



1 Hopton Road, Blackpool FY1 6EA

Flood Risk Assessment

Blackpool Estates Ltd

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1 Hopton Road, Blackpool FY1 6EA

Project	Flood Risk Assessment
Client	Blackpool Estates Ltd
Status	Final
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Date	October 2023

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EXECUTIVE SUMMARY

The Site would be expected to remain dry in all but the most extreme conditions. The consequences of flooding are acceptable, and the development would be in accordance with the requirements of the National Planning Policy Framework (NPPF). The Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF.

The Proposed Development should not therefore be precluded on the grounds of flood risk or drainage.

1.0 INTRODUCTION

1.1 Background

This Flood Risk Assessment (FRA) has been prepared by KRS Enviro at the request of Blackpool Estates Ltd to support a change of planning application to convert 2 residential flats into 2 holiday let flats (“the Proposed Development”) at 1 Hopton Road, Blackpool FY1 6EA (“the Site”).

This FRA has been carried out in accordance with guidance contained in the National Planning Policy Framework (NPPF)¹, associated Planning Practice Guidance on flood risk and coastal change² (PPG) and the PPG ‘Site-specific flood risk assessment checklist. This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

It is recognised that developments which are designed without regard to flood risk may endanger lives, damage property, cause disruption to the wider community, damage the environment, be difficult to insure and require additional expense on remedial works. The development design should be such that future users will not have difficulty obtaining insurance or mortgage finance, or in selling all or part of the development, as a result of flood risk issues.

1.2 National Planning Policy Framework (NPPF)

One of the key aims of the NPPF is to ensure that flood risk is taken into account at all stages of the planning process; to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk.

It advises that where new development is exceptionally necessary in areas of higher risk, this should be safe, without increasing flood risk elsewhere, and where possible, reduce flood risk overall. A risk-based approach is adopted at stages of the planning process, applying a source pathway receptor model to planning and flood risk. To demonstrate this, an FRA is required and should include:

- whether a Proposed Development is likely to be affected by current or future flooding from all sources;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate;
- if necessary, provide the evidence to the Local Planning Authority (LPA) that the Sequential Test can be applied; and
- whether the development will be safe and pass part c) of the Exception Test if this is appropriate.

The report findings are based upon professional judgement and are summarised below with detailed recommendations provided at the end of the report. The report includes rainfall data from the Flood Estimation Handbook (FEH) and hydrogeological information from the British

¹ Ministry for Housing, Communities and Local Government (2023) National Planning Policy Framework: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

² Communities and Local Government (2022) Planning Practice Guidance - Flood Risk and Coastal Change: <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

Geological Survey (BGS). The assessment will summarise and refer to these datasets in the text.

1.3 Report Structure

This FRA has the following report structure:

- Section 2 describes the location and the existing and Proposed Development;
- Section 3 outlines the flood risk to the existing and Proposed Development;
- Section 4 details the proposed surface water drainage for the Site and assesses the potential impacts of the Proposed Development on surface water drainage;
- Section 5 outlines the mitigation measures used to reduce the overall level of flood risk;
- Section 6 details the Sequential and Exception Tests; and
- Section 7 presents a summary and conclusions.

2.0 LOCATION & DEVELOPMENT DESCRIPTION

2.1 Site Location

The Site is located at 1 Hopton Road, Blackpool FY1 6EA (see Figure 1).



Figure 1 - Site Location

2.2 Existing Development

The existing Site consists of 2 residential flats (see Appendix 1).

2.3 Proposed Development

It is understood the Proposed Development is for a change of use into 2 holiday let flats (see Appendix 1). There are no proposed changes to the building internally or externally. Further details with regard to the Proposed Development can be found in the accompanying information submitted with the planning application.

2.4 Ground Levels

The Site is relatively level with an approximate ground level of 6.70 metres Above Ordnance Datum (mAOD), as shown on the Ordnance Survey Datum Digital Terrain Model (DTM).

2.5 Catchment Hydrology

The Irish Sea is located approximately 120m to the west of the Site. There are no watercourses, located on, or within the vicinity of the Site.

2.6 Ground Conditions

The British Geological Survey (BGS) map³ shows that the bedrock deposits underneath the Site consist of the Singleton Mudstone Member - mudstone. The superficial deposits consist of Blown Sand - sand. Information from the National Soil Resources Institute⁴ details the Site area as being situated on freely draining sand dune soils.

³ https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.14476159.932338379.1655890995-1831306757.1655472887

⁴ <http://www.landis.org.uk/soilscapes/>

3.0 FLOOD RISK

3.1 Sources of Flooding

All sources of flooding have been considered, these are; fluvial (river) flooding, tidal (coastal) flooding, groundwater flooding, surface water (pluvial) flooding, sewer flooding and flooding from artificial drainage systems/infrastructure failure.

3.2 Environment Agency

Information regarding the current flood risk at the application Site and local flood defences has been obtained from the Environment Agency (see Appendix 2).

3.3 Climate Change

Projections of future climate change, in the UK, indicate more frequent, short-duration, high intensity rainfall and more frequent periods of long duration rainfall. Guidance included within the NPPF recommends that the effects of climate change are incorporated into FRA's. Recommended precautionary sensitivity ranges for peak rainfall intensities and peak river flows are outlined in the flood risk assessments: climate change allowances guidance⁵.

The flood risk assessments: climate change allowances guidance recommends the central allowances are used to assess climate change throughout the lifetime of the development which is 100 years. Table 1 shows the sea level allowances therefore, the tidal design event for the Site is the 1 in 200 year in 2123 event.

Using the higher central allowances in Table 1 and a lifetime of development of 100 years would result in sea level rise of 892mm. The Environment Agency has supplied data for the 1 in 200 year (+970mm) event which in this case has been used as tidal design event.

Table 1 - Sea Level Allowances by River Basin District (mm/yr)

Area of England	Allowance Category	2020 to 2035	2036 to 2065	2066 to 2095	2096 to 2125
North West	Upper End	5.70	9.90	14.20	16.30
	Higher Central	4.50	7.30	10.00	11.20

3.4 Environment Agency Flood Zones

A review of the Environment Agency's Flood Zones indicates that Site is located within Flood Zone 3 and therefore has a 'high probability' of flooding with a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year, as shown in Figure 2. The Site is located on the very edge of Flood Zone 3 with large areas immediately adjacent to the Site being located within Flood Zone 1 with less than 1 in 1000 annual probability of sea flooding in any year (<0.1%).

The Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. They show the worst case scenario.

⁵ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#high-allowances>

The Environment Agency Flood Zones and acceptable development types are explained in Table 2. Table 2 shows that some development types are generally acceptable in Flood Zone 3.

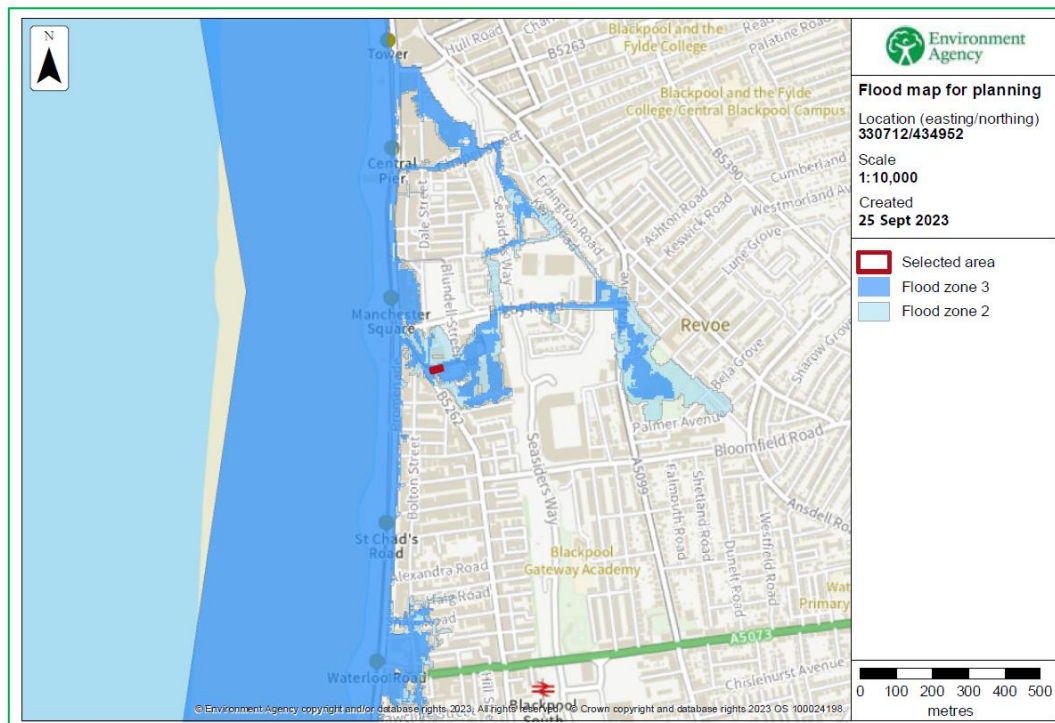


Figure 2 - Environment Agency Flood Zones

Table 2 - Environment Agency Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land Use
Zone 1	Low	Less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%)	All development types generally acceptable
Zone 2	Medium	Between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year	Most development type are generally acceptable
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year	Some development types not acceptable
Zone 3b	'Functional Floodplain'	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: <ul style="list-style-type: none"> land having a 3.3% or greater annual probability of flooding, with any existing flood risk 	Some development types not acceptable

		<p>management infrastructure operating effectively; or</p> <ul style="list-style-type: none"> land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). <p>Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)</p>	
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3.5 Flood Vulnerability

In the PPG, appropriate uses have been identified for the Flood Zones. Applying the Flood Risk Vulnerability Classification in the PPG, the existing and proposed use is classified as ‘more vulnerable’.

The existing Site consists of 2 residential flats. It is understood the Proposed Development is for a change of use into 2 holiday let flats. There are no proposed changes to the building internally or externally. The Proposed Development will not change the vulnerability of the Site and will not introduce a new ‘more vulnerable’ development into the floodplain. Table 3 of this report and the PPG state that ‘more vulnerable’ uses are appropriate within Flood Zone 3 after the completion of a satisfactory FRA.

Table 3 - Flood Risk Vulnerability and Flood Zone ‘Compatibility’

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception test required	✓	✓
Zone 3a	Exception test required	✓	✗	Exception test required	✓
Zone 3b ‘Functional Floodplain’	Exception test required	✓	✗	✗	✗

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

3.6 Historic Flooding

The Environment Agency data confirms that the area of the Site flooded in February 2002 due to the overtopping of the flood defences (see Figure 3). The Blackpool Council Strategic Flood Risk Assessment (SFRA) confirms that sewer and surface water flooding has occurred within central Blackpool but not within close proximity of the Site.

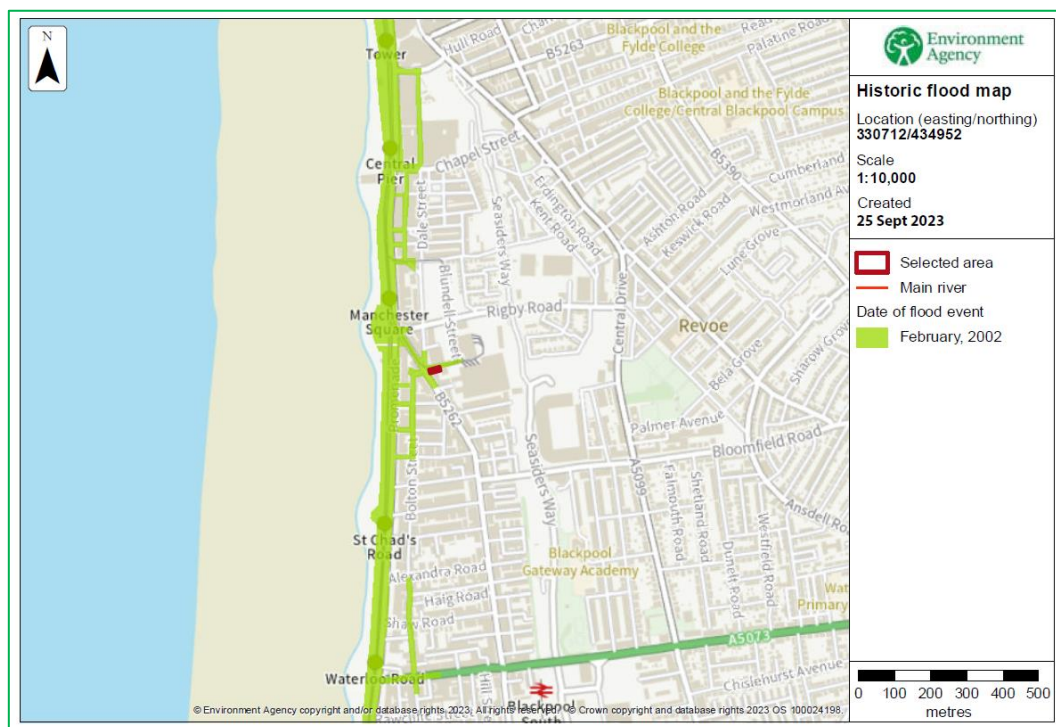


Figure 3 - Environment Agency Historic Flood Map

3.7 Existing and Planned Flood Defence Measures

The Environment Agency data confirms that the Site is protected against flooding by existing flood defence measures. At present the management policy set out in the Shoreline Management Plan (SMP) for Blackpool allows for the continued upkeep of the defences. No change is anticipated in the circumstances of Blackpool’s heavily built up urban area, with the coastal defences maintained along the present promenade frontage.

Further property level protection measures will be used to protect the Site from flooding these are discussed in Section 5.0.

3.8 Fluvial (River) Flooding

The Site is not located within the vicinity of fluvial flooding sources and the risk of fluvial flooding is considered to be **not significant**.

3.9 Tidal (Coastal) Flooding

Storm surge activity are the main cause of tidal flooding, the primary risk of flooding posed to the Site is as a result of a surge tide and tidal flooding from the Irish Sea.

Actual Risk

Flood defence measures on this section of the Irish Sea provide protection against flooding and reduce the flood risk to the Site. Table 4 shows the Environment Agency defended modelled data for the Site and Table 5 shows the Environment Agency defended modelled data for the Site, including climate change. Figures 4 to 7 show the Environment Agency defended modelled flood outlines. This data have been used to assess the tidal flood risk at the Site in detail. Nodes 6, 13 - 16 and 21 - 23 are located on the Site

The Site will not be inundated with floodwater for all events up to and including the defended 1 in 75 year event. The Site will be flood free during the defended 1 in 75 year event. During the defended 1 in 200 year event the Site may be inundated with floodwater to a depth of 0.06m, during the defended 1 in 200 year (+970mm) event the Site may be inundated with floodwater to a depth of 0.21m and during the defended 1 in 1000 year event the Site may be inundated with floodwater to a depth of 0.17m.

