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ABIR Architects Ltd
1 Beta House, St Johns Road
Hove
BN3 2FX

t: +44 (0)1273 724384
e: studio@abirarchitects.co.uk
www.abir.co.uk

Rev A	Additional information added	ES	GI
Rev B	Amendments as planning officer and EA comments.	ES	GI

Flood Risk Assessment

1.00 Introduction and Summary

This Flood Risk Assessment (FRA) has been prepared in support of the full planning application for the demolition of an existing chalet bungalow and erection of a replacement three storey dwelling at 54 Old Fort Road, Shoreham-by-Sea.

The following FRA outlines the site specific flood risk and relative flood resistance and resilience plans, appropriate to the scale, nature and location of the development. The following document addresses the flood risk to and from the proposed development over its lifetime in accordance with the National Planning Policy Framework (NPPF) and 'Product 4' Flood Risk Assessment Data from the Environment Agency (appendix A).

2.00 Existing Site

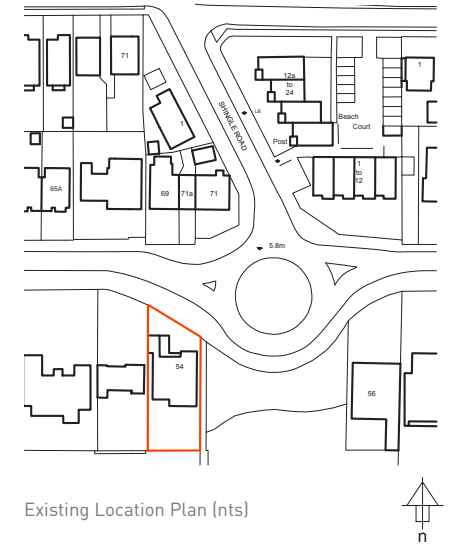
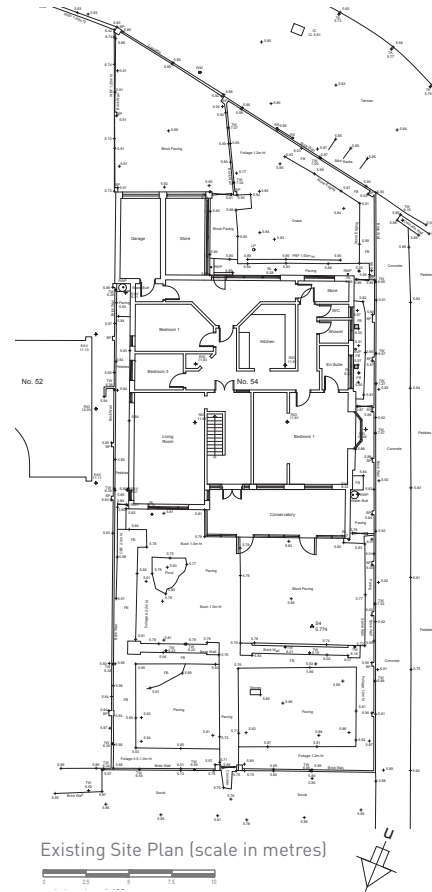
Site Location: 54 Old Fort Road, Shoreham-by-Sea, BN43 5RJ

The site is located between Shoreham beach and the estuary of the River Adur. The surrounding area is largely residential and has seen many similar sized extensions as well as new build dwellings in recent years. The predominant flood risk on the site is tidal.

Site Description:

The existing site consists a three bed chalet bungalow and adjoining garage, accommodating up to 4 people.

The existing site levels range from 5.71 AOD to 5.91 AOD.



Flood Risk Assessment

3.00 Site Flood Risk

3.01 Flood Risk Identification

Fig. 1 indicates that the site falls within Flood Zone 2 and 3 from tidal (English Channel and River Adur) and fluvial flooding (River Adur), meaning there is a 0.5% or greater annual probability of sea flooding and/or a 1% or greater annual probability of river flooding (where dark blue).

Fig. 2 indicates that the site is unlikely to flood due to surface water flooding within a 1:1000 year scenario

3.02 Climate Change Allowances

The Environment Agency's 'Product 4 Flood Risk Data' (appendix A), models the design flood level at 5.890m AOD. When allowing for climate change this increases to 6.100m AOD (based on information from July 2021). The latest environment agency sea level allowances for the south east maps a cumulative rise from the year 2000 to 2125 of 1.2m which corresponds with the data from the 'Product 4' data. Therefore, we can allow for a flood design level of 6.100m when considering the flood resilience plans for the lifespan of the dwelling (100 years for residential development).

Appendix A is based on a hydraulic modelling data that indicates a level of uncertainty due to wave overtopping, therefore, the minimum freeboard (finished floor level) is 600mm above the design flood level with climate change allowances. The proposed FFL of 6.700m AOD satisfies the climate change allowances whereby the design flood level is 6.100m AOD which finishes 800mm above the present day flood risk level.

