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& Hydrologist

DEMOLITION OF EXISTING PETROL FILLING STATION & ERECTION OF A CONVENIENCE STORE

ANCHORSHOLME, THORNTON-CLEVELEYS

FLOOD RISK ASSESSMENT

December 2021

Commissioned by: Euro Garages Ltd.

Issue: V1.0

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CONTENTS

APPENDICES

1.0 INTRODUCTION AND DEVELOPMENT DESCRIPTION

1.1 Project Introduction and Objectives

Euro Garages Ltd. has commissioned NSugg Ltd. to undertake a Flood Risk Assessment (FRA) to support a planning application for the demolition of the existing petrol filling station and the erection of a convenience store off Fleetwood Road, Anchorsholme, Thornton-Cleveleys, Blackpool. This document represents a site-specific FRA for the proposed development and has been undertaken in accordance with the relevant planning policy and guidance outlined below.

1.2 Planning Policy and Guidance

1.2.1 National Planning Policy

The National Planning Policy Framework (NPPF)[1] and associated Planning Practice Guidance for Flood Risk[2] aim to steer new development to areas with the lowest risk of flooding.

New development must also ensure that flood risk is not increased elsewhere, and where appropriate, planning applications should be supported by a site-specific Flood Risk Assessment.

The NPPF recommends that development should only be allowed in areas at risk of flooding where the FRA (and the sequential and exception tests, as applicable) can demonstrate that:

a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;

b) the development is appropriately flood resistant and resilient;

c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;

d) any residual risk can be safely managed; and

e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

The guidance confirms that major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate.

1.2.2 Environment Agency Policy and Guidance

The Environment Agency's guidance for FRAs[3] confirms that planning applications for the following development proposals must be supported by a FRA:

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[1] Ministry of Housing, Communities & Local Government, March 2012 (last updated: July 2021), National Planning Policy Framework.

[2] Ministry of Housing, Communities & Local Government, March 2014, Planning Practice Guidance, Flood Risk and Coastal Change.

[3] Environment Agency, March 2014 (last updated: February 2017), Guidance – Flood Risk Assessments if you're applying for planning permission.

- Development in Flood Zone 2 or 3 including minor development and change of use
- Development sites of more than 1 hectare (ha) in Flood Zone 1
- Development sites less than 1 ha in Flood Zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs)
- Development in an area within Flood Zone 1 which has critical drainage problems as notified by the Environment Agency

The Agency's guidance supports the NPPF and specifies the requirements for FRAs based on the level of flood risk and the vulnerability of the proposed development to flooding.

In addition, Environment Agency consent is required for any proposed works or structures, in, under, over or within eight metres of the top of the bank of the watercourse, designated a 'main river', (or sixteen metres in the case of a tidal watercourse).

1.2.3 Local Policy and Guidance

The following documents provide local flood risk policy and guidance for development within Thornton-Cleveleys, Blackpool:

- Blackpool Council's 2021 Level 1 Strategic Flood Risk Assessment (SFRA)[4] presents a summary of the local hydrology, potential sources of flood risk across the region and flood risk information for planning.
- Lancashire's Local Flood Risk Management Strategy (LFRMS) for 2021-2027[5] provides details of local flood risk sources and proposals for future management strategies.
- Blackpool Council's Local Plan Core Strategy (adopted January 2016) presents local planning policy up to 2027. Policy CS9: Water Management, states:

1. To reduce flood risk, manage the impacts of flooding and mitigate the effects of climate change, all new development must:

> *a. Be directed away from areas at risk of flooding, through the application of the Sequential Test and where necessary the Exception Test, taking account of all sources of flooding;*
>
> *b. Incorporate appropriate mitigation and resilience measures to minimise the risk and impact of flooding from all sources;*
>
> *c. Incorporate appropriate Sustainable Drainage Systems (SuDS) where surface water run-off will be generated;*
>
> *d. Where appropriate, not discharge surface water into the existing combined sewer network. If unavoidable, development must reduce the volume of surface water run-off discharging from the existing site in to the combined sewer system by as much as is reasonably practicable;*
>
> *e. Make efficient use of water resources; and*
>
> *f. Not cause a deterioration of water quality.*

[4] Blackpool Council, May 2021, Level 1 Strategic Flood Risk Assessment.

[5] Lancashire County Council, Blackpool Council, Blackburn with Darwen Council, Local Flood Risk Management Strategy for Lancashire, 2021-2027.

2. Where appropriate, the retro-fitting of SuDS will be supported in locations that generate surface water run-of

1.3 Site Location

The application site is located off Fleetwood Road (A587) within the Anchorsholme district of Thornton-Cleveleys, Blackpool, FY5 1LZ, as shown on the Site Location Plan within Appendix 1. The application site is located approximately 7km north of Blackpool town centre and approximately 300m from the coastline. The site currently comprises a petrol filling station and associated convenience store.

The total area of the application site, as indicated on the Site Location Plan, is approximately 0.30 hectares. The Environment Agency's on-line flood map for planning indicates that the application site is located within Flood Zone 3, defined as land with a high probability of flooding, but is within an area that benefits from flood defences.

The National Planning Policy Framework (NPPF) and associated technical guidance confirms that all applications for proposed new development within Flood Zone 2 or 3 and development proposals exceeding one hectare within Flood Zone 1 must be accompanied by a site-specific Flood Risk Assessment.

1.4 Topography and Existing Land Use

Review of Ordnance Survey mapping indicates that the local topography is flat and low-lying coastal land, with ground levels at approximately 5mAOD.

A topographic survey of the application site was undertaken in November 2021 and a copy of the survey is included as Appendix 2. The site survey confirms that ground levels are slightly elevated within the central, developed area of the application site, at approximately 4.4mAOD to 4.5mAOD and fall slightly to the north, west and east, to approximately 4.2mAOD to 4.3mAOD at the site boundaries. Ground levels within the western, undeveloped part of the site are variable, in the range 4.06mAOD to 4.42mAOD.

The application site is accessed off, and bound to the east by, Fleetwood Road. A secondary servicing exit is to Anchorsholme Lane West, which bounds the site to the north. The application site is bound by residential development to the west and south and lies within the mixed-use residential and commercial area of Anchorsholme, Thornton-Cleveleys.

The application site currently comprises a petrol filling station and associated convenience store.

1.5 Geology

British Geological Survey mapping indicates that the local geology beneath the application site comprises superficial Tidal Flat Deposits (clay and silt) and Glacial Till (diamicton) overlying mudstone of the Triassic Kirkham Mudstone Member[6].

A published geological log from a borehole installed within the application site in 1989 confirms the following ground conditions:

> Made Ground: 0.0-1.2m below ground level (mbgl). (1.2m thickness)
> Very soft peaty silt: 1.2mbgl to 2.3mbgl. (1.1m thickness)

[6] British Geological Survey, Geology of Britain Viewer, accessed 23rd November 2021.

Soft to firm, sandy Boulder Clay: 2.3mbgl to 5.0mbgl (2.7m thickness)
Medium dense sand and gravel: 5.0mbgl to 6.5mbgl (base of borehole)

Groundwater was encountered in the superficial sand and gravel at 5.0mbgl with a rest water level of 3.1mbgl.

Review of Cranfield University's soil maps[7] indicates that the soils beneath the majority of the application site are defined as Soilscape 21: loamy and clayey soils of coastal flats with naturally high groundwater. The soils beneath the western part of the application site are defined as Soilscape 18: Slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils with impeded drainage.

1.6 Hydrological Features

The application site is low-lying and coastal, with surface water runoff managed via the local urban drainage system. Whilst the application site is located within 300m of the coastline, the local topography rises slightly towards the west, to the coast, with local watercourses discharging towards the east, to the tidal River Wyre. The River Wyre passes approximately 4km north-east of the application site and flows in a northerly direction, discharging to the Irish Sea at Fleetwood. A number of local watercourses, including Hillylaid Pool (a main river) drain land to the east of the application site and discharge via tidal outfalls to the River Wyre.

The local hydrological setting is presented as Figure 1.

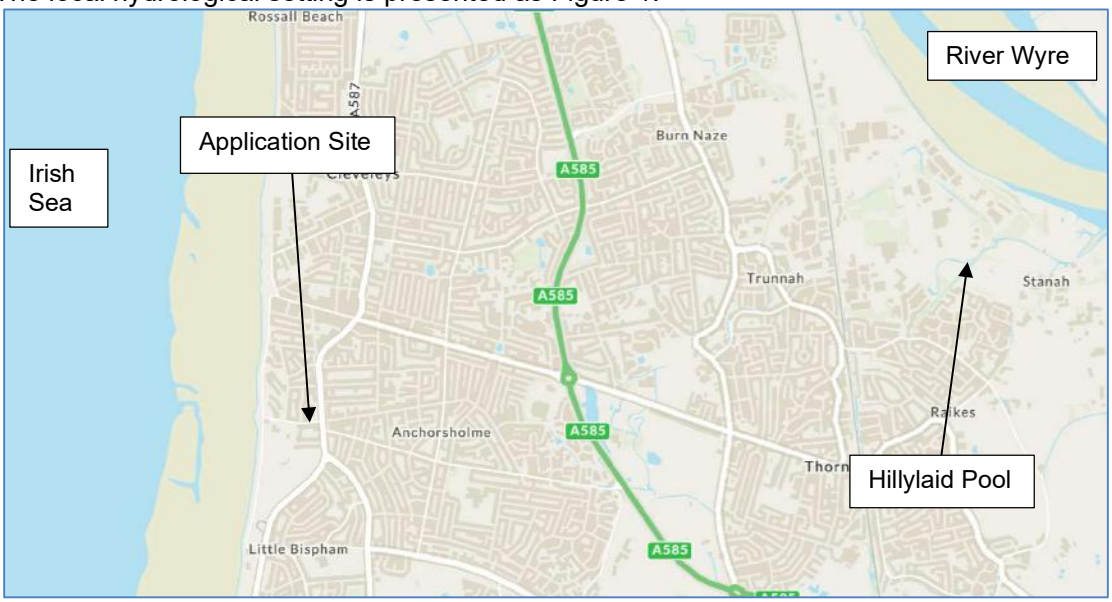

Figure 1. Local Hydrological Setting

1.7 Proposed Development and Flood Risk Vulnerability Classification

The proposed development comprises demolition of the existing petrol filling station and associated convenience store and erection of a replacement convenience store with associated parking and landscaping; a proposed site layout plan is included within Appendix 3.

[7] Cranfield University's Soilscape Map, accessed 23rd November 2021.

In terms of flood risk vulnerability classification, buildings used for shops are classified as ‘less vulnerable’. This is discussed further in Section 2.3.

2.0 FLOOD RISK ASSESSMENT

2.1 Sources of Information

In addition to the flood risk planning policy and guidance outlined in Section 1.2, the following sources of information have been consulted during the preparation of this FRA:

- Environment Agency website – for information regarding surface water, reservoir and fluvial/tidal flood risk and outline flood zone maps.
- Environment Agency consultation response (Product 4 and Product 8) which provides site-specific flood risk data including modelled flood water levels, details of local flood defences and flood defence breach assessment. A copy of the consultation response received from the Environment Agency is included as Appendix 4.

2.2 Flood Hazard

All potential sources of flooding to the application site are considered within this section of the report.

2.2.1 Environment Agency Flood Zone Map and Fluvial/Tidal Flood Risk

The Environment Agency flood zone map presents information regarding the fluvial and tidal flood risk to the application site and is included as Figure 2 below. The flood zone map indicates that the application site is located within Flood Zone 3, defined as land with a high probability of flooding (1% or greater annual probability of river flooding and/or 0.5% or greater annual probability of sea flooding), but is within an area benefitting from flood defences.

Review of the Environment Agency's flood mapping confirms that the area of defended Flood Zone 3 is extensive and associated with the tidal River Wyre and coastal flooding, with both tidal and fluvial flood risk.

The SFRA confirms that the entire Blackpool coastline is defended from tidal inundation through the use of flood defences which have been upgraded over recent years in line with predicted climate change allowances for sea level rise and wave height increase. Table 8 of the SFRA confirms that the coastline adjacent to Anchorsholme Park, in the vicinity of the application site, is defended by a sloped revetment with a berm and wave return wall, with a life expectancy of >50 years.

Figure 3 presents the Environment Agency's fluvial/tidal flood risk map taking into account the effect of local flood defences. This indicates that the majority of the application site has a very low risk of flooding from rivers or the sea (<0.1% annual probability of flooding) when local flood defences are considered. The northern boundary of the application site is shown to have a low risk of flooding (defined as between 0.1% and 1.0% annual probability).

Figure 2. Environment Agency Flood Zone Map[8]

Figure 3. Environment Agency Flood Zone Map (taking into account the effect of flood defences)

[8] www.flood-map-for-planning.service.gov.uk accessed 23rd November 2021.

The site-specific flood risk data provided by the Environment Agency (Appendix 4), includes predicted fluvial flood water level data from the Hillylaid Pool 2013 study and predicted tidal flood water level data from the 2014 Lancashire Tidal ABD Study.

Peak predicted flood water levels are summarised below for model nodes within or in the immediate vicinity of the application site, for a range of flood events.

No predicted flood water level data have been provided by the Environment Agency for the defended 0.5% annual probability flood event, the defended 0.5% tidal flood event + 370mm sea level rise or the defended 0.5% tidal flood event + 670mm sea level rise. Therefore, approximate flood water levels have been inferred for these flood events from the available data (defended 0.5% tidal flood event + 970mm water level of 4.93mAOD) and are presented in italics. The approximate predicted flood water levels (in italics) have been calculated from the available data by assuming a similar response in water level, between model scenarios, for the defended and undefended scenarios.

Flood Event	**Peak Tidal Flood Water Level (mAOD)**	
	Defended	**Undefended**
0.1% Tidal	3.98	5.16
0.5% Tidal	No information provided *Inferred water level: 3.47*	4.79
0.5% Tidal + 370mm sea level rise	No information provided *Inferred water level: 3.96*	5.28
0.5% Tidal + 670mm sea level rise	No information provided *Inferred water level: 4.41*	5.73
0.5% Tidal + 970mm sea level rise	4.93	6.25
Flood Event	**Peak Fluvial Flood Water Level (mAOD)**	
	Defended	**Undefended**
0.1% Fluvial	4.28	4.26
1.0% Fluvial + 20% Climate Change	4.05	4.07

Ground levels within the footprint of the proposed convenience store exceed 4.30mAOD; review of the predicted flood water level data confirms that the area of proposed development would remain safe and dry during the 0.1% annual probability tidal event and the 0.1% annual probability fluvial event, when flood defences are taken into consideration. Therefore, the presence of flood defences ensures that the application site has a very low risk of flooding (<0.1% annual probability). The predicted flood water level data provided by the Environment Agency also confirm that the application site would not be inundated during the 0.1% undefended fluvial flood event, confirming that the site is located within fluvial Flood Zone 1.

The main risk of flooding to the application site is associated with tidal flooding, in the event of a flood defence breach or, potentially, when long-term sea-level rise is taken into consideration.

It is noted however, that the 2014 tidal flood model is now out of date due to a recent (2017) upgrade of the flood defences at Anchorsholme[9]. Table 8 of the 2021 SFRA confirms that the coastline adjacent to Anchorsholme Park, in the vicinity of the application site, is defended by a sloped revetment with a berm and wave return wall, with a life expectancy of >50years.

Therefore, based on the available data and recent upgrades to the local tidal flood defences, it is inferred that the application site is defended from flooding for the design 0.5% annual probability tidal flood event, with allowance for climate change throughout the predicted life of the development (commercial development lifetime is assumed to be 60 years).

However, the application site remains at residual risk of flooding, in the event of a breach of the flood defences. The Environment Agency consultation response (Appendix 4) includes the results of a flood defence breach assessment. The predicted flood water level within the application site, in the event of a flood defence breach during the 0.5% annual probability tidal flood event, is 4.59mAOD. The flood hazard maps for this breach scenario, predict that the flood waters within the application site would represent a 'danger for some' (such as children and the elderly), with predicted flood water depths across the majority of the site of <0.25m and a flood water velocity of <0.3m/s.

The local SFRA confirms that site-specific FRAs must consider the potential implications of a flood defence breach on the proposed development and appropriate mitigation measures are presented in Section 2.4.

2.2.2 Other Potential Sources of Flooding

The local SFRA, LFRMS and online flood maps have been reviewed to identify any other potential sources of flood risk to the application site and evidence of historic flood events in the local area. This information is presented in Table 1 below.

[9] Blackpool's £27m sea defence project officially opened | Infrastructure Intelligence (infrastructure-intelligence.com)

Table 1: Fleetwood Road, Anchorsholme – Potential Sources of Flooding

Potential Source	Potential Risk at Application Site?	Reasoning
Fluvial Flooding	No	The Environment Agency's flood zone map for planning indicates that the application site is within Flood Zone 3, but benefits from the presence of local flood defences. Site-specific predicted flood water level data provided by the Environment Agency confirms that the application site lies within fluvial Flood Zone 1. The site is at risk of tidal flooding but the local flood defences were upgraded in 2017 and ensure the application site would not flood during the design tidal flood event (0.5% annual probability + climate change). The site is at residual risk of flooding in the event of a breach of the flood defences, with a breach representing 'danger for some'.
Tidal Flooding	Yes	
Flooding from High Groundwater	No	Section 16 of the SFRA confirms: *There are no identified flood risks relating to ground water flooding and no historical evidence of ground water flooding has been identified in Blackpool.* Records from an on-site borehole indicate a rest groundwater level of approximately 3mbgl.
Surface Water Flooding	No	The Environment Agency's online mapping confirms that the application site is defined as having a very low risk of surface water flooding (<0.1% annual probability of flooding). Refer to Figure 4 below.
Flooding from Artificial Drainage Systems	Yes	Table 6 of the SFRA indicates that the Anchorsholme area is at risk of flooding from the sewage network because the area is reliant on sewers for foul and surface water drainage. The SFRA notes that operational failure during exceptional rainfall events may result in surcharged sewers and localised flooding. Incidental problems are generally caused by inadequate or blocked watercourses or highway maintenance limitations.
Flooding due to Infrastructure Failure	No	Review of the Environment Agency's online mapping indicates that the application site is not within the predicted maximum extent of flooding of local reservoir(s). The risk of flooding due to flood defence failure is considered within the fluvial/tidal flood risk.

