



Flood Risk Assessment

for

**Proposed Replacement Toilet Block
at Seaton West**

on behalf of

East Devon District Council



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Flood Risk Assessment Seaton West – Public Toilets

EXECUTIVE SUMMARY

This Flood Risk Assessment (FRA) has been prepared to support a Full Planning Application for a proposed replacement public toilet block to be located on West Walk, Castle Hill, Seaton, EX12 2QW. This set of public toilets replaces the existing facility and is required in this location to provide ongoing modern facilities for the tourists and local people visiting the area.

The use of the site for quick and easy access to toilet facilities for members of the public is classified in the Technical Guidance to the NPPF as ‘Water Compatible’ since it supplies essential facilities to the amenity area; reference to Table 3 shows this classification is appropriate for Flood Zones 1, 2 & 3.

The Environment Agency (EA) website was visited and the relevant flood maps viewed. These indicate that the replacement toilet block will be within Flood Zone 3. This flood risk is from tidal sources since the location is on the beachfront.

The rebuilding will incorporate flood resistant and resilient materials where possible to minimise any loss of use of the building following a flood event.

This area of Seaton on the beachfront is at risk from flooding and the site will be at increasing risk during its lifetime (50 Years) as the effects of sea level rise become more significant. The residual risks will be managed by the East Devon District Council who are the organisation that will be responsible for the management and maintenance of the toilet block.

The East Devon District Council is aware of potential issues in this area of Seaton and has published the Seaton Beach Management Plan. This provided recommendations on how to mitigate surface water flooding and how to manage the beach environment to reduce damaging wave action in the area.

The sequential test considered alternative sites, but this did not achieve the requirement to have the public toilets close to the main tourist area close to the coastal areas. The exception test applies in this instance to confirm that the location is suitable for the required amenity in this area.

The building footprint is smaller than the existing structure. The storm drainage routes will therefore remain unaffected and existing drainage services in the adjacent footpath will be retained and reused. Therefore, the environmental impact of this structure will remain unchanged. Since the area is on the seafront, the overland flood routes are not altered by the introduction of this minor structure adjacent to the footpath.



1.0 Introduction

Bartlett Consulting Engineers has been commissioned to produce the Flood Risk Assessment to accompany a Full Planning Application for the Seaton West Public Toilets. The proposed floor layout for the block is provided in Appendix A. This facility is in the same location as the existing public toilets and is intended to provide a more modern and more accessible facility for the public.

This Flood Risk Assessment (FRA) considers the topography of the site and local area, the proximity of the site to tidal waters and the existing and proposed storm water drainage systems, in the context of flooding risk for 1 in 200 for year tidal flooding events with allowances for Climate Change and the corresponding sea level rise.

The assessment will consider flood risk in relation to the requirements of the National Planning Policy Framework (NPPF) and the following Tables from the Technical Guidance Document (NPPF-TG) to the NPPF:-

Table 1: Flood Zones.

Table 2: Flood Risk vulnerability Classification.

Table 3: Flood Risk vulnerability and Flood Zone compatibility.

2.0 Description of Site

Location

The site is located on the beachfront in the location of the existing public toilets on Seaton West. The site's elevation is 5.9m AOD which is the level of the footpath at the proposed location. The ground floor level of the toilet block is to be set at 6.00m AOD. Due to the requirement for level access and the need to avoid entrance ramps which affect disabled persons, it is not deemed acceptable to set the floor level any higher. This is the floor level of the existing toilet block on the site.

The site of the proposed toilet block is bounded on the front by the beach footpath and at the rear by the retaining wall that supports the highway above. It has been located on the same site as the existing toilet block to suit the known requirement for a public toilet in this locality.

Existing Buildings and Hardscape

The proposed toilet block is to be located on the same site as the existing public toilets. It is surrounded on all sides by hard landscaping as it is to be constructed within the coastal footpath.



Existing Drainage

There is an existing drainage system servicing the existing toilet block. This will not be affected by the replacement facility. Existing drainage services will be reutilised where possible to minimise disruption to the footpath.