3.03 Local Flood Risk Management Infrastructure

Managed shingle beach defences run directly south of the site, managing coastal flood risk.

The Shoreham Adur tidal walls scheme addresses the increasing risk of flooding from climate change in the surrounding area. The scheme has been designed to "provide protection for extreme events with 0.33% probability of occurring in one year, allowing for 50 years of sea-level rise" (via environment agency).

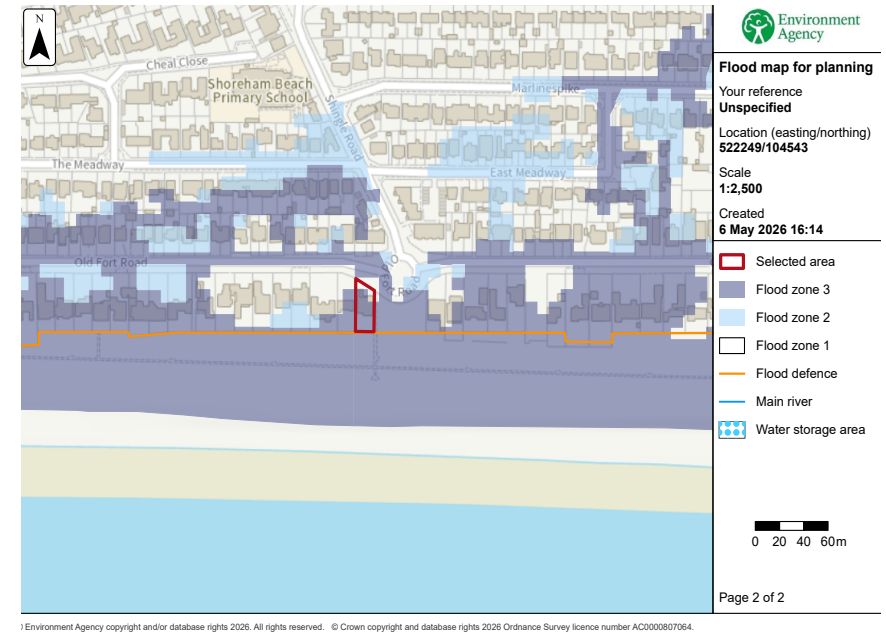


Fig. 1 Flood Zone Map (Environment Agency)



Fig. 2 Surface Water Map 1 in 1000 (Environment Agency)

Flood Risk Assessment

4.00 Proposed Development

Description of development: Demolition of existing three bed, chalet bungalow and erection of a replacement three bed, three storey dwelling.

Comparables between existing and proposed:

Existing

Gross Internal Floor Area:
GF c.200m², 1F c.41m²
TOTAL 241m²

Building footprint:
219m²

Finished ground floor level:
5.900m AOD

Proposed

Gross Internal Floor Area:
GF 167m², 1F 107m², 2F 57m²
TOTAL 331m² (increase of c. 90m²)

