flood information provided by the EA has been assessed further within this report.

Surface Water Flooding

Figure 3 shows the risk of surface water flooding. The site is free from flooding during all surface water flood events. Part of the northern road is subject to 300mm of flooding in the low risk scenario, however this does not affect the site.

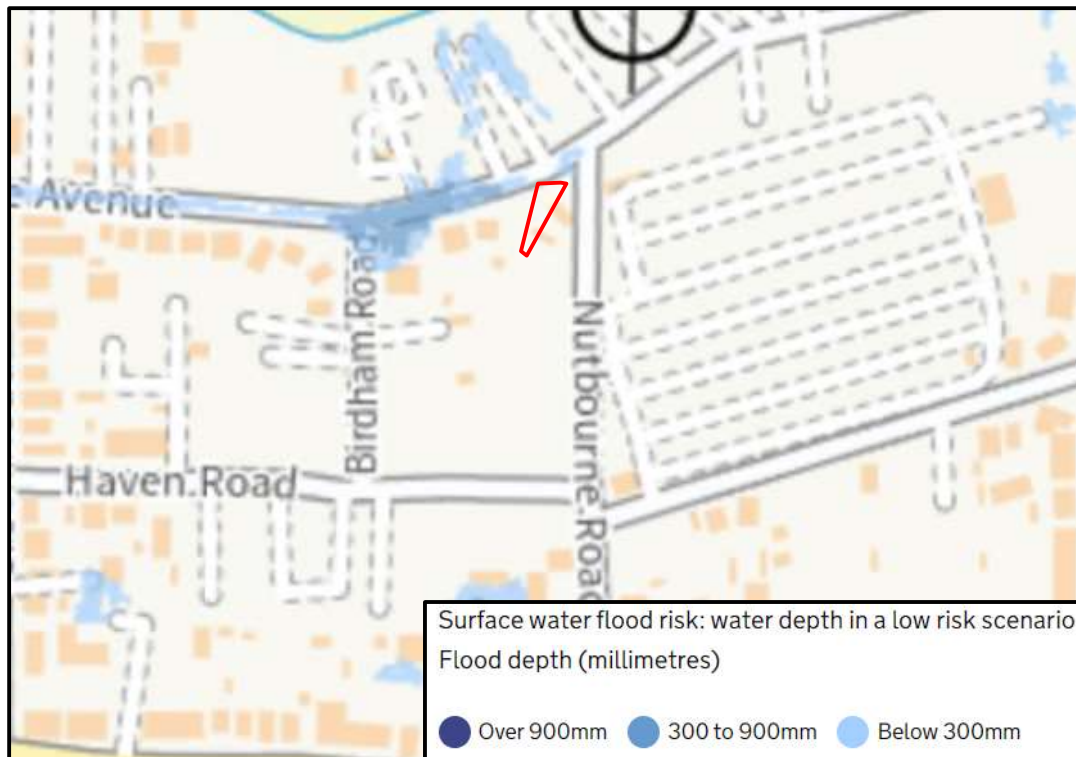


Figure 3. EA Surface Water Flood Maps

Groundwater Flooding

Figure 4 shows that the site is at a medium-low risk of groundwater flooding.