Table 4 - Environment Agency Defended Modelled Data

Node Label	Easting	Northing	Return Period (years)							
			75		100		200		1000	
			Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)
1	330697	434937	No Data	No Data	0.01	6.66	0.04	6.70	0.09	6.75
2	330704	434937	No Data	No Data	0.01	6.66	0.02	6.68	0.06	6.75
3	330711	434937	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
4	330690	434944	No Data	No Data	No Data	No Data	0.04	6.73	0.07	6.78
5	330697	434944	No Data	No Data	0.00	6.62	0.04	6.67	0.11	6.74
6	330704	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
7	330711	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
8	330718	434944	No Data	No Data	No Data	No Data	0.08	6.33	0.20	6.46
9	330725	434944	No Data	No Data	No Data	No Data	0.27	6.33	0.40	6.45
10	330732	434944	No Data	No Data	No Data	No Data	0.32	6.33	0.44	6.45
11	330690	434951	No Data	No Data	0.00	6.68	0.01	6.70	0.07	6.77
12	330697	434951	No Data	No Data	0.03	6.57	0.06	6.61	0.18	6.73
13	330704	434951	No Data	No Data	0.04	6.55	0.06	6.59	0.15	6.71
14	330711	434951	No Data	No Data	No Data	No Data	No Data	No Data	0.03	6.65
15	330718	434951	No Data	No Data	No Data	No Data	No Data	No Data	0.06	6.52
16	330725	434951	No Data	No Data	No Data	No Data	No Data	No Data	0.17	6.47
17	330732	434951	No Data	No Data	No Data	No Data	0.45	6.33	0.57	6.45
18	330690	434958	No Data	No Data	0.02	6.67	0.05	6.69	0.12	6.77
19	330697	434958	No Data	No Data	0.02	6.57	0.05	6.59	0.16	6.71
20	330704	434958	No Data	No Data	0.03	6.49	0.06	6.53	0.19	6.67
21	330711	434958	No Data	No Data	0.04	6.46	0.06	6.49	0.17	6.62
22	330718	434958	No Data	No Data	No Data	No Data	No Data	No Data	0.12	6.57
23	330725	434958	No Data	No Data	No Data	No Data	No Data	No Data	0.08	6.51
24	330732	434958	No Data	No Data	No Data	No Data	0.81	6.34	0.91	6.45
25	330704	434965	No Data	No Data	No Data	No Data	No Data	No Data	0.14	6.67
26	330711	434965	No Data	No Data	No Data	No Data	No Data	No Data	0.19	6.61
27	330718	434965	No Data	No Data	No Data	No Data	0.07	6.41	0.19	6.55
28	330725	434965	No Data	No Data	0.05	6.35	0.09	6.40	0.19	6.50
29	330732	434965	No Data	No Data	0.02	6.28	0.07	6.36	0.17	6.46

Cells which contain text 'No Data' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

Table 5 - Environment Agency Defended Modelled Climate Change Data

Node Label	Easting	Northing	Return Period (years)					
			200 (+370mm)		200 (+670mm)		200 (+970mm)	
			Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)
1	330697	434937	0.15	6.81	0.15	6.81	0.15	6.81
2	330704	434937	0.09	6.80	0.09	6.80	0.09	6.80
3	330711	434937	0.06	6.71	0.06	6.71	0.06	6.71
4	330690	434944	0.12	6.82	0.12	6.82	0.12	6.82
5	330697	434944	0.18	6.81	0.18	6.81	0.18	6.81
6	330704	434944	No Data	No Data	No Data	No Data	No Data	No Data
7	330711	434944	0.04	6.70	0.04	6.70	0.04	6.70
8	330718	434944	0.25	6.51	0.25	6.51	0.25	6.51
9	330725	434944	0.45	6.51	0.45	6.51	0.45	6.51
10	330732	434944	0.50	6.51	0.50	6.51	0.50	6.51
11	330690	434951	0.12	6.82	0.12	6.82	0.12	6.82
12	330697	434951	0.25	6.80	0.25	6.80	0.25	6.80
13	330704	434951	0.21	6.78	0.21	6.78	0.21	6.78
14	330711	434951	0.07	6.69	0.07	6.69	0.07	6.69
15	330718	434951	0.08	6.54	0.08	6.54	0.08	6.54
16	330725	434951	0.21	6.52	0.21	6.52	0.21	6.52
17	330732	434951	0.63	6.51	0.63	6.51	0.63	6.51
18	330690	434958	0.17	6.82	0.17	6.82	0.17	6.82
19	330697	434958	0.23	6.78	0.23	6.78	0.23	6.78
20	330704	434958	0.25	6.73	0.25	6.73	0.25	6.73
21	330711	434958	0.22	6.67	0.22	6.67	0.22	6.67
22	330718	434958	0.15	6.60	0.15	6.60	0.15	6.60
23	330725	434958	0.11	6.54	0.11	6.54	0.11	6.54
24	330732	434958	0.96	6.50	0.96	6.50	0.96	6.50
25	330704	434965	0.17	6.71	0.17	6.71	0.17	6.71
26	330711	434965	0.23	6.66	0.23	6.66	0.23	6.66
27	330718	434965	0.26	6.61	0.26	6.61	0.26	6.61
28	330725	434965	0.25	6.56	0.25	6.56	0.25	6.56
29	330732	434965	0.23	6.52	0.23	6.52	0.23	6.52

Cells which contain text 'No Data' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

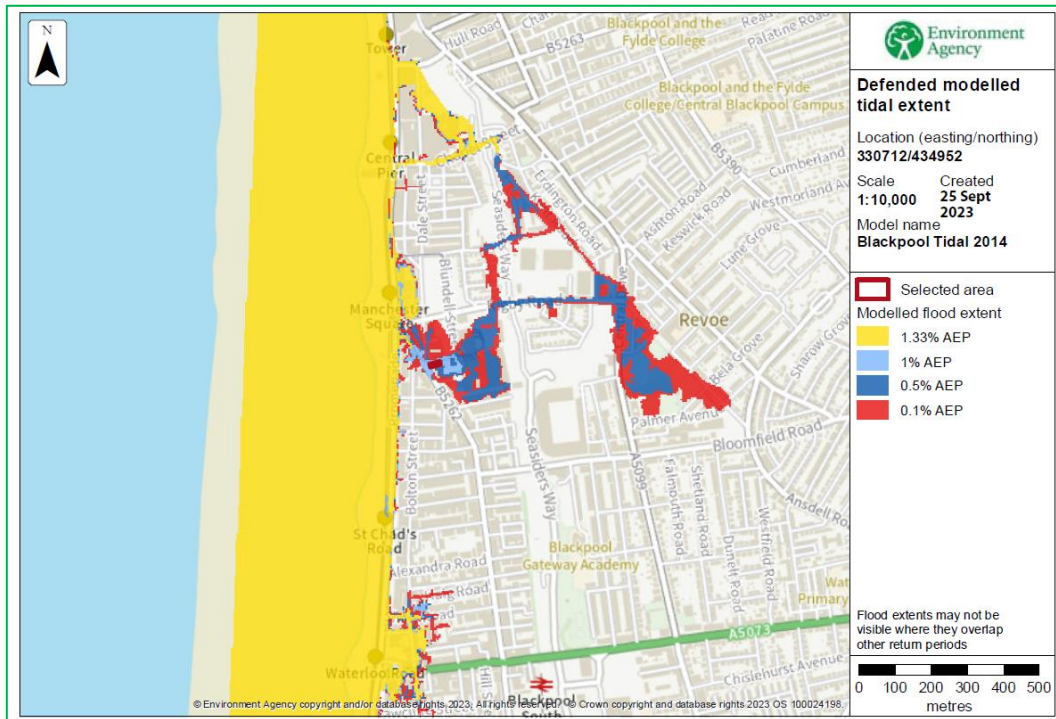


Figure 4 - Environment Agency Defended Modelled Flood Outlines

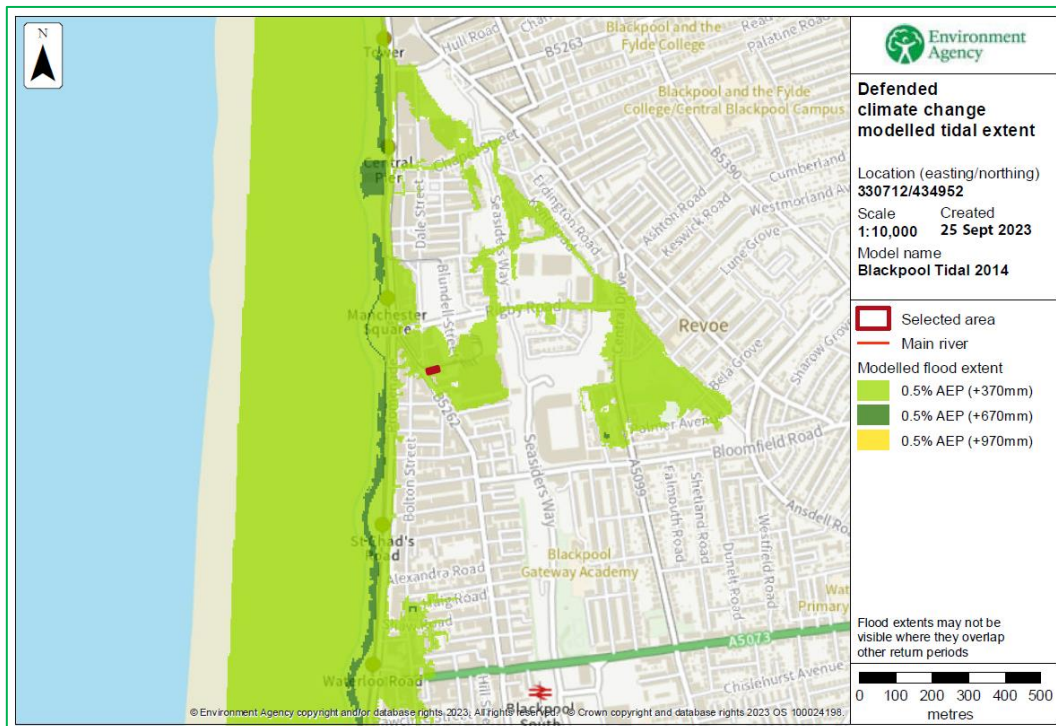


Figure 5 - Environment Agency Defended Modelled Climate Change Flood Outlines

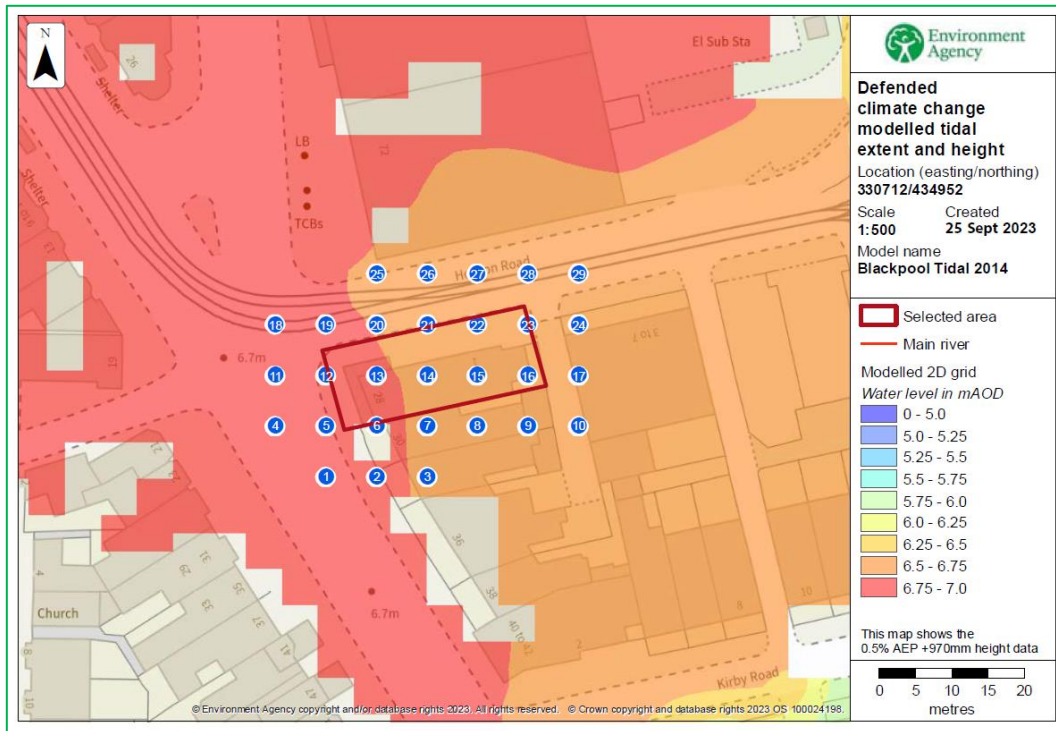


Figure 6 - Environment Agency Defended Modelled 1 in 200 Year (+970mm) Event

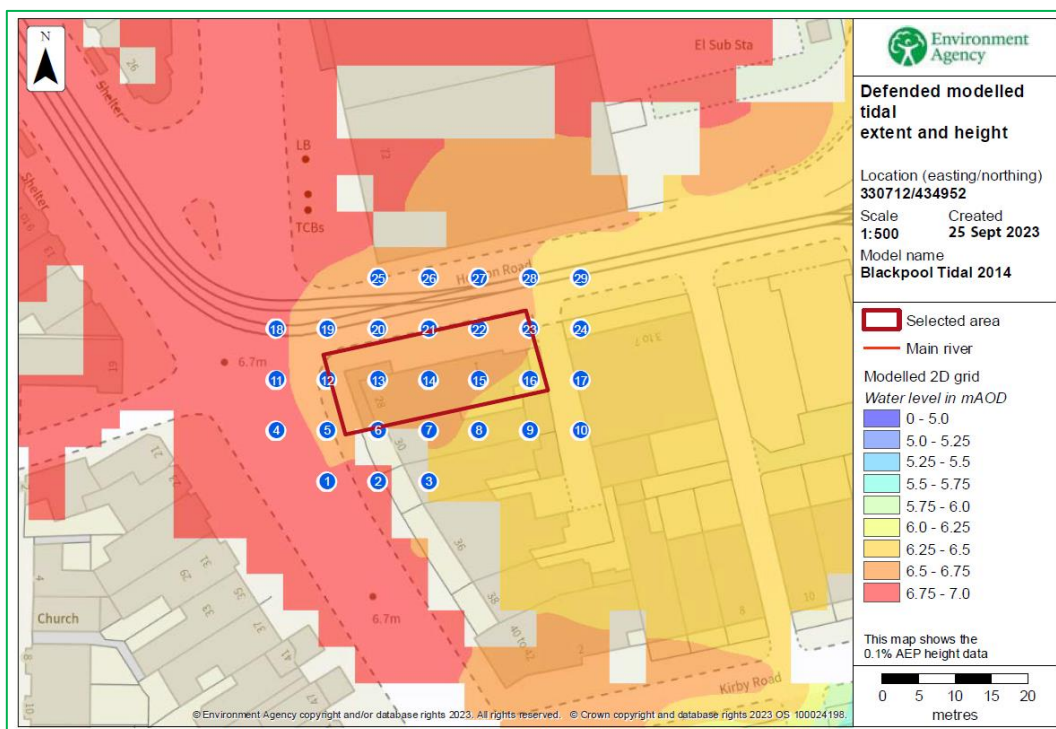


Figure 7 - Environment Agency Defended Modelled 1 in 1000 Year Event

Residual Risk

Considerable investment has been made in the provision of the flood defences to protect the site from tidal flooding. However, the flood defences can only protect up to a point, they may malfunction, can be breached and have a finite structure life. Therefore, there is a residual risk of tidal flooding. The condition of the defences is good to fair therefore; it is unlikely that a breach in the flood defences would occur.

If the flood defences were not there, the area would be flooded. However, an area of land may benefit from the presence of flood defences even if the flood defences are overtopped, the presence of the flood defences means that the floodwater does not extend as far as it would if the flood defences were not there.

Table 6 shows the Environment Agency undefended modelled data for the Site and Table 7 shows the Environment Agency undefended modelled data for the Site, including climate change. Figures 8 to 7 show the Environment Agency undefended modelled flood outlines. This data have been used to assess the tidal flood risk at the Site in detail. Nodes 6, 13 - 16 and 21 - 23 are located on the Site

The Site will not be inundated with floodwater for all events up to and including the undefended 1 in 200 year (+370mm) and 1 in 1000 year events. The Site will be flood free during the undefended 1 in 200 year (+370mm) and 1 in 1000 year events. During the undefended 1 in 200 year (+970mm) event the Site may be inundated with floodwater to a depth of 0.36m.