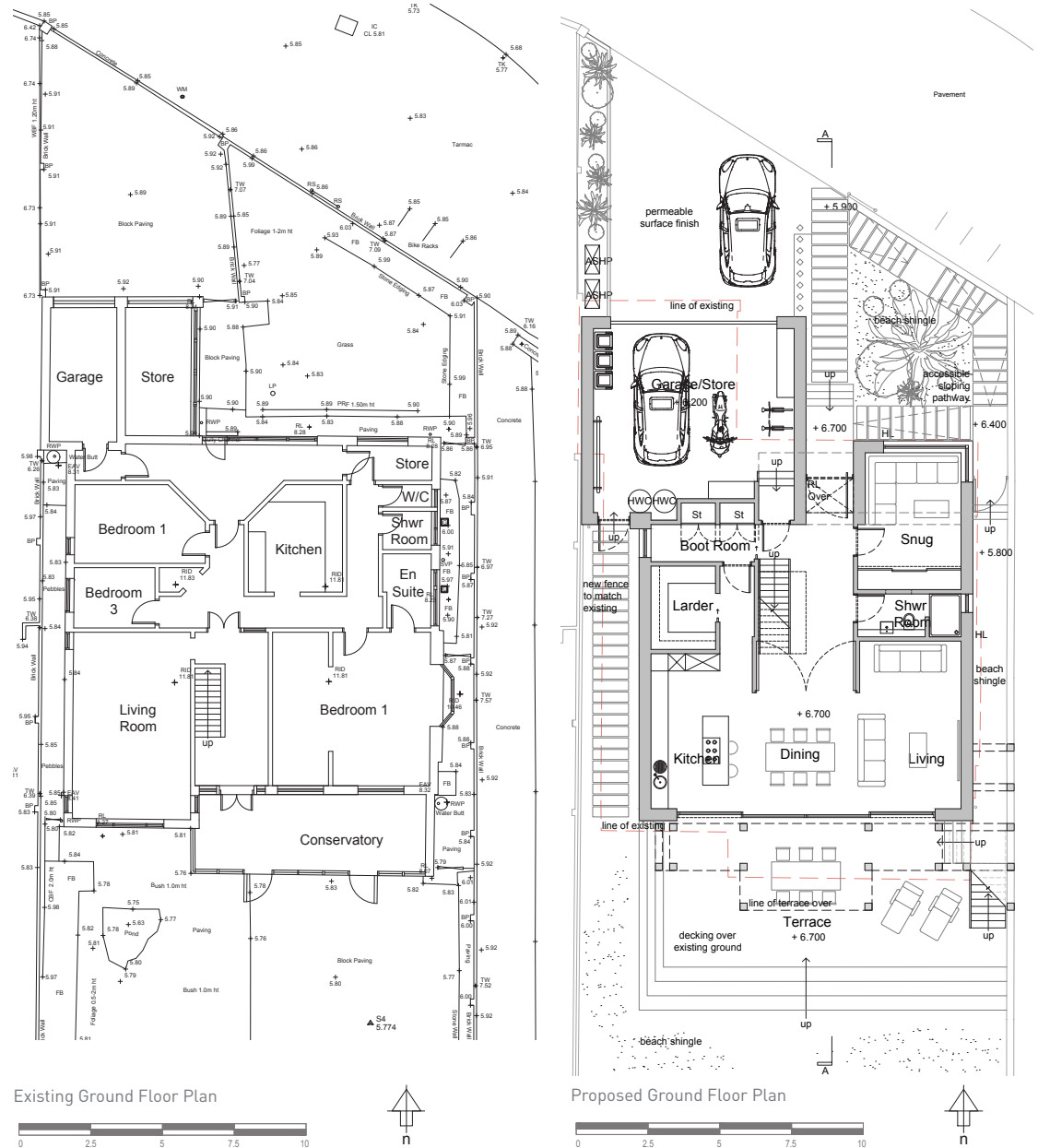
Building Footprint:
193m² (decrease of 26m²)

Finished ground floor level:
6.700m AOD (800mm improvement)

The proposed ground floor level is 6.700m AOD, approximately 800mm above the current designed flood level and site level (5.890m AOD) and 600mm above the designed flood level with climate change allowances (6.100m AOD) (as appendix A). The 600mm freeboard allows for a worst-case scenario, accounting for climate change and addresses the uncertainty of residual risk including wave overtopping and tidal defence failure. The flood risk to occupants is therefore greatly reduced over the dwellings lifetime (assumed 100 years based on planning practice guidance (PPG) and climate change assessment).

The vulnerability classification remains as 'more vulnerable' as the use remains as a residential unit. However, in the unlikely event of flooding (reduced risk due to the proposed freeboard), the proposal improves occupant safety by adopting the following flood resistance and resilience plans:

- The proposed scheme has no sleeping accommodation on the ground floor - an improvement to the three bedrooms at ground floor as existing
- Permeable surfacing to the front and rear garden
- Services routed above potential flood levels
- Sustainable surface water drainage systems
- Raised utilities and electricity outlets
- Non-return valves to stop backflow from drainage and soil pipes
- It will be recommended that the occupiers sign up for government flood warnings



