

Flood defence key

- Existing line of steel sheet piling flood defences
- Existing line of embankment flood defences
- Proposed secondary line of defences
- Proposed line of concrete capping beam to existing steel sheet piling

1. All dimensions are in mm unless stated otherwise
2. No dimensions to be scaled
3. All dimensions to be verified by the contractor before work is commenced
4. Architect to be notified immediately if any discrepancies are found
5. All shop drawings to be approved by Architect before work commences.
6. All details to be in accordance with relevant British Standards and manufacturers recommendations and specification
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FD A-A

FD B-B

FD C-C

FD D-D

FD E-E

FD F-F

Stone edging on concrete haunching

New gravel path with reinforcement for wheelchair access on min. 150mm Hardcore and Terram

Existing ground line

Minimum 250mm Recinforced concrete wall extending c.750mm into pile flange.

Centre-line of existing flood defence embankment

Proposed secondary line of defence

Footpath
5.00m

5.20m

Vegetation

5.05m

Nominal water level
5.20m

4.45m
Bio-swale

2.00m

Car park

4.30m wide

1000x1000mm Concrete capping beam

Bio-swale formed into structural deck

400-500mm Reinforced concrete slab to form upper ground level over lower ground level parking. Subject to structural engineers specifications.

Steel sheet piling A239-700 or Larssen 603 subject to structural engineer calculations

400-500mm Reinforced concrete slab on well compacted hardcore

Well-compacted hardcore

Rev A - 19/05/2020 - Update to consultants

Stolon Studio | Kaolin Court | 33-39 Beadnell Road, London SE23 1AA | 020 3355 9533 | mail@stolon.uk

Drawing
**Flood Defence Detail
FD B-B**

Scale
1:100

Project
**030
Hampton Quay**

Date
19/05/2020

Dwg No.
030-S3 -SK019

STOLONSTUDIO

Flood defence key

- Existing line of steel sheet piling flood defences
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FD A-A

FD B-B

FD C-C

FD D-D

FD E-E

FD F-F

Stone edging on concrete haunching

New gravel path with reinforcement for wheelchair access on min. 150mm Hardcore and Terram

Existing ground line

Minimum 250mm Recinforced concrete wall extending c.750mm into pile flange.

Footpath
5.00m

5.20m

5.05m

Vegetation

Nominal water level
5.20m

4.85m

Bio-swale

5.35m

Vegetation

1000x1000mm Concrete capping beam

Bio-swale formed into structural deck

400-500mm Reinforced concrete slab to form upper ground level over lower ground level parking. Subject to structural engineers specifications.

Steel sheet piling A239-700 or Larssen 603 subject to structural engineer calculations

400-500mm Reinforced concrete slab on well compacted hardcore

Well-compacted hardcore

2.00m

Car park

Rev A - 19/05/2020 - Update to consultants

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Drawing
Flood Defence Detail
FD C-C

Scale
1:100

Project
030
Hampton Quay

Date
19/05/2020

Dwg No.
030-S3 -SK020

- Flood defence key**
- Existing line of steel sheet piling flood defences
 - Existing line of embankment flood defences
 - Proposed secondary line of defences
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FD A-A

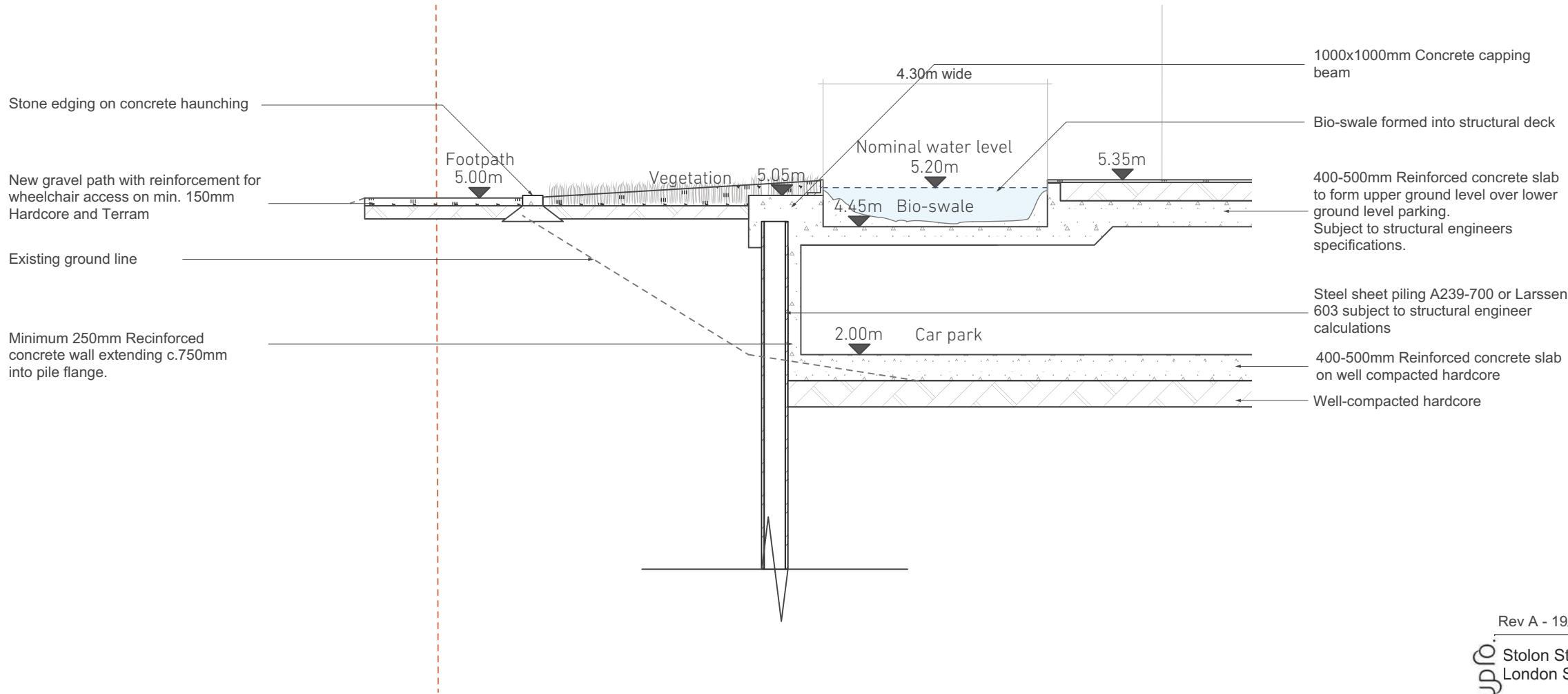
FD B-B

FD C-C

FD D-D

FD E-E

FD F-F



Rev A - 19/05/2020 - Update to consultants

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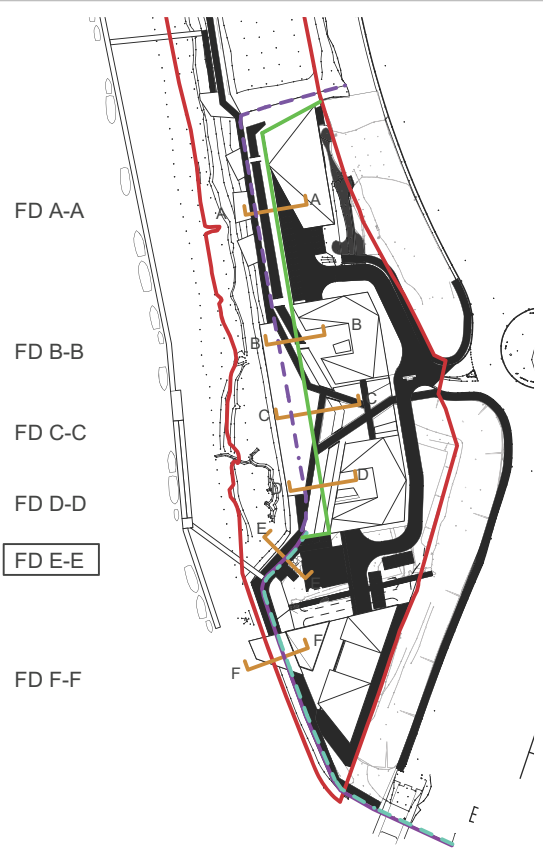
Drawing
**Flood Defence Detail
FD D-D**

