Keystone
Design Associates Ltd.

Flood Risk Assessment

LAND ADJACENT MARSH VIEW, SHARD LANE, HAMBLETON

August 2023

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DOCUMENT ISSUE RECORD

Revision	Date	Details
Full	August 2023	Issued for action
A	February 2024	Issued for action

LAND ADJACENT MARSH VIEW,
SHARD LANE, HAMBLETON

Report Approved by D.W.Hadwin B.Eng(Hons) C.Eng MICE
For Keystone Design Associates

Signature……..

Date…….. 2nd August 2023……

CONTENTS

1.0 Introduction

1.1 Keystone Design Associates Ltd have been commissioned to carry out a flood risk assessment in compliance with NPPF Technical Guidance for the proposed erection of six glamping pods with parking to the land adjacent to Marsh View, Shard Lane. The site is detailed in the location plan in appendix 1. This Location Plan shows the position of the site in relation to its surroundings. The scheme is detailed on the drawings attached as Appendix 3.

1.2 The site is to the rear of Marsh View on Shard Lane and situated approximately 0.5 miles from the centre of Hambleton and approximately 4.1 miles from Thornton-Cleveleys. Hambleton lies approximately 3 miles (4.8 km) north-east of Poulton-le-Fylde and about 7 miles (11 km) north-east of the seaside resort of Blackpool.

1.3 The site is surrounded by agricultural land & agricultural buildings. The topography of the site is generally flat.

1.4 The area in general is within Flood Zone 3a.

1.5 A flood risk assessment is required to be prepared in relation to the redevelopment potential of the site and is a requirement of the Environment Agency due the following.

- The site is within the indicative flood risk area as detailed on the Environment Agency Flood Zone Maps issued to the Council. The proposed development site lies within Flood Zone 3a, as described in NPPF Technical Guidance as follows: and a flood risk assessment is, therefore, required.

Zone 3a High Probability

Definition

This zone comprises land assessed as having 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.

Appropriate Uses

The water-compatible and less vulnerable uses of land in Table D.2 are appropriate in this zone. This highly vulnerable uses in Table D.2 should not be permitted in this zone. The more vulnerable and essential infrastructure uses in Table D.2 should only be permitted in the zone if the Exception Test (see para. D.9) is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

FRA Requirements

All development proposals in this zone should be accompanied by a FRA.

2.0 Development Proposals

2.1 The development comprises of the erection of six glamping pods which will consist of a lounge/dining area, kitchenette and one bedroom which will be en-suite.

2.2 The access to the development will be off Shard Lane]via a new access.

2.3 It is proposed to discharge the surface water sewage into the existing dyke located to the south east of the site.

3.0 Environment Agency and Local Authority Contact

3.1 The Environment Agency's (EA) website allows the review of the potential flood risk for any particular site and an extract of the relative area is included as Appendix 4. The map shows that flood zone 3a surrounds the proposed development. The risk of flooding arises from a potential breach of the sea defences.

4.0 Sources of Flooding

4.1 This FRA is informed specifically by the Flood Risk Assessment data supplied by the EA which indicated that the site has no history of flooding. The Flood Risk Assessment data is attached as Appendix 4.

4.2 **Rivers** – Abutting the site is the tidal estuary. To the north west of the site is the River Wyre. This is not considered to be a risk to the site and the 1:200 year tidal flooding is the governing case as discussed below.

4.3 **Land** – Low risk of flooding. The site is located in a topography of flat ground inland of the estuary surrounded by farm lane. There are a number of field drains in the locality that feed into the estuary however, none run though the site. The geology of the area is generally permeable with clay deposits. As a result surface water dissipates rapidly.

4.4 **Groundwater** – Nil risk of flooding. The ground water table is not high in this area. The local geology does not provide for artesian water pressure. The level of groundwater is not noted on the maps, however it is not anticipated that the groundwater will pose a risk to the completed development. There has been no standing water observed on site.

4.5 **Tidal/Storm Surge** – The main threat will be overtopping of the tidal defences. The Wyre SFRA indicates that the area is protected from flood risk by some flood defences.

4.6 Tidal flooding is likely to increase as a result of climate change. Based on the Environment Agency (EA) modelled flood data in 2023, the defended design flood level for the site has been provided by EA at 7.67m AOD including climate change for a 1 in 200 year event.