Table 6 - Environment Agency Undefended Modelled Data

Node Label	Easting	Northing	Return Period (years)							
			75		100		200		1000	
			Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)
1	330697	434937	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
2	330704	434937	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
3	330711	434937	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
4	330690	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
5	330697	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
6	330704	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
7	330711	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
8	330718	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
9	330725	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
10	330732	434944	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
11	330690	434951	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
12	330697	434951	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
13	330704	434951	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
14	330711	434951	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
15	330718	434951	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
16	330725	434951	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
17	330732	434951	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
18	330690	434958	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
19	330697	434958	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

20	330704	434958	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
21	330711	434958	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
22	330718	434958	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
23	330725	434958	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
24	330732	434958	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
25	330704	434965	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
26	330711	434965	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
27	330718	434965	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
28	330725	434965	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data
29	330732	434965	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

Cells which contain text 'No Data' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

Table 7 - Environment Agency Undefended Modelled Climate Change Data

Node Label	Easting	Northing	Return Period (years)					
			200 (+370mm)		200 (+670mm)		200 (+970mm)	
			Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)	Depth (m)	Level (mAOD)
1	330697	434937	No Data	No Data	0.06	6.72	0.29	6.95
2	330704	434937	No Data	No Data	0.03	6.71	0.31	6.94
3	330711	434937	No Data	No Data	No Data	No Data	0.07	6.80
4	330690	434944	No Data	No Data	0.05	6.75	0.22	6.95
5	330697	434944	No Data	No Data	0.06	6.69	0.33	6.96
6	330704	434944	No Data	No Data	No Data	No Data	0.17	6.97
7	330711	434944	No Data	No Data	No Data	No Data	0.09	6.74
8	330718	434944	No Data	No Data	No Data	No Data	0.39	6.64
9	330725	434944	No Data	No Data	No Data	No Data	0.60	6.64
10	330732	434944	No Data	No Data	0.01	6.02	0.67	6.65
11	330690	434951	No Data	No Data	0.03	6.72	0.27	6.95
12	330697	434951	No Data	No Data	0.09	6.64	0.41	6.95
13	330704	434951	No Data	No Data	0.08	6.62	0.47	6.95
14	330711	434951	No Data	No Data	No Data	No Data	0.15	6.77
15	330718	434951	No Data	No Data	No Data	No Data	0.17	6.66
16	330725	434951	No Data	No Data	No Data	No Data	0.28	6.63
17	330732	434951	No Data	No Data	0.18	6.06	0.85	6.63
18	330690	434958	No Data	No Data	0.07	6.72	0.31	6.95
19	330697	434958	No Data	No Data	0.08	6.63	0.39	6.92
20	330704	434958	No Data	No Data	0.10	6.57	0.41	6.88
21	330711	434958	No Data	No Data	0.10	6.54	0.36	6.78
22	330718	434958	No Data	No Data	No Data	No Data	0.24	6.71
23	330725	434958	No Data	No Data	No Data	No Data	0.19	6.65
24	330732	434958	No Data	No Data	0.61	6.14	1.23	6.62
25	330704	434965	No Data	No Data	0.10	6.62	0.22	6.83
26	330711	434965	No Data	No Data	0.14	6.55	0.30	6.75

27	330718	434965	No Data	No Data	0.10	6.45	0.38	6.72
28	330725	434965	No Data	No Data	0.12	6.43	0.37	6.67
29	330732	434965	No Data	No Data	0.04	6.33	0.35	6.64

Cells which contain text 'No Data' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

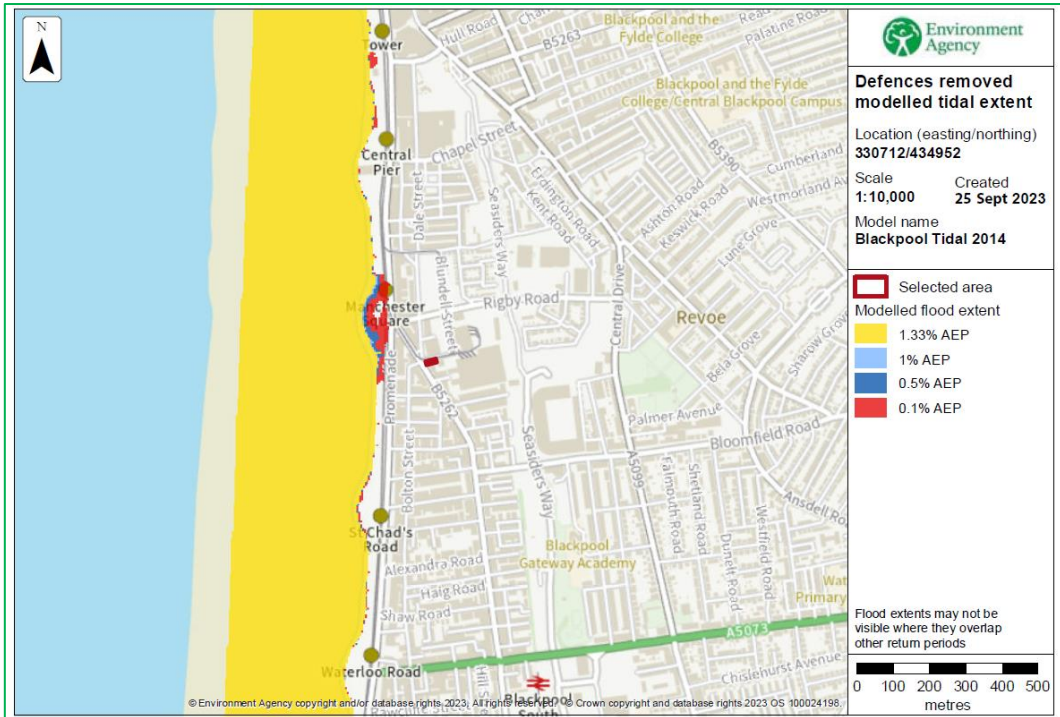


Figure 8 - Environment Agency Undefended Modelled Flood Outlines

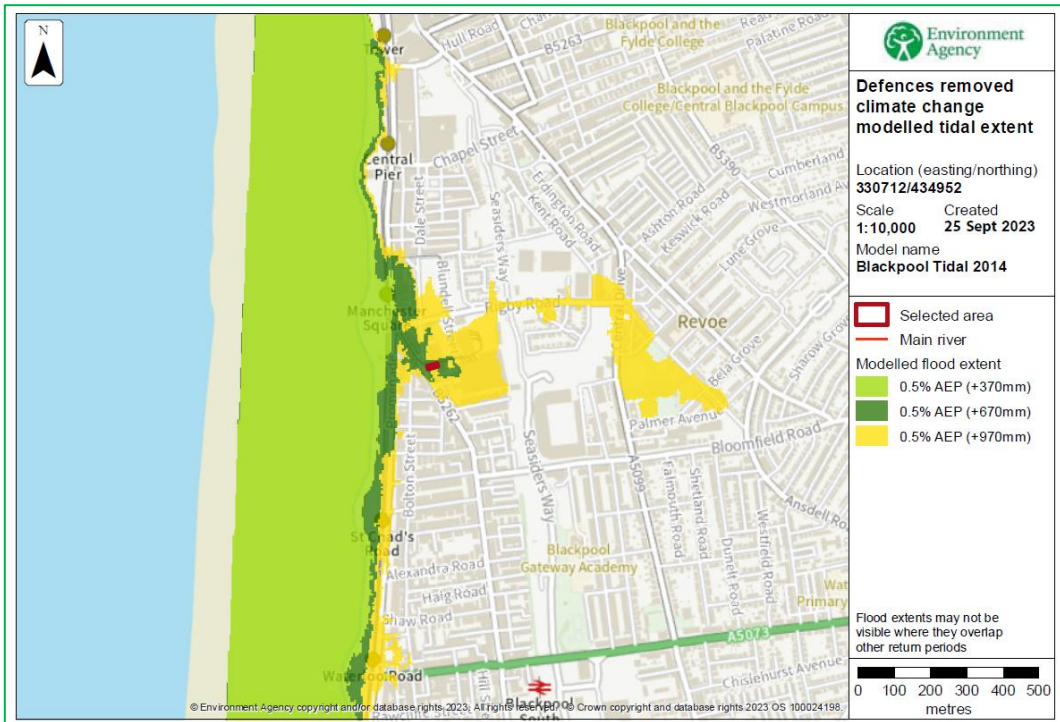


Figure 9 - Environment Agency Undefended Modelled Climate Change Flood Outlines

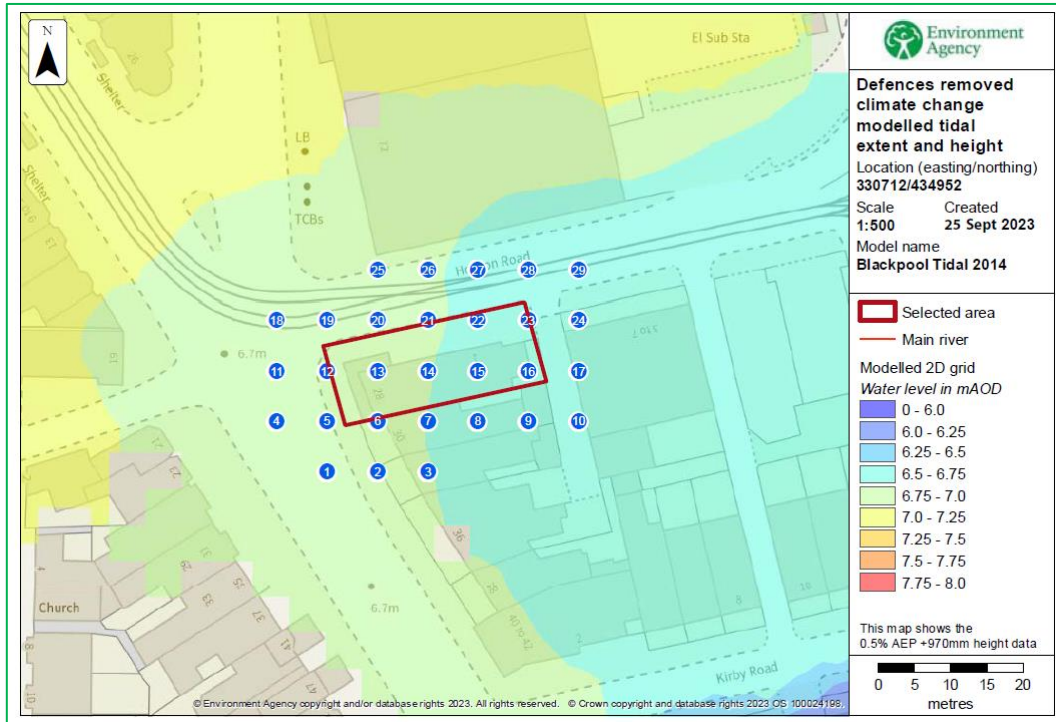


Figure 10 - Environment Agency Undefended Modelled 1 in 200 Year (+970mm) Event

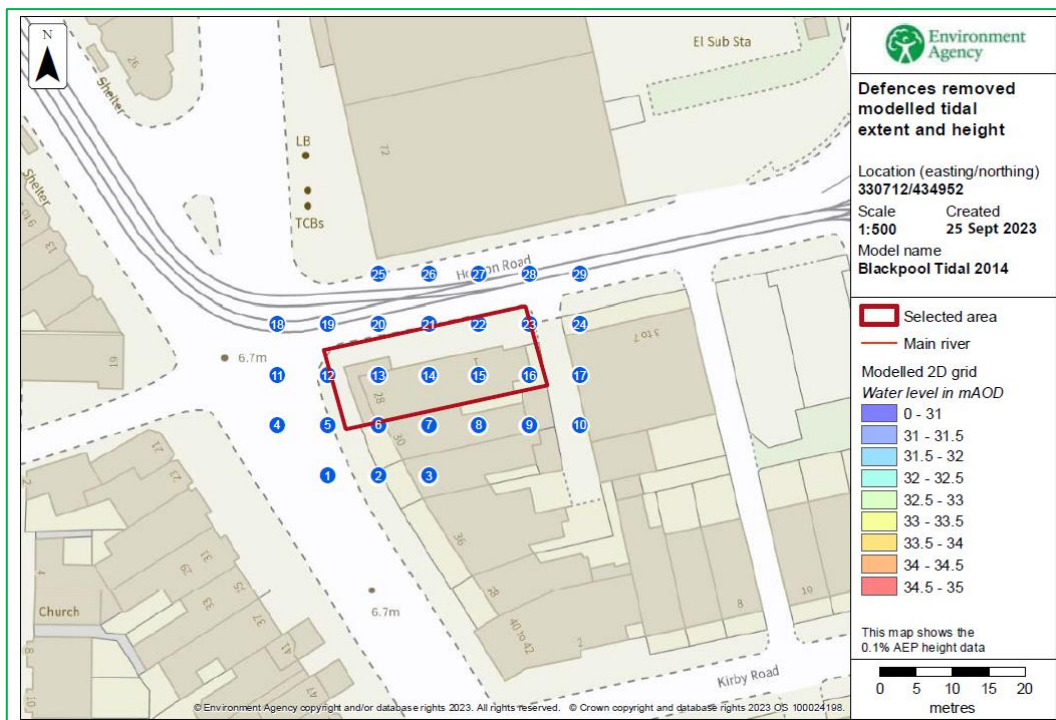


Figure 11 - Environment Agency Undefended Modelled 1 in 1000 Year Event

Given the scale and nature of the Proposed Development and the size and location of the tidal flooding sources it has been concluded that tidal flooding poses a low flood risk to the Site. Therefore, the risk of fluvial flooding is considered to be of **medium significance**. The risk of

tidal flooding will be further managed and mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site (see Section 5.0).

3.10 Groundwater Flooding

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

Groundwater flooding tends to occur sporadically in both location and time. When groundwater flooding does occur, it tends to mostly affect low-lying areas, below surface infrastructure and buildings (for example, tunnels, basements and car parks) underlain by permeable rocks (aquifers). Site ground conditions suggest a low potential for groundwater flooding.

The Blackpool Council SFRA confirms that *“there are no identified flood risks relating to ground water flooding and no historical evidence of ground water flooding has been identified in Blackpool as confirmed by the Environment Agencies Groundwater flooding scoping study.”*

The risk of flooding from groundwater flooding is considered to be **not significant**.

3.11 Surface Water (Pluvial) Flooding

The Site is not situated near to large areas of poor permeability and the soil conditions at the Site and within the vicinity of the Site indicate that the Site would not be at risk of surface water flooding. Surface water flooding tends to occur sporadically in both location and time such surface water would tend to be confined to the streets around the development.

The Environment Agency Surface Water flood map (see Figure 12) shows that the Site has a very low risk of surface water flooding with an annual probability of flooding of less than 1 in 1000 (0.1%) years. Given the scale and nature of the Proposed Development and the size and location of the surface water flooding sources it has been concluded that surface water flooding poses a low flood risk to the Site and the risk of surface water flooding is considered to be **not significant**.