Scale
1:100

Project
**030
Hampton Quay**

Date
19/05/2020

Dwg No.
030-S3 -SK021



FD A-A

FD B-B

FD C-C

FD D-D

FD E-E

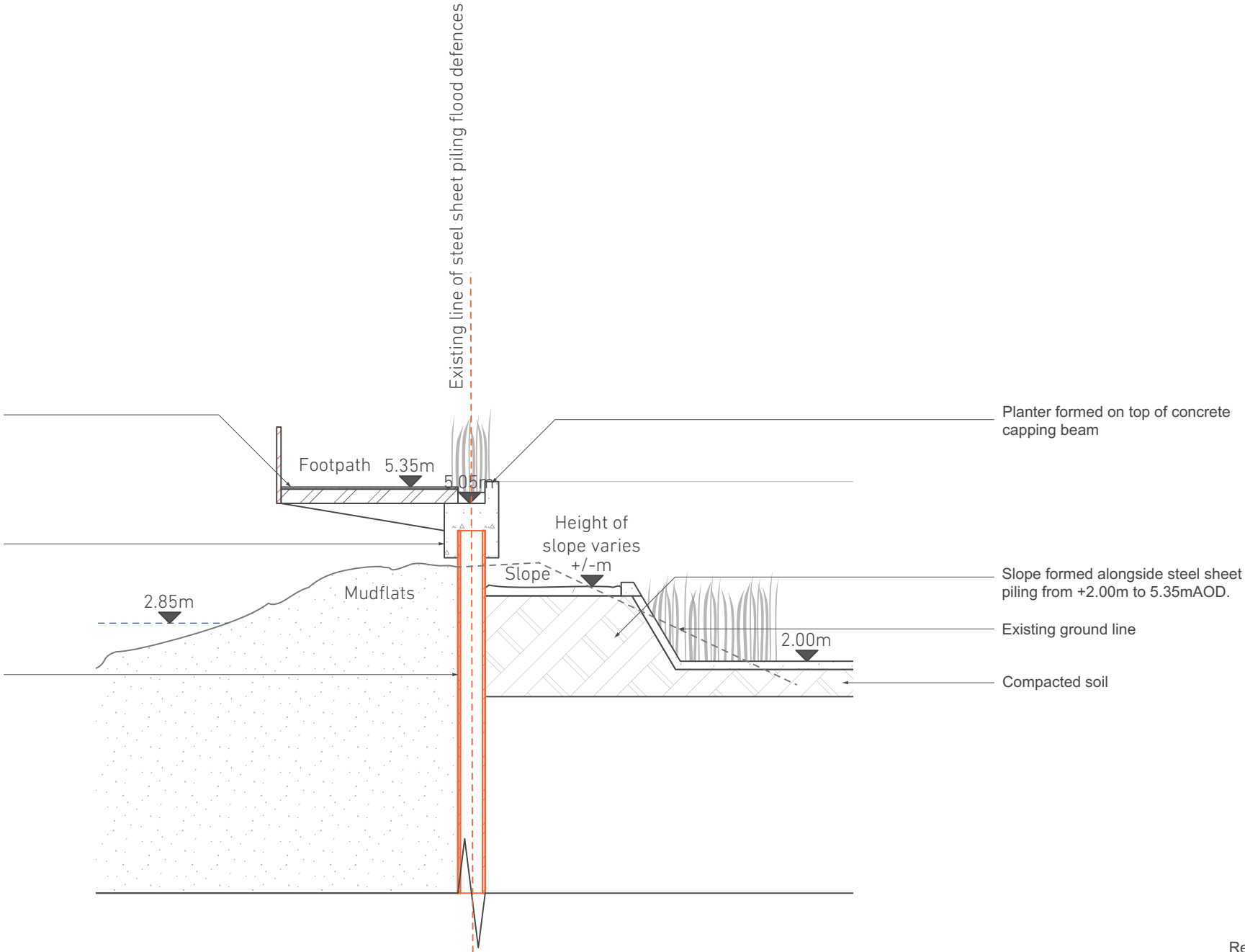
FD F-F

Beams supporting decking formed spanning to outer edge of flood defence over River Arun.

Proposed 1000x1000mm concrete capping beam to existing steel sheet piling

Existing steel sheet piling to be retained and reinforced with concrete capping beam.

Steel sheet piling to be partly exposed facing into site.



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Rev A - 19/05/2020 - Update to consultants

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Drawing	Flood Defence Detail FD E-E	Scale	1:100
Project	030 Hampton Quay	Date	19/05/2020
		Dwg No.	030-S3 -SK022

FD A-A

FD B-B

FD C-C

FD D-D

FD E-E

FD F-F

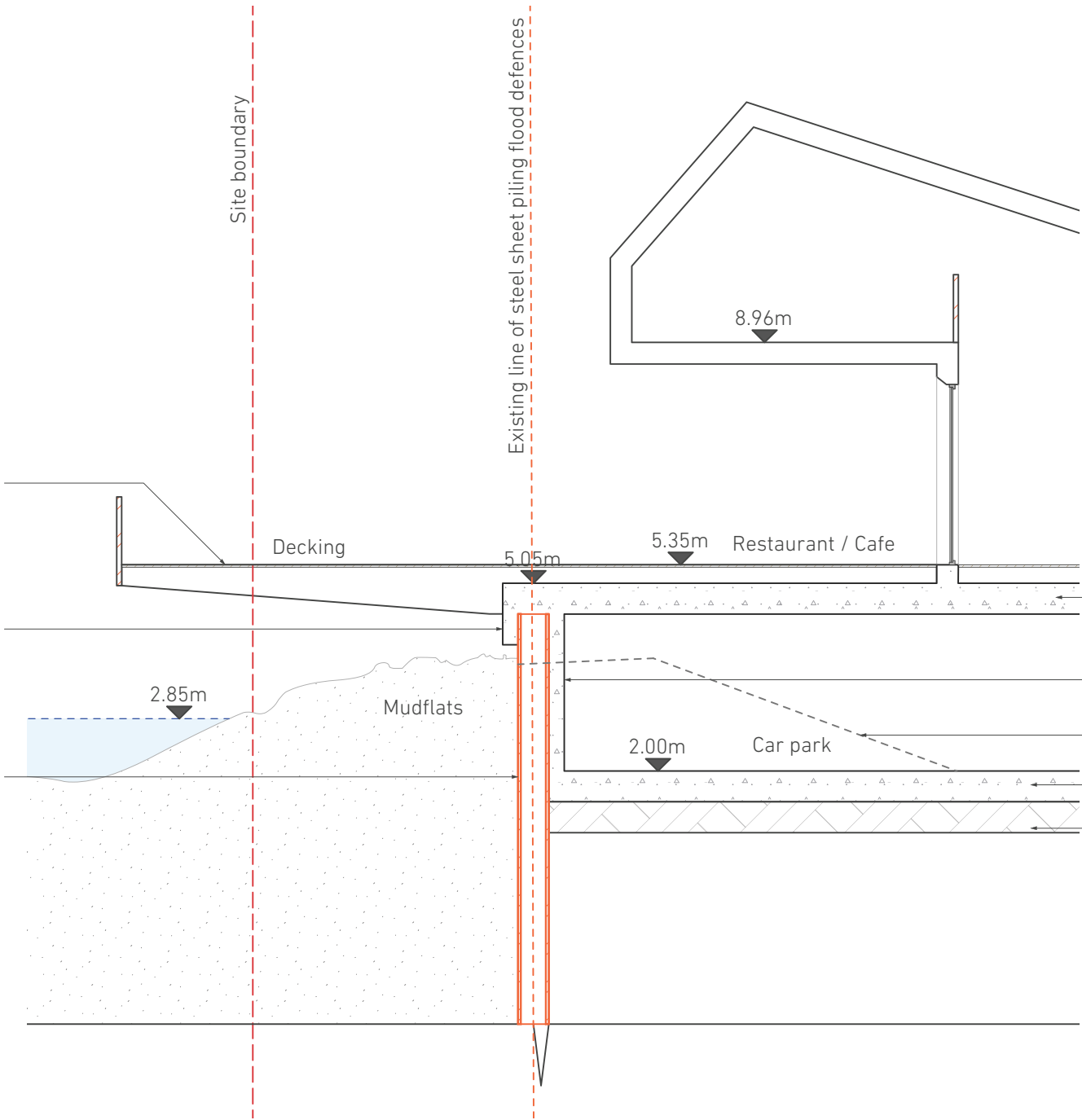
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Proposed decking supported by cantilever beam.
Subject to structural engineers specifications.

Proposed 1000x1000mm concrete capping beam to existing steel sheet piling

Existing steel sheet piling to be retained and reinforced with concrete capping beam.



Rev A - 19/05/2020 - Update to consultants

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Drawing	Flood Defence Detail FD F-F	Scale	1:100
Project	030 Hampton Quay	Date	19/05/2020
		Dwg No	030-S3 -SK023

Appendix II - EA Data

Thea Powell
Ambiental
Sussex Innovation
Center Science Park
Square Brighton
BN1 9SB

Our ref: SSD135743

Date: 23/07/2019

Dear Thea Powell,

**Enquiry Regarding Product 4 for Flood Risk Assessment for Hampton Quay,
Littlehampton, West Sussex, BN17 5RA**

Thank you for your enquiry which was received on 19 July 2019.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

The information on Flood Zones in the area relating to this address is as follows:

The site is in an area located within Flood Zone 3 as shown on our Flood Map for Planning (Rivers and Sea).

Note - This information relates to the area that the above named property is in and is not specific to the property itself as it is influenced by factors such as the height of door steps, air bricks or the height of surrounding walls. We do not have access to this information and is not currently used in our flood modelling.

Flood Zone definitions can be found at www.gov.uk/guidance/flood-risk-and-coastal-change#Table-1-Flood-Zones

Flood Defences

There are flood embankments in the vicinity of the site with a Standard of Protection between 1 in 50 and 1 in 75. There is also an Environment Agency maintained trash screen at the Wick Farm Ditch outfall.

Model Information

The model used was the Lower Tidal River Arun Strategy (LTRAS) Modelling which was completed by Atkins in 2010.

Flood History

We hold no record of previous flooding events affecting this site.

Please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flood Authority, **West Sussex County**

Council or the Local Authority, **Arun District Council** for a more comprehensive flood history check.

[FRA advisory text](#)

Name	Product 4
Description	Detailed Flood Risk Assessment Map for Hampton Quay, Littlehampton, West Sussex, BN17 5RA
Licence	Open Government Licence
Information Warning - OS background mapping	<i>The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.</i>
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2018 Ordnance Survey 100024198.