Sequential Test

The sequential test is not considered to be applicable to this site as the requirement for the public toilets in this area has been identified as being a requirement and highly beneficial to the tourist business and local use in the area as an amenity. As such, this proposed replacement toilet block therefore passes the exception test as it maintains and improves the amenity services in this area.

Site Investigation

No site investigation has been carried out at this stage. The toilet block is relatively lightweight and will be situated on a reinforced concrete raft foundation. There will therefore be minimal excavation and removal of spoil from the site. It is likely that the existing footpath construction will provide a suitable subbase to the raft. This will be assessed on site during construction by the structural engineer and building control.

New Site Drainage and SUDS Considerations

The building footprint is small and sits within the footprint of the existing toilet block. The storm drainage will remain largely unaffected. Minor amendments will be made to the drainage to pick up rainwater pipes from the new block. This area is currently all hard landscaping and already discharges into a storm drain. Due to the constricted site and proximity to the waterfront no form of SUDS is possible. A soakaway cannot be located and would not be feasible on this site due to the water levels. Existing South West Water mapping in the area is included in Appendix D.

3.0 Flood Risk

Flood Data and Flood Zones

The Environment Agency's (EA) current flood map was obtained from their website and a copy is included in Appendix B. This indicates that the existing building is well within Flood Zone 3.

The areas around the site are at risk from Coastal and Fluvial Flooding and the site will be at increasing risk during its lifetime (50 Years) as the effects of sea level rise become more significant.

The Environment Agency has been contacted with regard to this application and have responded to the request. Their Package 4 data on flooding at this site is included in Appendix C. This provides a considerable amount of information on the risk of flooding



and the probability of achieving various flood level events for different time periods and scenarios.

Vulnerability and Flood Zone Compatibility

The proposed use of the facility as a public toilet is classified in Table 2 of the Technical Guidance to the NPPF as “Water Compatible” since it supplies essential facilities to the amenity area; reference to Table 3 shows this classification is appropriate for Flood Zones 1, 2 and 3.

Anecdotal Evidence of Flooding

Seaton beachfront has a long history of flooding. The EA data indicates that this area has flooded in the past in 1979, 1989, 2012 and 2021. There are flood risk defences in place along the coastline and riverbanks but the toilet block is located on the beachfront before the flood defences. It is known that this site is regularly subject to wave action during serious storms during times of high tide. These can discharge sand and debris onto the footpath and act on the side of the structure.

Flood Risks and Impact of Proposed Development

In its current location the toilet block is at risk of flooding as sea levels rise in the coming decades. The proposed development does not increase the risk of flooding in this area and will have no effect on other properties in the area.

From the data supplied by the EA, the tidal flood level for 0.5% AEP is 5.94m AOD. From the same table the 20% AEP flood level from tidal flooding is 5.93m AOD. This similarity of the data suggests that the EA model is not acting very realistically at this location.

The proposed public toilet block will have a finished floor level of 6.00m AOD. The data suggests that tidal flood levels for a 1 in 200 year surge will be just below the finished floor level. The data does not give any advice on potential sea level rise due to climate change. The data suggests that the proposed floor level is just slightly above the 0.5% AEP flood level. The implication is that the toilet block could be affected by tidal flooding with time with the effects of sea level rises due to climate change. More of an issue will be from wave action during storms, which is known to be an issue in this location and along the beachfront footpath. To deal with this possibility the building will be flood-proofed in accordance with “Improving the Flood Performance of New Dwellings” as follows: -

- Building materials with good resistance to water penetration and good drying ability
- Ceramic or concrete based floor tiles
- A water-resistant plaster/render
- Waterproof (eg uPVC) doors and windows with adequate sealing



- Main electrical and mechanical appliances elevated above floor level to at least 5.0m AOD, i.e. 750mm above finished floor level.

This is important since the serviceability of the facility after an extreme flooding event is highly important. This built in resilience will allow the building to be put back into use as quickly as possible after the tidal flooding recedes.

The residual risks will be managed by East Devon District Council as part of their overall site management regime as climate change affects the water levels along the coastline and its environs.

It is possible that further actions to improve coastal defences will be implemented within Seaton to reduce the risk from rising sea levels. These are not known or considered in this document at this time.