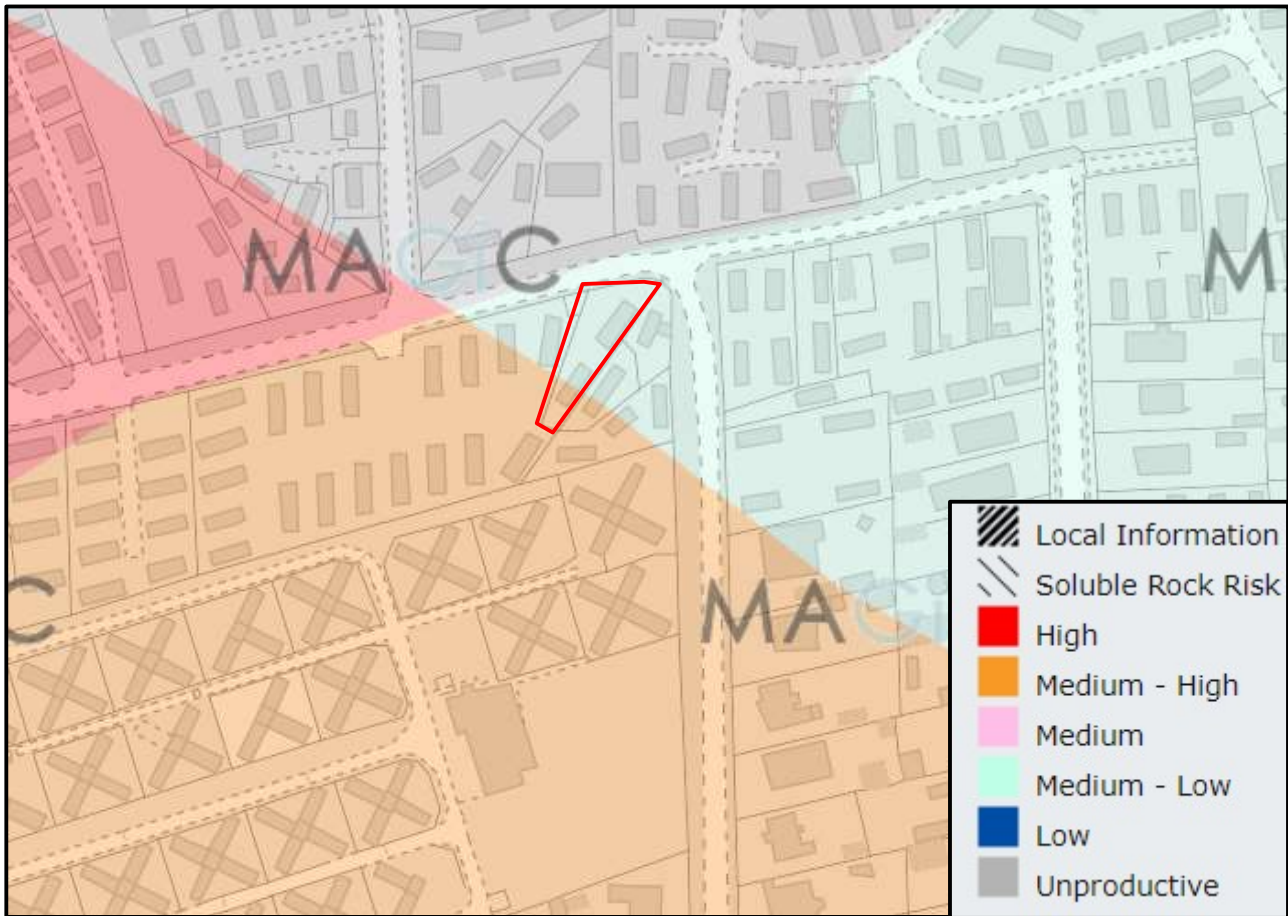


Figure 4. MAGIC Map- Groundwater Vulnerability

As the site has already been developed the groundwater is not considered to be a risk to this site.

Fluvial Flooding

The site is on Hayling Island and there are no watercourses directly nearby. It is therefore considered that given its proximity to the ocean, tidal flooding will pose the greatest risk to the caravans.

Tidal Flooding

An EA flood information request was submitted on the 20/04/2023. The EA replied on the 30/06/2023 and provided Product 4,5 and 6 Flood Information.

As part of the information supplied, the EA provided LIDAR ground levels which were utilised to form the flood model. The LIDAR data shows the site as being set at a level of 2.99m AOD.

Flood information has been provided based on the Hampshire coastline TUFLOW model, created by JBA on behalf of the EA in 2018. A range of AEP events have been considered for the current day scenario and climate change scenarios projected onto the 0.5% and 0.1% AEP extents.

The present-day defended situation model results shows that there are areas within all three of the tidal models susceptible to relatively regular tidal flooding (>10% AEP event). Across the Hayling Island model domain these areas include parts of Langstone and the eastern side of the Island.

Importing the Flood Zone extents into GIS, it is found that the site is free from flooding during the 1 in 1000yr flood event and 1 in 200yr flood event when existing defences are considered.

Flood defence walls located on the northern coastal boundary are shown to be in fair condition, with protection up to the 1 in 200yr flood event.