Data Available Online

Many of our flood datasets are available online:

- Flood Map For Planning ([Flood Zone 2](#), [Flood Zone 3](#), [Flood Storage Areas](#), [Flood Defences](#), [Areas Benefiting from Defences](#))
- [Risk of Flooding from Rivers and Sea](#)
- [Historic Flood Map](#)
- [Current Flood Warnings](#)

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely,

Tom Lamboo
Flood and Coastal Risk Management Officer
Partnership & Strategic Overview
West Sussex

EA Maintained Flood Defences

Legend

Defences (EA maintained)

- Asset type not defined
- Embankment
- Wall
- Flood Gate
- Demountable Defence
- Bridge Abutment
- High Ground
- Beach
- Barrier Beach
- Promenade
- Quay
- Cliff
- Dunes



0 40 80 120
Metres



Flood Map for Planning (Rivers and Sea). Centred BN17 5RA. Created **23/07/2019**.



Scale 1: 10,000



Flood Map for Planning (Rivers & Sea)

- Defences
- Flood Storage Areas
- ▨ Areas benefiting from flood defences
- 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.

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Use of Environment Agency Information for Flood Risk Assessments

Important

The Environment Agency are keen to work with partners to enable development which is resilient to flooding for its lifetime and provides wider benefits to communities. If you have requested this information to help inform a development proposal, then we recommend engaging with us as early as possible by using the pre-application form available from our website:

<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

We recognise the value of early engagement in development planning decisions. This allows complex issues to be discussed, innovative solutions to be developed that both enables new development and protects existing communities. Such engagement can often avoid delays in the planning process following planning application submission, by reaching agreements up-front. We offer a charged pre-application advice service for applicants who wish to discuss a development proposal.

We can also provide a preliminary opinion for free which will identify environmental constraints related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In preparing your planning application submission, you should refer to the Environment Agency's Flood Risk Standing Advice and the Planning Practice Guidance for information about what flood risk assessment is needed for new development in the different Flood Zones. This information can be accessed via:

<https://www.gov.uk/flood-risk-assessment-standing-advice>
<http://planningguidance.planningportal.gov.uk/>

You should also consult the Strategic Flood Risk Assessment or other relevant materials produced by your local planning authority.

You should note that:

1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk Assessment (FRA) where one is required, but does not constitute such an assessment on its own.
2. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or surface water runoff. Information produced by the local planning authority referred to above may assist here.
3. Where a planning application requires an FRA and this is not submitted or is deficient, the Environment Agency may raise an objection.

Product 4 Flood Risk Data Requested by: Ambiental

Site: Hampton Quay, Littlehampton, BN17 5RA

Table 1: Water Levels: Fluvial Undefended

	NGR		Modelled Flood Levels in Metres AOD			
			Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	5%	1%	1% +CC*	0.1%
1	501517	102856	-	-	3.36	-
2	501554	102651	2.59	2.59	3.43	2.59
3	501579	102518	2.58	2.59	3.43	2.59

Table 2: Water Levels: Fluvial Defended

	NGR		Modelled Flood Levels in Metres AOD			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	5%	1%	1% +CC*	0.1%
1	501517	102856	-	-	2.87	-
2	501554	102651	-	-	-	-
3	501579	102518	-	-	-	-

Table 3: Water Levels: Tidal Undefended

	NGR		Modelled Flood Levels in Metres AOD			
			Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	5%	0.5%	0.5% (2110)	0.1%
1	501517	102856	3.19	3.46	4.23	3.59
2	501554	102651	3.25	3.53	4.28	3.66
3	501579	102518	3.25	3.53	4.27	3.66

Table 4: Water Levels: Tidal Defended

	NGR		Modelled Flood Levels in Metres AOD			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	5%	0.5%	0.5% (2110)	0.1%
1	501517	102856	-	3.59	4.50	4.07
2	501554	102651	-	3.40	4.53	4.13
3	501579	102518	-	3.40	4.53	4.13

Office Address: Guildbourne House, Chatsworth Road, Worthing BN11 1LD.
 Customer services line: 03708 506 506. Email: enquiries@environment-agency.gov.uk
www.gov.uk/government/organisations/environment-agency

Table 5: Water Depths: Fluvial Undefended

	NGR		Modelled Flood Depths in Metres			
			Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	5%	1%	1% +CC*	0.1%
1	501517	102856	-	-	0.81	-
2	501554	102651	0.14	0.14	0.99	0.15
3	501579	102518	0.43	0.43	1.23	0.43

Table 6: Water Depths: Fluvial Defended

	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	5%	1%	1% +CC*	0.1%
1	501517	102856	-	-	0.33	-
2	501554	102651	-	-	-	-
3	501579	102518	-	-	-	-

Table 7: Water Depths: Tidal Undefended

	NGR		Modelled Flood Depths in Metres			
			Undefended Annual Exceedance Probability			
Node Ref	Eastings	Northings	5%	0.5%	0.5% (2110)	0.1%
1	501517	102856	0.64	0.91	1.69	1.04
2	501554	102651	0.81	1.09	1.84	1.22
3	501579	102518	1.10	1.37	2.11	1.50

Table 8: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres			
			Defended Annual Exceedance Probability			
Node Ref	Eastings	Northings	5%	0.5%	0.5% (2110)	0.1%
1	501517	102856	-	1.04	1.95	1.53
2	501554	102651	-	1.46	2.60	2.19
3	501579	102518	-	1.90	3.03	2.64

All levels taken from: Lower Tidal River Arun Strategy (LTRAS) Modelling

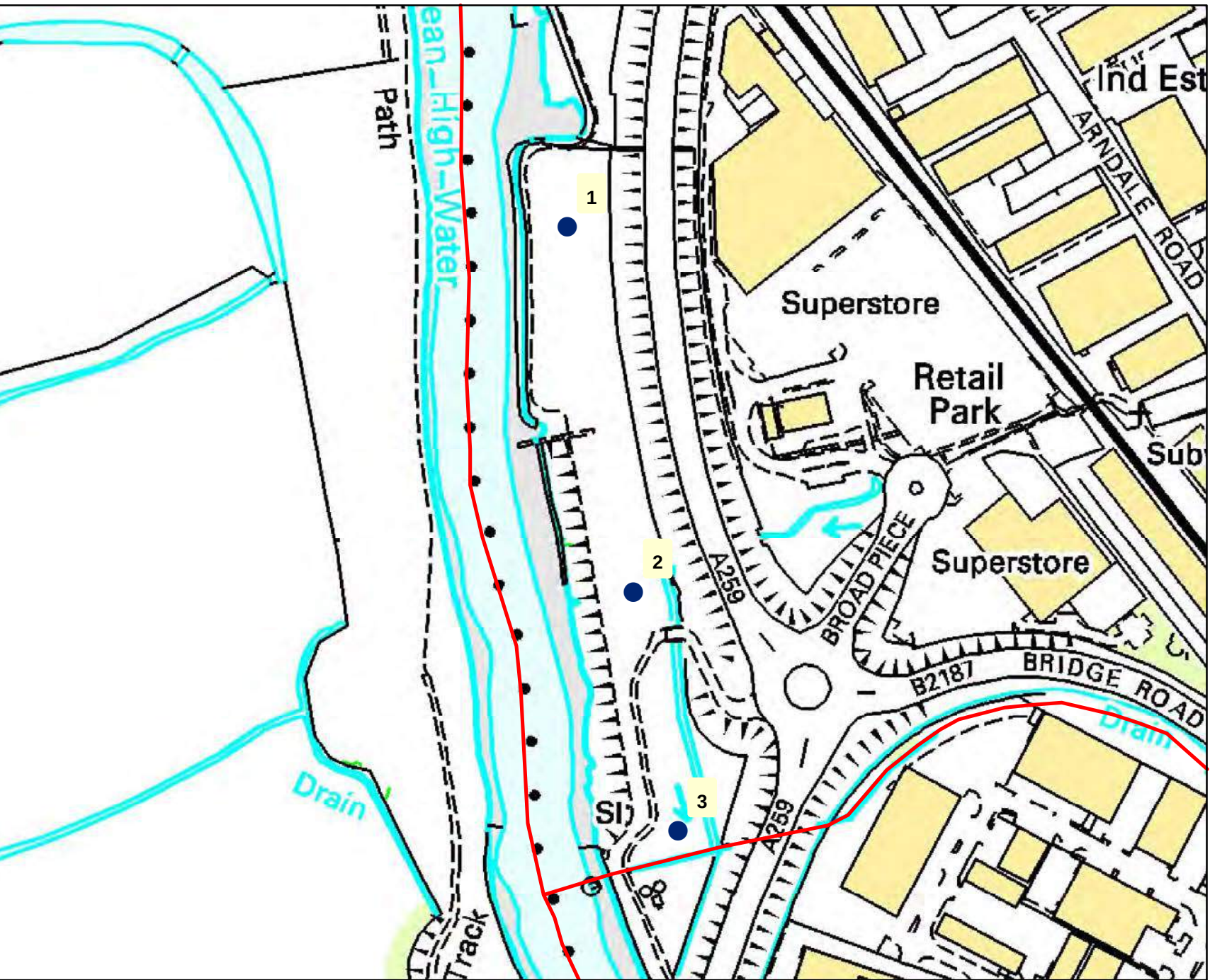
Produced on: 23/07/2019

*** Climate Change allowances for this model only show the superseded 20% increase in flows. The current allowances should be checked here:**
<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.