Escape Route and Evacuation

The client for this facility is the East Devon District Council. This organisation will be aware of a major tidal flood risk before it occurs. The flood risk in this area is tidal and therefore will only occur at high tide times which are predictable. This limits the period at risk and the duration of any flood or storm action will also be limited as levels will fall as the tide turns.

The Council will be aware of the Environment Agency Flood Alert procedure as a back up to other information that they may already receive. The toilet block will be closed during anticipated periods of extreme flooding in the area.

Economic, Social and Environmental Consequences of Flooding

The proposed replacement toilet block is consistent with the known utility requirements of the land as a place for tourist and local convenience. Stormwater flows will not be affected by the location of the block. Therefore, the environmental impact of the development will be minimal with no social or economic consequences from flooding in the vicinity.

Prepared by:

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Appendix A :
Floor Layout of Proposed Refurbishment



SITE PLAN



- Public Toilets
- Site Boundary
- Existing Building Boundary



Kendall Kingscott
 Chartered Architects
 Chartered Building Surveyors
 Interior Designers
 CDM Experts

Plot Number
230363-1002-P06

Project Name
Seaton West - Public Toilets

Client
East Devon District Council

Date
12/06/21

Drawn By
AW

Checked By
AW

Scale
1:200

Phase
PRELIMINARY

Project Number
230363-1002-P06

Client
East Devon District Council

Date
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Drawn By
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Appendix B :
Flood Zone Mapping for Planning

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
324373/89856

Created
14 Oct 2023 14:41

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

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 2022 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>