Figure 5. 1 in 200yr defended flood extents (left) and 1 in 1000yr defended flood extents (right)

The site is however shown to be inundated when climate change allowances are included. As requested by the EA, climate change allowances should be inclusive up to 2098. The TUFLOW model produced looks at climate change for 2031, 2065 and 2115. The site is inundated throughout all climate change scenarios. Given the EA requested that allowances were included to 2098, we have looked at the 2115 scenario for both the 1 in 200yr and 1 in 1000yr flood event.



Figure 6. 1 in 200yr 2115 (left) and 1 in 1000yr 2015 (right)

It is considered that the two caravans are located within Flood Zone 3 when no defences are considered. It is also noted however that the two caravans are existing and already in use 8 months of the year. The proposal is to allow use of the caravans to undertake maintenance for another 2 months of the year. Therefore, the Flood Risk will not increase and will remain as per the existing scenario.

Mitigation Measures

The site is currently at risk of up to flooding during the undefended 1 in 200yr and 1 in 1000yr flood events. In addition, the site is at risk when climate change is considered.

The measures below outline several options which would help reduce the overall level of flood risk whilst maintaining the ability to utilise the caravans for holiday use at the site.

- The owners should be connected to the EA's free flood warning system for the area if they are not already. This will ensure prior warning of a possible flooding event and allow adequate time to prepare for flooding.
- Evacuation procedures should be issued for onsite guests. Due to tide predictability, it is possible to have a lengthy early warning period before flood water rises in order to evacuate. A flood management plan would outline the evacuation procedure.
- Vehicles could be used in evacuation prior to a flood event. Otherwise, vehicles should remain on site, and site users should be aware of damages to personal property that could occur.
- Static caravans should be securely anchored to the ground in order to prevent them floating on the flood waters and putting both site users and third parties at risk.

As the proposal is for the extension of use from 8 months to 10 months to allow the owners to be able to stay on site when undertaking maintenance, it should be possible for the owners to assess the weather forecast in advance and avoid attending if there are scheduled storm events or periods of heavy rainfall.

It is recommended that the site should sign up for the Environment Agency's Flood Warning System for the area. This will ensure prior warning of a possible flood event and allow adequate time to prepare for flooding. EA standing advice is given below:

		
FLOOD ALERT	FLOOD WARNING	SEVERE FLOOD WARNING
What it means Flooding is possible. Be prepared.	What it means Flooding is expected. Immediate action required	What it means Severe flooding. Danger to life.
What to do • Be prepared to act on your flood plan. • Prepare a flood kit of essential items. • Monitor local water levels on our website.	What to do • Protect yourself, your family and help others. • Move family, pets and valuables to a safe place. • Keep a flood kit ready. • Turn off gas, electricity and water supplies if safe to do so. • Put flood protection equipment in place.	What to do • Stay in a safe place with a means of escape. • Be ready should you need to evacuate from your home. • Co-operate with the emergency services. • Call 999 if you are in immediate danger.

Figure 7. EA Standing Advice

Access and Egress

The majority of the land surrounding 94 Eastoke Avenue is at risk of flooding. We have assessed the worst case 1 in 1000yr flood event with climate change to 2115 to determine where would be free from flooding.

It is considered that the steps below should be followed in the event of an evacuation:

- Whilst at risk of flooding, access and egress from the site should take place west along Eastoke Avenue, approximately 600m, before turning left along Southwood Road.
- This leads to an area at low risk of flooding where there are a number of potential refuge points in the Lifeguard Inn, Beach Café and Coastguard Café.



Figure 8. Flood Evacuation Route

Policy

The proposed re-development is located within defended Flood Zone 3. Developments of this nature are classified as 'more vulnerable' and in accordance with Table 3 of PPG (Figure 9 below) it would be subject to the Sequential and Exception Tests.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓*

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

Figure 9 Table 3 of PPG

The development is for the proposed extension of use to the existing site and therefore there is no change in the flood risk vulnerability of the development. In addition to this, the extension is unlikely to change the number of occupants on the site therefore there is no additional risk due to the proposal.

Conclusions

The entire site and access are considered to be located within Flood Zone 3 when climate change is considered. The site benefits from protection from an wall which runs along the northern coastal boundary which provides tidal flood protection.

The flood risk mitigation measures put forward in this report would provide benefits to the site throughout the duration of its operational season.