Office Address: Guildbourne House, Chatsworth Road, Worthing BN11 1LD.
 Customer services line: 03708 506 506. Email: enquiries@environment-agency.gov.uk
www.gov.uk/government/organisations/environment-agency

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

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Customer services line: 03708 506 506. Email: enquiries@environment-agency.gov.uk
www.gov.uk/government/organisations/environment-agency





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Legend

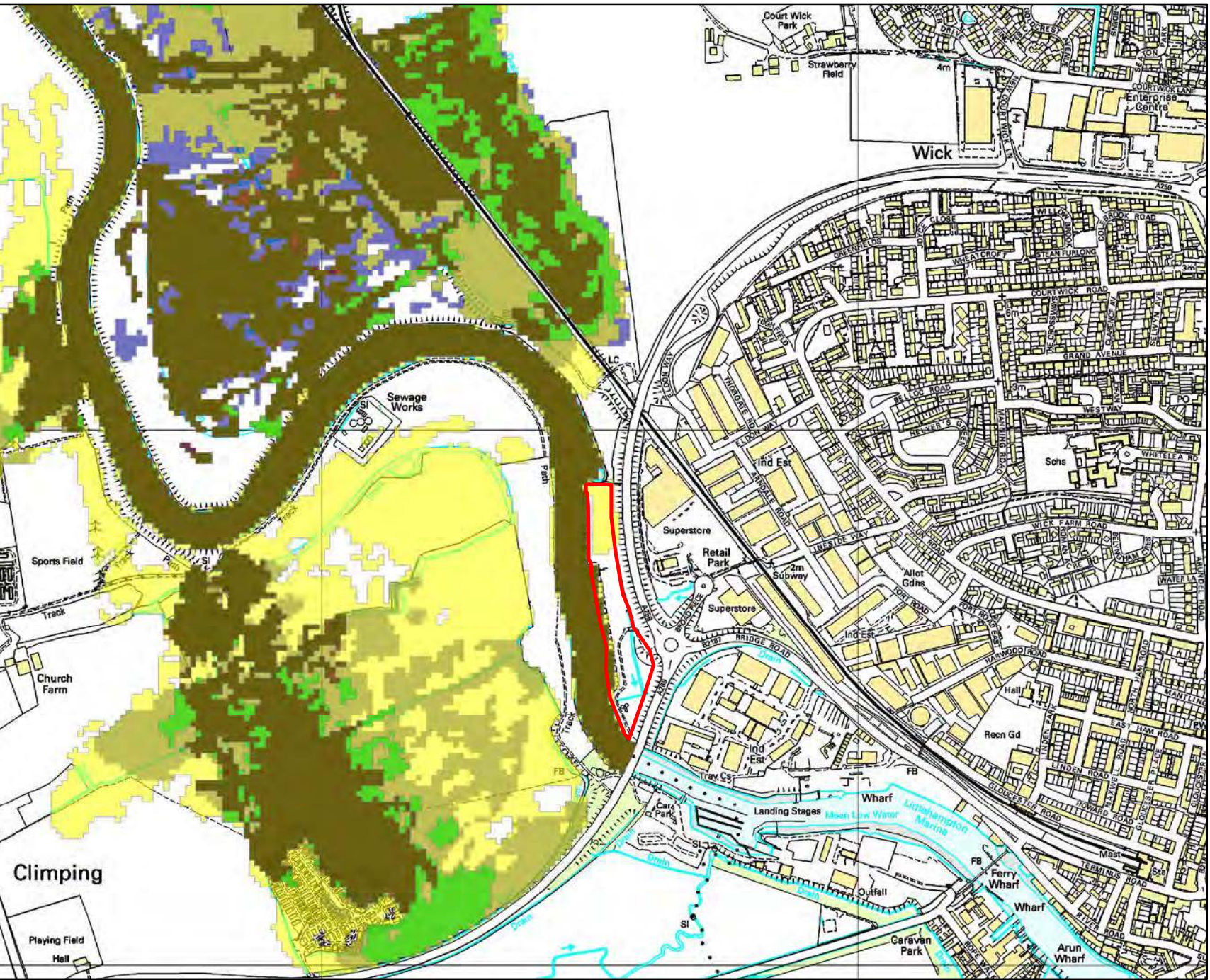
Main River

Node_Points

Scale: 1:3,000

00.050.1

Kilometers



Environment
Agency



Legend

-  Site_Boundary
-  5% AEP (Defended Fluvial)
-  1% AEP (Defended Fluvial)
-  1% AEP Plus Climate Change (Defended Fluvial)
-  0.1% AEP (Defended Fluvial)

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

Scale: 1:10,000



0 0.225 0.45
Kilometers

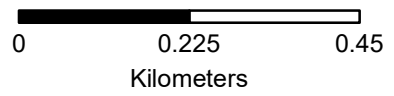


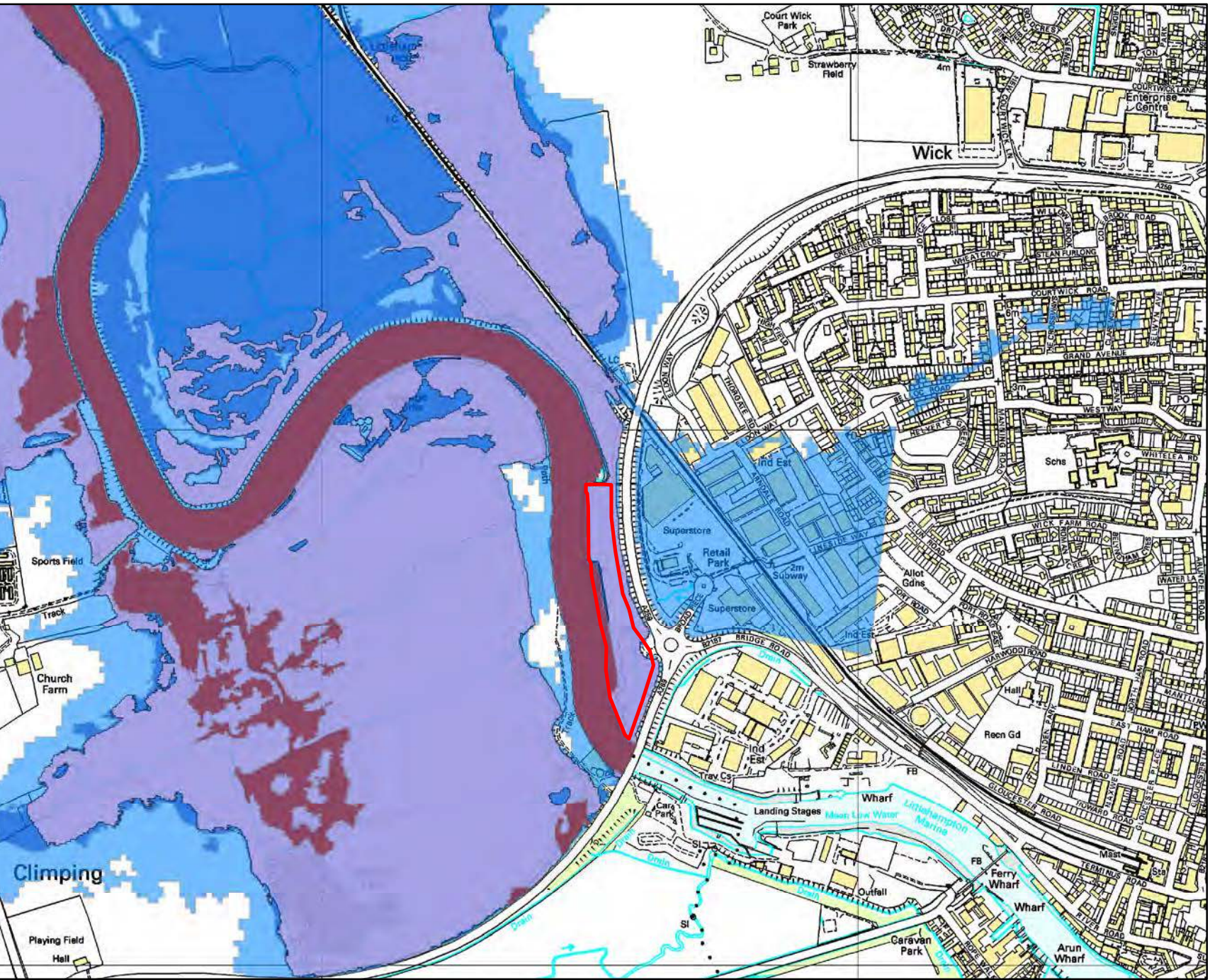
Legend

- Site_Boundary
- 5% AEP (Un defended Fluvial)
- 1% AEP (Un defended Fluvial)
- 1% AEP Plus Climate Change (Un defended Fluvial)
- 0.1% AEP (Un defended Fluvial)

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
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N



Legend

-  Site_Boundary
-  5% AEP (Defended Tidal)
-  0.5% AEP (Defended Tidal)
-  0.5% AEP (2110) (Defended Tidal)
-  0.1% AEP (Defended Tidal)