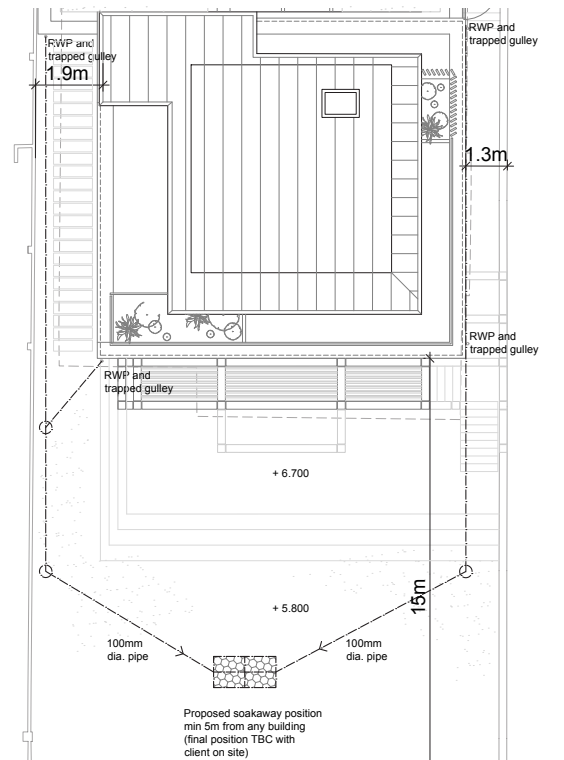
Flood Risk Assessment

5.00 Proposed Surface Water Drainage

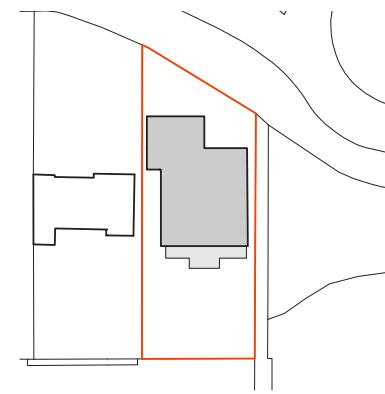
The proposal adopts the following strategies for mitigating surface water flooding to the surrounding area and neighbouring properties:

- A decrease in building footprint by 26m² - therefore reducing surface water flood risk in the surrounding area (less impermeable area)
- new soakaway located a minimum of 5m away from all buildings (see 0766.PL.002.D for details)
- on-site attenuation including sedum planted roof to garage
- front entrance and path to be constructed from permeable materials
- raised terrace to rear will be decking with the existing ground level below

Through the adoption of these features the proposal reduces any impact to the displacement of flood water and floodplain storage.



Proposed Surface Water Drainage Plan



Proposed Block Plan (nts)

6.00 Conclusion

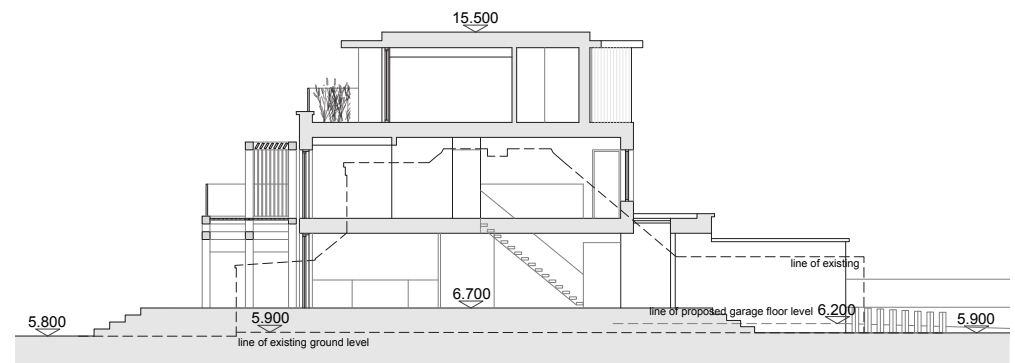
The Flood Risk Assessment has set out the flood resistance and resilience plans for the development of a replacement dwelling on the site of an existing chalet bungalow within flood zone 3. The proposal has considered the sequential test. The following site-specific considerations have been made:

- The proposal does not increase the number of dwellings on the site or change the vulnerability classification of the land use (single residential unit).
- The site is already established as residential use - prohibiting the proposed replacement would prevent the implication of the flood resilience plans, as outlined, at risk to the occupants.
- The proposals improve the condition of the dwelling to meet the Environmental Agencies requirements that would otherwise not be met by the existing dwelling.

This Flood Risk Assessment has demonstrated that the proposal adopts appropriate flood resistance and resilience measures, including:

- the improvement of existing conditions and reduces flood risk to its occupants
- the reduction in risk of flooding elsewhere around the site (via improved surface water drainage)
- the adoption of flood-resilient construction to reduce the impact of potential flooding
- making relevant allowances for climate change and managing residual risk

The proposal represents the redevelopment of an established residential site with substantially improved flood-risk mitigation, rather than an increase in residential development within an area of flood risk. The Flood Risk Assessment demonstrated that the development can be made safe for its lifetime and that flood risk will not be increased elsewhere.



Proposed Section A-A

Flood risk assessment data



Location of site: 522250 / 104543 (shown as easting and northing coordinates)

Document created on: 21 July 2026

This information was previously known as a product 4.

Customer reference number: EIR2026/33072

Map showing the location that flood risk assessment data has been requested for.



How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

We recommend that you work with a flood risk consultant to get your flood risk assessment.

Included in this document

In this document you'll find:

- how to find information about other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- flood defence locations and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- modelled data
- modelled climate change data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Information that's unavailable

This document **does not** contain:

- past floods

We do not have past flooding data for this location.

Please note that:

- flooding may have occurred that we do not have records for
- flooding can come from a range of different sources
- we can only supply flood risk data relating to flooding from rivers or the sea

You can contact your Lead Local Flood Authority or Internal Drainage Board to see if they have other relevant local flood information. Please note that some areas do not have an Internal Drainage Board.