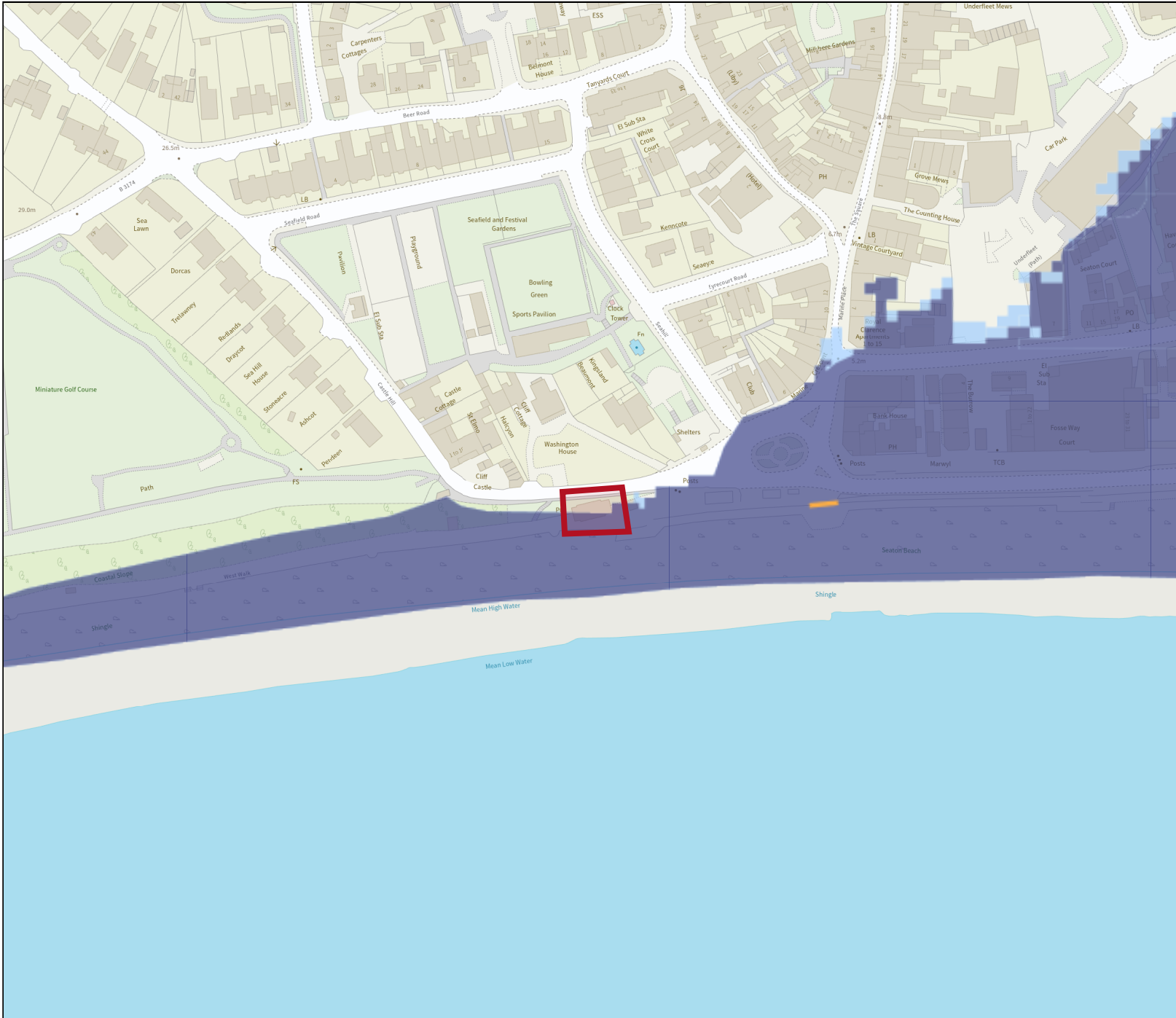
Flood map for planning





Your reference
<Unspecified>

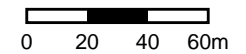
Location (easting/northing)
324373/89856

Scale
1:2500

Created
14 Oct 2023 14:41



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





Appendix C :

Environment Agency Response with Product 4 Flood Data

Flood risk assessment data

Location of site: 324371 / 89856 (shown as easting and northing coordinates)

Document created on: 16 November 2023

This information was previously known as a product 4.

Customer reference number: 332051

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



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

This data is updated on a quarterly basis as better data becomes available.








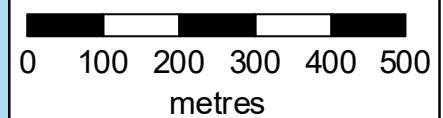
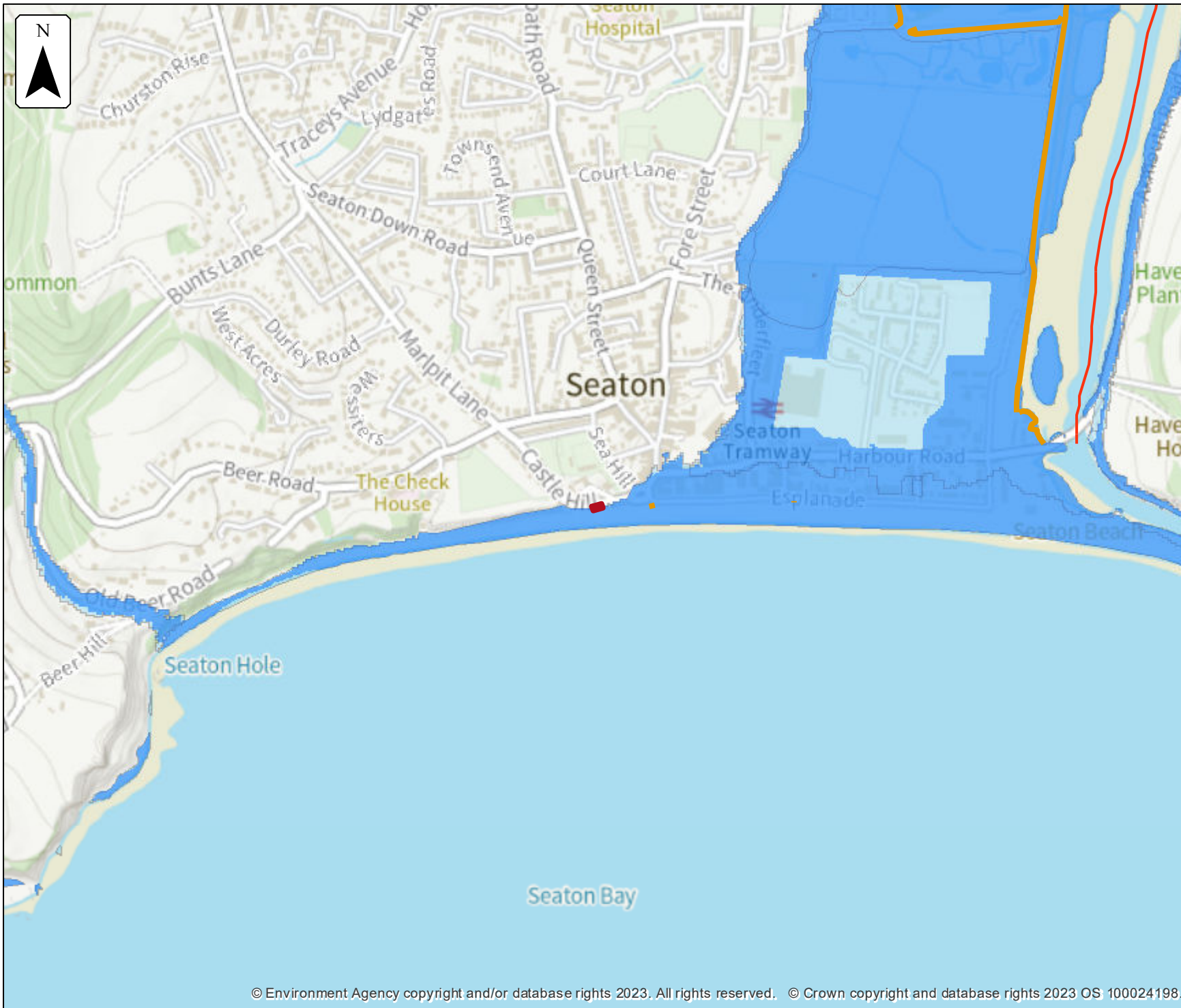
Flood map for planning