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

Scale: 1:10,000



0 0.225 0.45
Kilometers

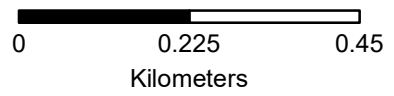


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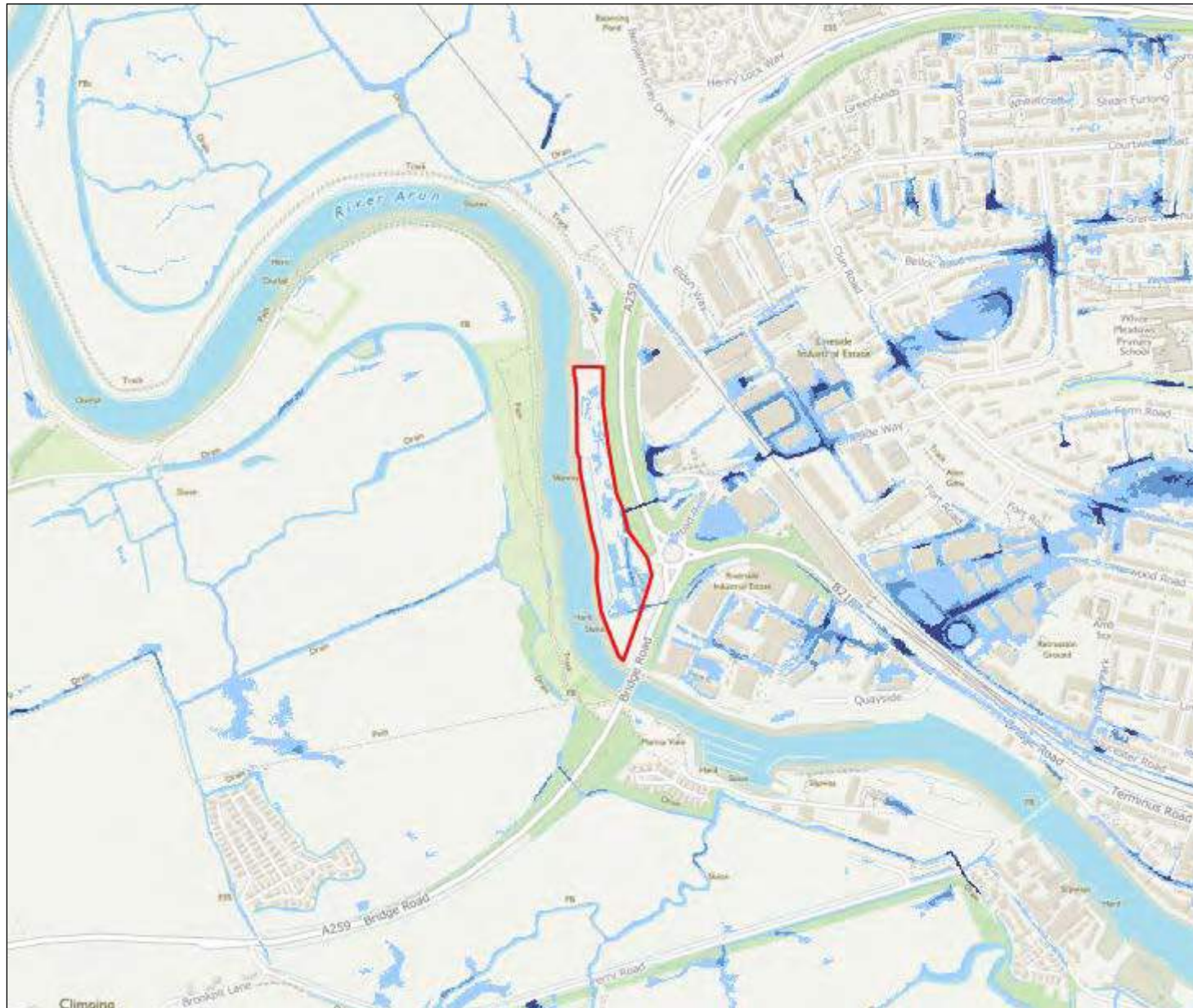
-  Site_Boundary
-  5% AEP (Undefended Tidal)
-  0.5% AEP (Undefended Tidal)
-  0.5% AEP (2110) (Undefended Tidal)
-  0.1% AEP (Undefended Tidal)

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

Scale: 1:10,000



Risk of flooding from Surface Water. Centred BN17 5RA. Created **23/07/2019**.



Scale 1:10,000



Likelihood of flooding from Surface Water

- High ($\geq 3.3\%$)
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low

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 our website.

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). E-mail: enquires@environment-agency.gov.uk

Solent & South Downs Area

Pre-application Advice Note

January 2019

This document sets out the environmental issues we will consider when providing our planning application consultation advice to Local Councils. It can be used by applicants, developers and consultants at the pre-planning stage.

Fluvial Flood Risk

Development must be safe and should not increase the risk of flooding.

You can view a site's flood zone on the Flood Map for Planning on our website:

<http://apps.environment-agency.gov.uk/wiyby/37837.aspx>

If your proposed development is located within flood zone 2 or 3 you should consult the Flood Risk and Coastal Change pages of the National Planning Policy Guidance (NPPG)

<http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/>

Here you can determine whether the flood risk vulnerability of your proposed development and the flood zone are compatible. You can also establish if there are flood risk sequential test and exception test requirements for your proposed development. In the first instance we recommend the developer/applicant liaises with the Local Planning Authority (LPA) to undertake the Sequential Test in accordance with the National Planning Policy Framework (NPPF).

If your proposed development is located within flood zone 2 or 3 and its vulnerability and flood zone are considered acceptable under the NPPG then a site specific Flood Risk Assessment (FRA) is required to support any subsequent planning application. This is required by paragraph 163 of the NPPF:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/60777/2116950.pdf

Guidance on the content of a site specific FRA can be found in the NPPG and online: <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

More detailed flood risk modelling data is available to help you produce a FRA then contact our Customers and Engagement team at SSDenquiries@environment-agency.gov.uk.

Climate Change Allowances

On 19 February 2016, we published new guidance for planners and developers on how to use climate change allowances in a site-specific FRA: <https://www.gov.uk/guidance/flood-risk-assessments-climatechange-allowances>

Groundwater Quality

Development must not cause pollution to the water environment.

Source Protection Zones

We have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used across the country for public drinking water supply. These zones are more sensitive to contamination from activities that might cause pollution in the area. The closer the activity, the greater the risk.



SPZ1s are the areas designated as most at risk from contamination and development activities and in these areas we may consider it inappropriate for development to discharge foul or surface water into the ground.

To see if your proposed development is located within a Source Protection Zone, please use our online map: <http://apps.environment-agency.gov.uk/wiyby/37833.aspx>

Contaminated Land

The NPPF takes a precautionary approach to land contamination. Before the principle of development can be determined, land contamination should be investigated to see whether it could preclude certain development due to environmental risk or cost of remediation. Where contamination is known or suspected, a desk study, site investigation, remediation and other works may be required to enable safe development.

Pollution

If the proposed development use has the potential to pollute ground or surface water receptors then an assessment to establish whether the risk of pollution is acceptable or can be mitigated will be required within any planning application.

Foul Drainage

When drawing up wastewater treatment proposals for any development, the first presumption is to provide a system of foul drainage discharging into a public sewer to be treated at a public sewage treatment works (those provided and operated by the water and sewerage companies). This should be done in consultation with the sewerage company of the area prior to the submission of a formal planning application.

If connection to a public sewage treatment plant is not feasible, a package sewage treatment plant may be considered. If you would like further advice please call 03708 506 506.

Cemeteries

The development of new cemeteries in areas where groundwater vulnerability is high should be avoided, except where the thickness and nature of the unsaturated zone, or the impermeable formations beneath the site, protect groundwater; or where the long-term risk is mitigated by appropriate engineering methods.

Main Rivers

Ecology

In accordance with the National Planning Policy Framework (NPPF), any development proposal should avoid significant harm to biodiversity and seek to protect and enhance it. Opportunities to incorporate biodiversity in and around the development will be encouraged.

Your scheme should be designed with a naturalised buffer zone of at least 8 metres from the main river to protect and enhance the conservation value of the watercourse and ensure access for flood defence maintenance.

This buffer zone should be managed for the benefit of biodiversity for example by the planting of locally appropriate, UK native species. The buffer zone should be undisturbed by development with no fencing, footpaths or other structures. This buffer zone will help provide more space for flood waters, provide improved habitat for local biodiversity and allows access for any maintenance requirements.

To identify any Main Rivers in proximity to your proposed development please see our Main Rivers Consultation Map: <http://apps.environment-agency.gov.uk/wiyby/151293.aspx>

customer service line
03708 506 506

www.gov.uk/environment-agency

incident hotline
0800 80 70 60

floodline
0345 988 1188

Culverting

The Environment Agency is likely to oppose culverting as it is damaging to the ecological integrity of the river channel and its corridor and acts as a barrier to the movement of wildlife, including fish and may also increase flood risk.

If the proposal will impact an existing culvert the Environment Agency may oppose planning consent for development either over, or within 8 metres of an existing culvert. Wherever possible, existing culverts should be removed and the river channel and bankside habitat reinstated to restore the ecological continuity of the river channel and its corridor.

Water Framework Directive (WFD)

With any development alongside watercourses, consideration should be given to the requirements of the Water Framework Directive (WFD) <http://ec.europa.eu/environment/water/water-framework/>. This includes preventing overall deterioration in water quality and promoting improvement in the ecological status of any water body. Actions to achieve this are listed in the South East River Basin Management Plan (RBMP) <https://www.gov.uk/search?q=River+Basin+Management+Plans>.

Where appropriate, a WFD Assessment should assess any potential impacts on the watercourse and demonstrate that the required enhancements will be delivered. In some cases the requirements of a WFD assessment can be incorporated into an Environmental Impact Assessment (EIA). Any development that has the potential to cause deterioration in classification under WFD or that precludes the recommended actions from being delivered in the future is likely to be considered unacceptable to us.

Permits & Consents

Environmental Permitting Regulations

To see if your proposed development requires an Environmental Permit under the Environmental Permitting Regulations please refer to our website: <https://www.gov.uk/guidance/check-if-you-need-an-environmental-permit>

From 6 April 2016 an Environmental Permit is required for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of designated Main River, and within 16 metres of a tidal defence.

Ordinary Watercourse Consent

The prior written consent of the relevant Lead Local Flood Authority is required for the erection of any flow control structures, culverting or diversion of ordinary watercourses, including streams, land drains and ditches.

Marine Licence

A marine licence may be required for any activities at the mean high water spring tide up to the territorial limit. This also includes the waters of every estuary, river or channel where the tide flows at mean high water spring tide.