Table 1 confirms that the only significant potential sources of flooding identified within the application site are tidal/coastal flood risk and flooding from the local urban drainage network. The tidal flood risk is detailed above in Section 2.2.1 and concluded to be very low due to the presence of local flood defences, with a residual risk in the event of flood defence breach.

Figure 4 presents the Environment Agency's surface water flood map for the application site; this confirms the risk of surface water flooding is very low (<0.1% annual probability).

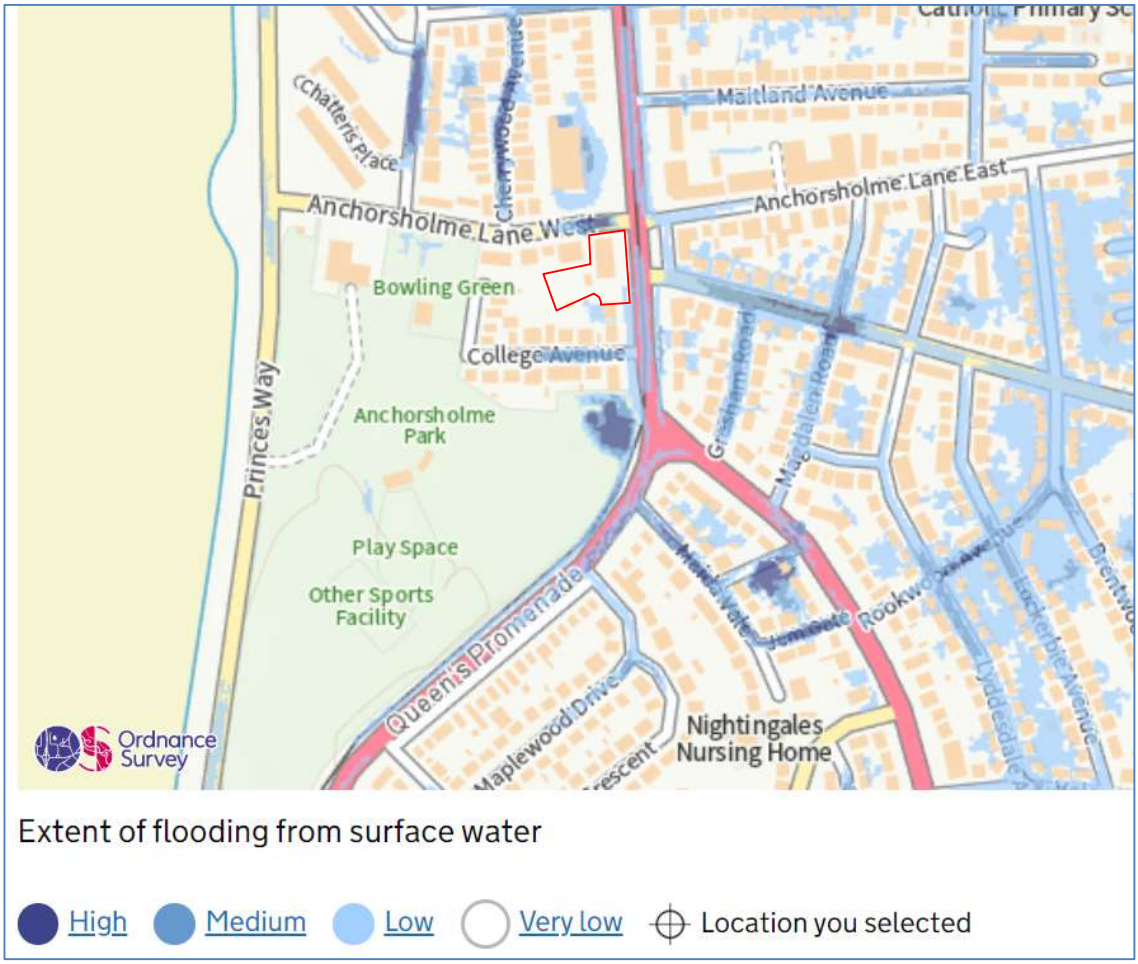

Figure 4. Environment Agency Surface Water Flood Map

Whilst the SFRA notes that Anchorsholme is an area identified as being at risk of flooding from the sewage network because the area is reliant on sewers for foul and surface water drainage, it also states that new pumping equipment has been installed at Anchorsholme Park (adjacent to the application site), to reduce the risk of flooding. The proposed development will benefit from a sustainable drainage strategy, to reduce the risk of flooding from surface water drainage to the development and to others.

The SFRA confirms that no areas in Blackpool have been identified as a Critical Drainage Areas, i.e. an area with significant drainage issues.

Therefore, it is inferred that the risk of flooding from the local drainage network is relatively low, and the proposed tidal flood risk mitigation measures presented in Section 2.4 would address any potential risk.

2.2.3 Historic Flooding

Review of the Environment Agency's online historic flood map confirms that the application site is not within an area that has previously recorded flooding[10].

[10] https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/HistoricFloodMap&Mode=spatial accessed 23rd November 2021.

The Environment Agency's consultation response (Appendix 4) also confirms they do not hold any records of historic flooding in this area.

The application site is located within the Environment Agency flood warning area for the Lancashire Coastline at Cleveleys, between Rossall Beach and Anchorsholme[11]:

2.2.4 Climate Change

It is recognised that the frequency and intensity of rainfall, sea levels and peak river flows are predicted to increase as a result of climate change, and this must be considered within the design proposals.

The Environment Agency's climate change allowances guidance[12] confirms that rainfall, sea levels and river flows are predicted to increase as a result of climate change, which must be considered throughout the lifetime of the proposed development (60 years). The application site lies within the North West River Basin District, where sea levels are predicted to rise between 488mm (higher central allowance) and 664mm (upper end allowance) from 2014 (date of Lancashire Tidal Study) and 2082 (lifetime of the development).

The Environment Agency 2014 tidal flood model discussed in Section 2.2.1 assesses the impacts of climate change on sea level rise but does not take account of recent (2017) improvements to the local flood defences. The flood defences have been designed to protect the Anchorsholme area, including the application site, from tidal flooding for the next >50 years, throughout the lifetime of the proposed development.

The Environment Agency's climate change guidance also states that drainage systems should be designed for new development to ensure there is no increase in the rate of runoff discharged from the site for the upper end climate change allowance appropriate to the lifetime of the development. A surface water management plan has been developed for the site which includes allowance for long-term climate change (Section 3.0).

2.3 The Sequential Test & Environment Agency Flood Zone Compatibility

As set out in the NPPF, the aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding (Flood Zone 1). This FRA has confirmed that the application site is protected by the Anchorsholme Tidal Flood Defences, which were upgraded in 2017. Therefore, it is inferred that the application site remains outside of the predicted flood extent of the design flood event (0.5% annual probability tidal event + climate change).

The application site is effectively located within Flood Zone 1, due to the presence of local flood defences.

The residual risk of flooding, in the unlikely event of a flood defence breach, is considered below and appropriate management of surface water runoff is also proposed, to prevent any increase in flood risk to others. These measures are outlined in Section 2.4 below.

[11] www.riverlevels.uk accessed 24th November 2021.

[12] Environment Agency, February 2016 (last updated: October 2021), Guidance: Flood Risk Assessments: Climate Change Allowances.

2.4 Flood Risk Mitigation Measures

As outlined above, the application site is considered to be protected from tidal flooding by local flood defences for the design flood event throughout the lifetime of the development. The potential risk of flooding from all sources is assessed as low or negligible.

However, due to the residual risk of flooding, in the unlikely event of a flood defence breach in combination with extreme tidal levels, it is proposed that flood mitigation design measures be incorporated within the proposed development. The predicted flood water level within the application site, in the event of a flood defence breach, is 4.59mAOD, approximately 200mm to 300mm above existing site levels, with a hazard rating of 'danger to some'.

Therefore, it is proposed that the finished floor level of the convenience store be raised a minimum of 300mm above external ground levels, to 4.7mAOD (minimum). This will reduce the risk of flood water entering the building in the unlikely event of a flood defence breach and also minimise any potential risk of flooding in the event of inundation of the local urban drainage system during extreme and/or prolonged rainfall events.

It is also proposed that a Flood Warning and Evacuation Plan be prepared for the development, in accordance with the Environment Agency's template (Appendix 5). The property manager would sign up to the Environment Agency's free Flood Warning Service and the Flood Warning and Evacuation Plan would set out the appropriate actions to be taken in the event of a Flood Alert or Flood Warning being issued.

A surface water management plan has also been prepared for the development (Section 3) to ensure surface water runoff would be effectively managed close to source and would not increase flood risk to others.

3.0 SURFACE WATER MANAGEMENT

The NPPF and local planning policy encourages the management of surface water runoff through the use of sustainable drainage systems (SuDS).

A sustainable surface water drainage strategy has been prepared for the development by Goodson Associates[13] and a copy of the proposed drainage layout plan is included within Appendix 6. In summary, it is proposed that surface water runoff would be attenuated on-site, via a below ground cellular attenuation tank, prior to controlled discharge to public surface water sewer. The post-development peak rate of surface water runoff for all rainfall events, up to and including the 100-year event (+ 40% allowance for climate change), would be restricted to 5l/s, as agreed with United Utilities. Therefore, the proposed drainage strategy shall ensure appropriate management of surface water runoff throughout the lifetime of the development, to minimise the risk of surface water flooding to the development and to others.

[13] Goodson Associates, December 2021, Euro Garages Ltd: Anchorsholme, Fleetwood Road, Cleveleys, Drainage Strategy Report. P15591.

4.0 SUMMARY AND CONCLUSIONS

This report represents a site-specific Flood Risk Assessment to support the proposed demolition of the existing facilities and the erection of a convenience store off Fleetwood Road, Anchorsholme, Thornton-Cleveleys, Blackpool. The application site currently comprises a petrol filling station and associated convenience store.

The Environment Agency flood zone map for planning indicates that the application site is located within defended Flood Zone 3 associated with tidal flood risk from the River Wyre and coast; therefore, a detailed site-specific FRA is required.

A review of all potential sources of flooding to the application site has been undertaken and the Environment Agency has been consulted to obtain site-specific predicted flood risk information.

The application site has not recorded flooding in the past and is defended from tidal flooding by the Anchorsholme tidal flood defences constructed in 2017. Site-specific predicted flood water level data have been provided by the Environment Agency from the 2014 Lancashire Tidal Study, which pre-dates the current flood defences. The model indicates that the application site lies within fluvial Flood Zone 1 and the current flood defences protect the application site from flooding during the design flood event (0.5% annual probability tidal flood event with climate change). Therefore, the risk of tidal flooding is very low due to the presence of flood defences.

The FRA concludes that the risk of flooding from all potential sources is assessed as low or negligible, with the exception of potential localised flood risk from the urban drainage network during extreme and/or prolonged rainfall events.

It is also acknowledged that the site is at residual risk of flooding in the very unlikely event of a breach of the local flood defences combined with an extreme tidal flood event.

The following site-specific flood risk mitigation measures are therefore proposed for the development:

- The predicted flood water level at the application site in the unlikely event of a flood defence breach is 4.59mAOD. Therefore, the proposed finished floor level of the development is 4.7mAOD (300mm above existing site levels) to minimise the risk of flooding in the event of a flood defence breach or local sewer flooding.

- A Flood Warning and Evacuation Plan shall be prepared for the development prior to occupation. The property manager shall sign up to the Environment Agency's free Flood Warning Service and the Plan shall set out appropriate actions to be taken in the event of a Flood Alert or Flood Warning being issued.

- A surface water drainage strategy has been prepared for the development to ensure surface water runoff would be effectively managed on site, prior to controlled discharge to sewer, and to ensure no increased surface water flood risk to others.

This FRA concludes that the proposed development of a convenience store, classified as 'less vulnerable' development, off Fleetwood Road, Anchorsholme is appropriate and sustainable with regards to flood risk.

5.0 CLOSURE

This report has been prepared by Nicola Sugg (trading style of NSugg Limited) with all reasonable skill and care, and in accordance with the services agreed with Euro Garages Ltd. Relevant information provided by Euro Garages Ltd. has been accepted in good faith as being accurate and valid. This report is based on the relevant guidance and legislation in force at the date of the report and should be reviewed if such guidance and legislation are amended or superseded.

This report is for the exclusive use of Euro Garages Ltd.; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from Nicola Sugg.

APPENDIX 1

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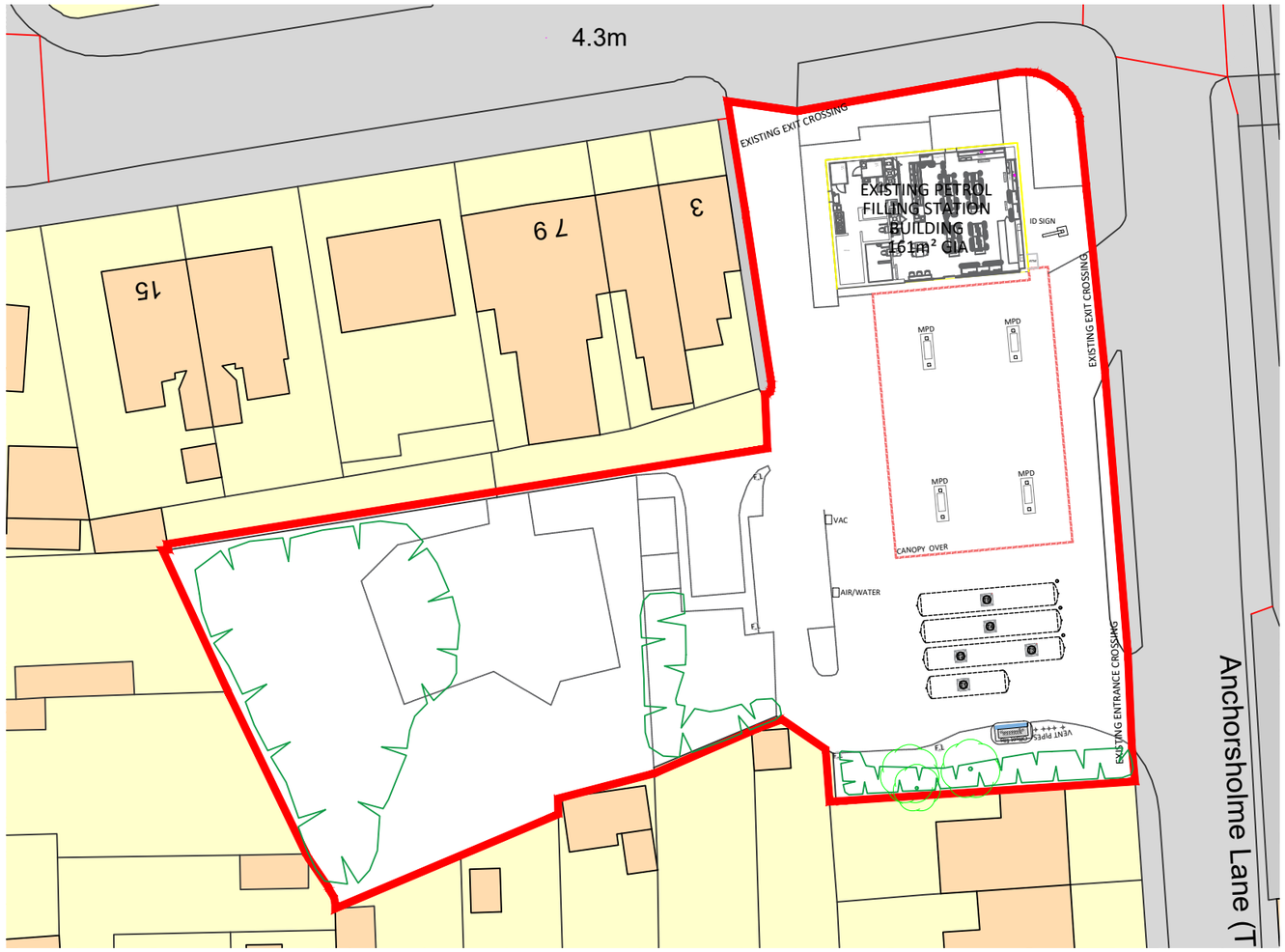
1 O/S Location Plan
Scale: 1:1250

Ordnance Survey, (c) Crown Copyright 2021. All rights reserved. Licence number 100022432

2 Red Line Boundary Location Plan
Scale: 1:1250



3 Existing Site Block Location Plan
Scale: 1:500

Red Boundary Area: **0.73** Acres (approx)

4 Existing Satellite-Geo Location Plan
Scale: 1:2500

LEGEND:

- O/S Building Footprint - (Licence Number - 100022432)
- O/S Landscaped Footprint - (Licence Number - 100022432)
- Dense Greenery / Bushes
- Tree
- Canopy Area (Height 4.5m)
- Existing Building Footprint (161m²)

Existing Parking Schedule	
Type	Bays
Standard Fill Up Points	8
Parking Accomodation	4
Staff	2
HGV Tanker	1
Total	11