Other sources of flooding

To find out about other factors that might affect the flood risk of this location, you should check:

- [reservoir flood risk](#)
- groundwater flood risk - you could use the [British Geological Survey groundwater flooding data](#), [groundwater: current status and flood risk](#) and the guide on [mining and groundwater constraints for development](#) - further information may be available from the lead local flood authority (LLFA)
- your local planning authority's strategic flood risk assessment (SFRA), which includes future flood risk

Your lead local flood authority is West Sussex County.

For information about sewer flooding, contact the relevant water company for the area.

About the models used

Model name: Adur Coastal Model, 2012

Scenario(s): Defended tidal, defences removed tidal, defended climate change tidal, defences removed climate change tidal

Date: 20 August 2012

This model contains the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occurring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change



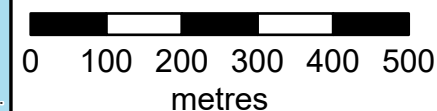
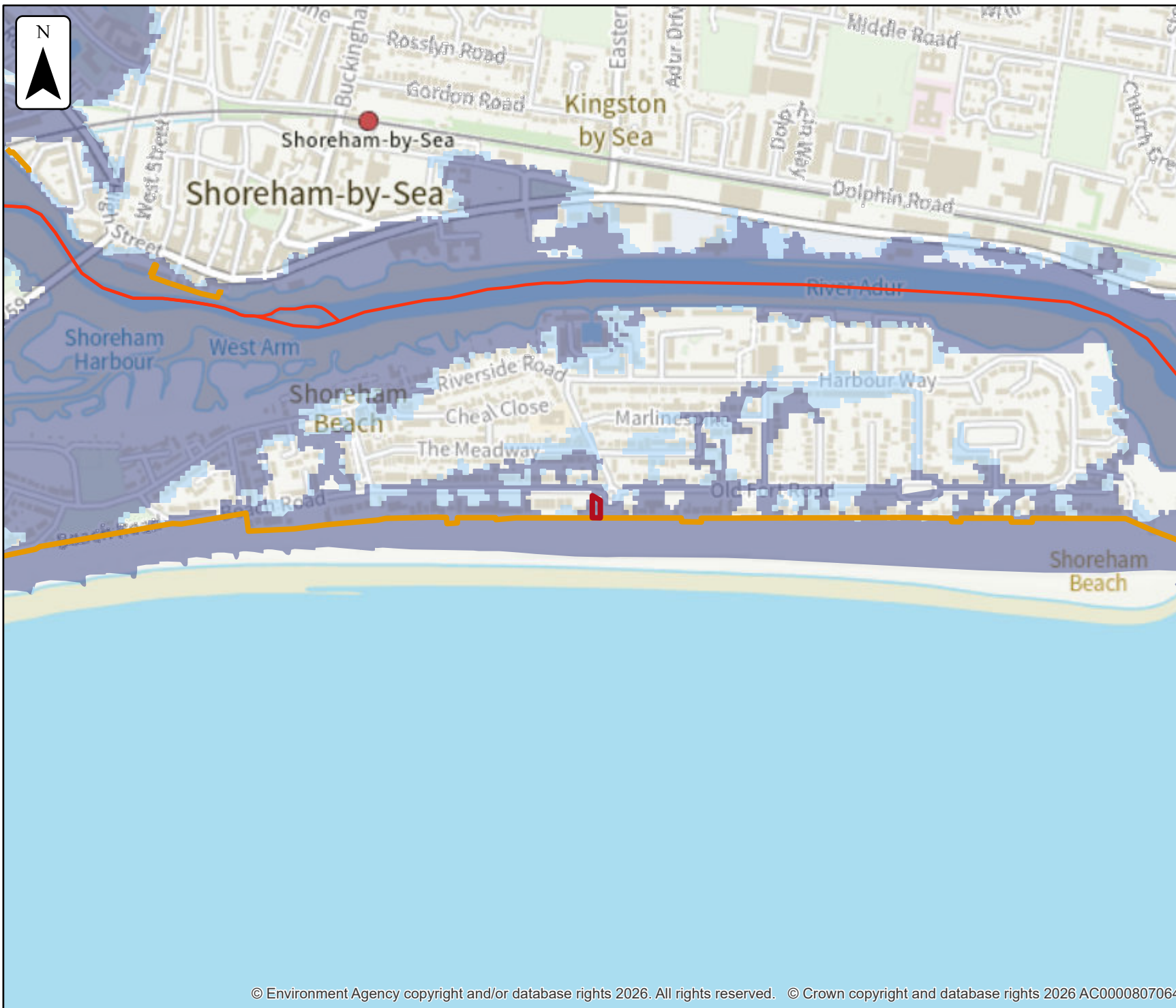
Flood map for planning