Location (easting/northing)
324371/89856

Scale
1:10,000

Created
16 Nov 2023

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



Historic Information

It is possible that there will be an absence of data in places where we have not been able to record the extent of flooding. It is also possible for errors to occur in the digitisation of historic records of flooding.

We hold historic flood information locally.

We have records of this area flooding in: 13/02/1979, 18/12/1989, 26/04/2012 and 01/02/2021

Please see attached maps/photographs if available.

Remember that other flooding may have occurred that we do not have records for.

Please note that our records are not comprehensive. Therefore, we advise that you make further enquiries locally with specific reference to flooding at this location. You should consider contacting the relevant Local Planning Authority and/or water/sewerage provider for the area.

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 and their condition. 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





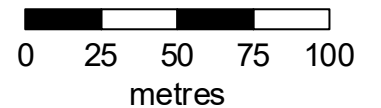
Flood defences

Location (easting/northing)
324371/89856

Scale
1:2,500

Created
16 Nov 2023

-  Selected area
-  Flood defence



Flood defences data

Label	Asset ID	Asset Type	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	331117	Flood Gate	Good			
2	328115	Flood Gate	Good			
3	3807	Wall	Good			6.94
4	328114	Flood Gate	Good			

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

Modelled data

About the models used

Model name: Coastal Generalised Model - Seaton

Date: 2018

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

You will need to consider the [latest flood risk assessment climate change allowances](#) and factor in the new allowances to demonstrate the development will be safe from flooding.