Euro House,
Beehive Trading Park
Haslingden Road, Blackburn
Lancashire, BB1 2EE
T: 01254 205439, E:enquiries@eurogarages.com

Anchorsholme

Fleetwood Road,
Thornton-Cleveleys
FY5 1LZ

Existing Site Plans

Drawing No: EGXHURI.01PLN1
Scale: 1:2500 & 1:1250 &1:500@ A3
Issue Date: 06/12/2021
Drawn: MK
Checked: KA

Revision Notes

Date	Rev	By	Description
-- -- --	-	--	-

0 25m 50m 75m
Scale 1:2500
0 12.5m 25m 37.5m
Scale 1:1250
0 12.5m 25m 37.5m
Scale 1:1250

N

APPENDIX 2

COORDINATED STATIONS

STATION	EASTING	NORTHING	LEVEL (m)
GPS1	331519.380	442186.744	4.320
GPS2	331814.172	442285.259	4.370
A	331492.169	442221.382	4.423
B	331460.676	442244.767	4.470
C	331501.462	442276.229	4.242
D	331476.887	442233.080	4.307

ABBREVIATIONS

AV	AIR VALVE/VENT	IC	INSPECT CHAMBER
BOL	BOLLARD	IL	INVERT LEVEL
BS	BELISHA BEACON	JKW	JAPANESE KNOTT WEED
BM	BENCH MARK	LH	LAMP HOLE
BL	BED LEVEL	LP	LAMP POST
BS	BUS STOP	NP	NAME PLATE
BT	BRITISH TELECOM	MH	MANHOLE
CL	COVER LEVEL	PB	POST/SIGN POST
DR	DILAPIDATED	PB	POST BOX
DW	DRAINED	PS	POST SERVICE
EL	EAVES LEVEL	RE	RODDING EYE
ELE	ELEC JUNCT. BOX	RL	RIDGE LEVEL
EP	ELECTRICITY POLE	RS	ROAD SIGN
FH	FIRE HYDRANT	ST	STOP TAP
FL	FLOOR LEVEL	TH	TRIAL HOLE
FOS	FULL OF SEDIMENT	TL	TRAFFIC LIGHT
FP	FLAG POLE	TP	TELEGRAPH POLE
G	GULLY	TV	CABLE TV BOX
GB	GAS METER	VH	UNABLE TO LIFT
GV	GAS VALVE	WM	WATER METER

SYMBOLS

+	SURVEY STATION		TREE
—E—	O/H ELEC CABLE		BENCH MARK
—T—	O/H PHONE LINE		TRIAL PIT
TTT	CANOPY/HEDGE		BOREHOLE

NOTES

A) ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN

B) O/S GRID USED AND ORIENTATED TO TRUE NORTH

C) LEVELS IN METRES RELATED TO G.P.S.

D) DRAINAGE INFORMATION MUST BE CHECKED PRIOR TO WORK COMMENCING

Rev	Description	Date

PROPOSED DEVELOPMENT AT
FLEETWOOD ROAD, THORNTON-CLEVELEYS

EURO GARAGES LTD.

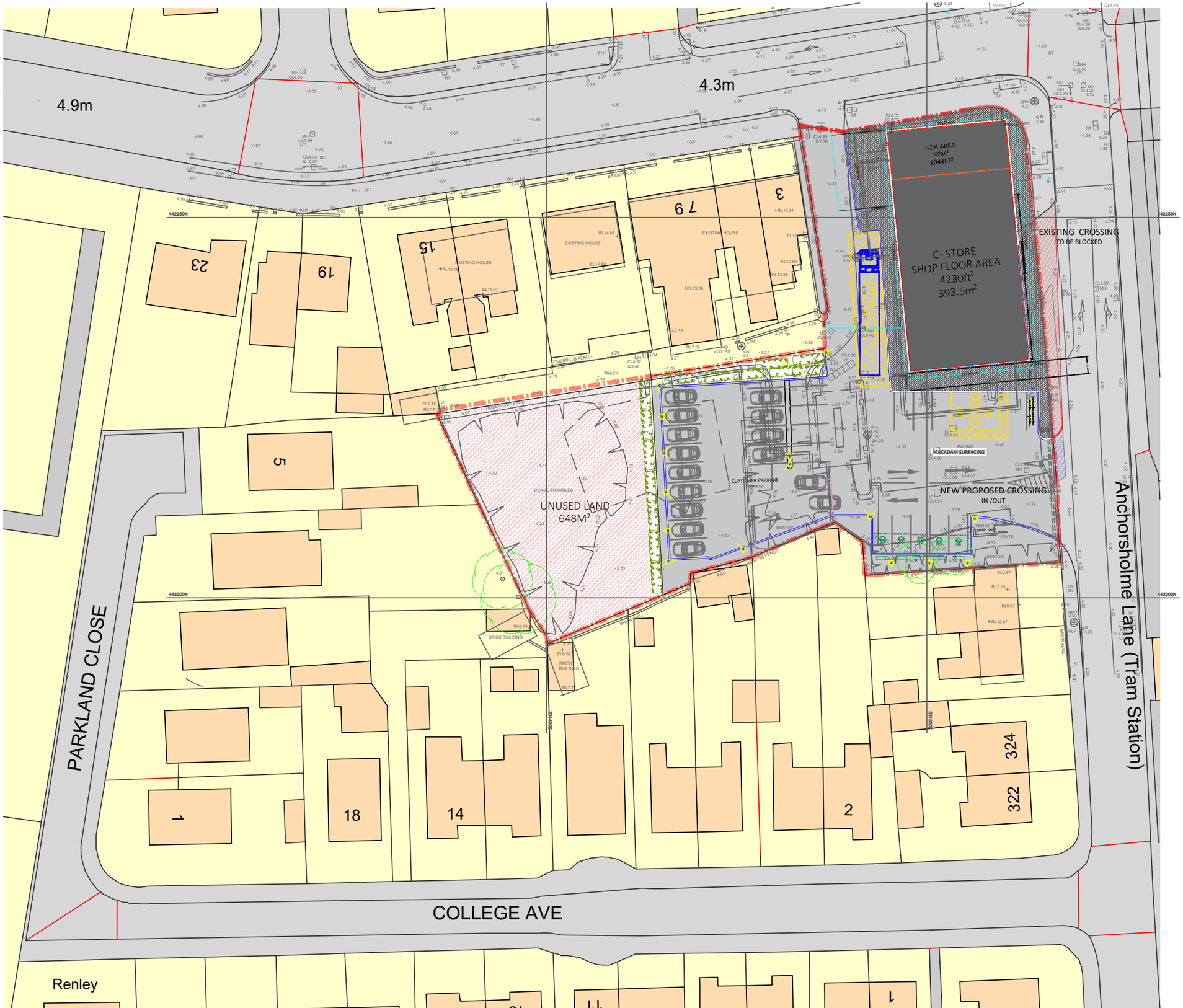
TOPOGRAPHICAL SURVEY

EG316/TOO

Surveyed	A. BAYBUTT
Drawn	I. GREEN
Date	NOVEMBER 2021
Scale	1:200 @ A1

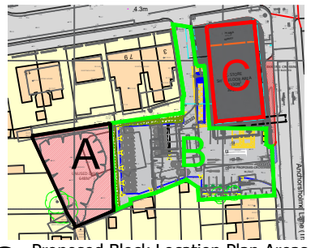
RJP Surveying Consultants Ltd
LAND SURVEYORS & SITE ENGINEERS
AYREFIELD COTTAGE
AYREFIELD ROAD
ROBY MILL
UPHOLLAND
LANCASHIRE
WN8 0QP
TEL: 01257 251554
MOBILE: 07710 308709
WEBSITE : www.rjpsurveyors.co.uk
E-MAIL: mail@rjpsurveyors.co.uk

APPENDIX 3



1 Proposed Block Location Plan
Scale: 1:500

Red Boundary Area: **0.73** Acres (approx)



1 Proposed Block Location Plan Areas
Scale: 1:2500

Proposed Schedule of Areas			
Area	Model	ft²	m²
Un-used Land	A	6975FT²	648M²
Car Park	B	16,124FT²	1498M²
Proposed Building	C	5285FT²	491M²
TOTAL DEVELOPED AREA		28,384 FT²	2637M²

Proposed Parking Schedule	
Type	Bays
Customer Parking Bays	21
Disabled Parking	2
EV Charging Points	5
Cycle/Motor Parking	2
Total	30

- Proposed Landscaping (see plan)
- Proposed Pavement Extension /Unused Land
- Existing Pavement Reduced
- Proposed Paved Surfacing
- Proposed Macadam Surfacing
- Existing Building Footprint

Euro House,
Beehive Trading Park
Haslingden Road, Blackburn
Lancashire, BB1 2EE
T: 01254 205439, E:enquiries@eurogarages.com

Anchorsholme

Fleetwood Road,
Thornton-Cleveleys
FY5 1LZ

Proposed Site Block Location Plan

Drawing No: EGXHURI.01PLN3

Scale: 1:500 &1:2500@ A3
Issue Date: 08/12/2021
Drawn: MK
Checked: KA

Revision Notes

Date	Rev	By	Description
-- -- --	-	--	-

0 5m 10m 15m
Scale 1:500
0 25m 50m 75m
Scale 1:2500

N

APPENDIX 4

nicola@nsugg.co.uk

From: CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Sent: 23 November 2021 09:15
To: nicola@nsugg.co.uk
Subject: CL240847KR

Dear Nicola

Enquiry regarding flood level information.

Thank you for your enquiry received on 12 November 2021.

We respond under the Freedom of Information Act 2000 and Environment Information Regulations 2004.

Please see the Product 4 and 8 attached and response below for: Fleetwood Road, Anchorsholme, FY5 1LZ.

- The fluvial data has been taken from the Hillylaid Pool 2013 study. Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website: www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances. Please note this guidance was updated on 20th July 2021.

- Tidal data was taken from the Lancashire Tidal ABD study produced in 2014. Tidal Climate Change scenarios were updated in 2020. The update utilised the modelling undertaken in 2014 and applied Sea Level Rise (SLR) allowances to the modelling. Changes in topography since the 2014 study was undertaken have not been captured.

  The specific sea level rise increases incorporated into the 2020 tidal climate change update are as follows, for the years specified:
  2069 grids - a 370mm SLR applied to the defended/undefended 0.5% AEP scenarios

  2119 grids - a 970mm SLR applied to the defended/undefended 0.5% AEP scenarios

  Please note that the tidal climate change allowances provided here may not be appropriate for some planning applications. In these instances please refer to Table 3, Sea Level Rise guidance on the following website: www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

- The Environment Agency does not hold any records of historic flooding in this area. Please be aware, however, that this does not necessarily mean that flooding has not occurred in the past.

- For all queries relating to flooding from surface water, ordinary watercourses and groundwater flooding, please contact the Lead Local Flood Authority Lancashire County Council.

- Surface Water Maps can be viewed online at https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

- There are coastal flood defences managed by Blackpool Council at this location that we don't hold any information on but the customer will be able to contact them to obtain the information.

Please refer to the Open Government Licence which explains ther permitted use for this information.

Please get in touch if you have any further queries.

Kind regards.

Helen Reynolds
Customer Engagement officer

Cumbria and Lancashire

From: CMBLNC Info Requests
Sent: 12 November 2021 16:44
To: nicola@nsugg.co.uk
Subject: CL240847KR: 211112/KG17 Flood Risk Information - Fleetwood Road, Thornton Cleveleys, Blackpool

Dear Nicola

Thank you for contacting the Environment Agency regarding flood risk information.

As your request for information falls under either the Freedom of Information Act or Environmental Information Regulations we must respond to you within 20 working days.

I have sent your request to the relevant team to answer and will be in touch with you in due course.

In the meantime you may wish to look at www.data.gov.uk to see if the data you have requested is available for you online.

For further information on what you can expect from us and our full service commitment to you, please click this link; https://www.gov.uk/government/publications/environment-agency-customer-service-commitment

If you need to contact me in the meantime, please do not hesitate to do so using the details below and quoting reference number CL240847KR.

Thanks

Karen

Karen Rooke
Customers and Engagement Officer, Cumbria and Lancashire
Environment Agency | Ghyll Mount, Gillan Way, Penrith 40 Business Park, Penrith, Cumbria, CA11 9BP

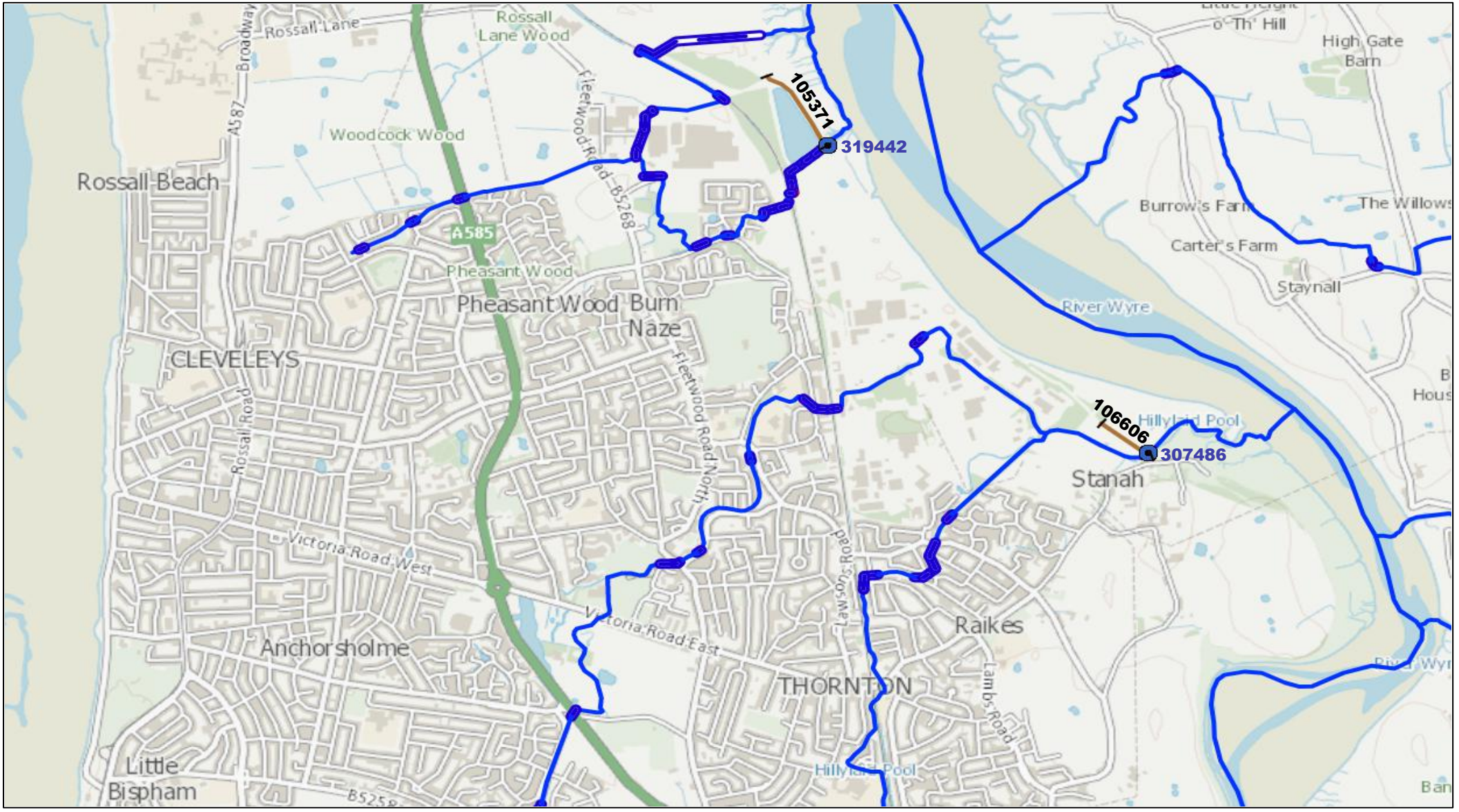
inforequests.cmblnc@environment-agency.gov.uk

From: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Sent: 12 November 2021 14:39
To: nicola@nsugg.co.uk
Subject: REF: 211112/KG17 Flood Risk Information - Fleetwood Road, Thornton Cleveleys, Blackpool

Good Afternoon Nicola,

I have passed your e-mail to the local customer team who will deal with your request.