Location (easting/northing)
522250/104543

Scale
1:10,000

Created
21 Jul 2026

-  Selected area
-  Main river
-  Flood defence
-  Flood Zone 3
-  Flood Zone 2



Flood defences and attributes

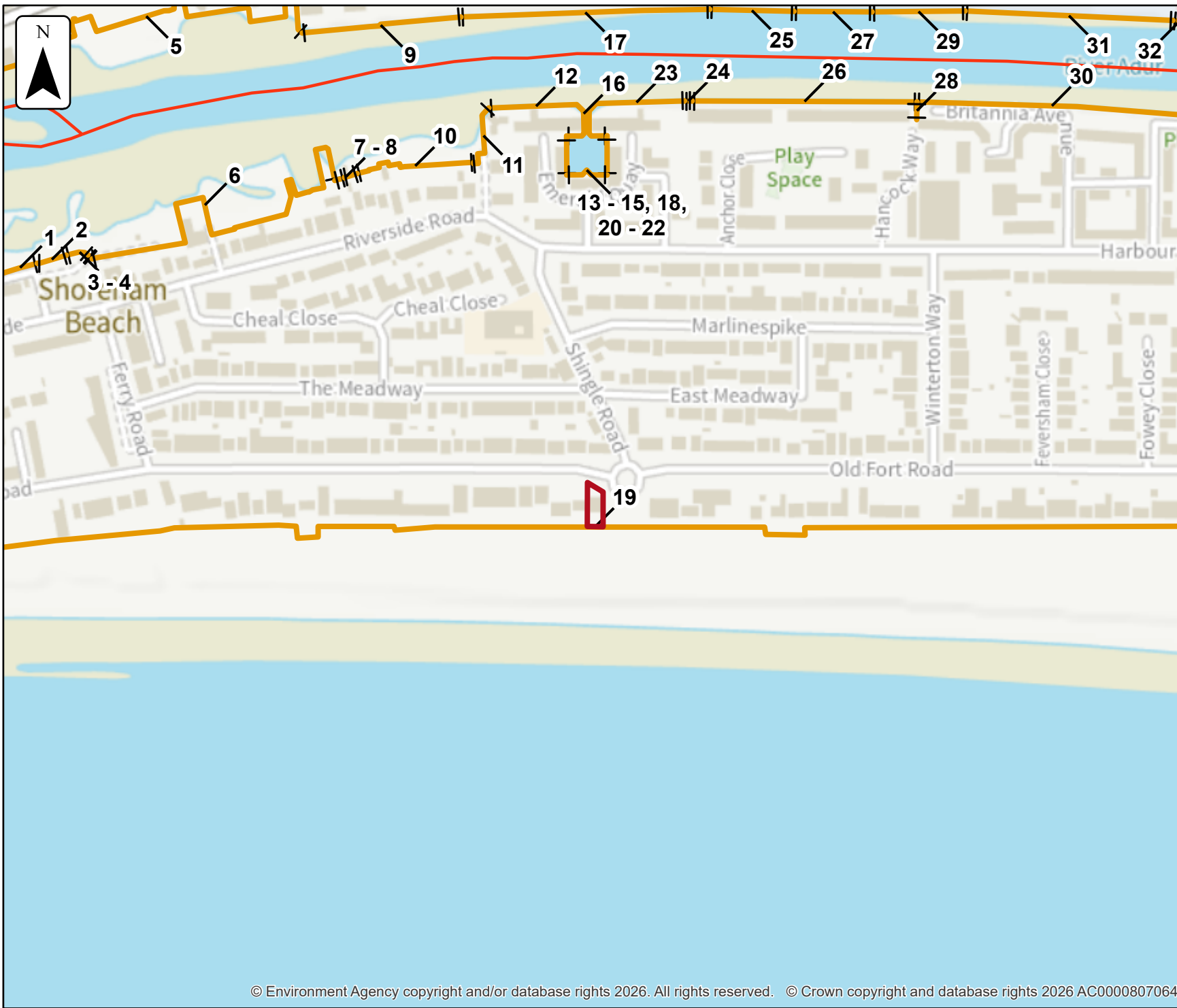
The flood defences map shows the location of the flood defences present.

The flood defences data table shows the type of defences, their condition and the standard of protection. It shows the height above sea level of the top of the flood defence (crest level). The height is in mAOD which is the metres above the mean sea level at Newlyn, Cornwall.

It's important to remember that flood defence data may not be updated on a regular basis. The information here is based on the best available data.