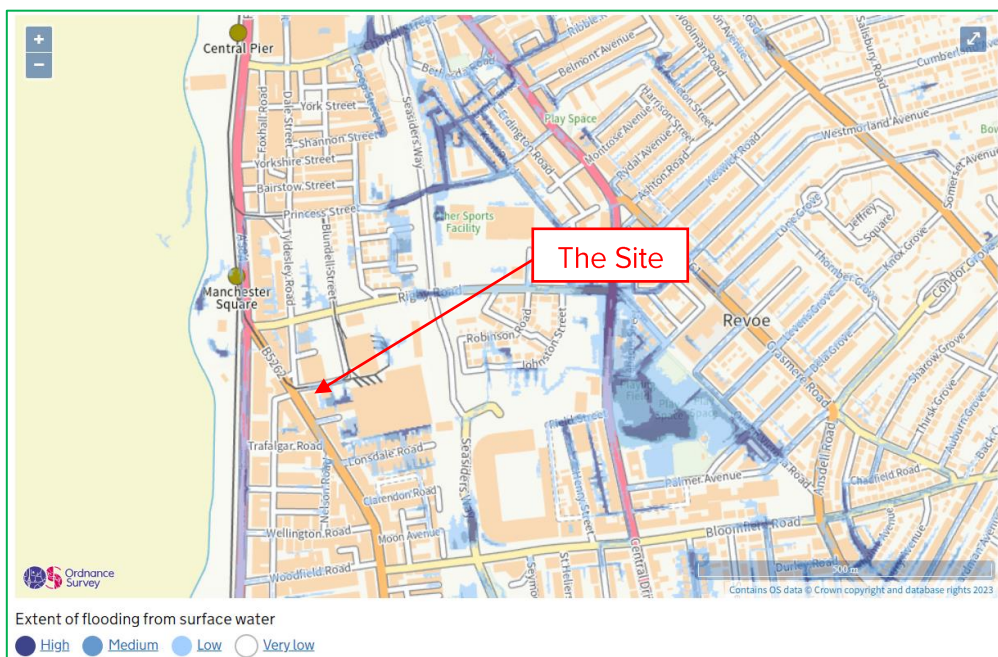


Figure 12 - Environment Agency Surface Water Flood Map

3.12 Sewer Flooding

Sewer flooding occurs when urban drainage networks become overwhelmed and maximum capacity is reached. This can occur if there is a blockage in the network causing water to back up behind it or if the sheer volume of water draining into the system is too great to be handled. Sewer flooding tends to occur sporadically in both location and time such flood flows would tend to be confined to the streets around the development.

There are existing sewers located within the vicinity of the Site and these will inevitably have a limited capacity so in extreme conditions there would be surcharges, which may in turn cause flooding. Flood flows could also be generated by burst water mains, but these would tend to be of a restricted and much lower volume than weather generated events and so can be discounted for the purposes of this assessment.

Given the design parameters normally used for drainage design in recent times and allowing for some deterioration in the performance of the installed systems, which are likely to have been in place for many years, an appropriate flood risk probability from this source could be assumed to have a return period in the order of 1 in 10 to 1 in 20 years. The provision of adequate level difference between the ground floors and adjacent ground level would reduce the annual probability of damage to property from this source to 1 in 100 years or less. Therefore, the risk of flooding from sewer flooding is considered to be **not significant**.

3.13 Flooding from Artificial Drainage Systems/Infrastructure Failure

The Environment Agency Reservoir flood map shows that the Site is not at risk of reservoir flooding (see Figure 13). There are no other nearby artificial water bodies, reservoirs, water channels and artificial drainage systems that could be considered a flood risk to the Site. The risk of flooding from artificial drainage systems/infrastructure failure is considered to be **not significant**.

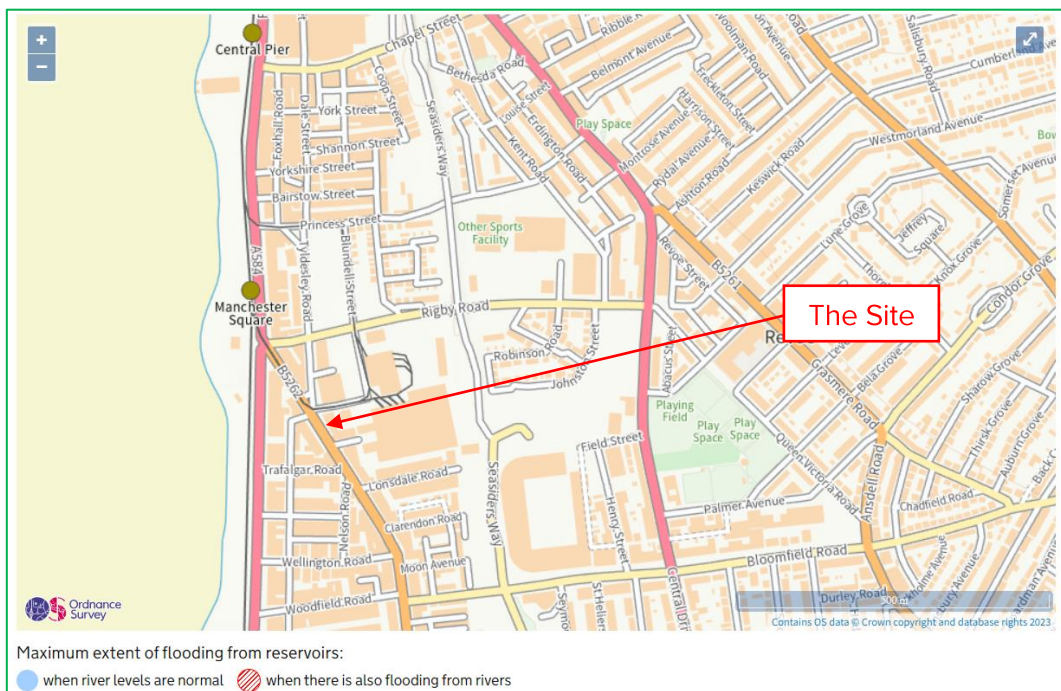


Figure 13 - Environment Agency Reservoir Flood Map

3.14 Impact of the Proposed Development on Flood Risk

The building is existing therefore, the overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. The Proposed Development will have no impact on flood risk.

3.15 Summary of Site Specific Flood Risk

A summary of the sources of flooding and a review of the risk posed by each source at the Site is shown in Table 8.

Table 8 - Risk Posed by Flooding Sources

Sources of Flooding	Potential Flood Risk	Potential Source	Probability/Significance
Fluvial Flooding	No	None Reported	None
Tidal Flooding	Yes	North Sea	Medium
Groundwater Flooding	No	None Reported	None
Surface Water Flooding	Yes	None Reported	None
Sewer Flooding	Yes	None Reported	None
Flooding from Artificial Drainage Systems/Infrastructure Failure	No	None Reported	None

The Site is unlikely to flood except in extreme conditions, the primary, but unlikely, flood risk posed to the Site is from tidal flooding from the Irish Sea. The Environment Agency's Flood Zones indicates that the Site is located within Flood Zone 3 and therefore has a 'high probability' of flooding with a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. The Site is located on the very edge of Flood Zone 3 with large areas immediately adjacent to the Site being located within Flood Zone 1 with less than 1 in 1000 annual probability of sea flooding in any year (<0.1%). However, the Site is protected against flooding by existing flood defence measures.

The existing and proposed use is classified as 'more vulnerable'. The existing Site consists of 2 residential flats. It is understood the Proposed Development is for a change of use into 2 holiday let flats. There are no proposed changes to the building internally or externally. The Proposed Development will not change the vulnerability of the Site and will not introduce a new 'more vulnerable' development into the floodplain. 'More vulnerable' uses are appropriate within Flood Zone 3 after the completion of a satisfactory FRA.

Actual Risk

Flood defence measures provide protection against fluvial flooding and reduce the flood risk to the Site. The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the defended 1 in 75 year event. The Site will be flood free during the defended 1 in 75 year event. During the defended 1 in 200 year event the Site may be inundated with floodwater to a depth of 0.06m, during the defended 1 in 200 year (+970mm) event the Site may be inundated with floodwater to a depth of 0.21m and during the defended 1 in 1000 year event the Site may be inundated with floodwater to a depth of 0.17m.

Residual Risk

The flood defences can only protect up to a point, they may malfunction, can be breached and have a finite structure life. Therefore, there is a residual risk of fluvial flooding. The Environment

Agency data shows that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 200 year (+370mm) and 1 in 1000 year events. The Site will be flood free during the undefended 1 in 200 year (+370mm) and 1 in 1000 year events. During the undefended 1 in 200 year (+970mm) event the Site may be inundated with floodwater to a depth of 0.36m.

Given the scale and nature of the Proposed Development and the size and location of the tidal flooding sources it has been concluded that tidal flooding poses a low flood risk to the Site. Therefore, the risk of fluvial flooding is considered to be of **medium significance**. The risk from all flooding sources will be further managed and mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site (see Section 5.0).

The building is existing therefore, the overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. The Proposed Development will have no impact on flood risk.

4.0 SURFACE WATER DRAINAGE

4.1 Surface Water Management Overview

It is recognised that consideration of flood issues should not be confined to the floodplain. The alteration of natural surface water flow patterns through developments can lead to problems elsewhere in the catchment, particularly flooding downstream. For example, replacing vegetated areas with roofs, roads and other paved areas can increase both the total and the peak flow of surface water runoff from the Site. Changes of land use on previously developed land can also have significant downstream impacts where the existing drainage system may not have sufficient capacity for the additional drainage.

An assessment of the surface water runoff rates has been undertaken, in order to determine the surface water options and attenuation requirements for the Site. The assessment considers the impact of the proposals compared to current conditions. Therefore, the surface water attenuation requirement for the developed Site can be determined and reviewed against existing arrangements.

The surface water drainage arrangements for any development site should be such that the volumes and peak flow rates of surface water leaving a developed site are no greater than the rates prior to the Proposed Development unless specific off-site arrangements are made and result in the same net effect.

4.2 Surface Water Runoff

The pre-application Site is constructed from impermeable surfaces. The post-application Site will not increase the impermeable surfaces on the Site. As there is no history of surface water flooding at the Site it is likely that the current drainage system is sufficient for the current and proposed Site use.

The surface water runoff from the developed Site will be no different to pre-and post-application. There will be no increase in surface water runoff or exacerbation of off-site risk as a result of the development.

5.0 RISK MANAGEMENT

5.1 Introduction

The flood risk at this location is considered suitable for 'more vulnerable' developments within the NPPF. In this flood zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development and the use of flood mitigation measures.

The flooding sources will be mitigated on the Site by using a number of techniques, and mitigation strategies to manage and reduce the overall flood risk at the Site. This will ensure the development will be safe and there is:

- Minimal risk to life;
- Minimal disruption to people living and working in the area;
- Minimal potential damage to property;
- Minimal impact of the Proposed Development on flood risk generally; and;
- Minimal disruption to natural heritage.

The flood risk at the Site will be reduced by mitigation measures; these are discussed in more detail below.

5.2 Finished Floor Levels

It is understood that the proposed finished floor level will be set at the existing finished floor levels which are raised considerably above the external ground levels. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further, than those stated above. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site sign up to the Environment Agency's flood warning service and implement a Flood Plan to a safe area away from the building during times of flood.

5.3 Flood Warning

The Site is located in a flood risk area therefore; the Site will participate in the Environment Agency flood warning telephone service. The Site will register contact details with the Environment Agency' Flood Warnings Service, to received Flood Warnings.

The Environment Agency operate a free flood warning service providing alerts by phone, text or email when flooding is anticipated providing an opportunity for owners to take necessary precautions, giving enough time for the building to be safely evacuated and mitigation measures to be put in place.

All occupants of the Site will be made aware of the Environment Agency Floodline telephone number (Call Floodline on 0345 988 1188) and the Flood Warning Codes and their meaning. The owner of the property will carry out the role of Flood Warden for the Site and ensure they have an understanding of the flood mechanisms of the Site and will ensure that the safety of the occupants and visitors will not be compromised.

The Environment Agency uses Flood Warnings Codes. They can be issued in any order, usually ending with an 'all clear'. They are issued by the Environment Agency through their website

and Floodline. The flood warning will be passed onto the visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

5.4 Flood Plan

A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed. Sensible precautions would include raising electrical items, irreplaceable items and sentimental items off the ground or where possible moving them to a higher level, rolling up carpets and rugs and turning off utilities. In addition, consider what actions you would take should the property need to be evacuated including access and egress routes and preparing a flood kit in advance containing warm clothing, medication, a torch, food and wellingtons.

The Flood Plan is a 'living' document and therefore should be periodically reviewed and updated to provide advice and guidance to occupants in the event of an extreme flood. The Flood Plan will therefore reduce the vulnerability of the occupants to flooding and makes them aware of the mechanisms of flooding at the Site.

Residual Risk

If flooding starts to affect the Site without any pre-warning i.e. in real time (e.g. through a failure of the flood warning delivery) the following actions will be taken:

- Occupants and visitors should consider evacuating the Site.
- If flood levels continue to rise, occupants and visitors are advised to evacuate before safe access is lost. Occupants and visitors should monitor the flood progression and evacuate.

5.5 Safe Access and Egress Route

The NPPF requires that, where required, safe access and escape is available to/from new developments in flood risk areas. Access routes should be such that occupants can safely access and exit their houses in design flood conditions. These routes must also provide the emergency services with access to the development during a flood event and enable flood defence authorities to carry out any necessary duties during the period of flood.

A safe access and egress route, including emergency access can be maintained for vehicles and/or by foot. The Site is at such a ground level that it would only flood in the most extreme flood event. The Safe Access and Egress Route shown in Figure 14 indicates the exit route that all people (i.e. occupants and visitors) on site should follow once a flood warning has been received. People should make their way to areas outside of the flood zone.

Facilities such as community centres, shops etc. are located within the vicinity of the Site. There may also be large areas than those shown in Figure 2 that are flood free located nearer and within the vicinity of the Site. In the event of a flood warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site. Therefore, safe access and egress can be maintained in accordance with the NPPF and Environment Agency guidance.

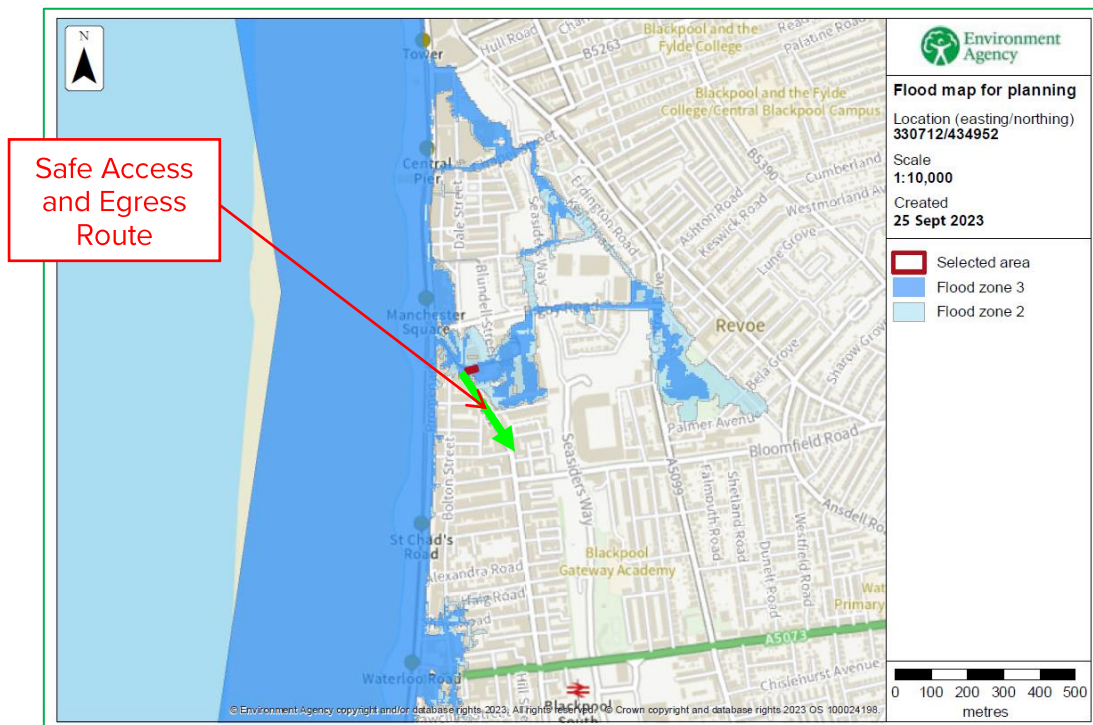


Figure 14 - Safe Access and Egress Route

5.6 Residual Risk

The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable. The Site is unlikely to flood except in extreme conditions. This takes into account the property level protection measures.