CL240847 Development off Fleetwood Road, Anchorsholme, Thornton-Cleveleys



November 15, 2021

- Beach
- Bridge Abutment
- Cliff
- Demountable Defence
- Dunes
- Embankment
- Engineered High Ground
- Flood Gate
- Natural High Ground
- Spillway
- Wall
- Open Channel
- Simple Culvert
- Complex Culvert
- Outfall

Site Location	Development off Fleetwood Road, Anchorsholme, Thornton-Cleveleys	CL240847

Tidal Defences

Asset ID	National Grid Reference	Asset Type	Protection Type	Location	Maintained By	Design Standard (Return Period)	Overall Condition Grade	Effective Crest Level (m)		E.C.L Data Quality (Reliable 1-4 Unreliable)	Length (m)	Height (m)
								UCL (mAOD)	DCL (mAOD)			
105371	SD3392244875	Embankment	Tidal	Bend in Footpath to End of Lagoon adjacent Springfield Outfall	Unknown	200	3 - Fair	7.06	6.95	2	416.65	-
106606	SD3528943258	Embankment	Tidal	Stanah Embankment	Environment Agency	25	3 - Fair	7.63	8.15	1	259.2	4

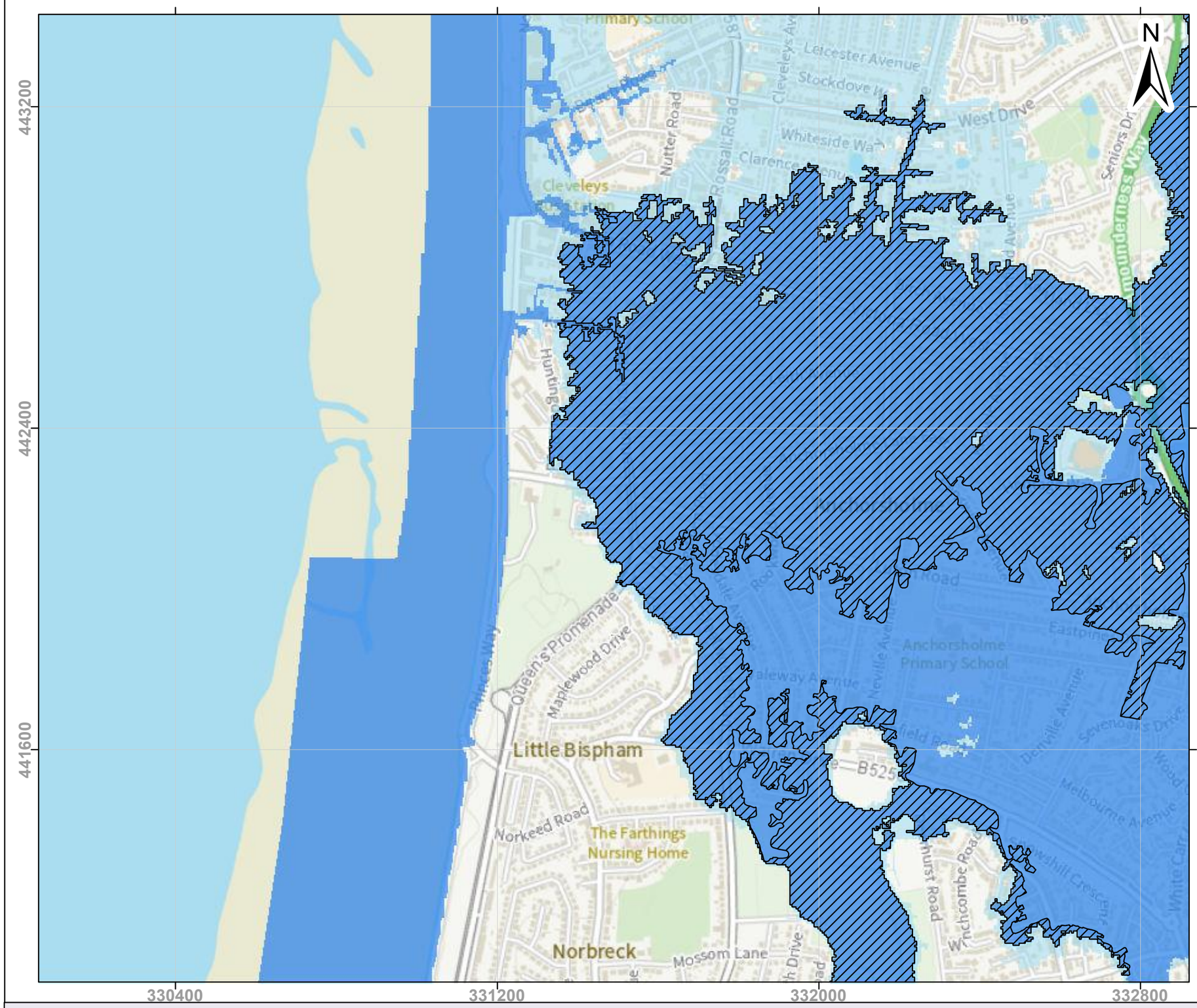
The Environmental Permitting (England and Wales) Regulations 2016 require a permit to be obtained for any activities which will take place:

- **on or within 8 metres of a flood defence structure or culvert (16 metres if tidal)**
- **on or within 16 metres of a sea defence**

Site Location	Development off Fleetwood Road, Anchorsholme, Thornton-Cleveleys	CL240847

Tidal Structures

Asset ID	National Grid Reference	Asset Type	Protection Type	Location	Maintained By	Design Standard (Return Period)	Overall Condition Grade	Width (m)	Height (m)
319442	SD34174455	Outfall	Tidal	Springfield Outfall into River Wyre	Unknown	-	3 - Fair	-	-
307486	SD35484312	Outfall	Tidal	Hillylaid Pool Outfall	Environment Agency	-	4 - Poor	-	1.5



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

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

Environment Agency

Flood Zones Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

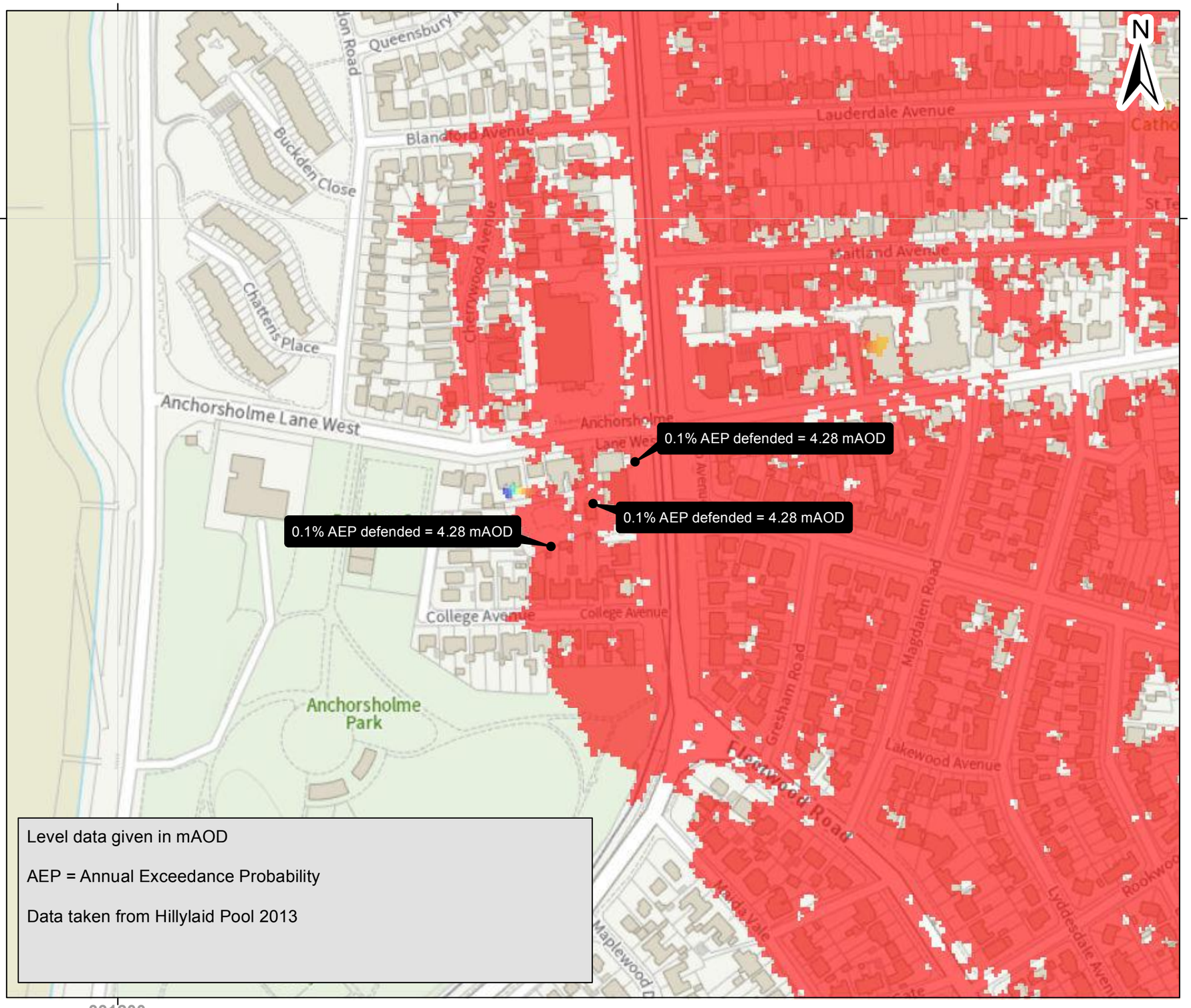
Key

- Main River
- Areas Benefiting from Defences
- Flood Zone 3
- Flood Zone 2

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% 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 0.1% chance of occurring each year.

ABD (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

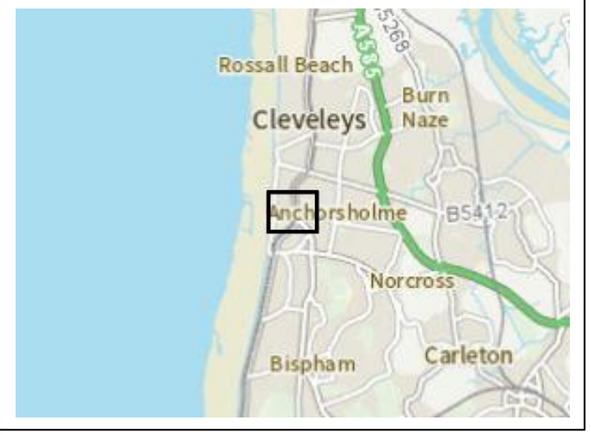
Key

Main River

0.1% AEP fluvial defended

Value

4.2783
4.20832
4.13916
4.07



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

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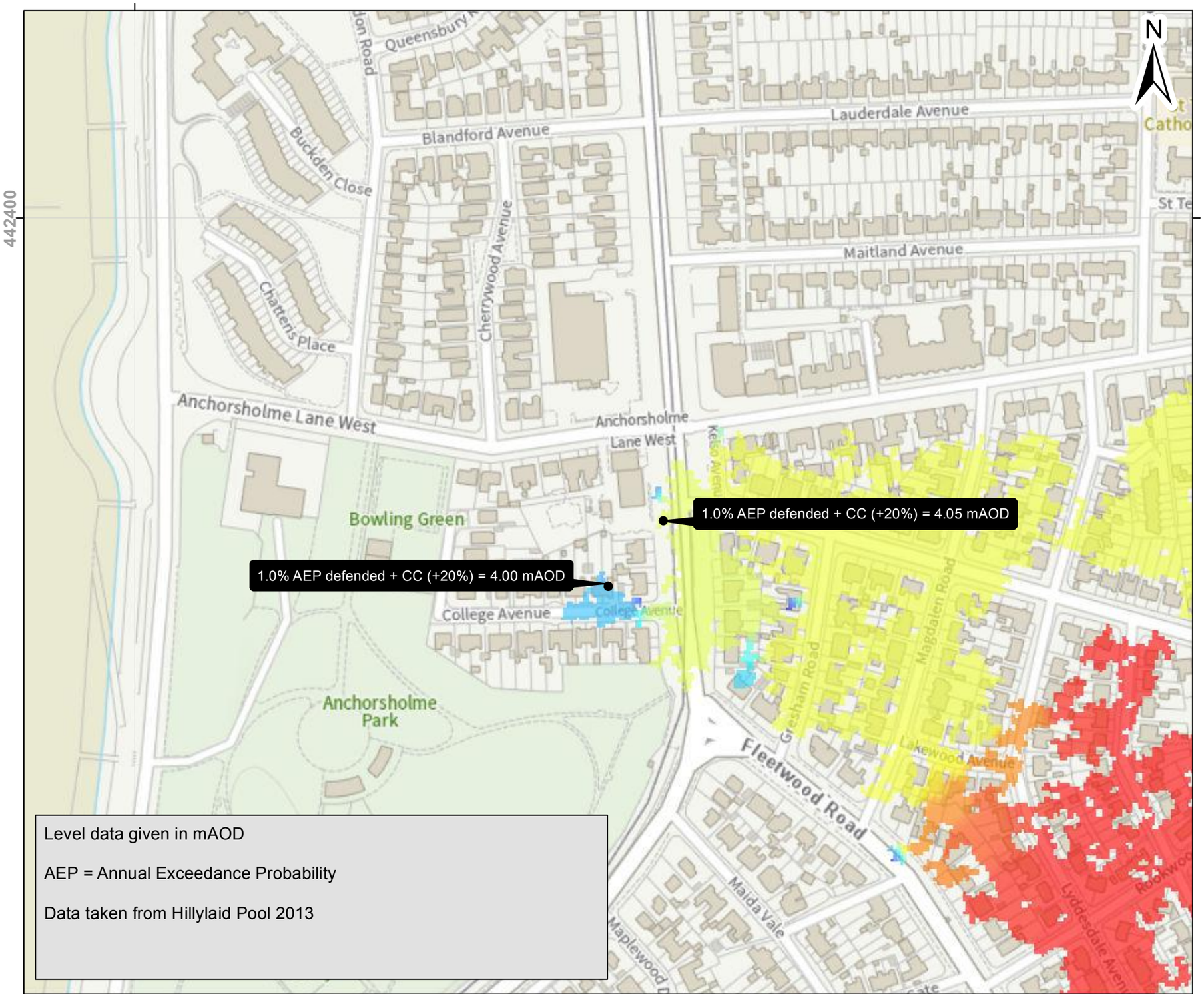


Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

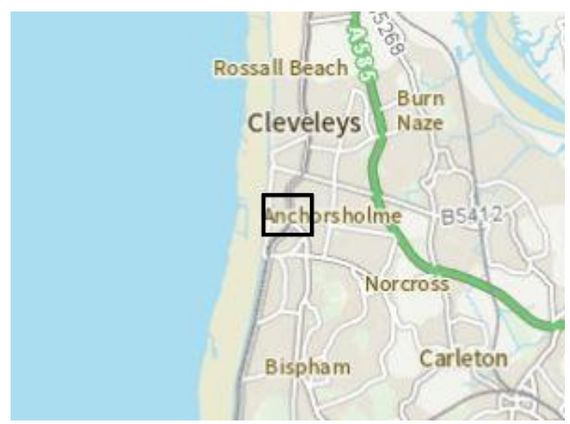
Key

Main River

1.0% AEP fluvial defended + 20% Climate Change

Value

4.1035
4.05922
4.01546
3.9717



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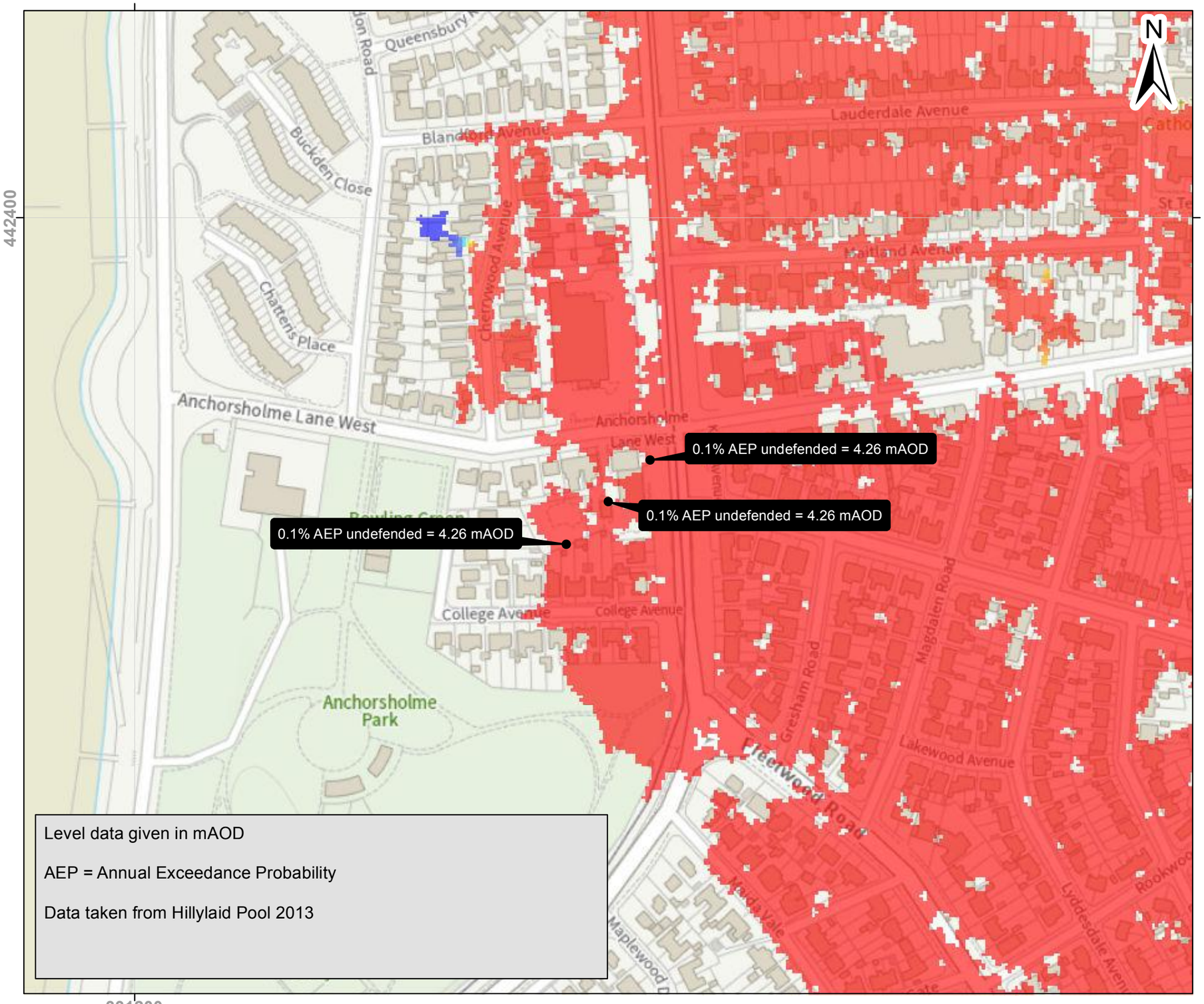


Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

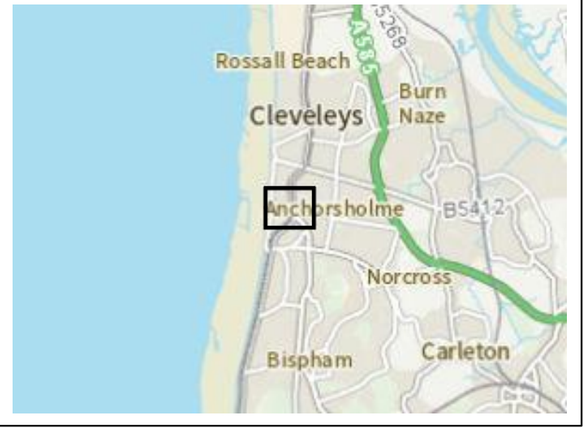
Key

Main River

0.1% AEP fluvial undefended

Value

4.2626
4.23391
4.20556
4.1772



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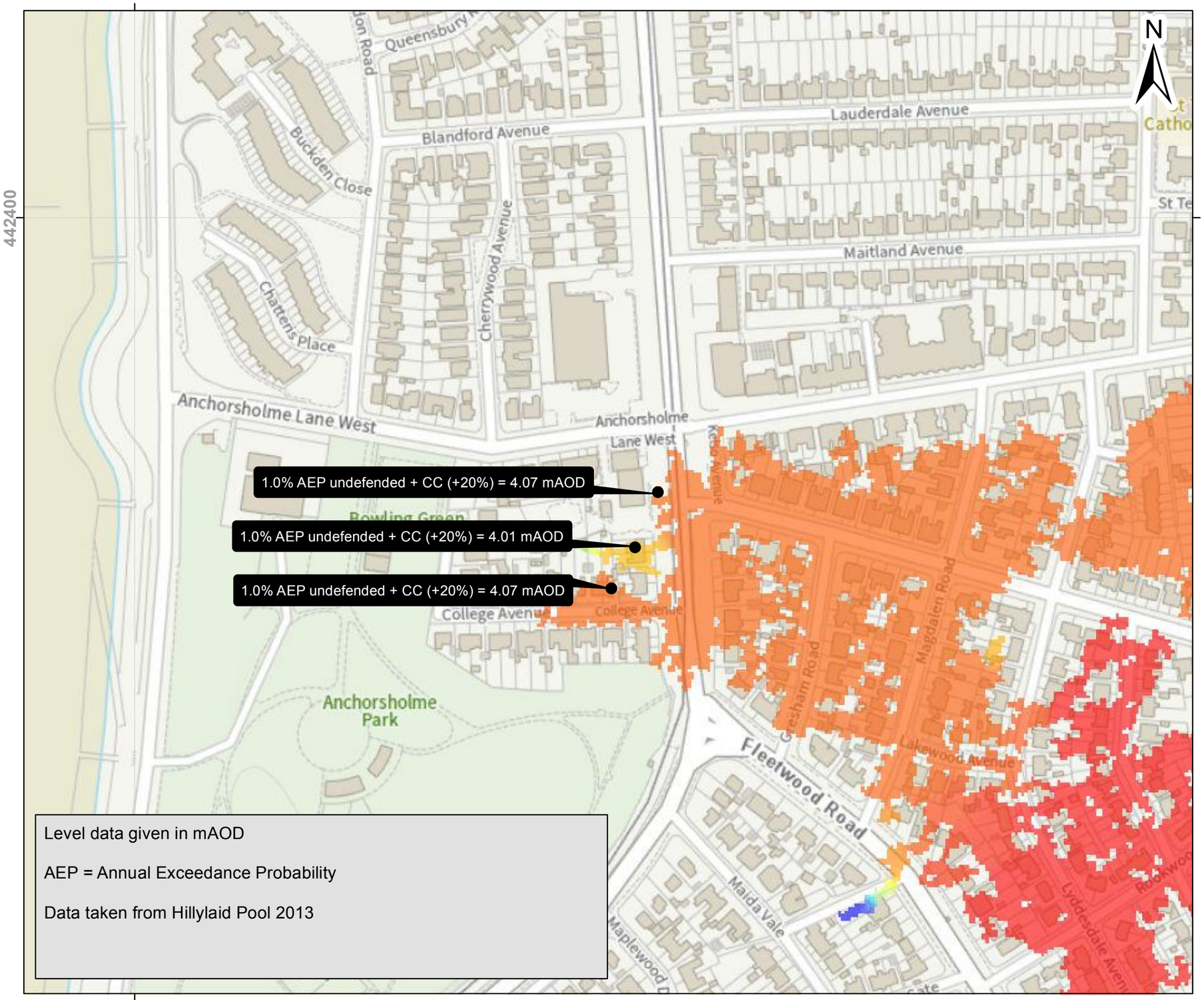


Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

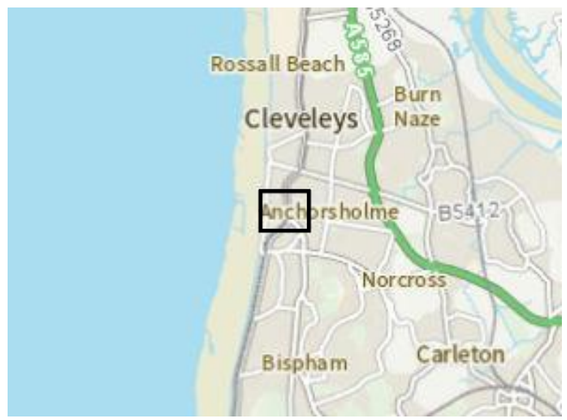
Key

Main River

1.0% AEP fluvial undefended + 20% Climate Change

Value

4.1126
3.95877
3.80674
3.6547



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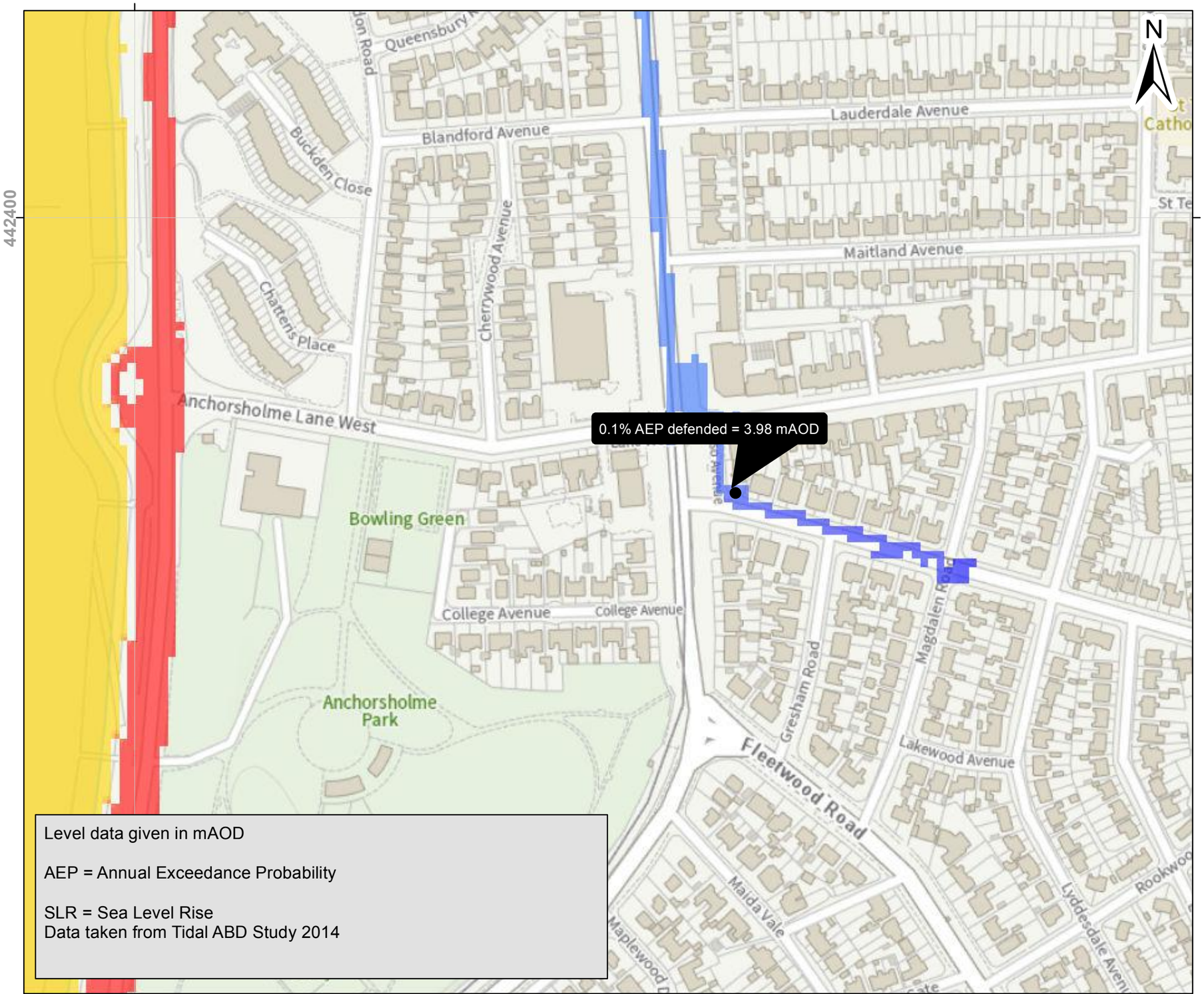


Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

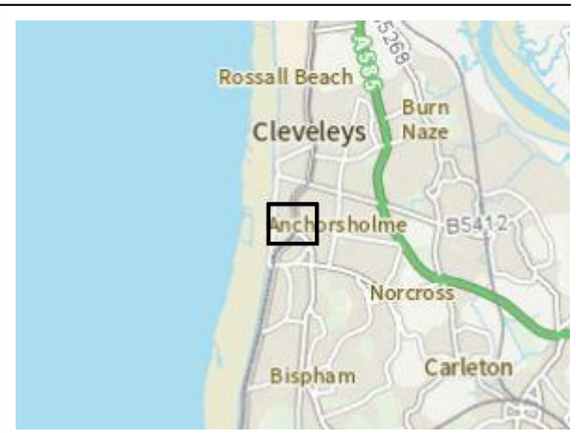
Key

Main River

0.1% AEP tidal defended

Value

7.6583
6.30582
4.96906
3.6323



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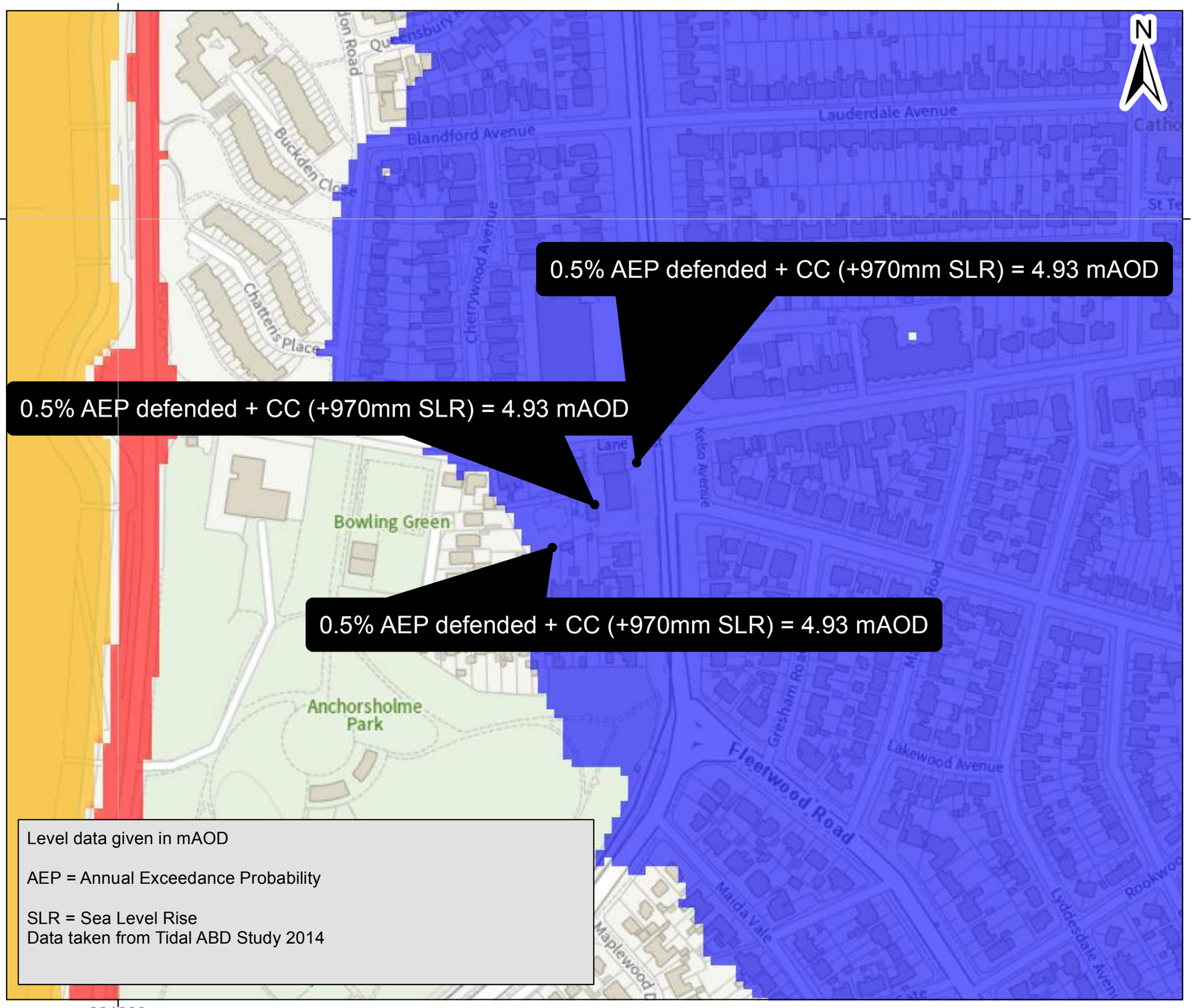


Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

Key

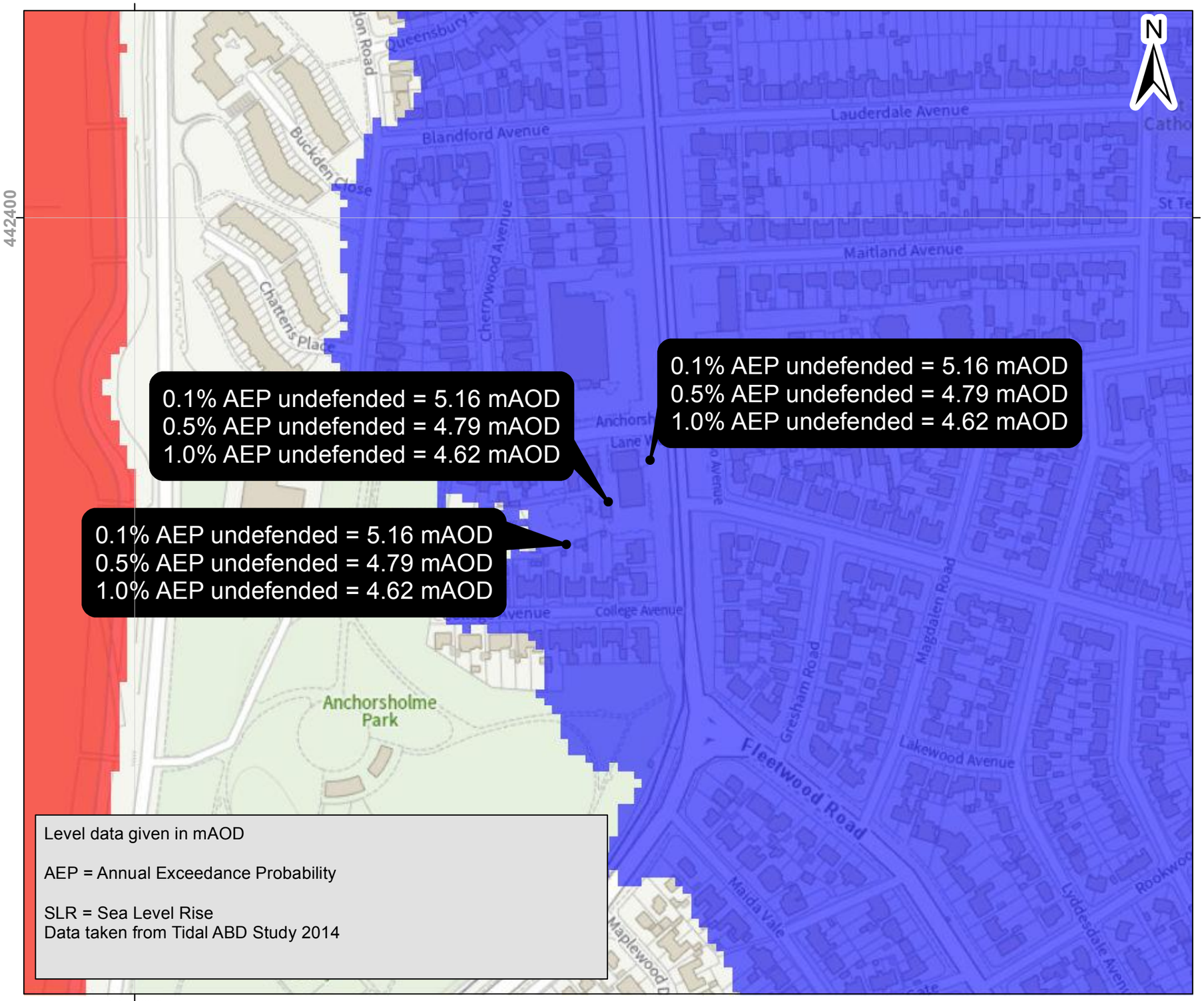
Main River

0.5% AEP tidal defended + Climate Change (+970mm SLR)