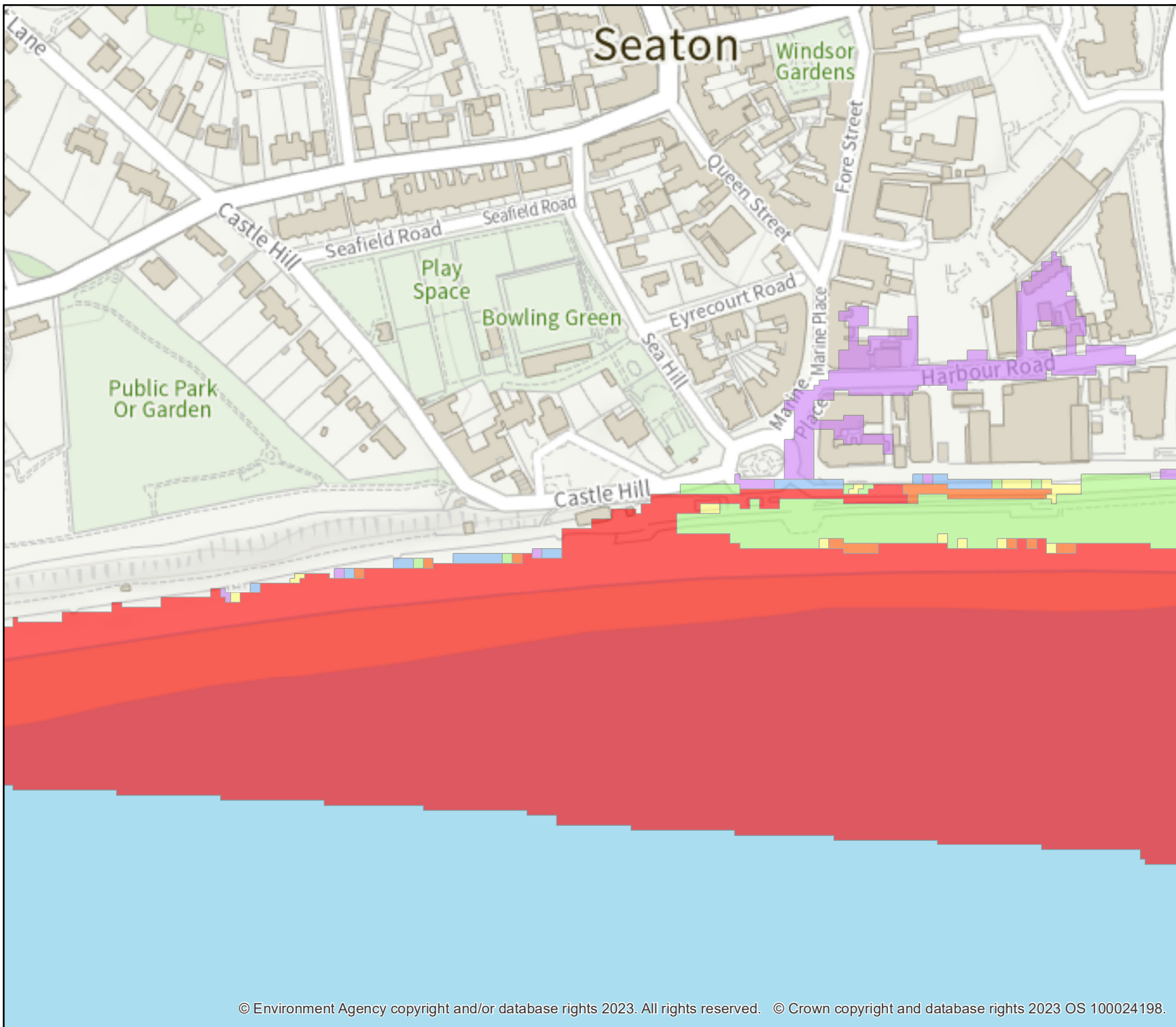
Terminology used

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.