Any development must demonstrate how adverse impacts on migratory fish, bathing waters, shellfish waters, designated sites, protected and priority species and habitats will be avoided, minimised, mitigated and if necessary compensated for. Works within or affecting a Water Framework Directive (WFD) waterbody will need to demonstrate that compliance with WFD objectives will be achieved. 'Clearing the Waters for All' provides guidance on how the impacts on WFD should be addressed, and should be used when preparing an assessment, including the screening and scoping of activities. <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

Further pre-application options

The information provided above details generic information which may or may not be applicable to your development. We are able to provide more detailed and bespoke advice and answer technical questions for a charged fee of £100 per person per hour +VAT.

If you are interested in finding out more about this service, please email:

planningssd@environment-agency.gov.uk

We can explain this service and provide you with a bespoke quote for further pre-application advice that you may require please see .gov - <https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

Please note

Please note that the view expressed in this letter by the Environment Agency is in response to the enquiry only and does not represent our final view in relation to any future planning application made in relation to this site.

We reserve the right to change our position in relation to any such application.

As part of this preliminary response we have not technically reviewed any documents. This opinion is based on the information submitted and current planning policy and guidance.

If you have any questions please contact the Solent & South Downs Sustainable Places team:

planningssd@environment-agency.gov.uk

customer service line
03708 506 506

www.gov.uk/environment-agency

incident hotline
0800 80 70 60

floodline
0345 988 1188

Third Party Maintained Flood Defences

Legend

Defences (3rd party maintained)

- Asset type not defined
- Embankment
- Wall
- Flood Gate
- Demountable Defence
- Bridge Abutment
- High Ground
- Beach
- Barrier Beach
- Promenade
- Quay
- Cliff
- Dunes



0 40 80 120
Metres



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Appendix III - Supplementary Information

Part A: Flood Mapping & Figures

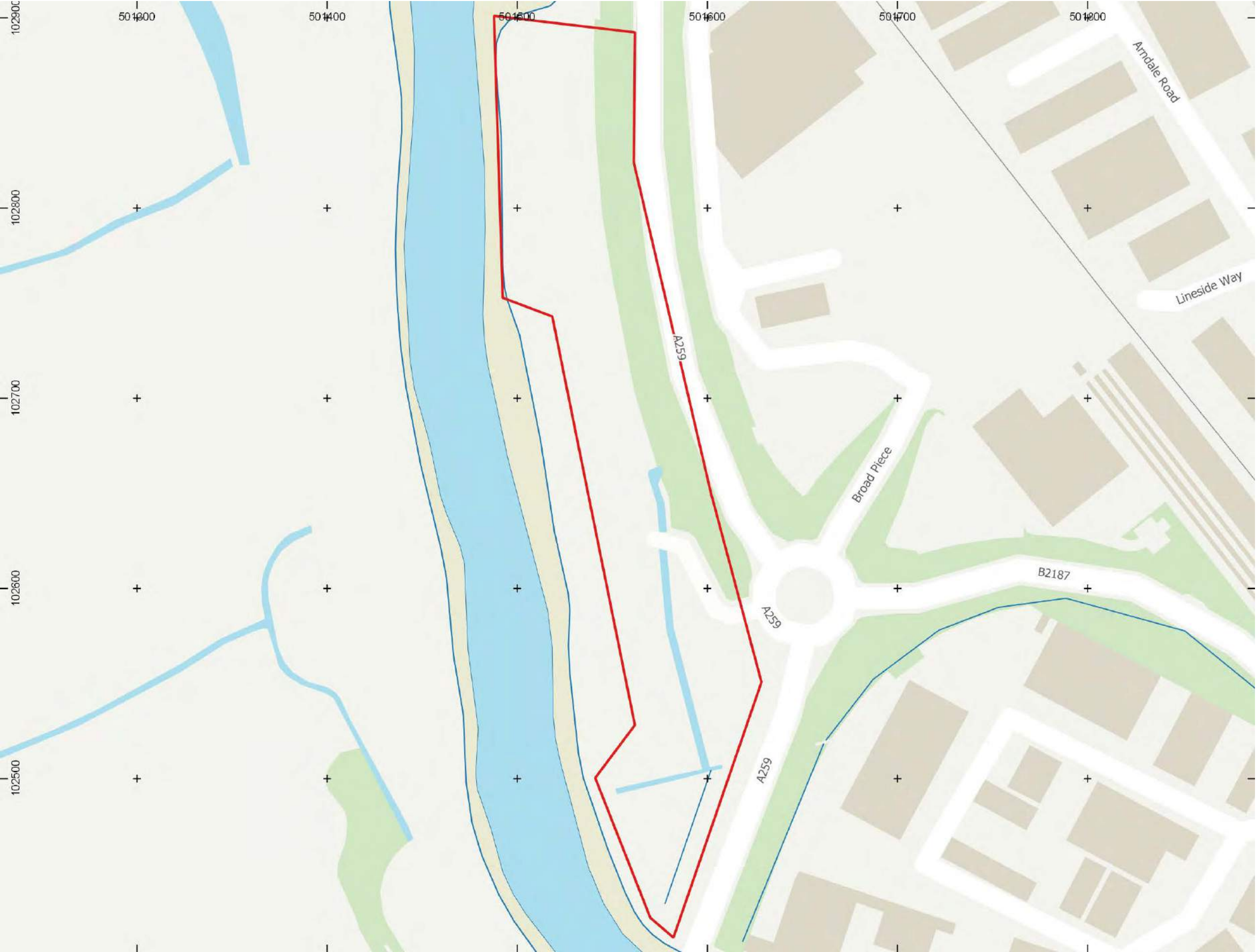
Part B: Permeable Paving (Outfall Set to Zero l/s)

Part C: Swale & Roof Drainage

Part D: Drainage Strategy Overview

Part E: Stakeholder Comment Response

Part A: Flood Mapping & Figures



NOTE:
Contains data © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

LEGEND

APPLICATION BOUNDARY

Site Location
501,557 mE
102,679 mN

Site Area
30,711 sq.m

Client
The Littlehampton Yacht Club

Site
Hampton Quay

Project No.
4732

SITE LOCATION PLAN



NOTE:
Contains data © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

LEGEND

APPLICATION BOUNDARY

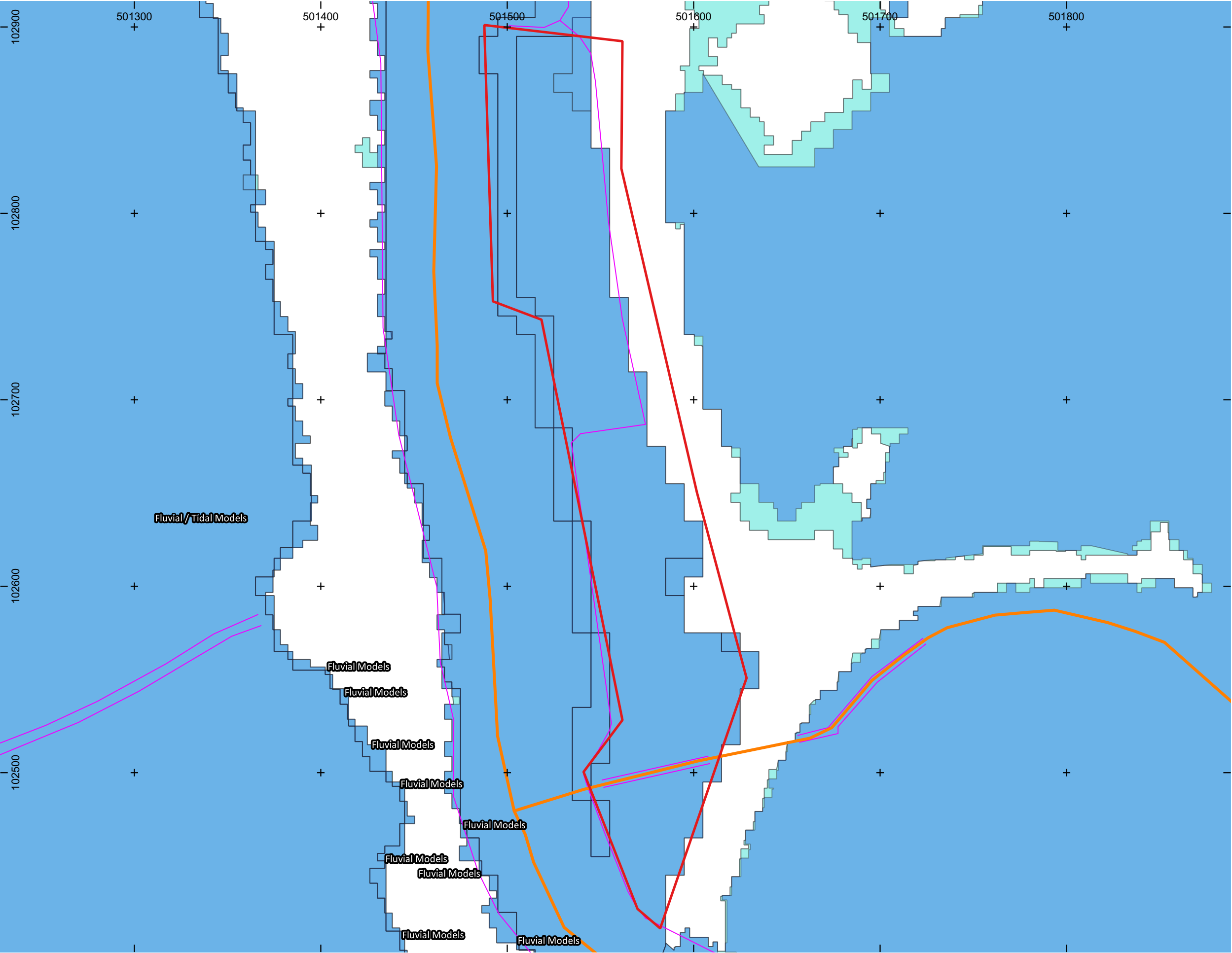
Client
The Littlehampton Yacht Club

Site
Hampton Quay

Project No.
4732

AMBIENTAL
ENVIRONMENTAL ASSESSMENT
a company of Royal HaskoningDHV

AERIAL LOCATION PLAN



NOTE:

Environment Agency Flood Zone 3
High probability of land and property flooding each year the chance of a flood is; 1% (1 in 100) from rivers (fluvial); or, 0.5% (1 IN 200) from the sea (tidal).