4.7 The predicted flood levels for various events are provided by EA in the Flood Risk Assessment data which covers a number of modelled scenarios. The results of which are:

Tidal defended 0.1% AEP is 5.79m AOD
Tidal defended 0.5% AEP + Climate Change (+370mm SLR) is 6.08m AOD
Tidal defended 0.5% AEP + Climate Change (+670mm SLR) is 7.27m AOD
Tidal defended 0.5% AEP + Climate Change (+970mm SLR) is 7.72m AOD

Tidal undefended 1.0% AEP is 6.58m AOD
Tidal undefended 0.5% AEP is 6.72m AOD
Tidal undefended 0.1% AEP is 6.98m AOD
Tidal undefended 0.5% AEP + Climate Change (+370mm SLR) is 7.06m AOD
Tidal undefended 0.5% AEP + Climate Change (+670mm SLR) is 7.41m AOD
Tidal undefended 0.5% AEP + Climate Change (+970mm SLR) is 7.67m AOD

4.8 **Sewers** – There is no surcharging of sewers reported by United Utilities.

4.9 **Reservoirs** – There are no reservoirs within the area that present any form of risk.

5.0 Flooding History

5.1 Historic research has identified the 22nd-23rd November 2017 event, an intense rain storm was recorded travelling from the Irish Sea coast at Blackpool to the north-easterly extent of Lancaster District. Whilst some other parts of the county were affected in more modest ways, communities lying under the path of this storm experienced extreme downpours that exceeded the intensities experienced during Storm Desmond (5/6 December 2015). This rainfall event was highly damaging. It overwhelmed natural and constructed drainage networks in its path, causing extensive surface water and river flooding. It dislodged soil/silt and vegetation which blocked drainage networks that might otherwise have coped with the surface water. Over 900 homes and other premises in Lancashire were flooded that night, either within the property boundaries or inside habitable rooms. The Environment Agency evacuated 70 households from their homes in Galgate overnight, and United Utilities staff worked through the night to gain control over sewer flooding across the Blackpool and Thornton-Cleveleys areas of the Fylde. Many roads including those used for critical emergency access (including the M6 motorway and the A6) were obstructed by flood water, and bow-waves from passing traffic caused standing water to enter houses and other property close to the roads. Trains north of Preston were cancelled and problems continued overnight with 9 flood warnings and 12 flood alerts still in place on the morning of 23 November. This event did not effect the proposed site.

5.2 There is no history of flooding at the proposed site.

6.0 Existing Flood Defence Works

6.1 The site is protected from flooding by defences. A brief description of each of the defence lengths is summarised below.

Asset Type	Standard of Protection (years)	Current Condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
Embankment	25	Poor	6.89	7.15	6.89

7.0 Previous Site Usage

7.1 The site is currently vacant land to the rear of Marsh View, Shard Lane, Hambleton which houses a two storey dwelling.

8.0 Impact on Development

8.1 The site is unlikely to flood except in extreme conditions. The primary, but unlikely, flood risk posed to the site is posed by tidal flooding; however, the site has no history of flooding.

8.2 Impact on Surrounding Properties

As the site is large and surrounded by both garden and agricultural land any increase in surface water runoff will have no effect on any immediate neighbours.

9.0 Flood Precaution & Limitation Measures

9.1 The following mitigation measures are proposed:

- Electrical services, wiring and switches/outlets will be positioned at a minimum height of 900m above the finished floor levels. Incoming main services are to be terminated at a minimum of 1.0m above floor level.
- Heating and ventilation equipment including boilers and cylinders will be installed at a minimum of 1.0m above ground floor level or at first floor level.
- Where practicable ovens and other electrical appliances will be positioned on raised floor levels or individual plinths
- Ground floors should be of a solid construction and to be 150mm thick with a screed finish.
- All drainage and waste water systems should be designed and installed with non return valves to prevent surcharge backup in the case of flooding to the surrounding sewage network.
- Surface water discharge will be discharged to the existing network.
- Removable flood water entry barriers will be considered at all entrance doors and windows 1.0m above floor level.
- Removable stanking boards are to be provided for all external doors.
- Low porosity brick with two coat plaster to be 1.0m above finished floor levels.
- All manhole covers shall be lockable.

Residents will have access to the EA's/Wyre BC's existing flood early warning system, Occupiers will also be issued with guidance on what actions to take in the event of a warning including the closest area of high ground.

9.2 **Flood Evacuation Facilities**

The main access to the site will be from Shard Lane. The proposed site is an insignificant increase in the population, and would therefore be subject to the same flood warning as provided by the Local Council to the surrounding properties.

9.3 There is an established flood warning system in place, to which residents will be encouraged to subscribe. They will also be advised of EA advice on personal flood planning.