Use this information:

- to help you assess if there is a reduced flood risk for this location because of defences
- with any information in the modelled data section to find out the impact of defences on flood risk



Flood defences

Location (easting/northing)
522250/104543

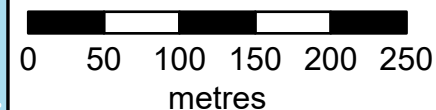
Scale

1:5,000

Created

21 Jul 2026

-  Selected area
-  Main river
-  Flood defence



Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	143312	Wall	300		5.0	5.0	5.0
2	796905	Wall					
3	796903	Wall	300		5.0	5.0	
4	761196	Flood Gate	300	Good	5.0	5.0	5.0
5	126173	Wall	200				
6	797648	Wall	300		5.0	5.0	5.0
7	797653	Wall	300		5.0	5.0	5.0
8	797654	Wall	300		5.0	5.0	5.0
9	127665	Wall	200		4.30	3.87	
10	172967	Wall	300		5.0	5.0	5.0

Any blank cells show where a particular value has not been recorded for an asset.

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
11	793480	Wall	300		5.0	5.0	5.0
12	172966	Wall	300		4.95	4.95	4.95
13	793659	Wall	300		4.95	4.95	4.95
14	793663	Wall	300		4.95	4.95	4.95
15	762561	Flood Gate	300				
16	762555	Demountable Defence	300		4.95		4.95
17	127664	Wall	200		4.26	4.30	
18	793668	Wall	300		4.95	4.95	4.95
19	149939	Beach	100	Good			7.10
20	762564	Flood Gate	300				

Any blank cells show where a particular value has not been recorded for an asset.

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
21	793661	Wall			4.95	4.95	4.95
22	793666	Wall	300		4.95	4.95	4.95
23	793657	Wall	300		4.95	4.95	4.95
24	793643	Wall	300		5.30	4.95	4.95
25	117995	Wall	200		4.27	4.24	
26	761205	Wall			5.15	4.95	4.95
27	117994	Wall	200		4.28	4.27	
28	793646	Wall			5.15	5.15	4.95
29	117993	Wall	200		4.18	4.27	
30	172965	Engineered High Ground	300		4.84	3.93	3.93

Any blank cells show where a particular value has not been recorded for an asset.

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
31	117992	Wall	200		3.90	4.10	
32	117991	Wall	200		3.70	3.84	

Any blank cells show where a particular value has not been recorded for an asset.

Modelled data

This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Climate change

The climate change data included in the models may not include the latest [flood risk assessment climate change allowances](#). Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

Modelled scenarios

The following scenarios are included:

- Defended modelled fluvial: risk of flooding from rivers where there are flood defences
- Defended modelled tidal: risk of flooding from the sea where there are flood defences
- Defences removed modelled tidal: risk of flooding from the sea where flood defences have been removed
- Defended climate change modelled fluvial: risk of flooding from rivers where there are flood defences, including estimated impact of climate change
- Defended climate change modelled tidal: risk of flooding from the sea where there are flood defences, including estimated impact of climate change
- Defences removed climate change modelled tidal: risk of flooding from the sea where flood defences have been removed, including estimated impact of climate change

No data available

We do not have any height or depth data at this location for the following models:

Model name: Adur Coastal Model, 2012

Scenario(s): Defences removed climate change modelled tidal, Defences removed modelled tidal