Environment Agency Flood Zone 2
Medium probability of land and property flooding each year the chance of a flood is; between 1% (1 in 100) and 0.1% (1 in 1,000) from rivers (fluvial); or, between 0.5% (1 in 200) and 0.1% (1 in 1,000) from the sea (tidal).

Environment Agency Flood Zone 1
Low probability of land and property flooding each year the chance of a flood is less than 0.1% (1 in 1000)

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- LEGEND**
- APPLICATION BOUNDARY
 - MAIN RIVER
 - FLOOD DEFENCES
 - BENEFIT FROM FLOOD DEFENSE
 - FLOOD ZONE 3
 - FLOOD ZONE 2

Client
The Littlehampton Yacht Club

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ENVIRONMENT AGENCY FLOOD MAP FOR PLANNING



NOTE:

High risk: Each year this area has a chance of surface water flooding of greater than 3.3%, or 1 in 30.

Medium risk: Each year this area has a chance of surface water flooding of between 1% (1 in 100) and 3.3% (1 in 30).

Low risk: Each year this area has a chance of surface water flooding of between 0.1% (1 in 1000) and 1% (1 in 100).

Very low risk
Each year this area has a chance of flooding of less than 0.1% (1 in 1000).

Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Contains data, © Environment Agency, © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

- LEGEND**
- APPLICATION BOUNDARY
 - HIGH RISK (1:30)
 - MEDIUM RISK (1:100)
 - LOW RISK (1:1,000)

Client
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RISK OF FLOODING FROM SURFACE WATER



NOTE:

High risk: Each year this area has a chance of surface water flooding of greater than 3.3%, or 1 in 30. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Contains data, © Environment Agency, © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

- LEGEND**
- APPLICATION BOUNDARY
 - BELOW 150 MM
 - BETWEEN 150 & 300 MM
 - BETWEEN 300 & 600 MM
 - BETWEEN 600 & 900 MM
 - BETWEEN 900 & 1200 MM
 - OVER 1200 MM

Client
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SURFACE WATER: HIGH RISK (1:30)



NOTE:

Medium risk
Each year this area has a chance of surface water flooding of between 1% (1 in 100) and 3.3% (1 in 30).

Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Contains data, © Environment Agency, © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

- LEGEND**
- APPLICATION BOUNDARY
 - BELOW 150 MM
 - BETWEEN 150 & 300 MM
 - BETWEEN 300 & 600 MM
 - BETWEEN 600 & 900 MM
 - BETWEEN 900 & 1200 MM
 - OVER 1200 MM

Client
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SURFACE WATER: MEDIUM RISK (1:100)



NOTE:

Low risk
Each year this area has a chance of surface water flooding of between 0.1% (1 in 1000) and 1% (1 in 100).

Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Contains data, © Environment Agency, © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

- LEGEND**
- APPLICATION BOUNDARY
 - BELOW 150 MM
 - BETWEEN 150 & 300 MM
 - BETWEEN 300 & 600 MM
 - BETWEEN 600 & 900 MM
 - BETWEEN 900 & 1200 MM
 - OVER 1200 MM

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SURFACE WATER: LOW RISK (1:1,000)



NOTE:

The Environment Agency (EA) Risk from Reservoir Flooding Map demonstrates the predicted impact of an unlikely event that a reservoir dam fails, i.e. a large volume of water would escape at once with little or no warning. According to the EA, there has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the enforcement authority for the Reservoirs Act 1975 in England. The EA are responsible to ensure that reservoirs are inspected regularly and essential safety work carried out. As reservoir flooding is unlikely and the modelled flood depths are based on the worst-case scenario, flooding from this source may be considered as a low risk. It is generally accepted that the risk of reservoir flooding managed by the strategies outlined above is reduced to 'as low as reasonably practicable' consequently no specific mitigation measures are required.

Contains data, © Environment Agency, © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

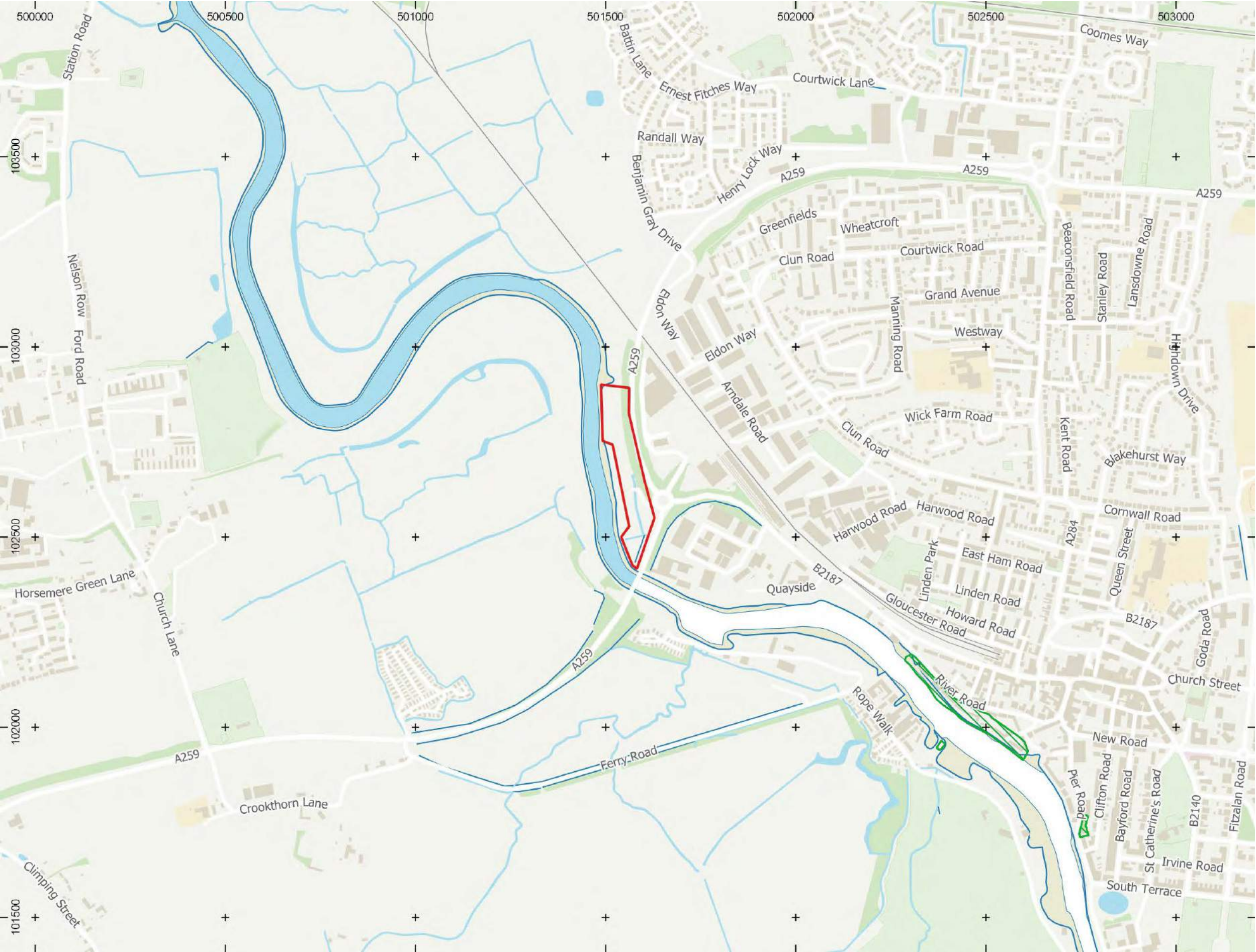
- LEGEND**
- APPLICATION BOUNDARY**
 - EXTENT OF RESERVOIR RISK**

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RISK OF FLOODING FROM RESERVOIR



NOTE:

Not all flood events are reported to the Environment Agency, however most significant flood events are monitored and recorded by them.