9.4 A Flood Warning & Evacuation Plan is attached to Appendix 5 of this report.

10.0 Conclusion

10.1 The existing flood defence systems in place together with the strategic plans to maintain them have resulted in no recorded flooding on this site.

10.2 It is considered that there is no immediate risk of flooding to the proposed site with the exception of a breach scenario.

10.3 The flood mitigation measures proposed will provide additional protection should for any reason a flood occur.

10.4 In the unlikely event of a breach of the existing flood defences during an extreme return period tidal flood, inundation of the Fleetwood area and potentially the development may occur. The flood risk to the development would be dependent upon a number of factors including the magnitude of the event, location and extent of the breach and the timing of the emergency response. It is important to highlight that the likelihood of such a potentially catastrophic event is extremely remote. In the event of a breach the site would be at risk at ground floor level.

APPENDICES

Contents

APPENDIX 1
LOCATION PLAN

Digimap®

Ordnance Survey

Scale 1:1250

0 10 20 30 40 50 60 70 80 90 100 m

Projection: British National Grid

APPENDIX 2
AERIAL PHOTOGRAPH

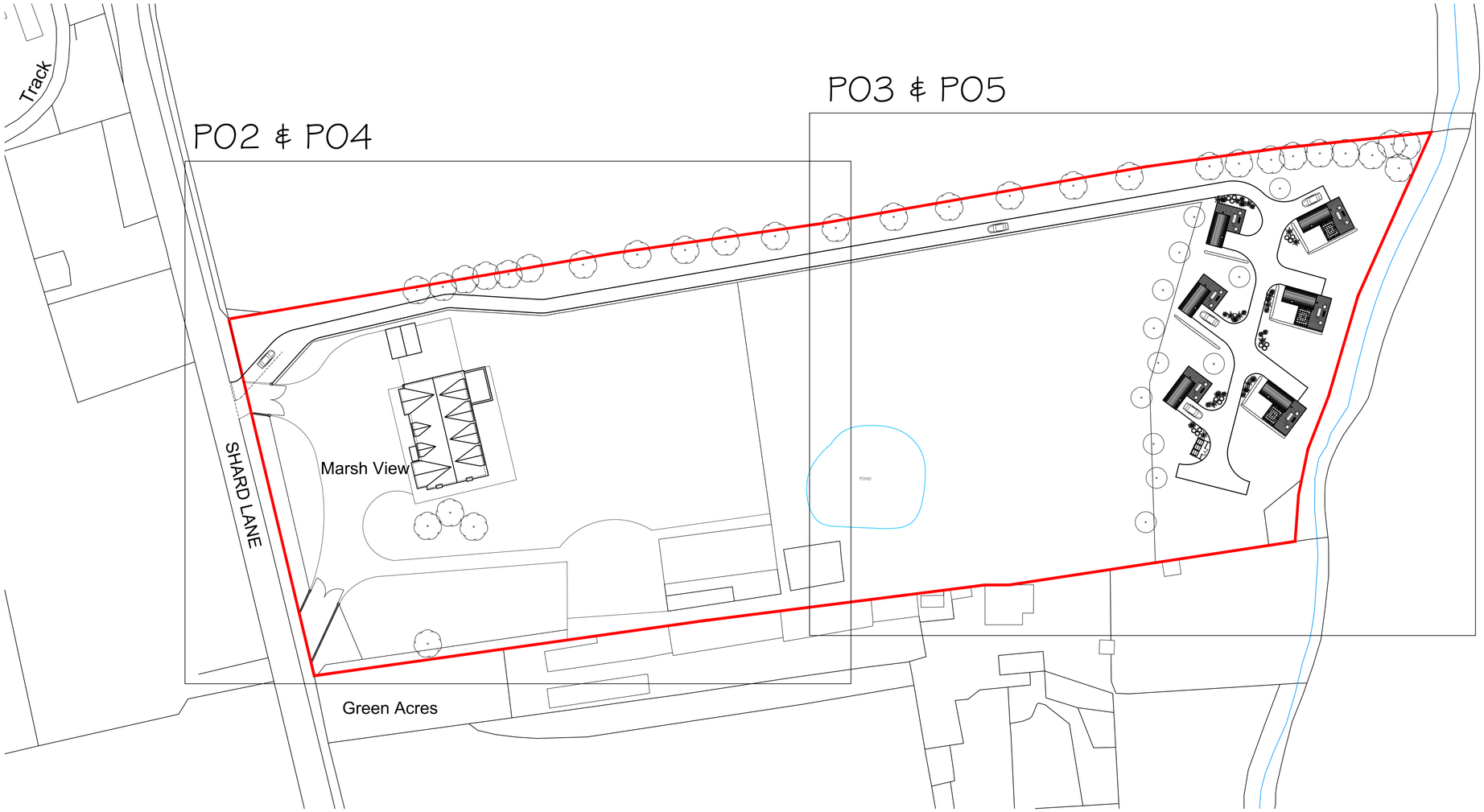
Aerial View of land adjacent to Marsh View, Shard Lane, Hambleton