Value

7.9037
6.90476
5.91743
4.9301

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



Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

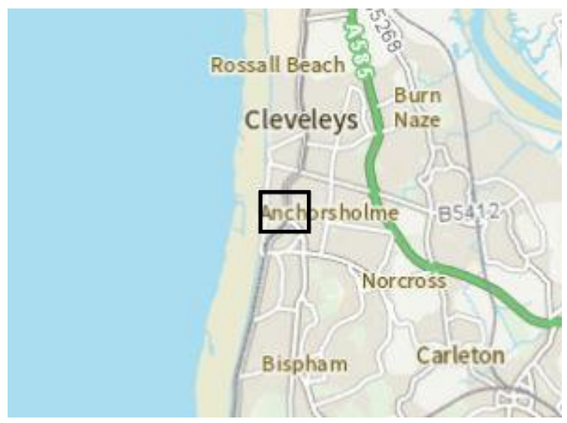
Key

Main River

0.1% AEP tidal undefended

Value

6.5698
6.09341
5.62255
5.1517



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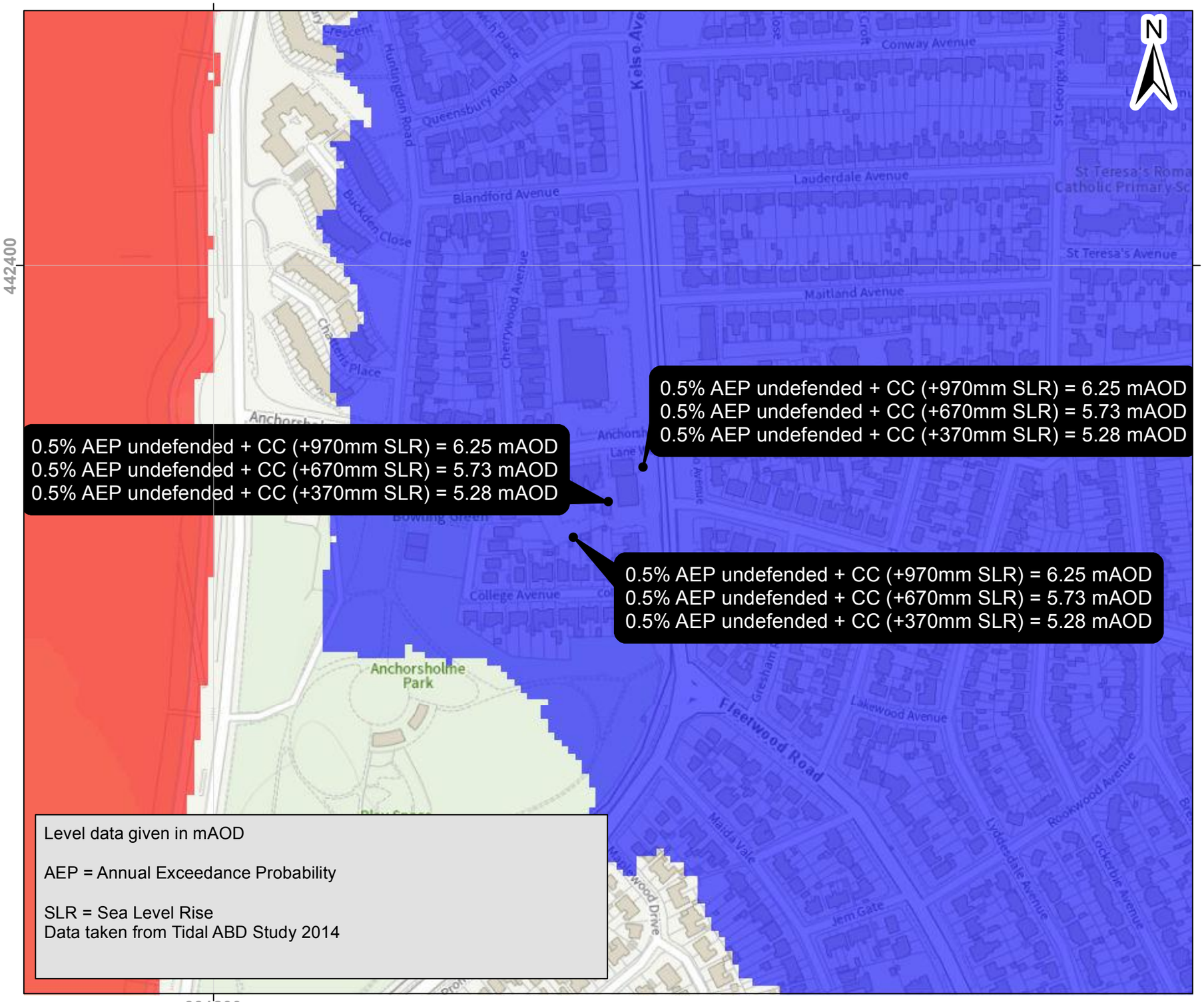


Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

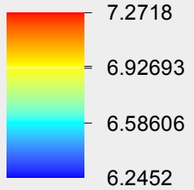
Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

Key

Main River

0.5% AEP tidal undefended + Climate Change (+970mm SLR)

Value



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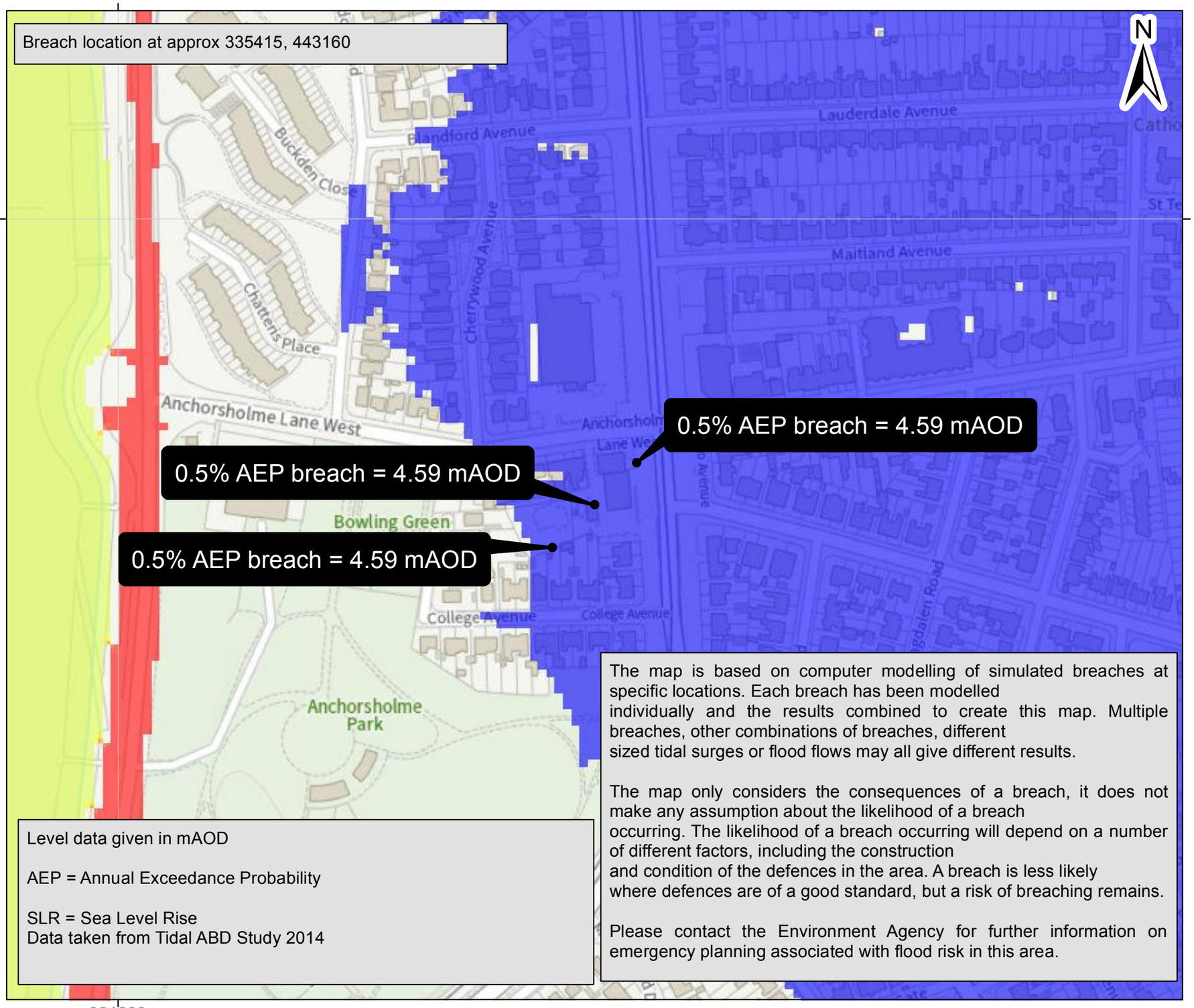


Environment Agency

Modelled 2D Data Map

Fleetwood Road, FY5 1LZ

Produced: 23 Nov 2021
Our Ref: CL240847
NGR: 331490, 442226

Key

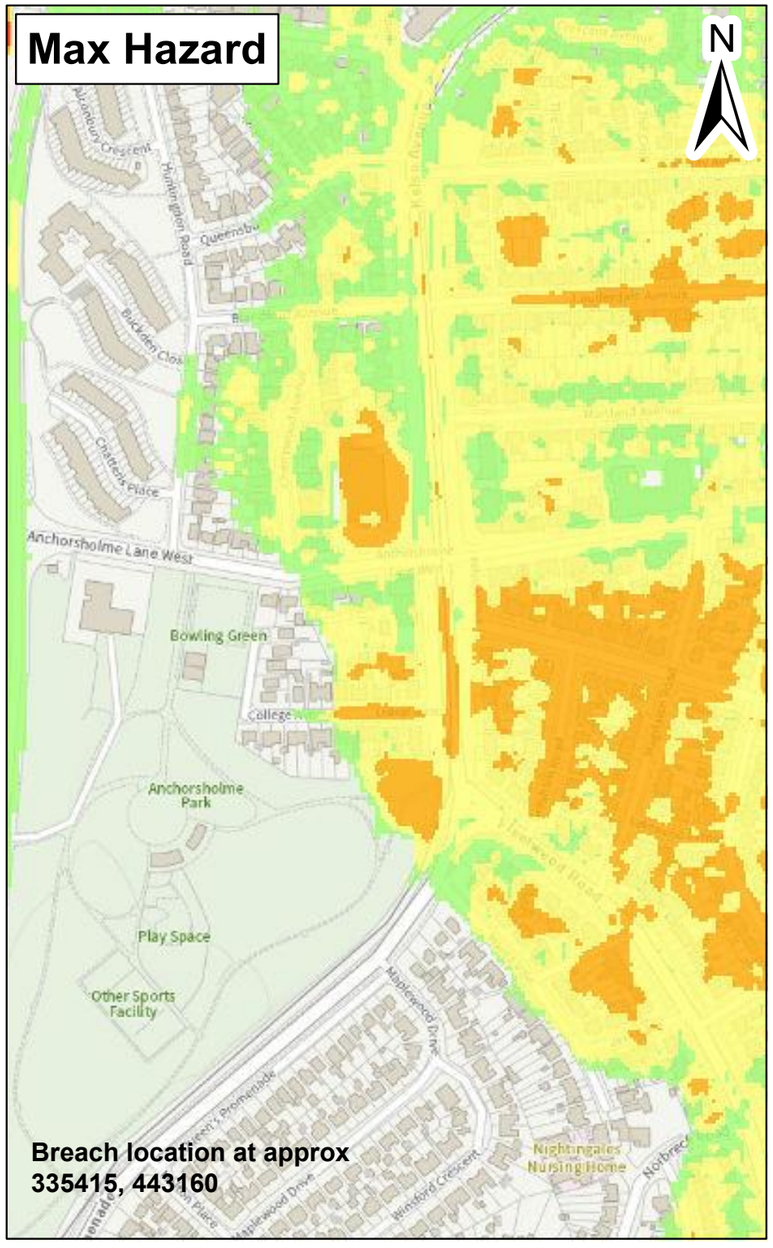
Main River

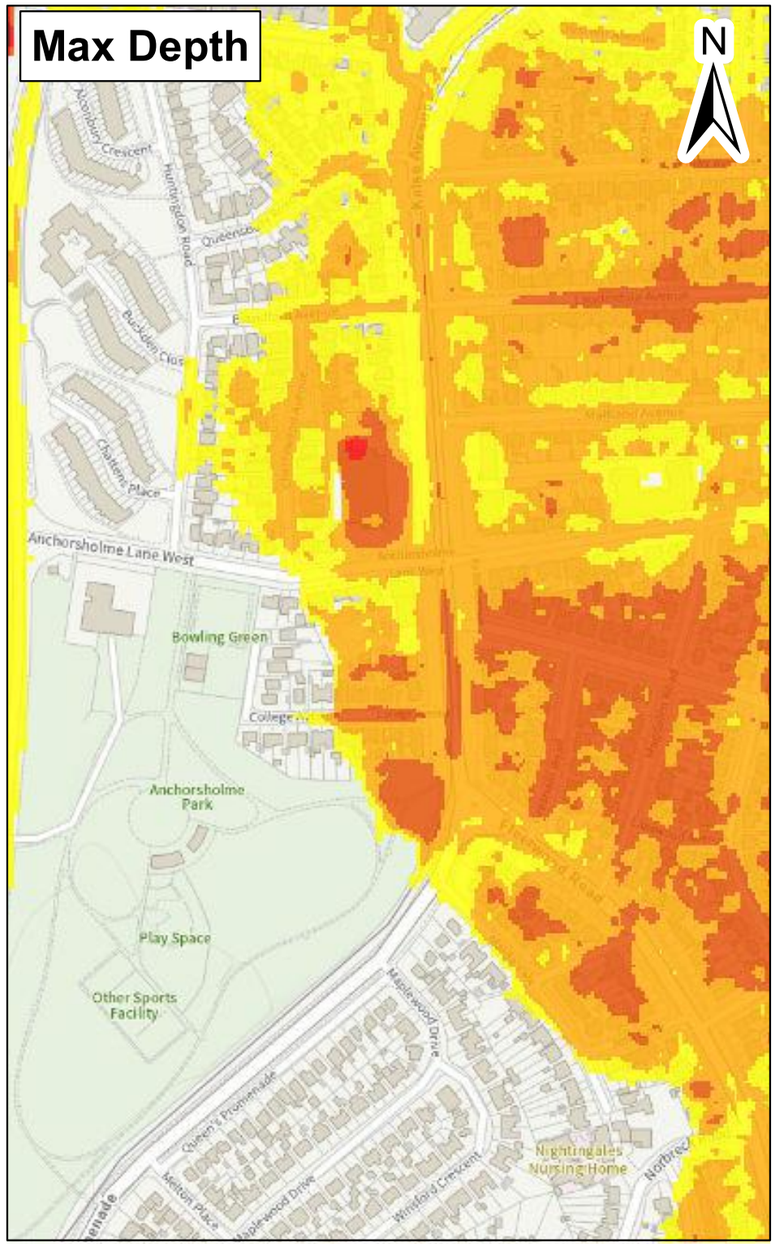
0.5% AEP tidal breach

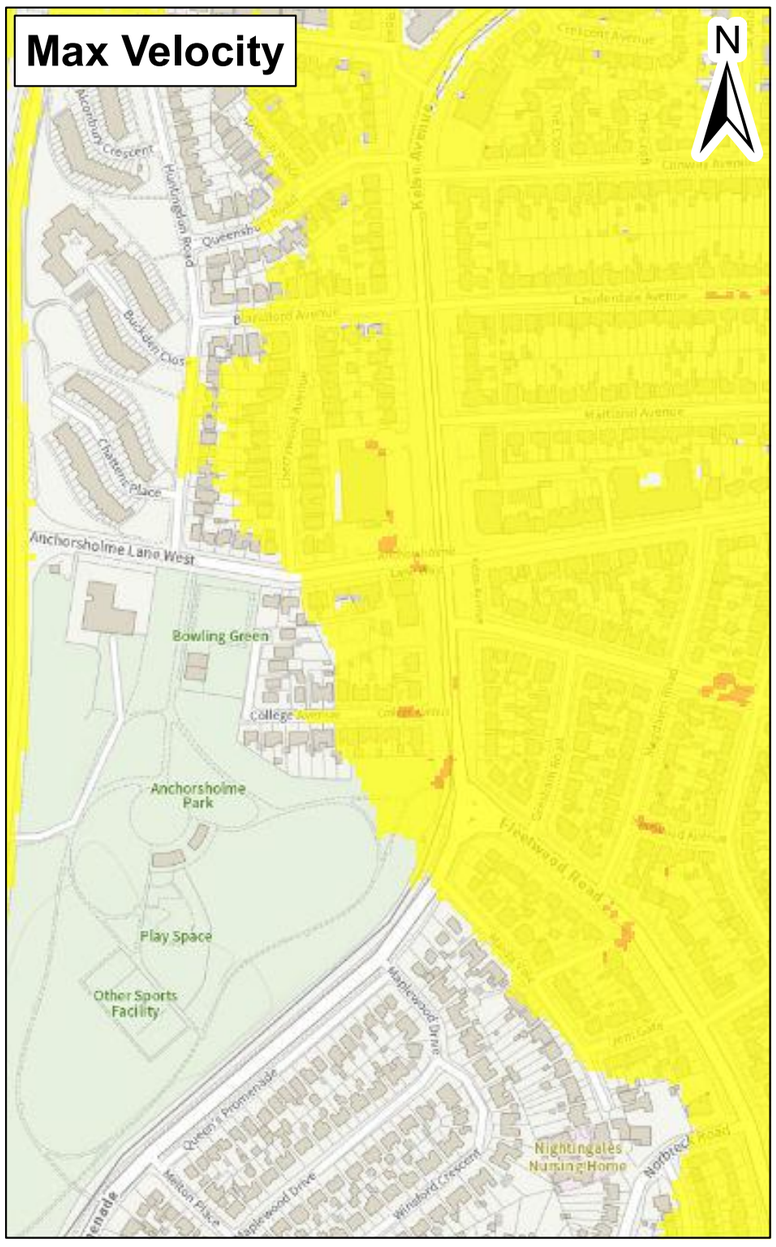
Value

7.5175
6.53428
5.56249
4.5907

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







Modelled Breach Location

Max Hazard (Flood Risk to People : FD2320)	Max Depth (m)	Max Velocity (m/s)
Less than 0.75 (Low Hazard)	0 - 0.25	0 - 0.3
Between 0.75 and 1.25 (Danger for Some)	0.25 - 0.50	0.3 - 1.0
Between 1.25 and 2.0 (Danger for Most)	0.50 - 1.0	1.0 - 1.5
Greater than 2.0 (Danger for All)	1.0 - 2.0	1.5 - 2.5
	2.0 +	2.5 +

Date Printed	23/11/2021	Scenario year	2014	Scenario Annual Chance	0.5% (1 in 200)

This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped.