6.0 SEQUENTIAL APPROACH

6.1 Sequential / Exception Tests

The risk-based Sequential Test in accordance with the NPPF aims to steer new development to areas at the lowest probability of flooding (i.e. Flood Zone 1). However, paragraph 168 of the NPPF confirms that: *'Applications for some minor development and changes of use⁶ should not be subject to the Sequential or Exception Tests but should still meet the requirements for site-specific flood risk assessments'*.

The development proposals should therefore be considered by the LPA to satisfy the Sequential and Exception Tests as set out in the NPPF.

⁶ This includes householder development, small non-residential extensions (with a footprint of less than 250m²) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate.

7.0 SUMMARY AND CONCLUSIONS

7.1 Introduction

This report presents a FRA in accordance with the NPPF for the Proposed Development at 1 Hopton Road, Blackpool FY1 6EA.

This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

7.2 Flood Risk

The Site is unlikely to flood except in extreme conditions, the primary, but unlikely, flood risk posed to the Site is from tidal flooding from the Irish Sea. The Environment Agency's Flood Zones indicates that the Site is located within Flood Zone 3 and therefore has a 'high probability' of flooding with a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. The Site is located on the very edge of Flood Zone 3 with large areas immediately adjacent to the Site being located within Flood Zone 1 with less than 1 in 1000 annual probability of sea flooding in any year (<0.1%). However, the Site is protected against flooding by existing flood defence measures.

The existing and proposed use is classified as 'more vulnerable'. The existing Site consists of 2 residential flats. It is understood the Proposed Development is for a change of use into 2 holiday let flats. There are no proposed changes to the building internally or externally. The Proposed Development will not change the vulnerability of the Site and will not introduce a new 'more vulnerable' development into the floodplain. 'More vulnerable' uses are appropriate within Flood Zone 3 after the completion of a satisfactory FRA.

Actual Risk

Flood defence measures provide protection against fluvial flooding and reduce the flood risk to the Site. The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the defended 1 in 75 year event. The Site will be flood free during the defended 1 in 75 year event. During the defended 1 in 200 year event the Site may be inundated with floodwater to a depth of 0.06m, during the defended 1 in 200 year (+970mm) event the Site may be inundated with floodwater to a depth of 0.21m and during the defended 1 in 1000 year event the Site may be inundated with floodwater to a depth of 0.17m.

Residual Risk

The flood defences can only protect up to a point, they may malfunction, can be breached and have a finite structure life. Therefore, there is a residual risk of fluvial flooding. The Environment Agency data shows that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 200 year (+370mm) and 1 in 1000 year events. The Site will be flood free during the undefended 1 in 200 year (+370mm) and 1 in 1000 year events. During the undefended 1 in 200 year (+970mm) event the Site may be inundated with floodwater to a depth of 0.36m.

Given the scale and nature of the Proposed Development and the size and location of the tidal flooding sources it has been concluded that tidal flooding poses a low flood risk to the Site. Therefore, the risk of fluvial flooding is considered to be of **medium significance**. The risk from all flooding sources will be further managed and mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the Site.

The building is existing therefore, the overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. The Proposed Development will have no impact on flood risk.

7.3 Surface Water Drainage

The pre-application Site is constructed from impermeable surfaces. The post-application Site will not increase the impermeable surfaces on the Site. As there is no history of surface water flooding at the Site it is likely that the current drainage system is sufficient for the current and proposed Site use.

The surface water runoff from the developed Site will be no different to pre-and post-application. There will be no increase in surface water runoff or exacerbation of off-site risk as a result of the development.

7.4 Risk Management

The flood risk at the Site will be reduced by mitigation measures, discussed below.

Finished Floor Levels: It is understood that the proposed finished floor level will be set at the existing finished floor levels which are raised considerably above the external ground levels. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further, than those stated above. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site sign up to the Environment Agency's flood warning service and implement a Flood Plan to a safe area away from the building during times of flood.

Flood Warning: The Site is located in a flood risk area therefore; the Site will participate in the Environment Agency flood warning telephone service. The Site will register contact details with the Environment Agency' Flood Warnings Service, to received Flood Warnings.

Flood Plan: A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed.

Safe Access and Egress Route: A safe access and egress route, including emergency access can be maintained for vehicles and/or by foot. The Site is at such a ground level that it would only flood in the most extreme flood event. The Safe Access and Egress Route indicates the exit route that all people (i.e. occupants and visitors) on site should follow once a flood warning has been received. People should make their way to areas outside of the flood zone.

Facilities such as community centres, shops etc. are located within the vicinity of the Site. In the event of a flood warning, vital belongings, including waterproof clothing, necessary medication and essentials for infants and children will be collected. It should be ensured that all occupiers and visitors to the Site are accounted for, and then exit the Site. Therefore, safe access and egress can be maintained in accordance with the NPPF and Environment Agency guidance.

7.5 Sequential Approach

The development proposals should be considered by the LPA to satisfy the Sequential and Exception Tests as set out in the NPPF.

7.6 Conclusion

In conclusion, the Proposed Development would be expected to remain dry in all but the most extreme conditions. The Site is unlikely to flood except in extreme conditions. Providing the recommendations made in this FRA are instigated, flood risk from all sources would be minimised, the consequences of flooding are acceptable, and the development would be in accordance with the requirements of the NPPF.

This FRA demonstrates that the Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF. The development should not therefore be precluded on the grounds of flood risk.



APPENDICES

APPENDIX 1 – Existing and Proposed Site Layout

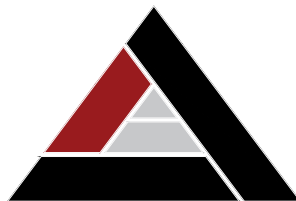
CLIENT:

BLACKPOOL ESTATES LTD

PROJECT:

FLATS PROJECT

EXISTING DRAWINGS

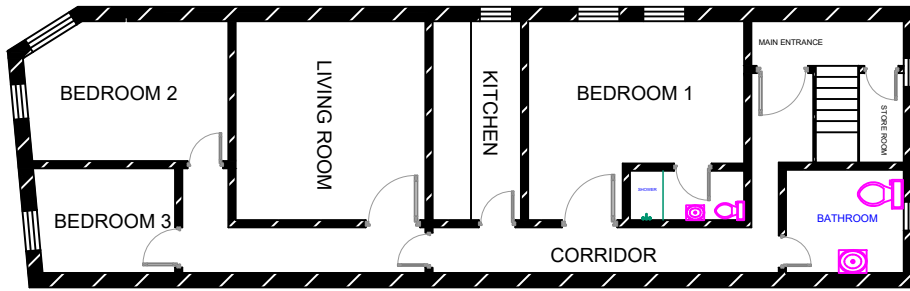


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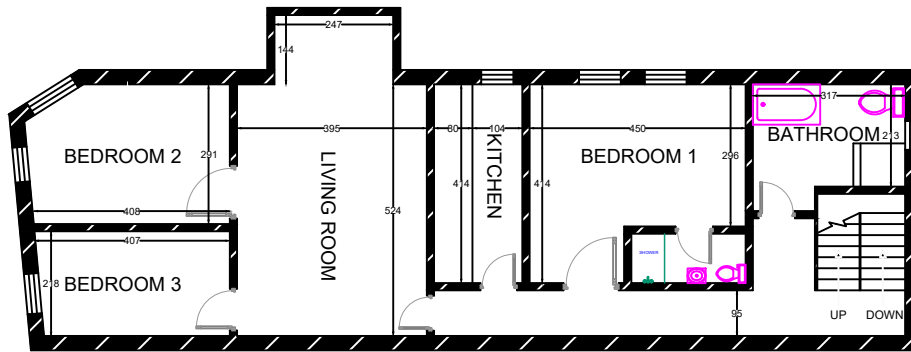
DESIGNING YOUR DREAMS

ARCHITECTURE | INTERIOR DESIGN | CONSTRUCTION
PLANNING | DESIGN | LANDSCAPE

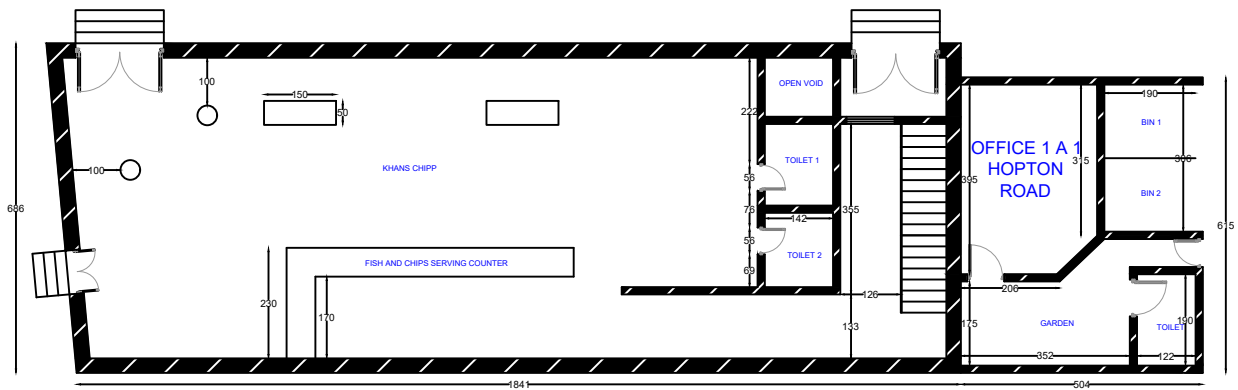
DesignArchStudio48@gmail.com@gmail.com



FLAT 2 EXISTING

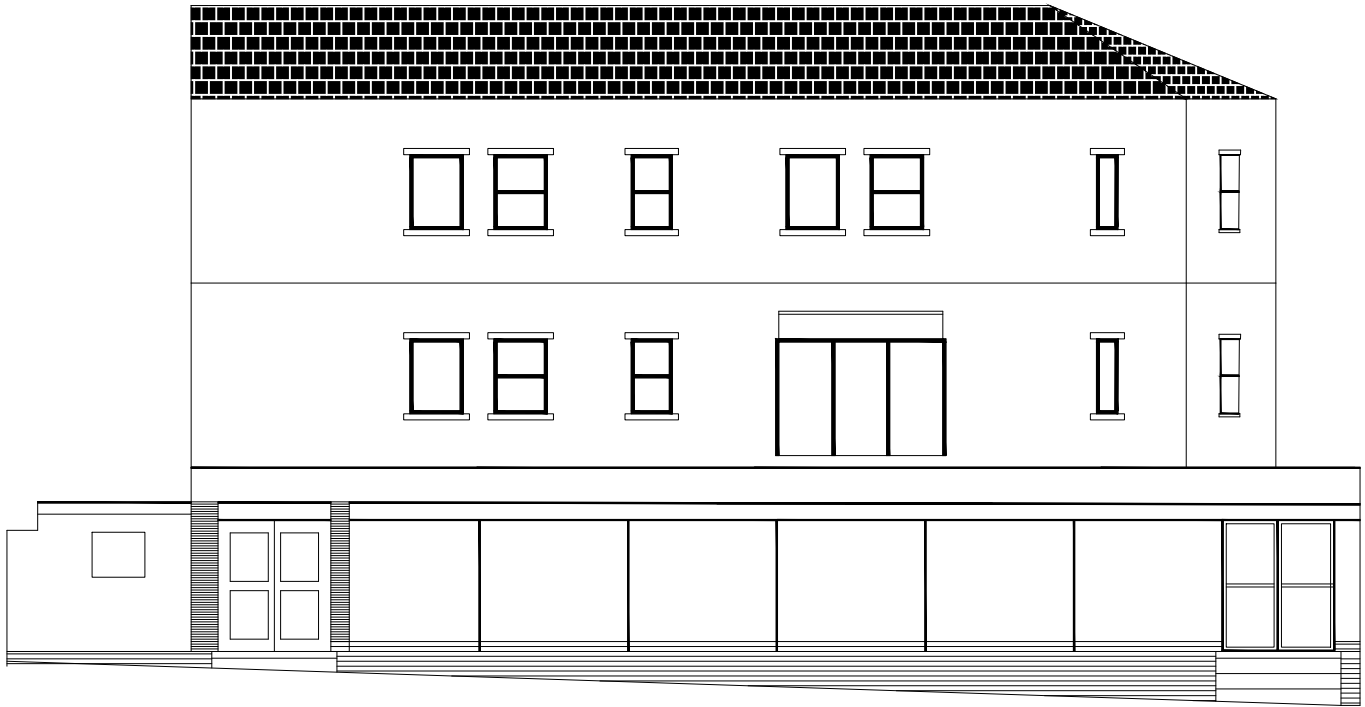


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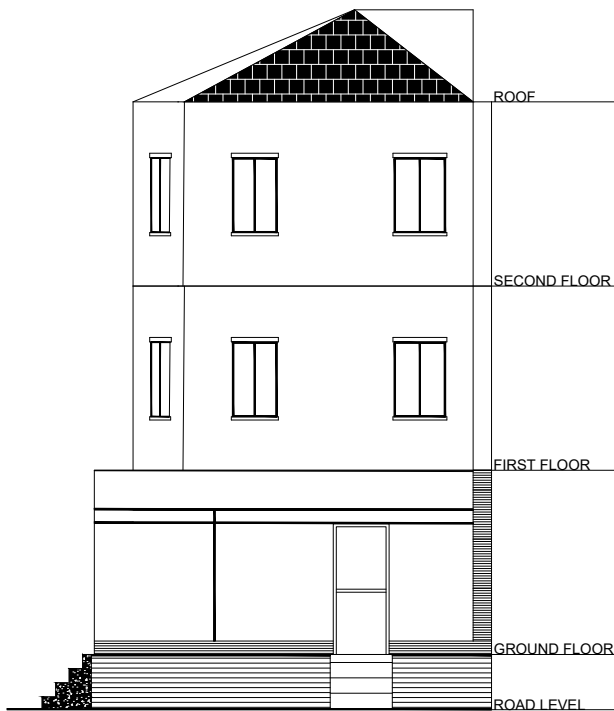


GROUND FLOOR COMMERCIAL

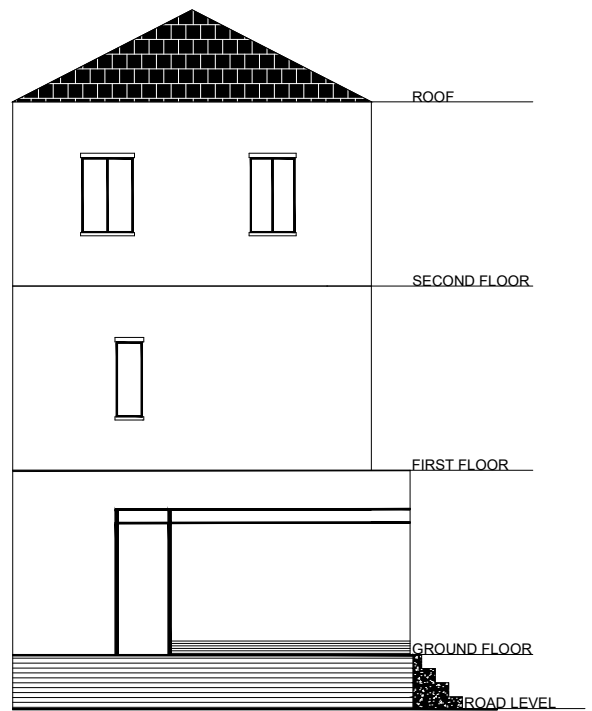
ALQADRIAH ARCHITACTS DESIGNING YOUR DREAMS ARCHITECTURE & INTERIOR DESIGN Email : DesignArchStudio48@gmail	CLIENT	ARCHITECT	SITE AREA: 112.5 SQMT	Date	Scale
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	DRAWING TITLE			Job Sheet No	Project No
	RESIDENCE FLATS			CA-05	MHA-9