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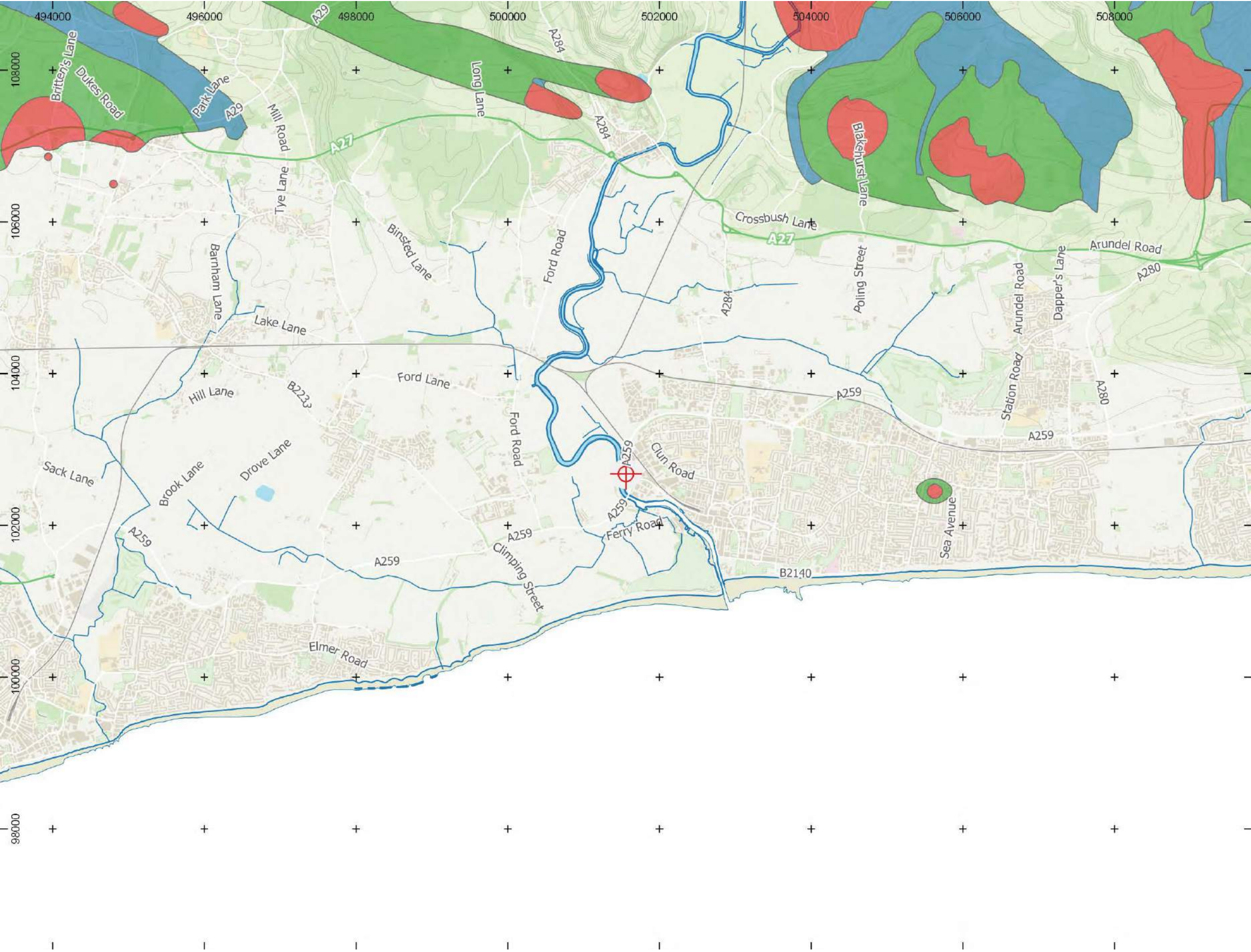
- LEGEND**
- APPLICATION BOUNDARY
 - HISTORIC FLOOD MAP
 - RECORDED FLOOD OUTLINES

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ENVIRONMENT AGENCY RECORDED FLOODING



NOTE:
Inner zone (Zone 1): Defined as the 50 day travel time from any point below the water table to the source. This zone has a minimum radius of 50 metres;

Outer zone (Zone 2): Defined by a 400 day travel time from a point below the water table.

Total catchment (Zone 3): Defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.

Special interest (Zone 4)
A fourth zone SPZ4 or 'Zone of Special Interest' was previously defined for some sources. SPZ4 usually represented a surface water catchment which drains into the aquifer feeding the groundwater supply (i.e. catchment draining to a disappearing stream).

NOTE: The Source Protection Zones are not to be displayed over base mapping greater than Ordnance Survey 1:50,000 scale, as the data was only modelled to this level and is not accurate pass this.

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LEGEND

 **SITE LOCATION**

SOURCE PROTECTION ZONE

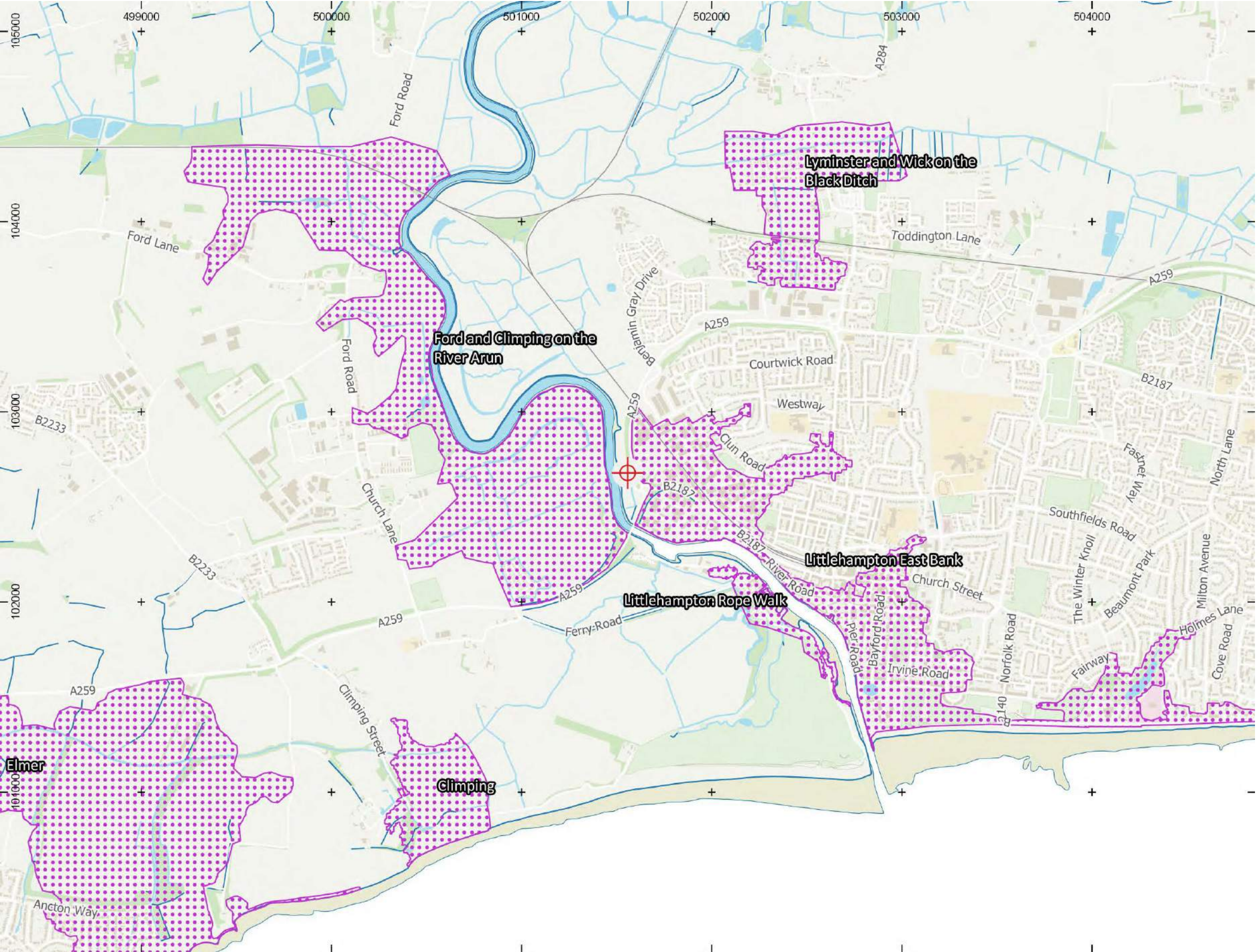
-  **ZONE I: INNER PROTECTION ZONE**
-  **ZONE II: OUTER PROTECTION ZONE**
-  **ZONE III: TOTAL CATCHMENT**
-  **ZONE OF SPECIAL INTEREST**

Client
The Littlehampton Yacht Club

Site
Hampton Quay

Project No.
4732

GROUNDWATER SOURCE PROTECTION ZONES



NOTE:

The Environment Agency (EA), Natural Resources Wales (NRW) and Scottish Environment Protection Agency (SEPA) constantly monitor rainfall, river levels and sea conditions to forecast the possibility of flooding.

If flooding is forecast, three types of warning are issued: flood alerts, flood warnings and severe flood warnings.

The information on the flood warnings page is updated every 15 minutes. Remember to refresh your browser to ensure that you are viewing the latest warnings.

Warning services for areas at risk of flooding from rivers or the sea are provided by the Environment Agency (EA) for England, Natural Resources Wales (NRW) for Wales and the Scottish Environment Protection Agency (SEPA). In Northern Ireland the Met Office works closely with partners to raise awareness of weather events which may result in flooding impacts on people and property.

Contains data, © Environment Agency, © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

- LEGEND**
-  **SITE LOCATION**
 -  **FLOOD WARNING AREAS**

Client
The Littlehampton Yacht Club

Site
Hampton Quay

Project No.
4732

ENVIRONMENT AGENCY FLOOD WARNING AREAS



NOTE:

LiDAR data has been obtained from the Environment Agency's 2m LiDAR data catalogue. The accuracy of the LiDAR is classified as being between -150 and +150 mm vertical accuracy and has been sampled onto a 2m regular grid.

Contains data, © Environment Agency, © Ordnance Survey. Data has been relied upon in the format provided and has not been independently validated.

LEGEND

Site Location

Application Boundary

LIDAR 2m (mAOD)

	-2
	1
	4
	7
	10

Client
The Littlehampton Yacht Club

Site
Hampton Quay

Project No.
4732

ENVIRONMENT AGENCY FLOOD 2M LiDAR DATA