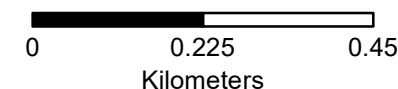


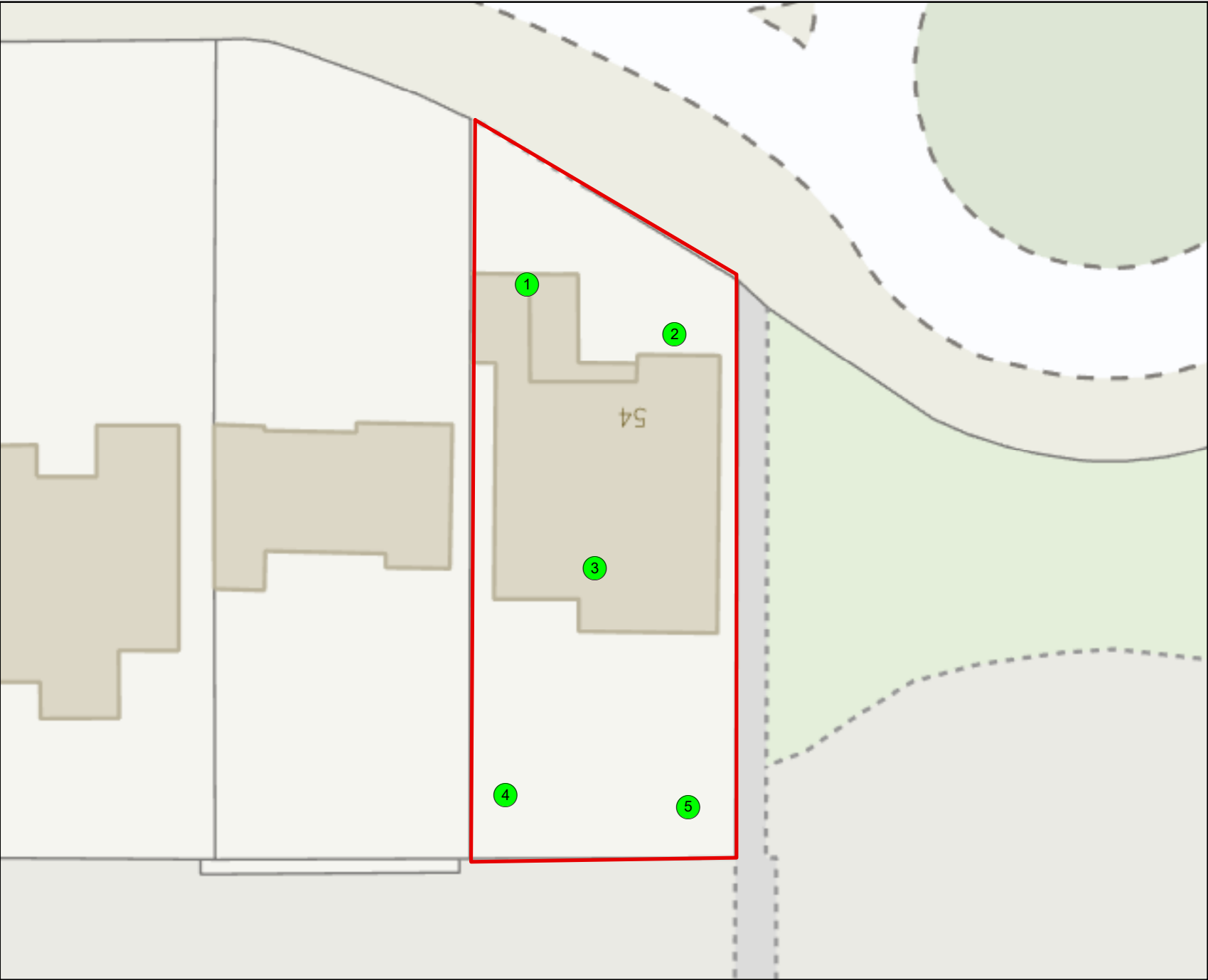
Legend

-  Site Boundary
-  0.5% AEP (2012) (Defended)
-  0.5% AEP (2070) (Defended)
-  0.5% AEP (2115) (Defended)
-  0.1% AEP (2012) (Defended)

Annual Exceedance Probability
(AEP) The probability of a flood of
a particular magnitude, or greater
occurring in any given year.

Scale: 1:10,000





Environment Agency

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Legend

Site Boundary

Site Nodes

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:311



00.0050.01

Kilometers

Product 4 Flood Risk Data Requested by: Eloise Squire

Site: 54 Old Fort Road, Shoreham-by-Sea, BN43 5RJ.

Table 1: Water Levels: Tidal Defended

	NGR		Modelled Flood Levels in Metres AOD			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	522246	104558	5.89	-	6.03	5.90
2	522254	104555	-	5.82	6.03	-
3	522250	104541	5.89	5.93	6.08	5.90
4	522245	104528	5.89	5.93	6.10	5.91
5	522255	104528	5.89	5.92	6.09	5.90

Table 2: Water Depths: Tidal Defended

	NGR		Modelled Flood Levels in Metres AOD			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	522246	104558	0.00	-	0.10	0.00
2	522254	104555	-	0.01	0.03	-
3	522250	104541	0.05	0.09	0.25	0.06
4	522245	104528	0.08	0.08	0.29	0.10
5	522255	104528	0.01	0.08	0.20	0.02

All levels taken from: Arun to Adur Coastal Modelling (2012), completed by JBA Consulting. This site is unaffected by Un defended scenarios.

Produced on: 21/07/2026

*** The flood risk data provided is based on existing EA hydraulic models with an allowance for climate change. Please note the climate change allowances provided are not up to date. These were updated on 27 July 2021.**

You should refer to '[Flood risk assessments: climate change allowances](#)' for the most up to date allowances. You will need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

There is no additional information or health warnings for these levels/depths or the model from which they have been produced.

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as canals, groundwater and reservoirs

Your lead local flood authority is West Sussex County.

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

[Find out more about flood risk activity permits](#)

Help and advice

Contact the Solent and South Downs Environment Agency team at ssdenquiries@environment-agency.gov.uk for:

- [more information about getting a product 5, 6, 7 or 8](#)
- general help and advice about the site you're requesting data for