HOPTON ROAD ELEVATION



MAIN ST. ELEVATION



REAR ELEVATION

ALQADRIAH ARCHITACTS DESIGNING YOUR DREAMS ARCHITECTURE & INTERIOR DESIGN Email : DesignArchStudio48@gmail	CLIENT BLACKPOOL ESTATES LTD	ARCHITECT MUHAMMAD HAMMAD AHMAD	SITE AREA: 112.5 SQMT	Date	Scale
	PROJECT RESIDENCE			17-8-23	1:100
	DRAWING TITLE FLATS			Job Sheet No	Project No
				CA-005	MHA-9

CLIENT:

BLACKPOOL ESTATES LTD

PROJECT:

FLATS PROJECT

PROPOSED DRAWINGS

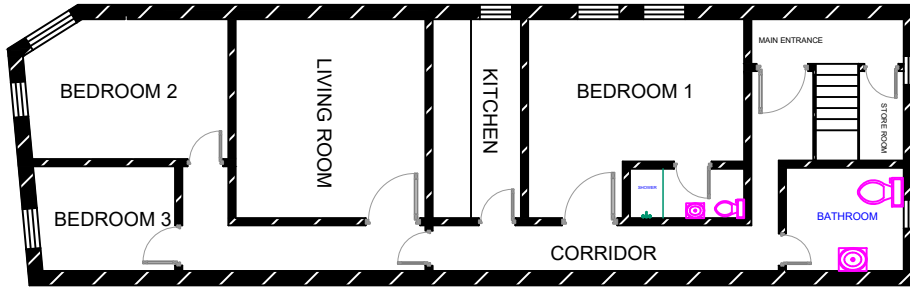


ALQADRIAH ARCHITACTS

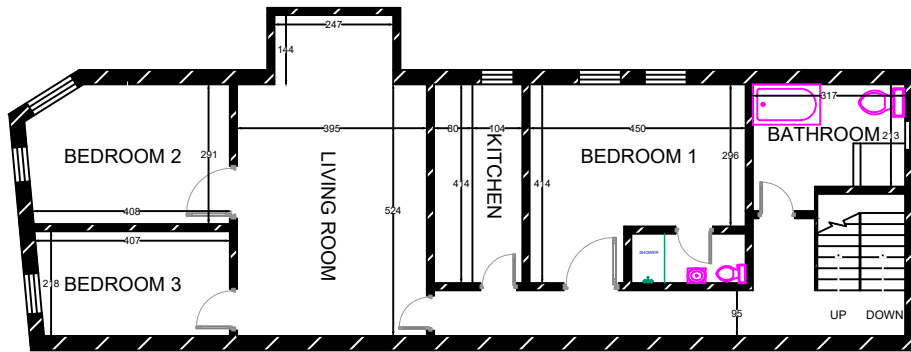
DESIGNING YOUR DREAMS

ARCHITECTURE | INTERIOR DESIGN | CONSTRUCTION
PLANNING | DESIGN | LANDSCAPE

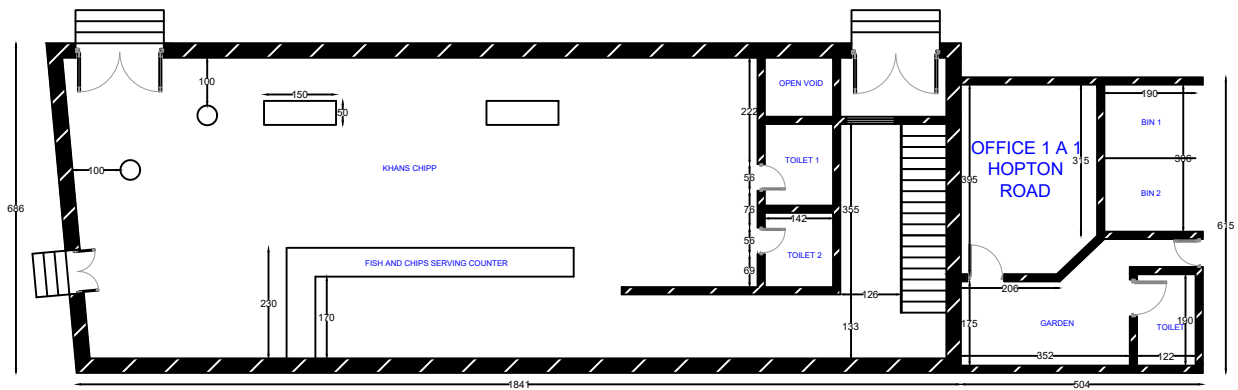
DesignArchStudio48@gmail.com@gmail.com



FLAT 2 PROPOSED

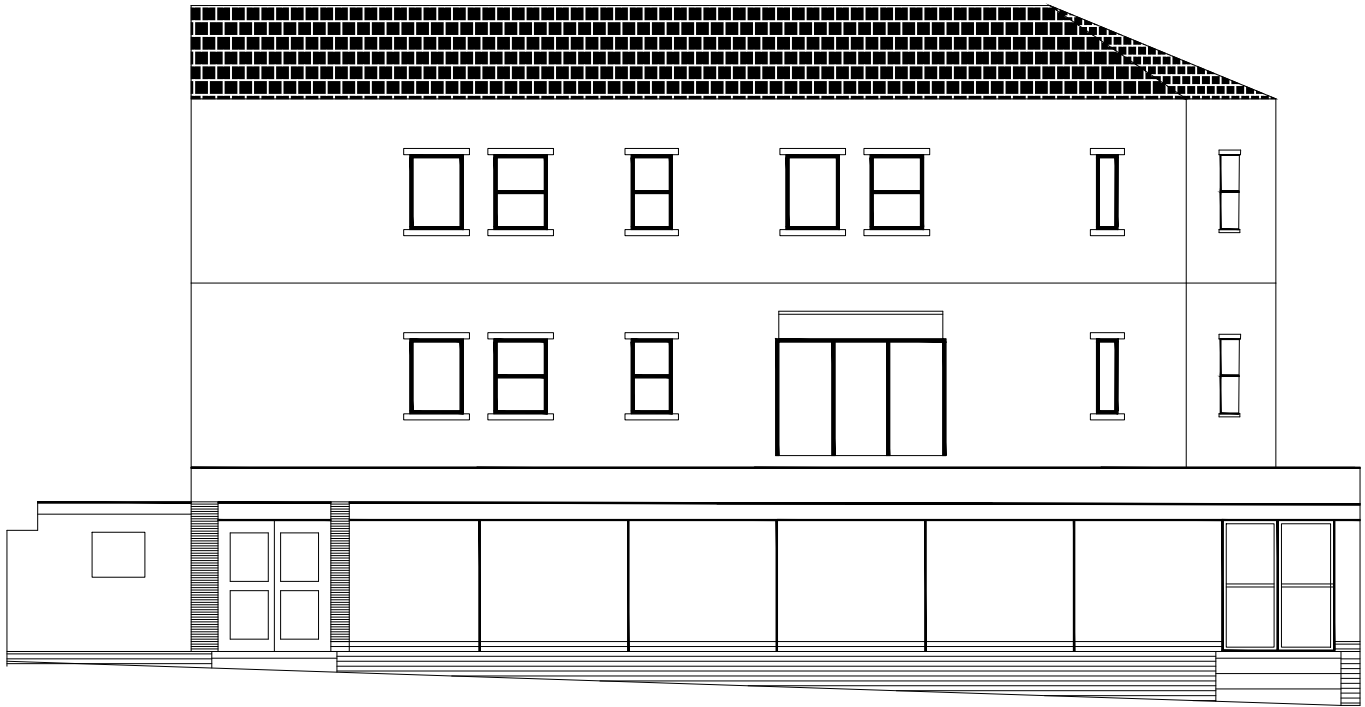


FLAT 1 PROPOSED

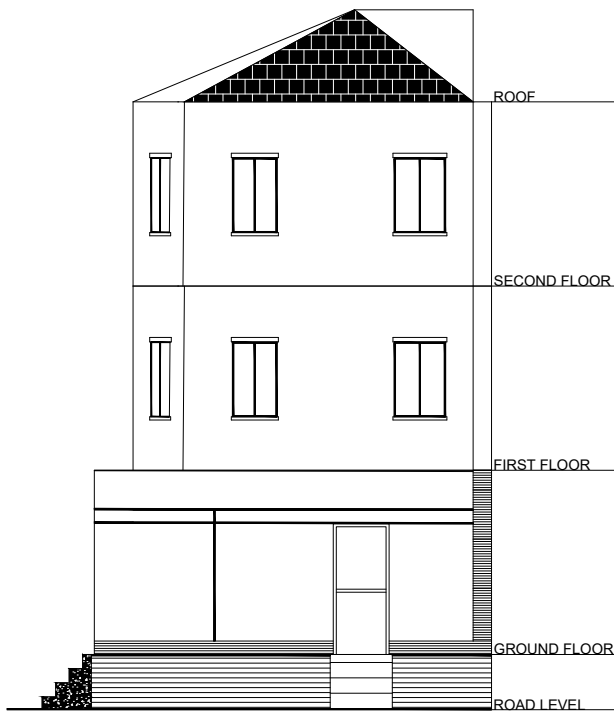


GROUND FLOOR COMMERCIAL

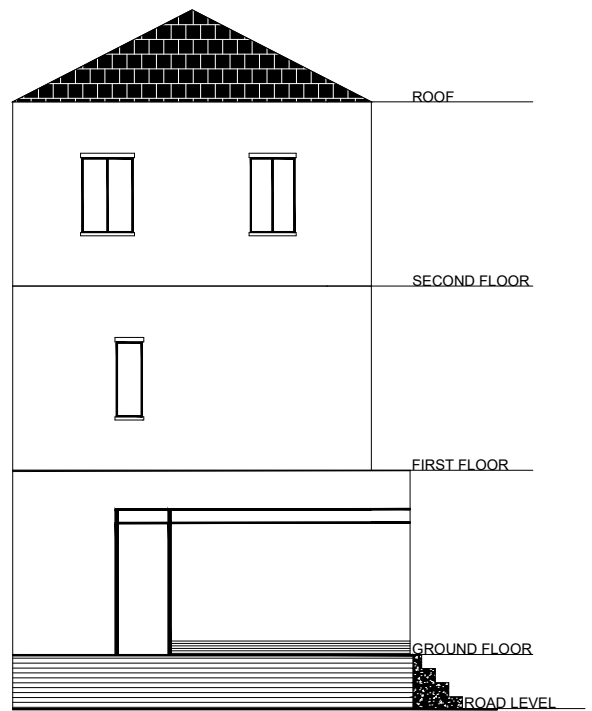
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	PROJECT	MUHAMMAD HAMMAD AHMAD		17-8-23	1:100
	DRAWING TITLE:			Job Sheet No	Project No
	RESIDENCE FLATS			CA-05	MHA-9



HOPTON ROAD ELEVATION



MAIN ST. ELEVATION



REAR ELEVATION

ALQADRIAH ARCHITACTS DESIGNING YOUR DREAMS ARCHITECTURE & INTERIOR DESIGN Email : DesignArchStudio48@gmail	CLIENT BLACKPOOL ESTATES LTD	ARCHITECT MUHAMMAD HAMMAD AHMAD	SITE AREA: 112.5 SQMT	Date 17-8-23	Scale 1:100
	PROJECT RESIDENCE			Job Sheet No CA-005	Project No MHA-9
	DRAWING TITLE FLATS				



APPENDIX 2 – Environment Agency Correspondence

Flood risk assessment data

Location of site: 330712 / 434952 (shown as easting and northing coordinates) **Document created on:** 25 September 2023
This information was previously known as a product 4.
Customer reference number: FB4NB46AT67X

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



How to use this information

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

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

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- historic flooding
- modelled data
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Not included in this document

This document does not include a Flood Defence Breach Hazard Map.

If your location has a reduced flood risk from rivers and sea because of defences, you need to request a Flood Defence Breach Hazard Map and information about the level of flood protection offered at your location from the Cumbria and Lancashire Environment Agency team at inforequests.cmlnc@environment-agency.gov.uk. This information will only be available if modelling has been carried out for breach scenarios.

Include a site location map in your request.

Information that's unavailable

This document **does not** contain:

- flood defences and attributes

We aren't able to display flood defence locations and attributes as there are no formal flood defences in the area of interest.

Surface water and other sources of flooding

Use the [long term flood risk service](#) to find out about the risk of flooding from:

- surface water
- ordinary watercourses
- reservoirs

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

About the models used

Model name: Blackpool_Tidal 2014

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

Date: 30 July 2014

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

Terminology used

Annual exceedance probability (AEP)

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

Metres above ordnance datum (mAOD)

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

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

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

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

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

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

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

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

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






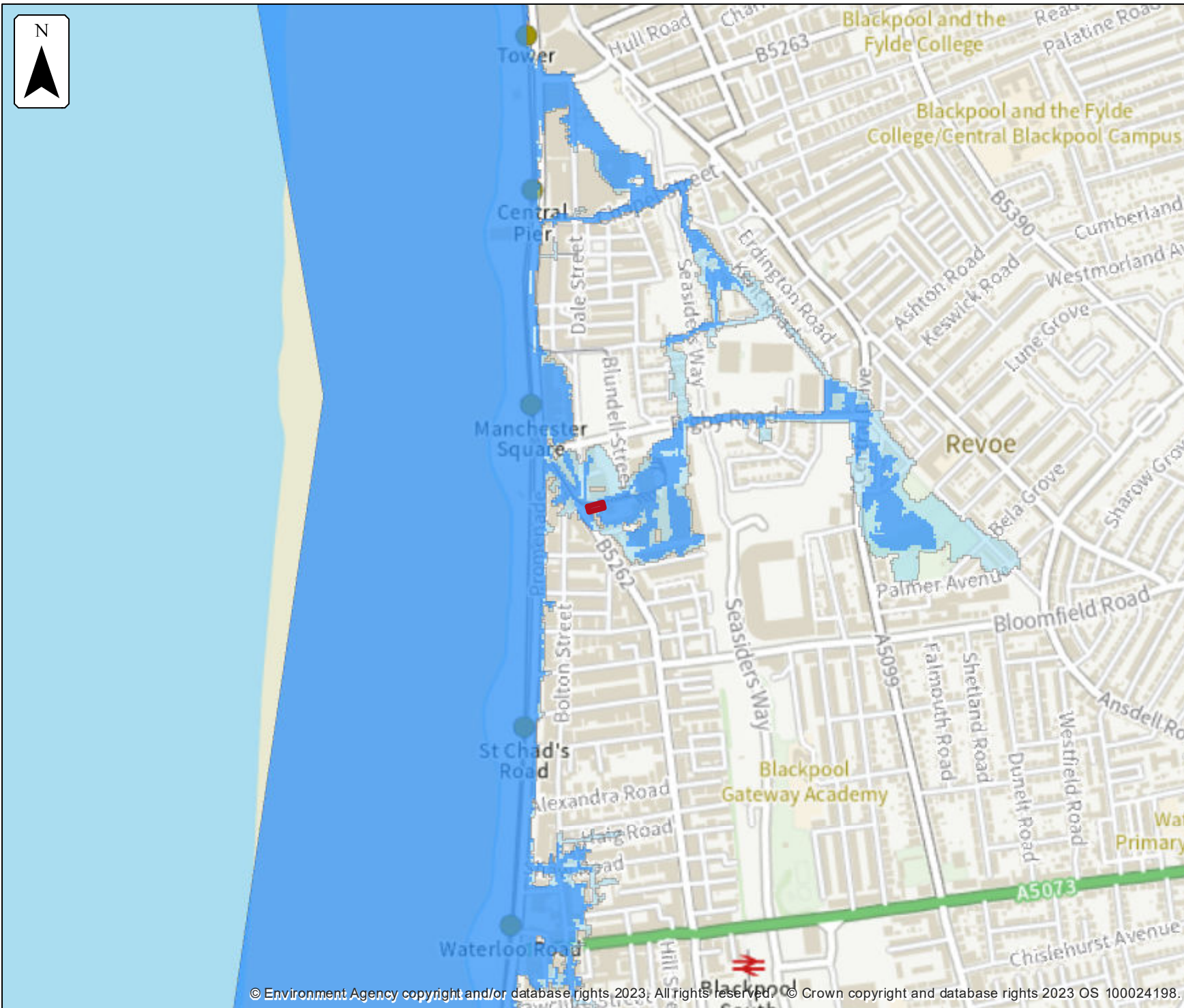
Flood map for planning

Location (easting/northing)
330712/434952

Scale
1:10,000

Created
25 Sept 2023

-  Selected area
-  Flood zone 3
-  Flood zone 2



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Historic flooding

This map is an indicative outline of areas that have previously flooded. Remember that:

- our records are incomplete, so the information here is based on the best available data
- it is possible not all properties within this area will have flooded
- other flooding may have occurred that we do not have records for
- flooding can come from a range of different sources - we can only supply flood risk data relating to flooding from rivers or the sea

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

[Download recorded flood outlines in GIS format](#)



Historic flood map

Location (easting/northing)
330712/434952


Scale
1:10,000

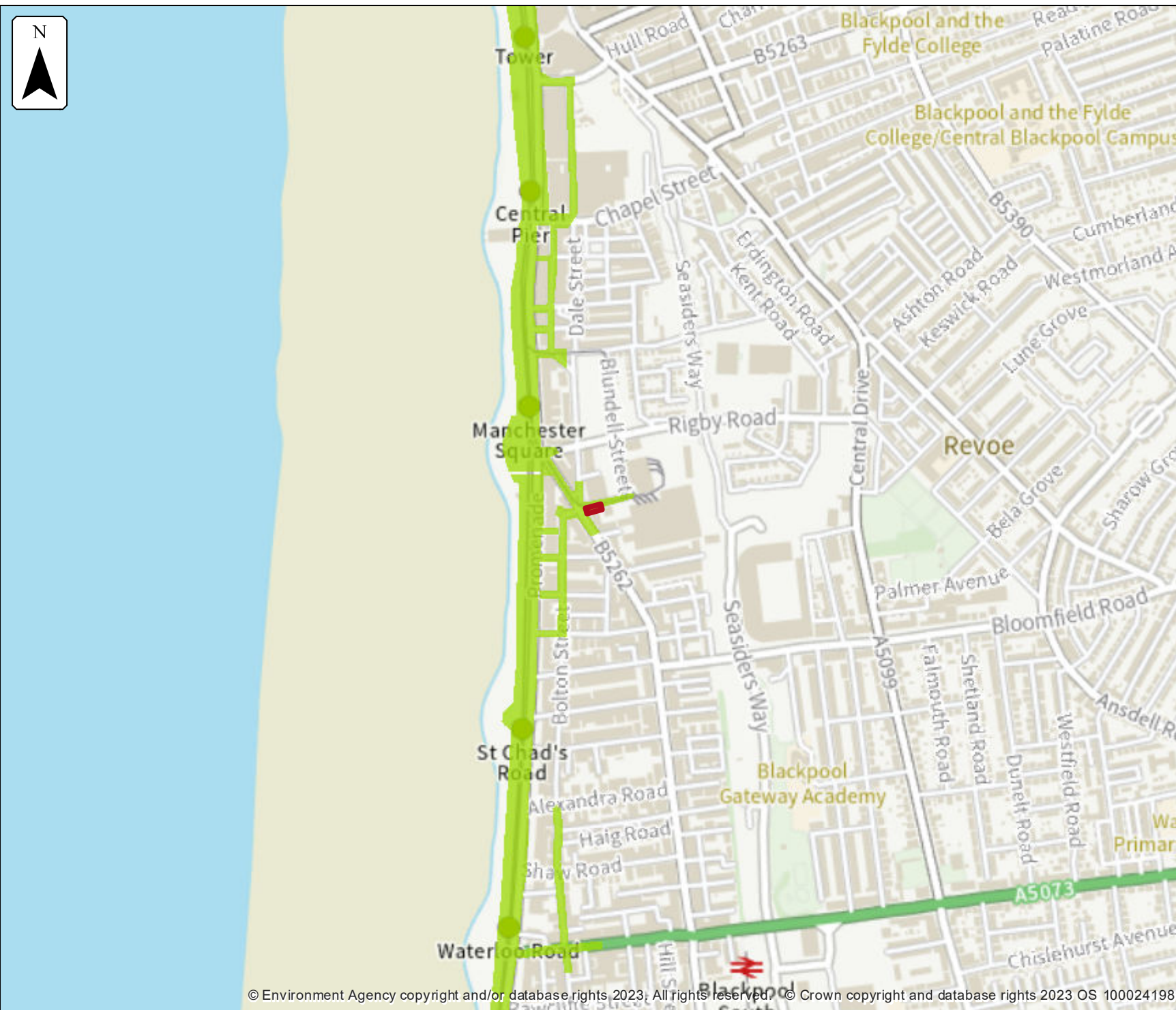
Created
25 Sept 2023

 Selected area

 Main river

Date of flood event

 February, 2002



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Historic flood event data

Start date	End date	Source of flood	Cause of flood	Affects location
1 February 2002	2 February 2002	other	overtopping of defences	Yes

Modelled data

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

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

Climate change

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

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

Modelled scenarios

The following scenarios are included:

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








Defended modelled tidal extent

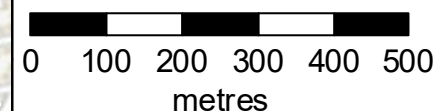
Location (easting/northing)
330712/434952

Scale Created
1:10,000 25 Sept 2023

Model name
Blackpool Tidal 2014

-  Selected area
- Modelled flood extent
 -  1.33% AEP
 -  1% AEP
 -  0.5% AEP
 -  0.1% AEP

Flood extents may not be visible where they overlap other return periods










Defended climate change modelled tidal extent

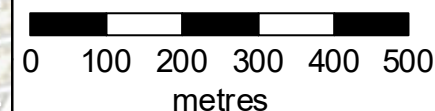
Location (easting/northing)
330712/434952

Scale Created
1:10,000 25 Sept 2023

Model name
Blackpool Tidal 2014

-  Selected area
-  Main river
- Modelled flood extent
 -  0.5% AEP (+370mm)
 -  0.5% AEP (+670mm)
 -  0.5% AEP (+970mm)

Flood extents may not be visible where they overlap other return periods










Defences removed modelled tidal extent

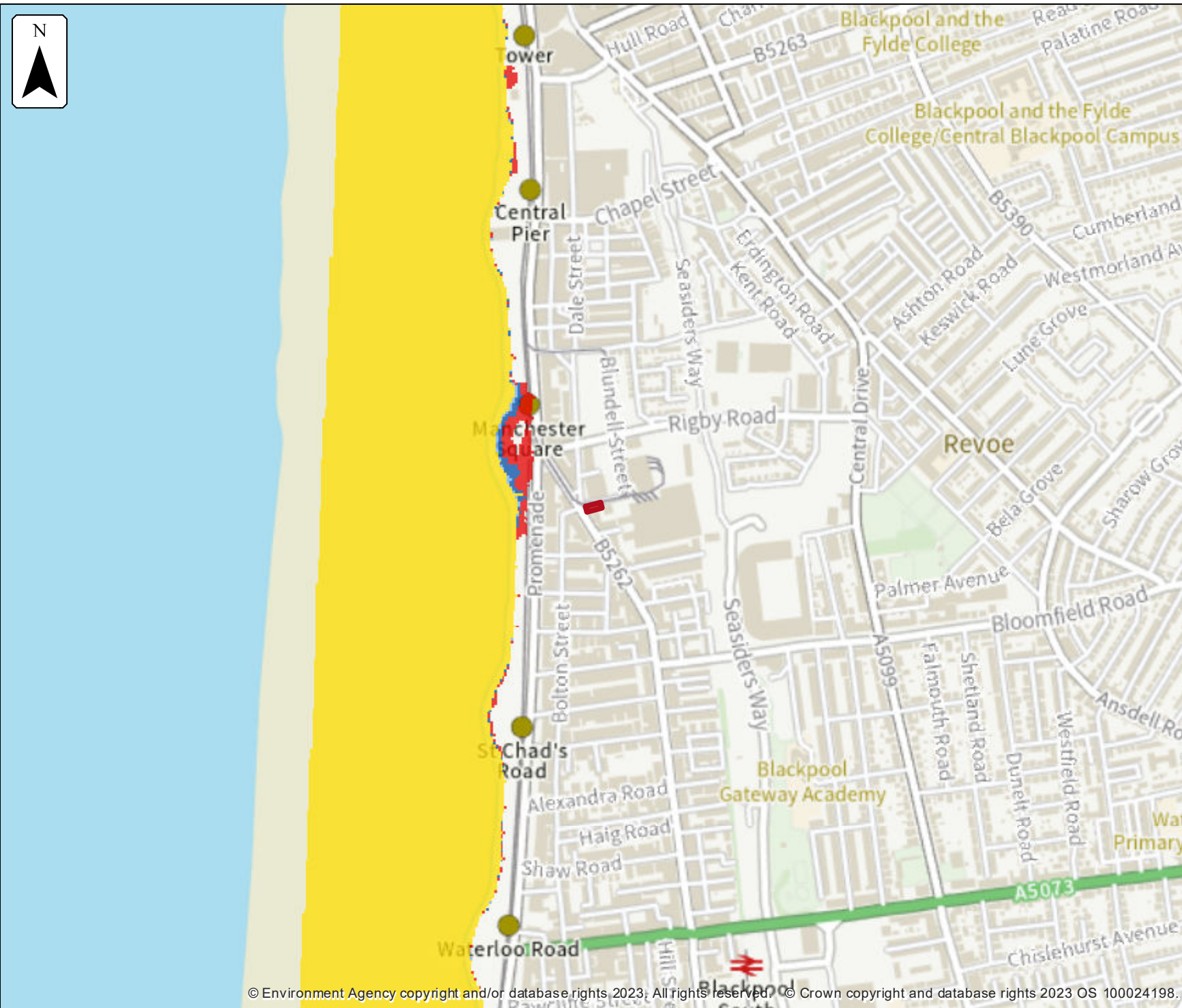
Location (easting/northing)
330712/434952

Scale **1:10,000** Created **25 Sept 2023**

Model name
Blackpool Tidal 2014

-  Selected area
- Modelled flood extent
 -  1.33% AEP
 -  1% AEP
 -  0.5% AEP
 -  0.1% AEP

Flood extents may not be visible where they overlap other return periods










Defences removed climate change modelled tidal extent

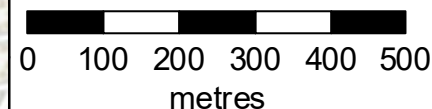
Location (easting/northing)
330712/434952

Scale Created
1:10,000 25 Sept 2023

Model name
Blackpool Tidal 2014

-  Selected area
-  Main river
- Modelled flood extent
 -  0.5% AEP (+370mm)
 -  0.5% AEP (+670mm)
 -  0.5% AEP (+970mm)

Flood extents may not be visible where they overlap other return periods
















Defended modelled tidal extent and height

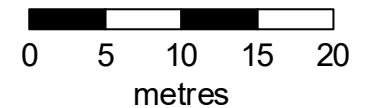
Location (easting/northing)
330712/434952

Scale Created
1:500 25 Sept 2023

Model name
Blackpool Tidal 2014

-  Selected area
-  Main river
- Modelled 2D grid
- Water level in mAOD
 -  0 - 5.0
 -  5.0 - 5.25
 -  5.25 - 5.5
 -  5.5 - 5.75
 -  5.75 - 6.0
 -  6.0 - 6.25
 -  6.25 - 6.5
 -  6.5 - 6.75
 -  6.75 - 7.0

This map shows the 0.1% AEP height data



Sample point data

Defended

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	330697	434937					NoData	NoData	0.01	6.66	0.04	6.70	0.09	6.75
2	330704	434937					NoData	NoData	0.01	6.66	0.02	6.68	0.06	6.75
3	330711	434937					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	330690	434944					NoData	NoData	NoData	NoData	0.04	6.73	0.07	6.78
5	330697	434944					NoData	NoData	0	6.62	0.04	6.67	0.11	6.74
6	330704	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	330711	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
8	330718	434944					NoData	NoData	NoData	NoData	0.08	6.33	0.20	6.46
9	330725	434944					NoData	NoData	NoData	NoData	0.27	6.33	0.40	6.45
10	330732	434944					NoData	NoData	NoData	NoData	0.32	6.33	0.44	6.45
11	330690	434951					NoData	NoData	0.00	6.68	0.01	6.70	0.07	6.77
12	330697	434951					NoData	NoData	0.03	6.57	0.06	6.61	0.18	6.73
13	330704	434951					NoData	NoData	0.04	6.55	0.06	6.59	0.15	6.71
14	330711	434951					NoData	NoData	NoData	NoData	NoData	NoData	0.03	6.65
15	330718	434951					NoData	NoData	NoData	NoData	NoData	NoData	0.06	6.52
16	330725	434951					NoData	NoData	NoData	NoData	NoData	NoData	0.17	6.47

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	330732	434951					NoData	NoData	NoData	NoData	0.45	6.33	0.57	6.45
18	330690	434958					NoData	NoData	0.02	6.67	0.05	6.69	0.12	6.77
19	330697	434958					NoData	NoData	0.02	6.57	0.05	6.59	0.16	6.71
20	330704	434958					NoData	NoData	0.03	6.49	0.06	6.53	0.19	6.67
21	330711	434958					NoData	NoData	0.04	6.46	0.06	6.49	0.17	6.62
22	330718	434958					NoData	NoData	NoData	NoData	NoData	NoData	0.12	6.57
23	330725	434958					NoData	NoData	NoData	NoData	NoData	NoData	0.08	6.51
24	330732	434958					NoData	NoData	NoData	NoData	0.81	6.34	0.91	6.45
25	330704	434965					NoData	NoData	NoData	NoData	NoData	NoData	0.14	6.67
26	330711	434965					NoData	NoData	NoData	NoData	NoData	NoData	0.19	6.61
27	330718	434965					NoData	NoData	NoData	NoData	0.07	6.41	0.19	6.55
28	330725	434965					NoData	NoData	0.05	6.35	0.09	6.40	0.19	6.50
29	330732	434965					NoData	NoData	0.02	6.28	0.07	6.36	0.17	6.46

Data in this table comes from the Blackpool Tidal 2014 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