A suitable evacuation route can be made out of the Flood Zone to the west, where suitable refuge can be made until flood levels subside.

Table 3 of PPG demonstrates that this 'More Vulnerable' development could be acceptable at this site subject to the Sequential Test and Exception Test. The proposal is for the extension of use of the site therefore there is no change in the flood risk vulnerability of the development.

Yours sincerely

For and on behalf of Nijhuis Industries Ltd.

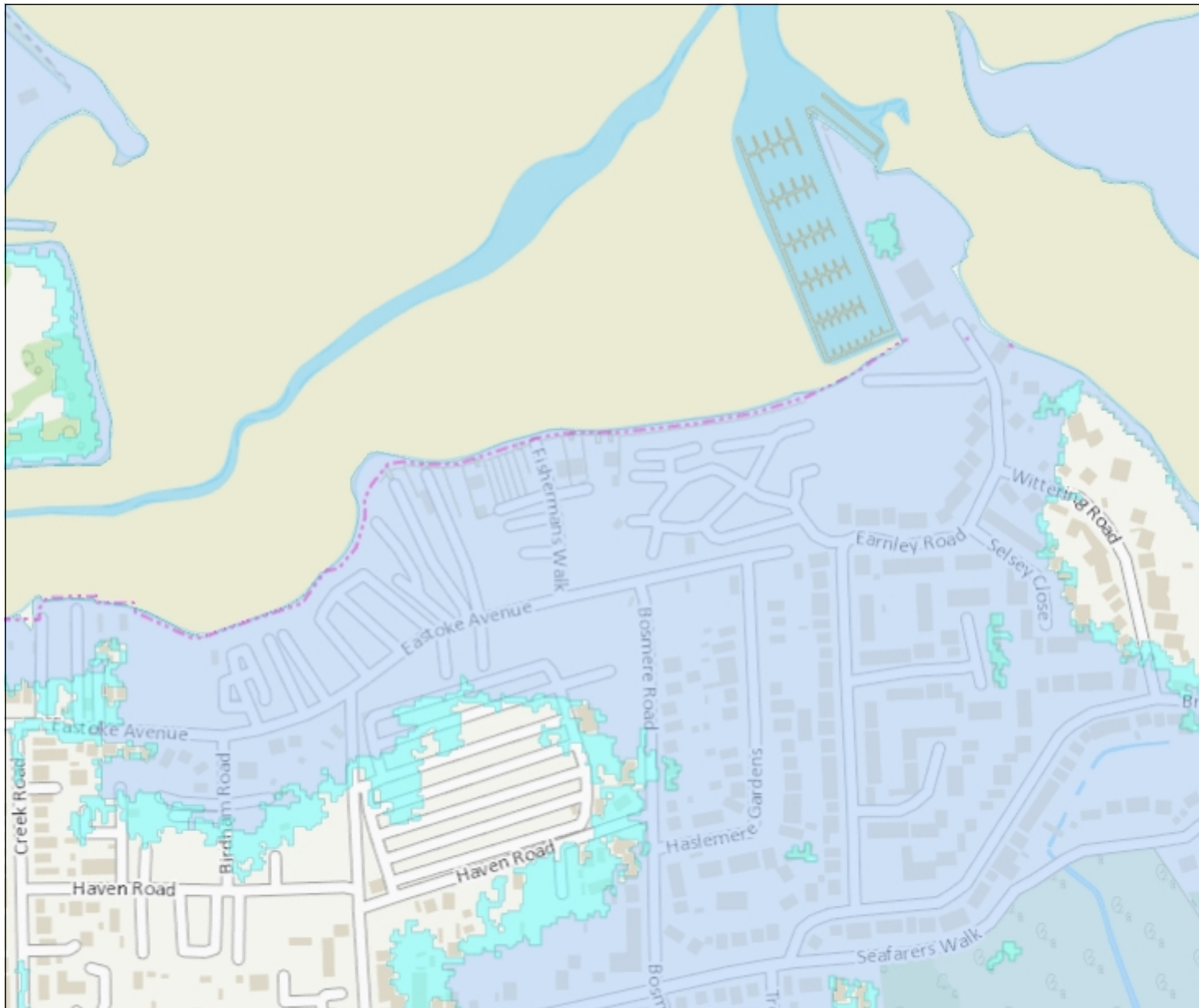
Abi Gallacher
Team Leader – Flood Risk and Drainage