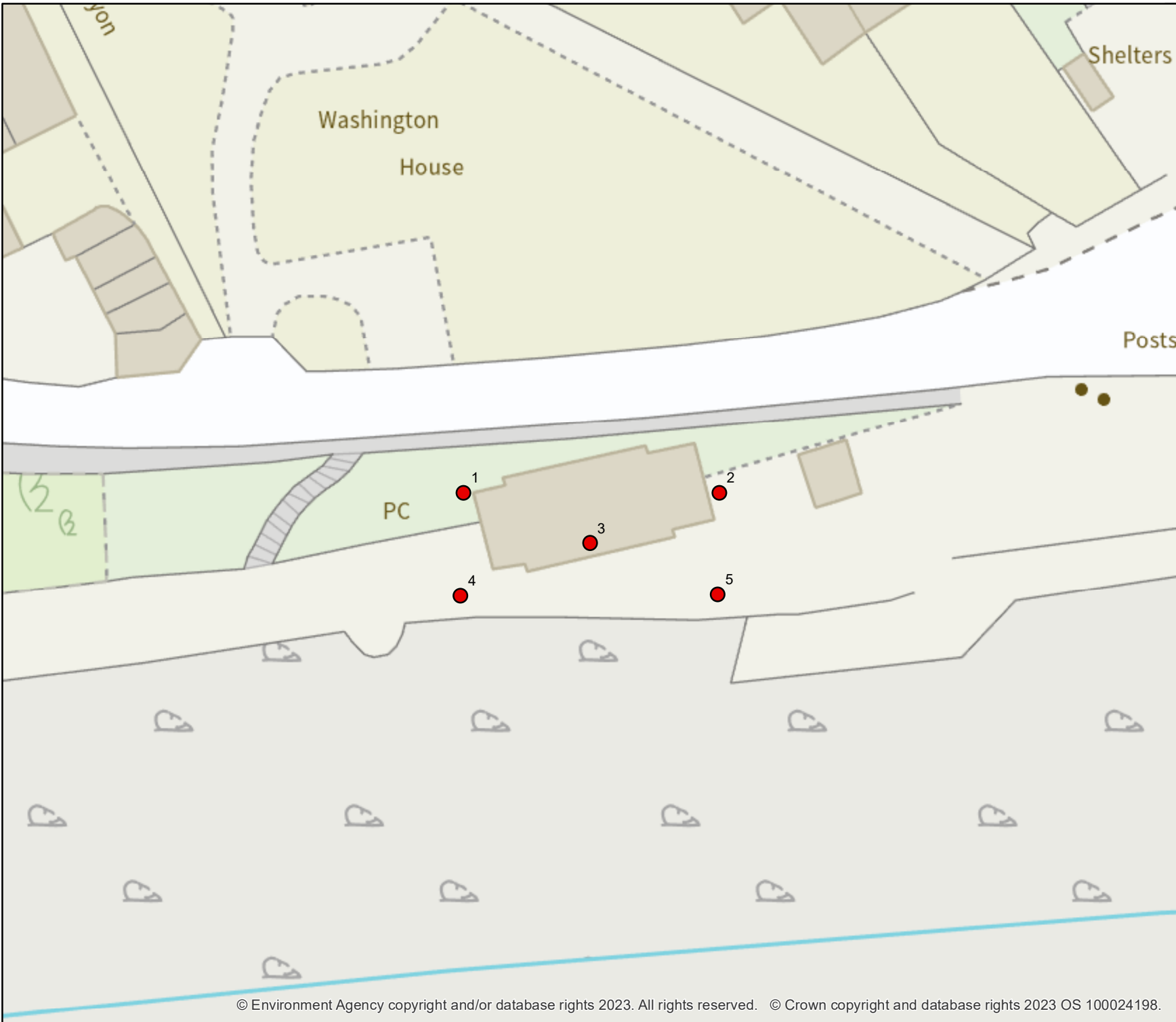
Defended Modelled Tidal Extent Map

Location (easting/northing)
324371 / 89856

Scale Created
1:2,600 16 Nov 2023

Model name
**Devon and Cornwall Coastal
 2018 - Seaton**

- Legend**
- 20% AEP
 - 10% AEP
 - 5% AEP
 - 3.33% AEP
 - 0.5% AEP
 - 0.1% AEP




Node Map

Location (easting/northing)
324371 / 89856

Scale Created
1:400 16 Nov 2023

Model name
**Devon and Cornwall Coastal
2018 - Seaton**

Legend

 Level Nodes

Modelled Flood Levels

Node Reference	X	Y	Modelled Tidal Flood Levels, in mAOD (defended model run)					
			20% AEP	10% AEP	5% AEP	3.33% AEP	0.5% AEP	0.1% AEP
1	324361	89858	-	-	-	-	-	-
2	324381	89858	5.93	5.93	5.93	5.93	5.94	5.95
3	324371	89854	5.72	5.72	5.72	5.72	5.74	5.75
4	324361	89850	5.41	5.41	5.41	5.41	5.41	5.41
5	324381	89850	5.59	5.59	5.59	5.59	5.60	5.62

Data in this table comes from the Coastal Generalised 2018 Model - Seaton
 created 16/11/2023

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 surface water, ground water and reservoirs

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](#)