APPENDIX 3
PROPOSED WORKS DRAWING

DO NOT SCALE DIMENSIONS FROM DRAWING

Revision A

DRAWING No. A021/289/P/01



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0m 5m 10m 15m 20m 25m 30m
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NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DO NOT SCALE FROM THIS DRAWING.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELATED DRAWINGS AND DOCUMENTS. THE USER SHOULD CONSULT THE DRAWING ISSUE REGISTER FOR DETAILS.
4. THE CONTRACTOR IS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.
5. THE ENGINEER/ARCHITECT SHOULD BE CONTACTED IMMEDIATELY IF THE ASSUMPTIONS USED IN THE DESIGN DIFFER TO THAT FOUND ON SITE.

Rev.	Amendments	Date	By
A	Client Amendments	06/04/22	JG

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FAIRHOLME, SHARD LANE,
HAMBLETON, LANCASHIRE, FY6 9BX

PROJECT TITLE
GLAMPING PODS

DRAWING TITLE
PROPOSED SITE GA
DRAWING KEY

Client	Scales@A1
MR D BAILEY	1:500 @A1

Drawn	Checked	Date
JG		05/04/22

DRAWING No.	Revision
A021/289/P/01	A

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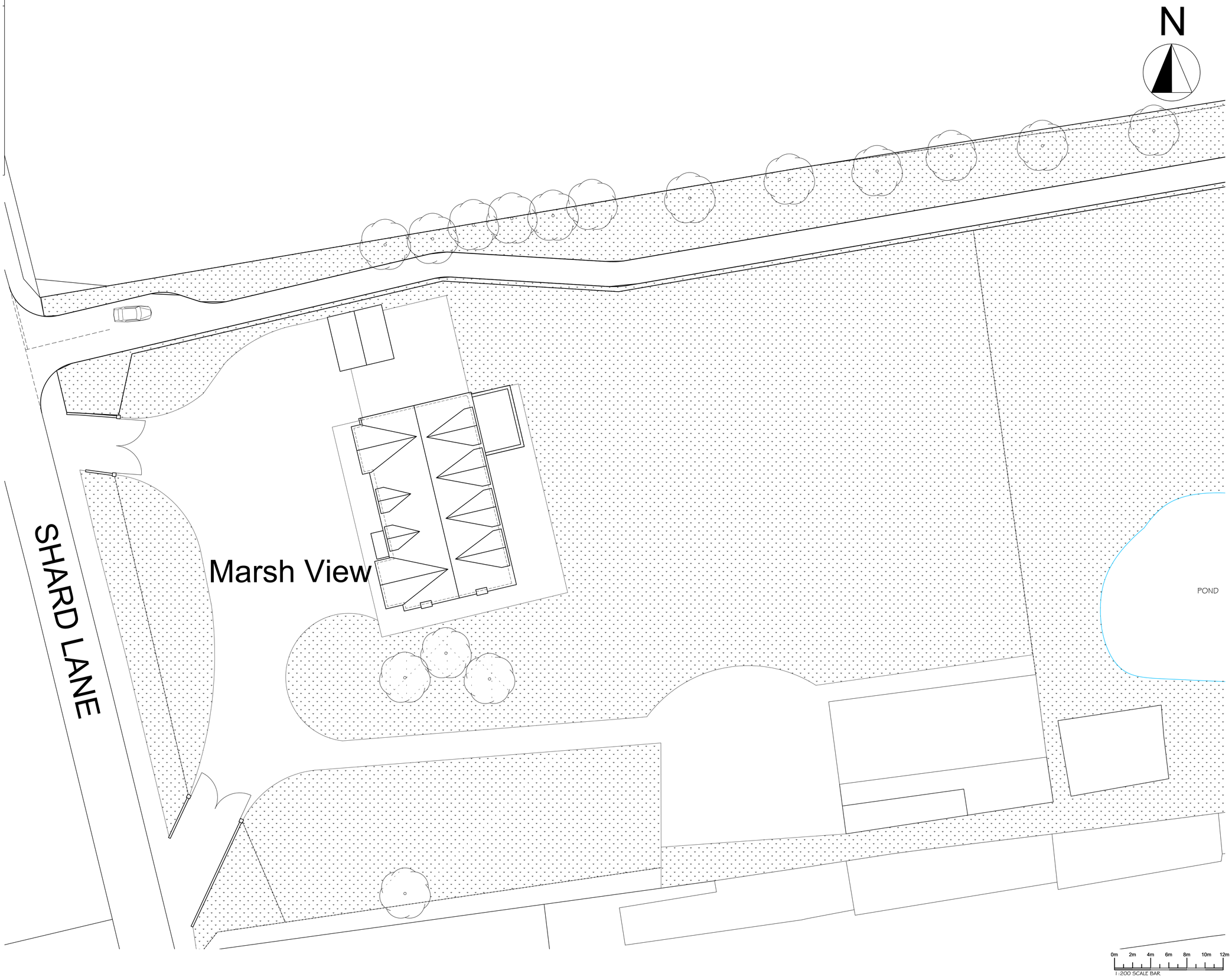
DO NOT SCALE DIMENSIONS FROM DRAWING