Enc. Annex A EA Information

ANNEX A EA INFORMATION

Flood Map for Planning (Rivers and Sea) Centred on Eastoke Avenue

Created 29 June 2023



1: 5,000

0 Metres 125



Flood Map for Planning (Rivers & Sea)

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

Flood Map Areas (assuming no defences)

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

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

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

Risk of flooding from Surface Water Centred on Eastoke Avenue - Created 29 June 2023



1: 5,000

0 Metres 125



Likelihood of flooding from Surface Water

- High ($\geq 3.3\%$)
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low
- Flood Extent 1 in 30
- Flood Extent 1 in 100
- Flood Extent 1 in 1000

Likelihood of flooding from Surface Water

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

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

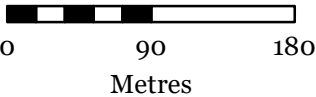
Defences Centred on Eastoke Avenue - Created 29 June 2023



Legend

asset_id	184542
470278	184543
97748	184544
147332	184545
147333	184546
147334	185639
147335	185640
147336	185641
147337	186411
147338	186412
147339	186413
184349	430935
184350	44202
184351	44203
184538	44206
184539	44207
184540	97418
184541	97750

1:4,738 *
*when printed at A4.



Asset ID	Asset sub-type	Length	Maintainer	Current condition	Standard of Protection	Date of last inspection
147332	Flood Gate	4.10	Environment Agency	Good		14/10/2022
147333	Flood Gate	5.40	Environment Agency	Good		05/10/2022
147334	Flood Gate	2.26	Environment Agency	Good		05/10/2022
147335	Flood Gate	5.86	Environment Agency	Good		14/10/2022
147336	Flood Gate	5.56	Environment Agency	Good		14/10/2022
147337	Flood Gate	4.71	Environment Agency	Good		14/10/2022
147338	Flood Gate	4.02	Environment Agency	Good		14/10/2022
147339	Flood Gate	2.81	Environment Agency	Very Good		05/10/2022
184349	Wall	18.61	Environment Agency	Good	1:200	05/10/2022
184350	Wall	48.71	Environment Agency	Fair	1:200	05/10/2022
184351	Wall	33.10	Environment Agency	Fair	1:200	05/10/2022
184538	Wall	84.49	Environment Agency	Fair	1:200	05/10/2022
184539	Wall	55.50	Environment Agency	Good	1:200	05/10/2022
184540	Wall	35.36	Environment Agency	Fair	1:200	14/10/2022
184541	Wall	11.06	Environment Agency	Fair	1:200	14/10/2022
184542	Wall	15.30	Environment Agency	Fair	1:200	14/10/2022
184543	Wall	11.43	Environment Agency	Fair	1:200	14/10/2022
184544	Wall	20.27	Environment Agency	Fair	1:200	14/10/2022
184545	Wall	154.56	Environment Agency	Fair	1:200	14/10/2022
184546	Wall	86.33	Environment Agency	Fair	1:100	14/10/2022
185639	Wall	73.45	Environment Agency	Good	1:200	14/10/2022
185640	Wall	65.61	Environment Agency	Good	1:200	14/10/2022
185641	Embankment	57.96	Environment Agency	Fair	1:200	14/10/2022
186411	Wall	7.10	Environment Agency	Fair	1:200	05/10/2022
186412	Wall	37.63	Environment Agency	Fair	1:200	05/10/2022
186413	Wall	9.26	Environment Agency	Fair	1:200	05/10/2022
430935	Flood Gate	6.20	Environment Agency	Good		05/10/2022
44202	Flood Gate	1.98	Environment Agency	Good		05/10/2022
44203	Flood Gate	2.12	Environment Agency	Good		05/10/2022
44206	Flood Gate	4.36	Environment Agency	Good		14/10/2022
44207	Flood Gate	3.73	Environment Agency	Good		14/10/2022
97418	Flood Gate	4.92	Environment Agency	Good		14/10/2022
97750	Wall	89.58	Environment Agency	Fair	1:200	05/10/2022
470278	Engineered High Ground	229.52	Unknown			04/10/2021
97748	Embankment	194.05	Private individual, Company or Charity		1:25	05/10/2022