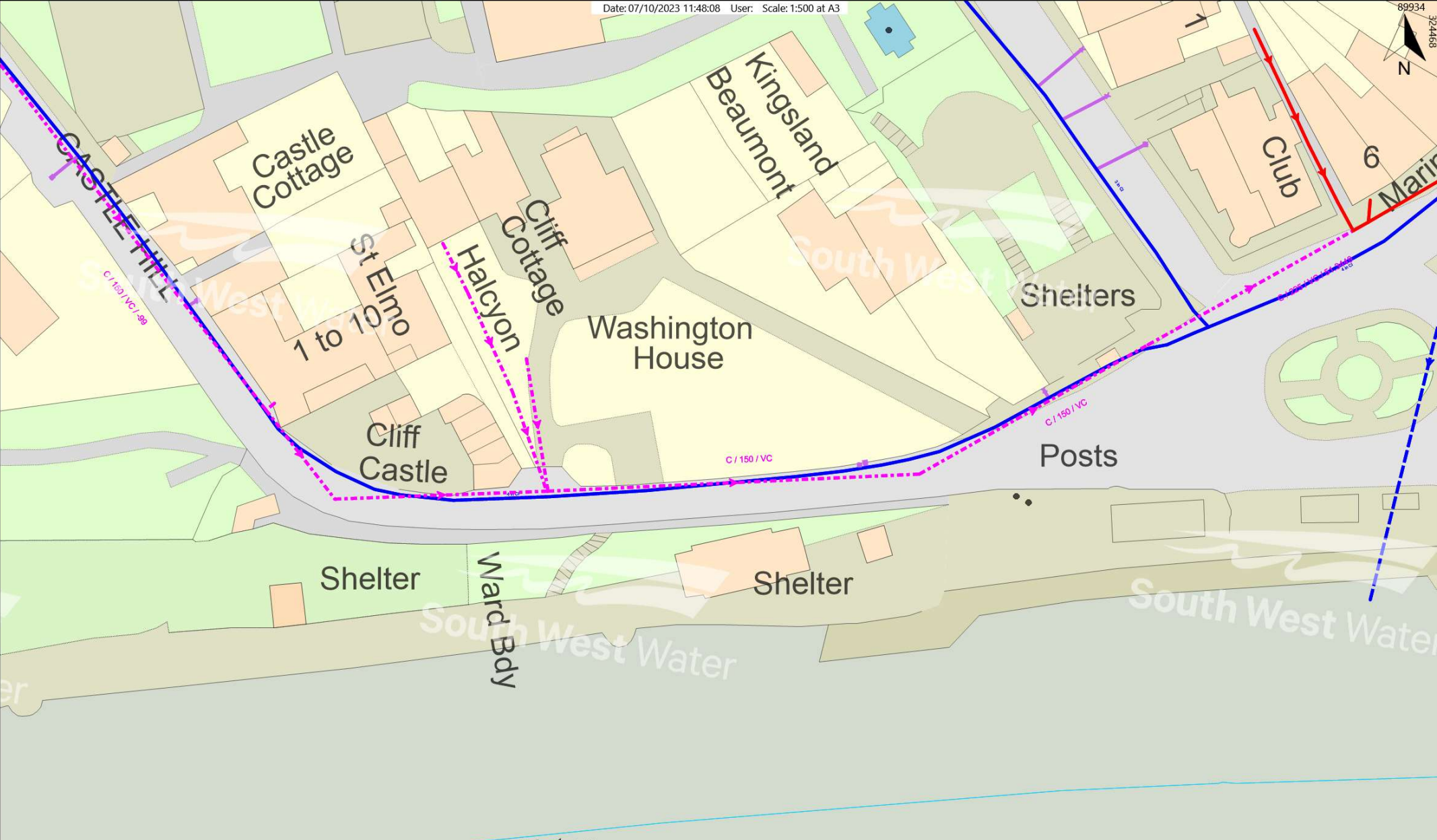
Help and advice

Contact the Devon Cornwall and the Isles of Scilly Environment Agency team at dcisenquiries@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



Appendix D :
South West Water Mapping



Reproduced from the Ordnance Survey map by South West Water Ltd. by permission Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office
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