Defended climate change modelled tidal extent and height

Location (easting/northing)
330712/434952

Scale Created
1:500 25 Sept 2023

Model name
Blackpool Tidal 2014

Selected area

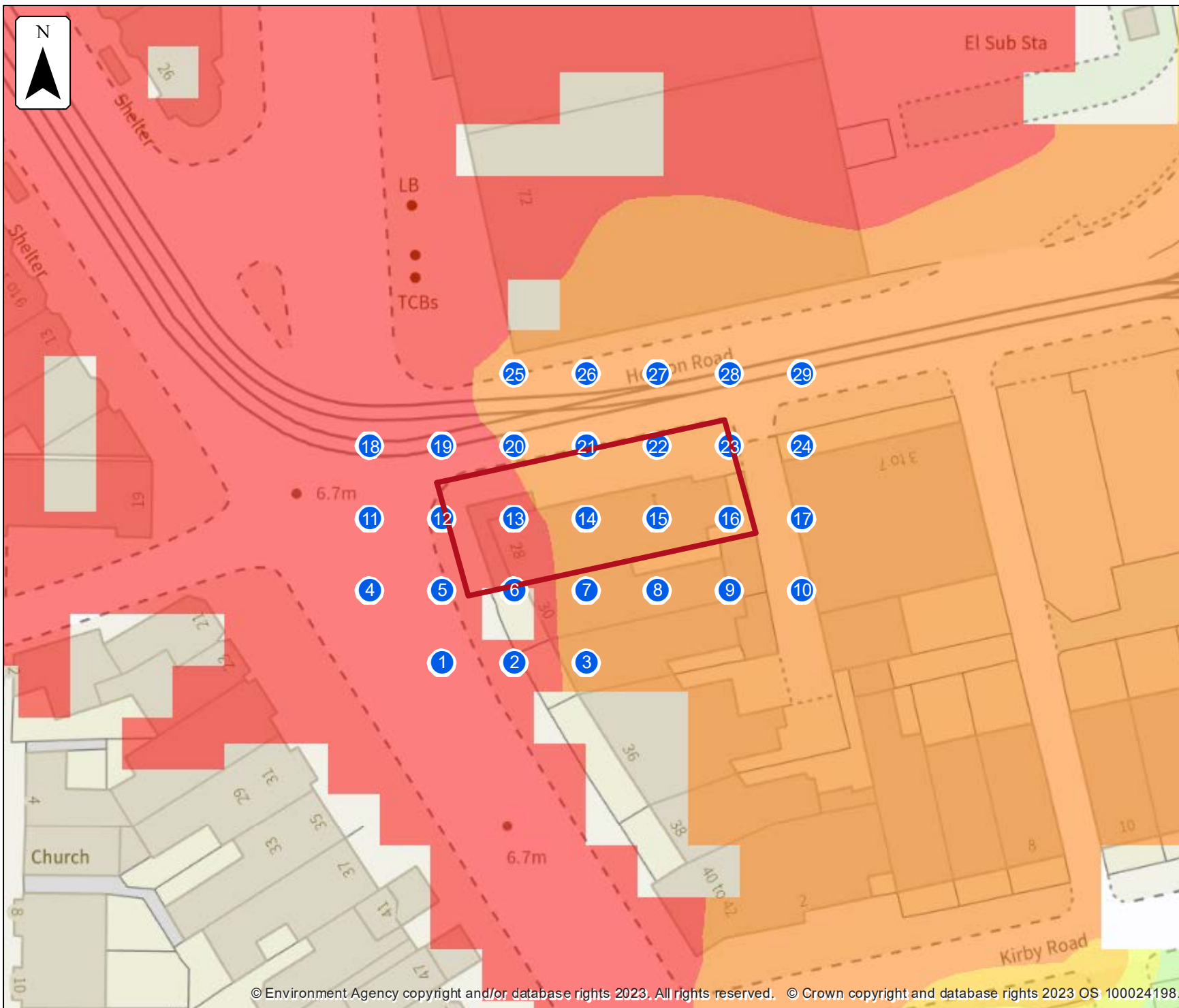
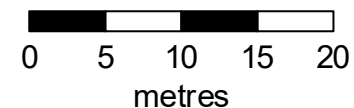
Main river

Modelled 2D grid

Water level in mAOD

- 0 - 5.0
- 5.0 - 5.25
- 5.25 - 5.5
- 5.5 - 5.75
- 5.75 - 6.0
- 6.0 - 6.25
- 6.25 - 6.5
- 6.5 - 6.75
- 6.75 - 7.0

This map shows the
0.5% AEP +970mm height data



Sample point data

Defended climate change

Label	Easting	Northing	0.5% AEP (+370mm)		0.5% AEP (+670mm)		0.5% AEP (+970mm)	
			Depth	Height	Depth	Height	Depth	Height
1	330697	434937	0.15	6.81	0.15	6.81	0.15	6.81
2	330704	434937	0.09	6.80	0.09	6.80	0.09	6.80
3	330711	434937	0.06	6.71	0.06	6.71	0.06	6.71
4	330690	434944	0.12	6.82	0.12	6.82	0.12	6.82
5	330697	434944	0.18	6.81	0.18	6.81	0.18	6.81
6	330704	434944	NoData	NoData	NoData	NoData	NoData	NoData
7	330711	434944	0.04	6.70	0.04	6.70	0.04	6.70
8	330718	434944	0.25	6.51	0.25	6.51	0.25	6.51
9	330725	434944	0.45	6.51	0.45	6.51	0.45	6.51
10	330732	434944	0.50	6.51	0.50	6.51	0.50	6.51
11	330690	434951	0.12	6.82	0.12	6.82	0.12	6.82
12	330697	434951	0.25	6.80	0.25	6.80	0.25	6.80
13	330704	434951	0.21	6.78	0.21	6.78	0.21	6.78
14	330711	434951	0.07	6.69	0.07	6.69	0.07	6.69
15	330718	434951	0.08	6.54	0.08	6.54	0.08	6.54
16	330725	434951	0.21	6.52	0.21	6.52	0.21	6.52

Label	Easting	Northing	0.5% AEP (+370mm)		0.5% AEP (+670mm)		0.5% AEP (+970mm)	
			Depth	Height	Depth	Height	Depth	Height
17	330732	434951	0.63	6.51	0.63	6.51	0.63	6.51
18	330690	434958	0.17	6.82	0.17	6.82	0.17	6.82
19	330697	434958	0.23	6.78	0.23	6.78	0.23	6.78
20	330704	434958	0.25	6.73	0.25	6.73	0.25	6.73
21	330711	434958	0.22	6.67	0.22	6.67	0.22	6.67
22	330718	434958	0.15	6.60	0.15	6.60	0.15	6.60
23	330725	434958	0.11	6.54	0.11	6.54	0.11	6.54
24	330732	434958	0.96	6.50	0.97	6.50	0.96	6.50
25	330704	434965	0.17	6.71	0.17	6.71	0.17	6.71
26	330711	434965	0.23	6.66	0.23	6.66	0.23	6.66
27	330718	434965	0.26	6.61	0.26	6.61	0.26	6.61
28	330725	434965	0.25	6.56	0.25	6.56	0.25	6.56
29	330732	434965	0.23	6.52	0.23	6.52	0.23	6.52

Data in this table comes from the Blackpool Tidal 2014 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



Defences removed modelled tidal extent and height

Location (easting/northing)
330712/434952










Scale Created
1:500 25 Sept 2023

Model name
Blackpool Tidal 2014

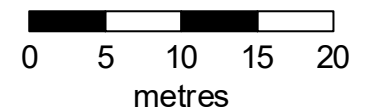
 Selected area

 Main river

Modelled 2D grid
Water level in mAOD

-  0 - 31
-  31 - 31.5
-  31.5 - 32
-  32 - 32.5
-  32.5 - 33
-  33 - 33.5
-  33.5 - 34
-  34 - 34.5
-  34.5 - 35

This map shows the
0.1% AEP height data



Sample point data

Defences removed

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	330697	434937					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	330704	434937					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	330711	434937					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	330690	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
5	330697	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	330704	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	330711	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
8	330718	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	330725	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	330732	434944					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	330690	434951					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	330697	434951					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
13	330704	434951					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	330711	434951					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	330718	434951					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	330725	434951					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	330732	434951					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	330690	434958					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
19	330697	434958					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	330704	434958					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	330711	434958					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	330718	434958					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	330725	434958					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	330732	434958					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
25	330704	434965					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
26	330711	434965					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
27	330718	434965					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
28	330725	434965					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
29	330732	434965					NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the Blackpool Tidal 2014 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



Defences removed climate change modelled tidal extent and height

Location (easting/northing)
330712/434952

Scale Created
1:500 25 Sept 2023










Model name
Blackpool Tidal 2014

 Selected area

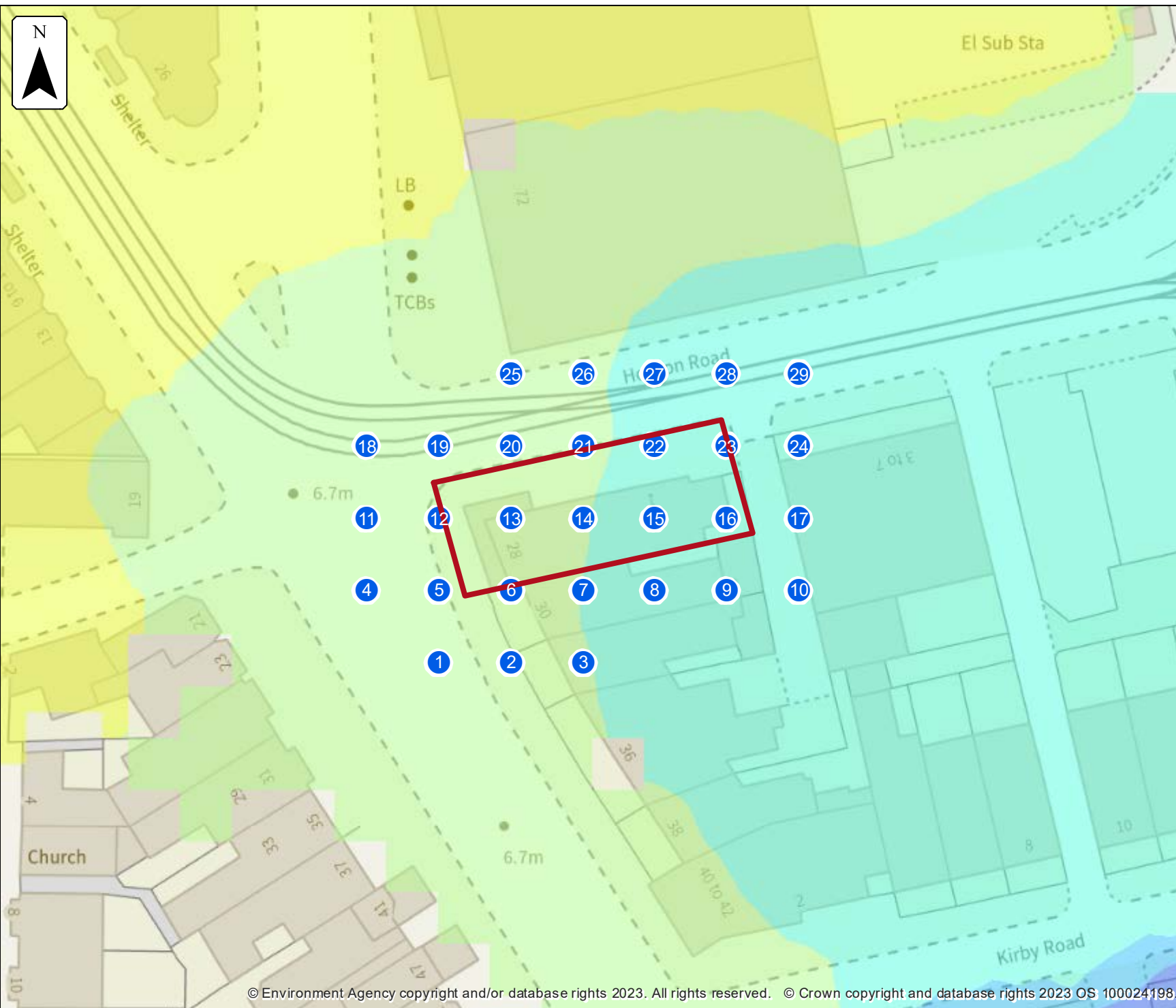
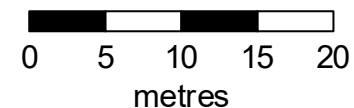
 Main river

Modelled 2D grid

Water level in mAOD

-  0 - 6.0
-  6.0 - 6.25
-  6.25 - 6.5
-  6.5 - 6.75
-  6.75 - 7.0
-  7.0 - 7.25
-  7.25 - 7.5
-  7.5 - 7.75
-  7.75 - 8.0

This map shows the
0.5% AEP +970mm height data



Sample point data

Defences removed climate change

Label	Easting	Northing	0.5% AEP (+370mm)		0.5% AEP (+670mm)		0.5% AEP (+970mm)	
			Depth	Height	Depth	Height	Depth	Height
1	330697	434937	NoData	NoData	0.06	6.72	0.29	6.95
2	330704	434937	NoData	NoData	0.03	6.71	0.31	6.94
3	330711	434937	NoData	NoData	NoData	NoData	0.07	6.80
4	330690	434944	NoData	NoData	0.05	6.75	0.22	6.95
5	330697	434944	NoData	NoData	0.06	6.69	0.33	6.96
6	330704	434944	NoData	NoData	NoData	NoData	0.17	6.97
7	330711	434944	NoData	NoData	NoData	NoData	0.09	6.74
8	330718	434944	NoData	NoData	NoData	NoData	0.39	6.64
9	330725	434944	NoData	NoData	NoData	NoData	0.60	6.64
10	330732	434944	NoData	NoData	0.01	6.02	0.67	6.64
11	330690	434951	NoData	NoData	0.03	6.72	0.27	6.95
12	330697	434951	NoData	NoData	0.09	6.64	0.41	6.95
13	330704	434951	NoData	NoData	0.08	6.62	0.47	6.95
14	330711	434951	NoData	NoData	NoData	NoData	0.15	6.77
15	330718	434951	NoData	NoData	NoData	NoData	0.17	6.66
16	330725	434951	NoData	NoData	NoData	NoData	0.28	6.63

Label	Easting	Northing	0.5% AEP (+370mm)		0.5% AEP (+670mm)		0.5% AEP (+970mm)	
			Depth	Height	Depth	Height	Depth	Height
17	330732	434951	NoData	NoData	0.18	6.06	0.85	6.63
18	330690	434958	NoData	NoData	0.07	6.72	0.31	6.95
19	330697	434958	NoData	NoData	0.08	6.63	0.39	6.92
20	330704	434958	NoData	NoData	0.10	6.57	0.41	6.88
21	330711	434958	NoData	NoData	0.10	6.54	0.36	6.78
22	330718	434958	NoData	NoData	NoData	NoData	0.24	6.71
23	330725	434958	NoData	NoData	NoData	NoData	0.19	6.65
24	330732	434958	NoData	NoData	0.61	6.14	1.23	6.62
25	330704	434965	NoData	NoData	0.10	6.62	0.22	6.83
26	330711	434965	NoData	NoData	0.14	6.55	0.30	6.75
27	330718	434965	NoData	NoData	0.10	6.45	0.38	6.73
28	330725	434965	NoData	NoData	0.12	6.43	0.37	6.67
29	330732	434965	NoData	NoData	0.04	6.33	0.35	6.64

Data in this table comes from the Blackpool Tidal 2014 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

Strategic flood risk assessments

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

This should give you information about:

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

About this data

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

Flood risk activity permits

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

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

Help and advice

Contact the Cumbria and Lancashire Environment Agency team at inforequests.cmblnc@environment-agency.gov.uk for:

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