The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.

The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. The likelihood of a breach occurring will depend on a number of different factors, including the construction and condition of the defences in the area. A breach is less likely where defences are of a good standard, but a risk of breaching remains.

Please contact the Environment Agency for further information on emergency planning associated with flood risk in this area

Environment Agency

Northern Area Tidal Hazard Mapping: Fleetwood

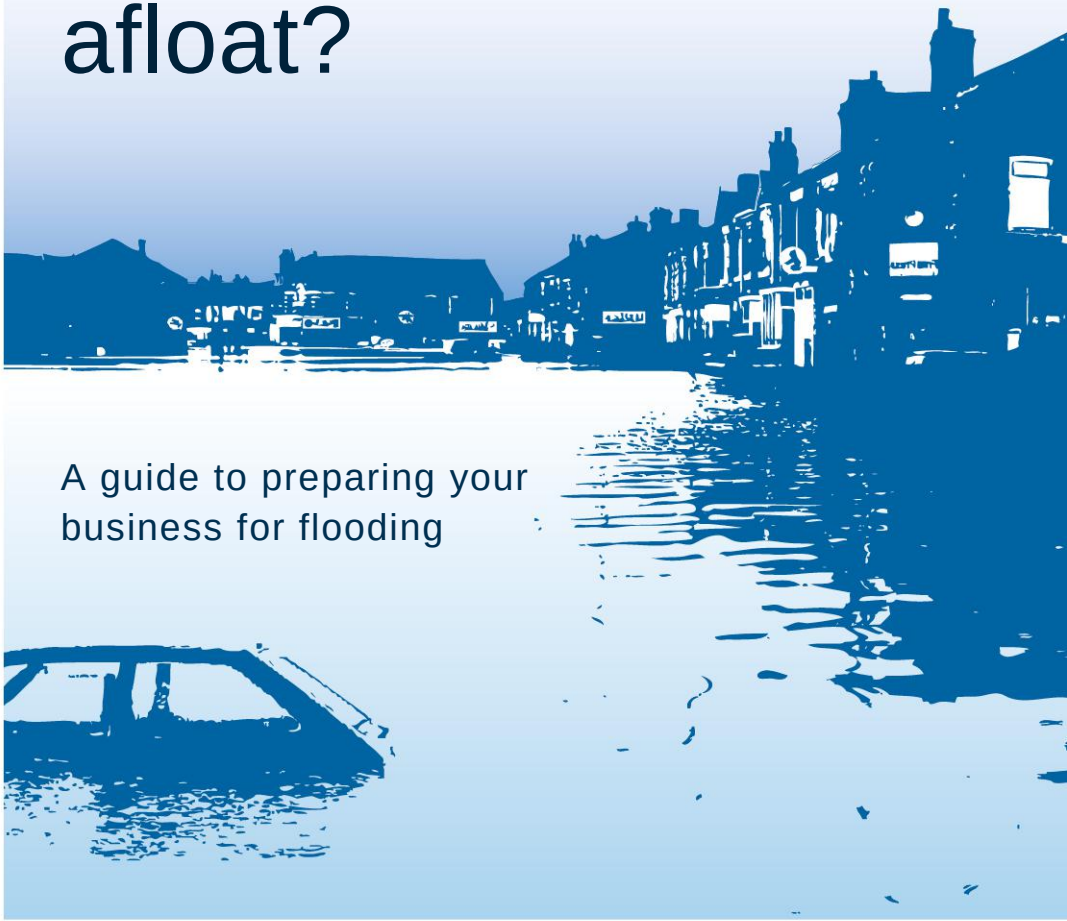
Produced: 23/11/2021
Our Ref: CL240847
NGR: 331490, 442226

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

APPENDIX 5

Environment Agency

would your business stay afloat?



A guide to preparing your business for flooding

Flooding is the most common and widespread natural disaster in the UK. Since 1998 there has been at least one serious flood every year. Businesses like yours are more likely to be flooded than destroyed by fire. As our climate changes we can expect to see more extreme weather – and more floods.

We aim to reduce the likelihood of flooding by managing land, rivers, coastal systems and flood defences. While we do everything we can to reduce the chance of flooding, it is a natural process and can never be completely eliminated.

By taking action to prepare in advance for flooding, most businesses can save between 20 and 90 per cent on the cost of lost stock and movable equipment, as well as some of the trouble and stress that goes with such an event.

This is a simple guide to some of the easy actions that you can take to make sure that your business is as well prepared as possible.

It tells you about how to find out if your business is at risk, our flood warning service and what our flood warning codes mean. It also has a simple template to use to design a flood plan for your company.

For more information about flooding, visit our website at **www.gov.uk/flood** or call Floodline on **0345 988 1188**.

Make sure that your business is prepared for flooding.

How do I find out if my business is at risk from flooding?

There are two quick and easy ways for you to find out if you're at risk.

call us on
0345 988 1188

Our Floodline service is open 24 hours, calls are charged at local rate. By taking your postcode, our operators will check and see if your business is in a flood risk area.

Look at our website
www.gov.uk/flood

You need to be aware of flooding and keep an eye on the water levels and weather situation at all times. You can do this by checking the flood forecasts and the river and sea levels on our website.

Our online flood map uses the latest technology and data gathered over many years to give the most accurate view of flooding in your area.

By entering your postcode you can find out if your business is at risk. Areas at risk from flooding are shown in dark blue and areas at risk from extreme flooding in light blue.

My business is at risk from flooding. What should I do now?

Start preparing now. If the weather conditions are right, flooding can happen at any time.

Remember, floods can happen at any time and any day – make sure you provide a number that can be contacted at all times – even out of working hours.

Sign up for flood warnings.

The first thing you should do is find out if you can receive flood warnings. In areas of high flood risk, we offer a service called Floodline Warnings Direct. This is a free, 24 hour service that sends automated flood warnings by telephone, SMS text, email, fax or pager.

To find out if you can receive this service, call Floodline on 0345 988 1188.

If your business isn't in an area covered by our warnings you can still check the latest flood warnings in force on our website.

When the situation is serious, flood warnings will also be broadcast on local television and radio news.

What practical steps can I take to protect my business?

Now that you've checked your risk and found out about flood warnings, it's time to start thinking about preparing a flood plan specifically for your business.

Taking simple steps can go a long way to protecting your business from flooding. Preparing a flood plan could:

- Significantly reduce financial losses, damage to property and business interruption;
- Help compliance with regulatory requirements (for example, Occupier's Liability Act 1984);
- Reduce exposure to civil or criminal liability;
- Enhance your company's image and credibility with employees, customers, suppliers and the community;
- Help fulfil your moral responsibility to protect employees, the community and the environment;
- Help you to obtain insurance cover.

What is a flood plan?

Just as many businesses have health and safety policies and contingency plans for an emergency, they should also have flood plans.

A flood plan is a written document that outlines how your business will respond to a flood.

This might include a list of steps you will take in case of a flood and the order you will take them in. It could also include the purchase of flood products and insurance.

A written plan can make information **easy** to access during a flood, **easy** to communicate to staff, and **easy** to remember.

Small businesses should make sure there is a plan of action in case of flooding. As the business owner, this may be your responsibility.

If your business is **medium sized**, flood preparation might be the responsibility of a team of people from different areas of the business.

If your business decides to have a flood planning team, this could be led by the business owner or Managing Director.

The leader of the flood planning team will need to let staff know about the plan once it is finished.

All members of the team should also keep a copy of important flood contacts at home for easy access.

Key areas to consider in your flood plan are:

- human resources;
- maintenance/facilities;
- finance and purchasing.

Once you have completed your plan don't forget about it. Look at it regularly and make sure it is up to date and in the event of a flood **use it**.

business flood plan

A written flood plan is recommended for businesses.

It should include:

- A list of important contacts, including Floodline, building services, suppliers and evacuation contacts for staff;
- A description or map showing locations of key property, protective materials and service shut-off points;
- Basic strategies for protecting property, preventing business disruption and assisting recovery;
- Checklists of procedures that can be quickly accessed by staff during a flood.

If a flood is imminent, your main priority is to make sure that your staff are safe. However there may be other actions that you can take to prepare your building and it's contents to minimise damage and post-flood repair and restoration costs.

Business flood plan

Flood plan for _____ dated _____

Registered address _____

_____

Postcode _____

Staff contact list

Name	Address	Telephone/mobile	Emergency contact	Emergency telephone and address

Note staff who may require assistance in the event of a flood.

Name	Office location

Key locations

Service cut-off	Description of location
Electricity	
Gas	
Water	

Answer the following if applicable

	Description of location	How to protect from a flood (for example, move, cover, tie down)
First Aid Kit		
Oil based products (gasoline, oil, cooking oil etc.)		
Chemicals (including cleaning products)		

Protective actions

Identify stock, equipment and possessions that may need special protective measures, and describe the actions you will take to prevent damage in the event of a flood. We have suggested items and ways to protect them, but make sure you follow through on your plans.

think about:

- Computers;
- Tables / heavy furniture;
- Vehicles;
- Paper files;
- Electrical items;
- Chairs / stools;
- Databases;
- Soft furnishings;
- Computer files;
- Staff files.

ways to protect items

- Make a copy of important documentation and store in safe location;
- Raise items above ground level;
- Buy flood protection products;
- Buy new flood-resistant items;
- Move items to a safer location if possible – to an upper level of the building or off site.

Valuable item	Protective action	New location (if applicable)	Done
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐
			☐

Suggested basic building materials to help protect your property

If materials are not needed, leave the relevant section blank

Materials	Used for	Items to protect / where to use	Storage location	Done
Sand and sand bags (unfilled), shovel	Creating flood barriers (used with plastic sheeting)			☐
Tools – hammer, nails, saw	Boarding up doors, windows and openings, creating shelves			☐
Wood – plywood, blocks of wood	Boarding up doors, windows and openings, creating shelves			☐
Sturdy plastic sheeting	Sandbag barriers, pulling up around furniture and appliances			☐
Strong plastic bags	Putting around legs of tables and chairs			☐
Pallets	Raising stored stock above flood level			☐
Emergency power generator	Maintaining function of air conditioning units (can help dry out a building), running fridges and freezers, medical equipment if appropriate			☐

Identify people who can help you before, during and after a flood, and what they can do.

We have suggested ways they might be able to help, but you'll need to discuss this with them.

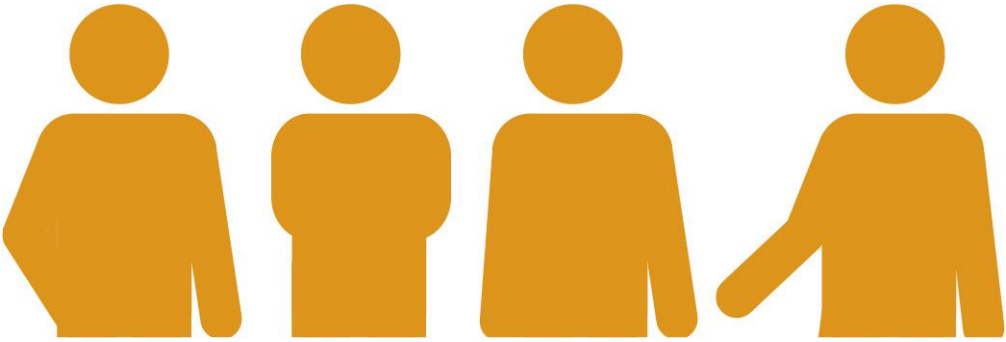
Name	Address	Telephone day	Telephone evening	Mobile

Ways people can help

- assistance with installing flood products;
- assistance with transporting stock/materials to new location if possible;
- provision of emergency storage;
- provision of emergency supplies or medical support if required.

discussion guide

This discussion guide sums up the key areas of flood planning. Some of this information can be found in this pack to help get you started.



Research

- Look at your existing business policies, and think about whether they are appropriate in the event of a flood.

Staff

- Make a list of **employees' contact details in the event of an evacuation**. This might include mobile telephone numbers, or numbers for their home or the home of a friend or relative;
- Think about staff who **may need special assistance** in the event of a flood (for example, elderly, deaf, blind etc.)

Security procedures

- **Locking windows, doors** and **setting the alarm**. You might need more than one person to help do this;
- Insurance policies – **Are you insured for flood damage**, business interruption and lost revenue?
- Employee manuals – You might **add flood safety to staff information packs**, or adapt job descriptions to include flood warden duties;
- Hazardous materials plan – You must ensure that **chemicals, oils** and other **substances in your possession are kept safe** and do not contaminate flood water;
- Health and safety assessment – Plan to **check the functioning of flood products and flood warning systems regularly**, just as you do for fire safety equipment.

Check codes and regulations that might apply to your business in the event of a flood. The following could provide guidance on the right actions to take:

- Occupational health and safety regulations;
- Environmental regulations.

Important contacts

Make a list of important telephone numbers, including contacts for gas, electricity, water and telephone providers.

Key locations

- **Know the location** of cut-off points for gas, electricity and water. Ideally, these should be marked on a map that is stored with your flood plan;
- Know the location of chemicals, oils or other materials that could be dangerous or contaminate flood water. These should be stored safe from floods and other damage.

Protective actions

- Note key stock, equipment and possessions that may need special protection from flood water;
- Consider things you may need during or after a flood (for example, sandbags, plastic sheeting, loudspeaker);
- See if it's **possible to move key operations**, such as shipping or customer services, to another building.

Suppliers and external links

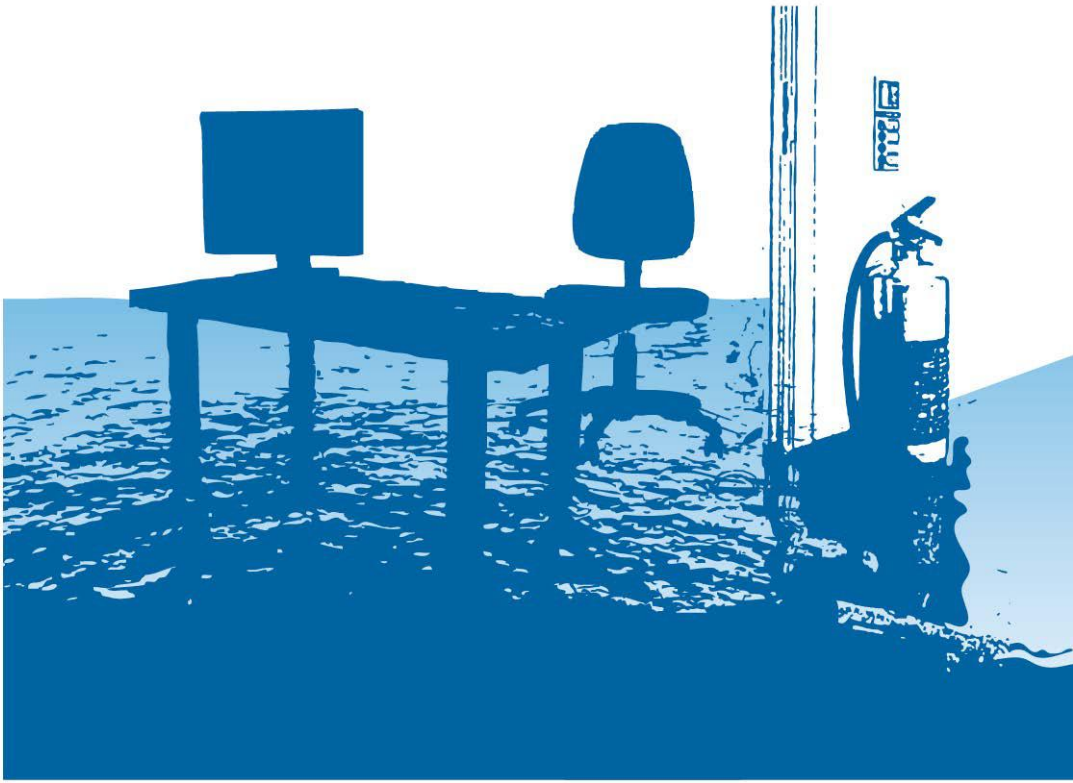
- Identify products and services you won't need in the event of a flood, or which suppliers may not be able to provide. **Make back-up plans** or arrangements for short-notice cancellation of deliveries;
- Consider contracting in advance with companies whose help you may need after a flood.

business checklist

Are you prepared for flooding?

If you answer no to any of the questions overleaf, there may be more you can do to protect your business.

The individual sections will give you valuable information on effective actions you can take to prepare for a flood.



If you can answer yes, please ☒, otherwise leave blank for no.

Know if you're at risk

- ☐ Do you know if you're at risk of flooding?
- ☐ Are flood warnings available in your area?
- ☐ Do you know how you can receive flood warnings?

Preparing a flood plan

- ☐ Do you know how your business will respond to a flood?
- ☐ Do you have a list of useful numbers including Floodline, local authority and insurance company?
- ☐ Do you know how to shut off your gas/electric/water supplies?
- ☐ Are your stock, fittings and valuable equipment stored above flood level?
- ☐ Have you developed flood contingency plans with suppliers and/or clients?
- ☐ Can you call someone to help you in the event of a flood?

Staff training and evacuation

- ☐ Are you aware of correct flood safety procedures for you and your staff?
- ☐ Have you trained your staff on flood safety procedures?
- ☐ Can your staff work quickly and efficiently to protect your business in the event of a flood?

Protecting your property

- ☐ Have you installed flood protection products?
- ☐ Do you have a stockpile of useful materials including plywood, plastic sheeting, sandbags (unfilled), sand, nails, hammer, shovel, blocks of wood and a saw?
- ☐ Have you installed non return valves in your toilets and drains?
- ☐ Do you and your staff have high ground where you can park your cars?
- ☐ Are your electrical sockets above flood level?
- ☐ Do you have computer equipment in the basement?

Flood insurance

- ☐ Do you have sufficient insurance cover in the event of a flood situation?
- ☐ Do you know what information your insurer will require to support a claim?

Evacuation

- ☐ Do you have an easy way to let your staff know about an evacuation?
- ☐ Do you know which roads will stay open in your area during a flood?
- ☐ Have you identified where staff can shelter in the event of a flood?
- ☐ Could you control staff panic during a flood?

understand your flood warning codes

Our warning service has three types of warnings - Flood Alert, Flood Warning and Severe Flood Warning - that will help you prepare for flooding and take necessary actions.

ONLINE FLOOD RISK FORECAST

What it means

Be aware.
Keep an eye on the weather situation.

When it's used

Forecasts of flooding on the Environment Agency website are updated a least once a day.

What to do

- Check weather conditions.
- Check for updated flood forecasts on our website.

FLOOD ALERT

What it means

Flooding is possible.
Be prepared.

When it's used

Two hours to two days in advance of flooding.

What to do

- Be prepared to act on your flood plan.
- Prepare a flood kit of essential items.
- Monitor local water levels and the flood forecast on our website.

FLOOD WARNING

What it means

Flooding is expected. Immediate action required.

When it's used

Half an hour to one day in advance of flooding.

What to do

- Move staff, stock and valuables to a safe place.
- Turn off gas, electricity and water supplies if safe to do so.
- Put flood protection equipment in place.

SEVERE FLOOD WARNING

What it means

Severe flooding. Danger to life.

When it's used

When flooding poses a significant risk to life.

What to do

- Stay in a safe place with means of escape.
- Be ready should you need to evacuate.
- Co-operate with the emergency services.
- Call 999 if you are in immediate danger.

WARNING NO LONGER IN FORCE

What it means

No further flooding is currently expected in you area.

When it's used

When river or sea conditions begin to return to normal.

What to do

- Be careful. Flood water may still be around for several days.
- If you've been flooded, ring your insurance company as soon as possible.

useful contacts

Fill in the contact details you may need if your business floods. Keep it in a safe place, where you can hold of it quickly.

	Company name	Telephone number/s
Environment Agency Floodline		0345 988 1188
Electricity supplier and meter number		
Gas supplier and meter number		
Water supplier and meter number		
Telephone provider		
Local authority emergency services		
Insurance company 24-hour number and policy number		
Insurance agent		
Local radio station for news alerts and weather updates		
Companies that may be able to help you after a flood		
Electrician		
Plumber		
Builder		
Equipment repair/suppliers		
Security services		
Water pumping services		
Emergency power suppliers		

Would you like to find out more about us, or about your environment?

Then call us on
08708 506 506* (Mon-Fri 8-6)

email
enquiries@environment-agency.gov.uk

or visit our website
www.gov.uk/environment-agency

incident hotline 0800 80 70 60 (24hrs)
floodline 0345 988 1188 (24hrs)

*** Weekday Daytime calls cost 8p plus up to 6p/min from BT Weekend Unlimited. Mobile and other providers' charges may vary.**

Environment first: Are you viewing this on-screen? Please consider the environment and only print if absolutely necessary. If you're reading a paper copy, please don't forget to reuse and recycle if possible.

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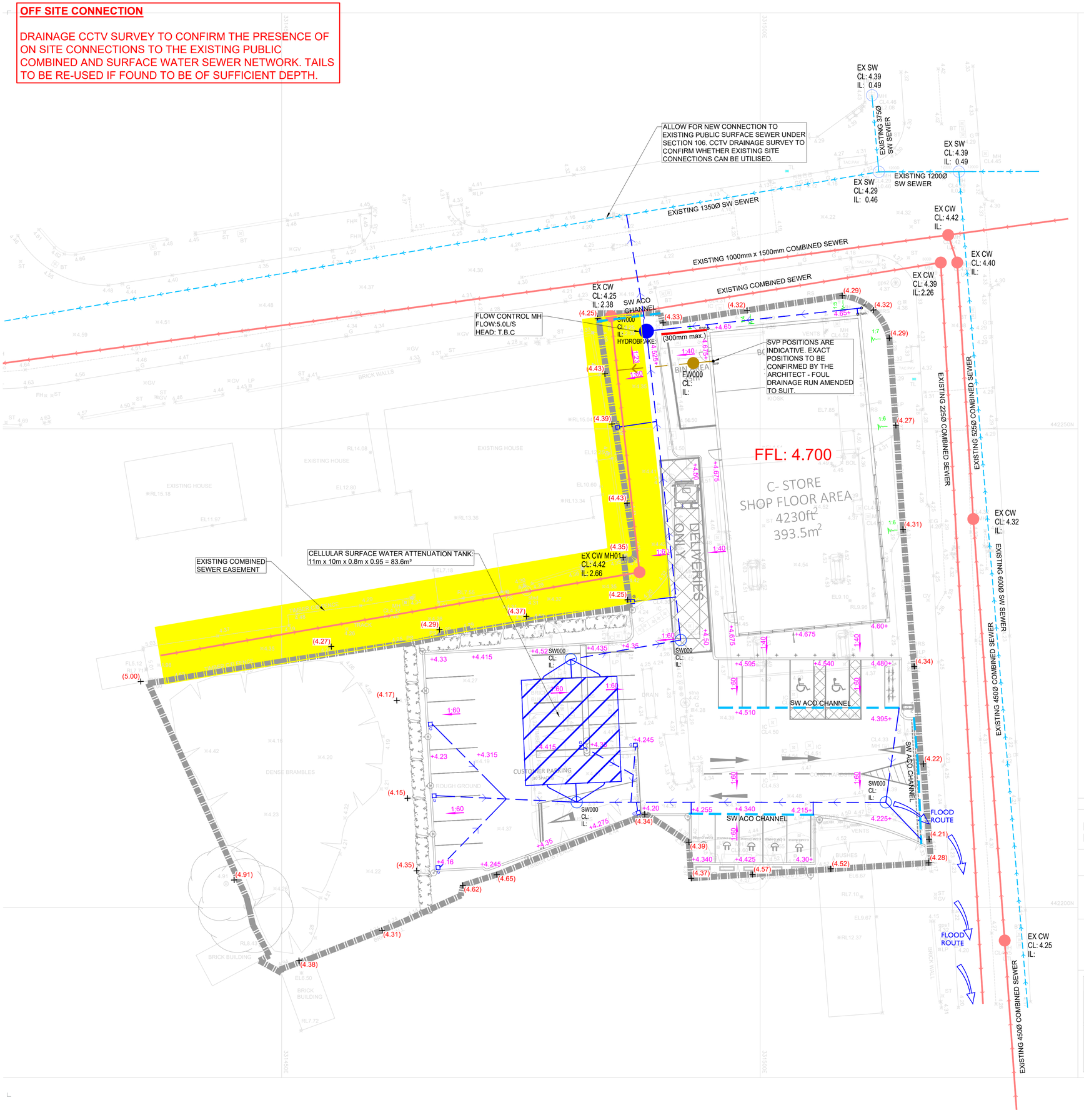
APPENDIX 6

OFF SITE CONNECTION

DRAINAGE CCTV SURVEY TO CONFIRM THE PRESENCE OF ON SITE CONNECTIONS TO THE EXISTING PUBLIC COMBINED AND SURFACE WATER SEWER NETWORK. TAILS TO BE RE-USED IF FOUND TO BE OF SUFFICIENT DEPTH.



OPERATION AND MAINTENANCE REQUIREMENTS FOR ATTENUATION STORAGE TANKS

MAINTENANCE SCHEDULE	REQUIRED ACTION	TYPICAL FREQUENCY
REGULAR MAINTENANCE	INSPECT & IDENTIFY ANY AREAS THAT ARE NOT OPERATING CORRECTLY. IF REQUIRED, TAKE REMEDIAL ACTION	MONTHLY FOR 3 MONTHS THEN ANNUALLY
	REMOVE DEBRIS FROM THE CATCHMENT SURFACE (WHERE IT MAY CAUSE RISK TO PERFORMANCE)	MONTHLY
	REMOVE SEDIMENT FROM PRE-TREATMENT ROAD GULLIES & SILT TRAP MANHOLE	MONTHLY FOR 3 MONTHS THEN ANNUALLY OR AS REQUIRED
REMEDIAL ACTIONS	REPAIR/REHABILITATE INLETS, OUTLETS, OVERFLOWS & VENTS	AS REQUIRED
MONITORING	INSPECT/CHECK ALL INLETS, OUTLETS, VENTS & OVERFLOWS TO ENSURE THAT THEY ARE IN GOOD CONDITION & OPERATING AS DESIGNED	ANNUALLY
	CCTV SURVEY INSIDE OF TANK FOR SEDIMENT BUILD-UP & REMOVE IF NECESSARY	AFTER CONSTRUCTION, 1 YEAR, & THEN EVERY 5 YEARS OR AS REQUIRED

KEY:

- SW000 CL: IL: — 150Ø, Xm @ 1:X — SURFACE WATER MH & DRAINAGE RUN
- FW000 CL: IL: — 150Ø, Xm @ 1:X — FOUL WATER MH & DRAINAGE RUN
- EX SW CL: IL: — XXØ, Xm @ 1:X — EXISTING SURFACE WATER MH & DRAINAGE RUN
- EX CW CL: IL: — 150Ø, Xm @ 1:X — EXISTING COMBINED WATER MH & DRAINAGE RUN
- EXISTING SEWER EASEMENT
- SW ACO CHANNEL — SURFACE ACO CHANNEL
- SURFACE GULLY
- RE — SURFACE RODDING EYE
- RWP — RAINWATER PIPE
- SVP — SOIL VENT PIPE
- FLOOD ROUTE — FLOOD ROUTE FOR STORM EVENTS IN EXCESS OF 1 IN 100 YEARS + 40% CLIMATE CHANGE
- 1:3 — PROPOSED BANKING
- +3.20 — PROPOSED LEVELS
- 1:60 — PROPOSED GRADIENTS
- (2.59) — EXISTING BOUNDARY LEVELS
- (xxx.mm max.) — F.O.E RETENTION

DO NOT SCALE, IF IN DOUBT ASK. DO NOT INTERROGATE CAD BASE

DRAINAGE NOTES:

1. THIS DRAWING HAS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS & ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. FOR DRAINAGE DETAILS REFER TO DRAWING P15598-501.
3. FOR LOCATION OF ALL R.W.P's & INTERNAL POP-UP's REFER TO ARCHITECTS DRAWING. ALL DOWN PIPES TO BE FITTED WITH ACCESS HANDHOLES ABOVE F.F.L. OR GROUND LEVEL.
4. ALL GULLY CONNECTIONS TO BE 150Ø U.N.O. ALL S.V.P. CONNECTIONS TO BE MINIMUM 100Ø OR TO MATCH S.V.P. DOWNPIPE IF GREATER. ALL R.W.P. CONNECTIONS TO BE 150Ø OR TO MATCH R.W.P. DOWNPIPE.
5. ALL PIPES UP TO 450Ø TO BE UPVC PIPES. PIPES GREATER THAN 450Ø TO BE CONCRETE.
6. PIPES UNDER ROADS HAVING 1200mm OR LESS COVER ARE TO BE ENCASED IN CONCRETE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
7. MANHOLE COVER LEVELS ARE INDICATIVE AND SHOULD BE SET TO SUIT FINISHED ROAD LEVEL AND CAMBER.
8. ALL EXTERNAL MANHOLES WITHIN ROADS TO BE FITTED WITH LOADCLASS D400 COVERS U.N.O. ALL EXTERNAL MANHOLES WITHIN SOFT LANDSCAPING TO BE FITTED WITH LOADCLASS B125 COVERS U.N.O. ALL IN ACCORDANCE WITH BS EN 124:2015 (ALL PARTS).
9. INVERT LEVELS OF EXISTING DRAINS AND MANHOLES TO BE CONFIRMED ON SITE PRIOR TO COMMENCING OPERATIONS. NO EXISTING SEWER MANHOLE TO BE OPENED OR ENTERED WITHOUT THE PERMISSION OF THE LOCAL AUTHORITY DRAINAGE DEPARTMENT AND THE ATTENDANCE OF SEWER PERSON AS REQUIRED.
10. DRAINAGE DESIGN AND INSTALLATION TO BE TO THE SATISFACTION OF THE LOCAL BUILDING CONTROL DEPARTMENT AND TO COMPLY WITH BS EN 752:2017, BS EN 1610:2015, BS EN 12056-1:2000, BS EN 12056-2:2000 and BS EN 12056-3:2000.
11. ADOPTABLE DRAINAGE WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF 'SEWERS FOR ADOPTION'.
12. ALL SUDS COMPONENTS TO BE MAINTAINED IN ACCORDANCE WITH CIRIA C 768.
13. SURFACE WATER ATTENUATION CRATES TO BE WAVIN AQUACELL PLUS OR SIMILAR APPROVED. TO BE INSTALLED IN LINE WITH MANUFACTURES SPECIFICATION.

SURFACE WATER ATTENUATION

PROPOSED IMPERMEABLE AREA: 2070m² (0.207 Ha)

SITE AREA: 3000m² (0.30 Ha)

DISCHARGE RATE: 5.0L/S

CELLULAR TANK DIMENSIONS: 11m x 10m x 0.8m x 0.95 = 83.6m³

STORM EVENT: 1 IN 100YR + 40% CLIMATE CHANGE

CDM NOTES

1. ACCESS AND EGRESS TO THE SITE FROM BUSY ROAD.
2. POTENTIAL GROUND INSTABILITY IN DEEP EXCAVATIONS
3. NO HEAVY PLANT OR STOCK PILES PERMITTED OVER OR WITHIN 3m OF THE CONSTRUCTED TANK.
4. TANK TO BE FULLY PROTECTED FROM SILT AND DEBRIS INGRESS DURING CONSTRUCTION, AND TO BE INSPECTED AND MAINTAINED DURING OPERATION AS DETAILED ABOVE.
5. TANKS NOT DESIGNED TO RESIST UPLIFT UNTIL FULLY BACKFILLED
6. EXISTING SERVICES IDENTIFIED ON SITE.
7. ADEQUATE SEGREGATION HOARDING REQUIRED TO SEPARATE PUBLIC FROM THE CONSTRUCTION SITE.
8. ADEQUATE MEASURES REQUIRED TO CONTROL NOISE, DUST, FUMES & VIBRATION.
9. POTENTIAL HOT SPOT CONTAMINATION DUE TO PREVIOUS SITE USE.
10. STORM DRAINAGE CONNECTIONS INTO EXISTING SEWERS IN THE HIGHWAY - ADEQUATE RAMS AND SITE CONTROL REQUIRED.

REFER TO DESIGNERS HAZARD ASSESSMENTS FOR FURTHER DETAILS.

REV.	DATE.	REVISION.	BY.	CHK.
–		FIRST ISSUE.	PH	NB
-	-	-	-	-

Euro Garages Ltd

Proposed Convenience Store
Anchorsholme, Fleetwood Road, Cleveleys

Drawing Layout Plan

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Tel: +44 (0)113 369 7925
Fax: -
Email: leeds@goodsons.com
Web: www.goodsons.com
Consulting Civil, Structural & Transportation Engineers
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Leeds, LS1 5QX
Also at Aberdeen, Edinburgh and Glasgow.

PLANNING

DATE CREATED:	SCALE:	
Dec. '21	1:200	@ A1

CONTRACT No:	DRAWING No:	REV:
P15591	500	-

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