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PROJECT TITLE
GLAMPING PODS

DRAWING TITLE
PROPOSED SITE GA
1 OF 2

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MR D BAILEY		1:200 @A1
Drawn: JG	Checked:	Date: 05/04/22
DRAWING No.: A021/289/P/02		Revision:

DO NOT SCALE DIMENSIONS FROM DRAWING

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PROJECT TITLE
GLAMPING PODS

DRAWING TITLE
PROPOSED SITE GA
2 OF 2

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Drawn	Checked	Date
JG		05/04/22

DRAWING No. A021/289/P/03 — Revision

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DRAWING KEY

- ..... DENOTES NEW COMBINED DRAIN
- ..... DENOTES SURFACE WATER SEWER
- ..... DENOTES FOUL SEWER
- ..... DENOTES EXISTING SURFACE WATER SEWER
- ..... DENOTES EASEMENT
- ..... DENOTES SW MANHOLE
- ..... DENOTES FOUL MANHOLE
- ..... DENOTES COMBINED MANHOLE
- IC ..... DENOTES INSPECTION CHAMBER
- RE ..... DENOTES RODDING EYE
- RWP ..... DENOTES RAINWATER PIPE CONNECTION
- SVP ..... DENOTES SOIL VENT PIPE CONNECTION
- BIG ..... DENOTES BACK INLET GULLY
- G ..... DENOTES ROAD GULLEY

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HAMBLETON, LANCASHIRE, FY6 9BX

PROJECT TITLE
GLAMPING PODS

DRAWING TITLE
PROPOSED SITE DRAINAGE

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MR D BAILEY	1:200 @A1

Drawn	Checked	Date
JG		05/04/22

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A021/289/P/06	

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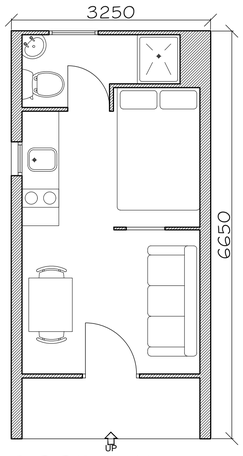
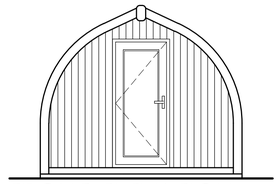


FLOOR PLAN



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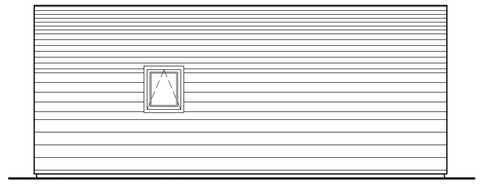
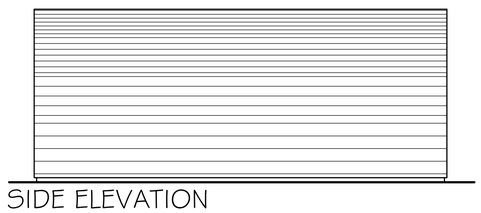


SIDE ELEVATION

REAR ELEVATION



SIDE ELEVATION

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FAIRHOLME, SHARD LANE,
HAMBLETON, LANCASHIRE, FY6 9BX

PROJECT TITLE
GLAMPING PODS

DRAWING TITLE
PROPOSED GLAMPING POD PLAN & ELEVATIONS

Client	Scales@A1
MR D BAILEY	1:50 @A1

Drawn	Checked	Date
JG		05/04/22

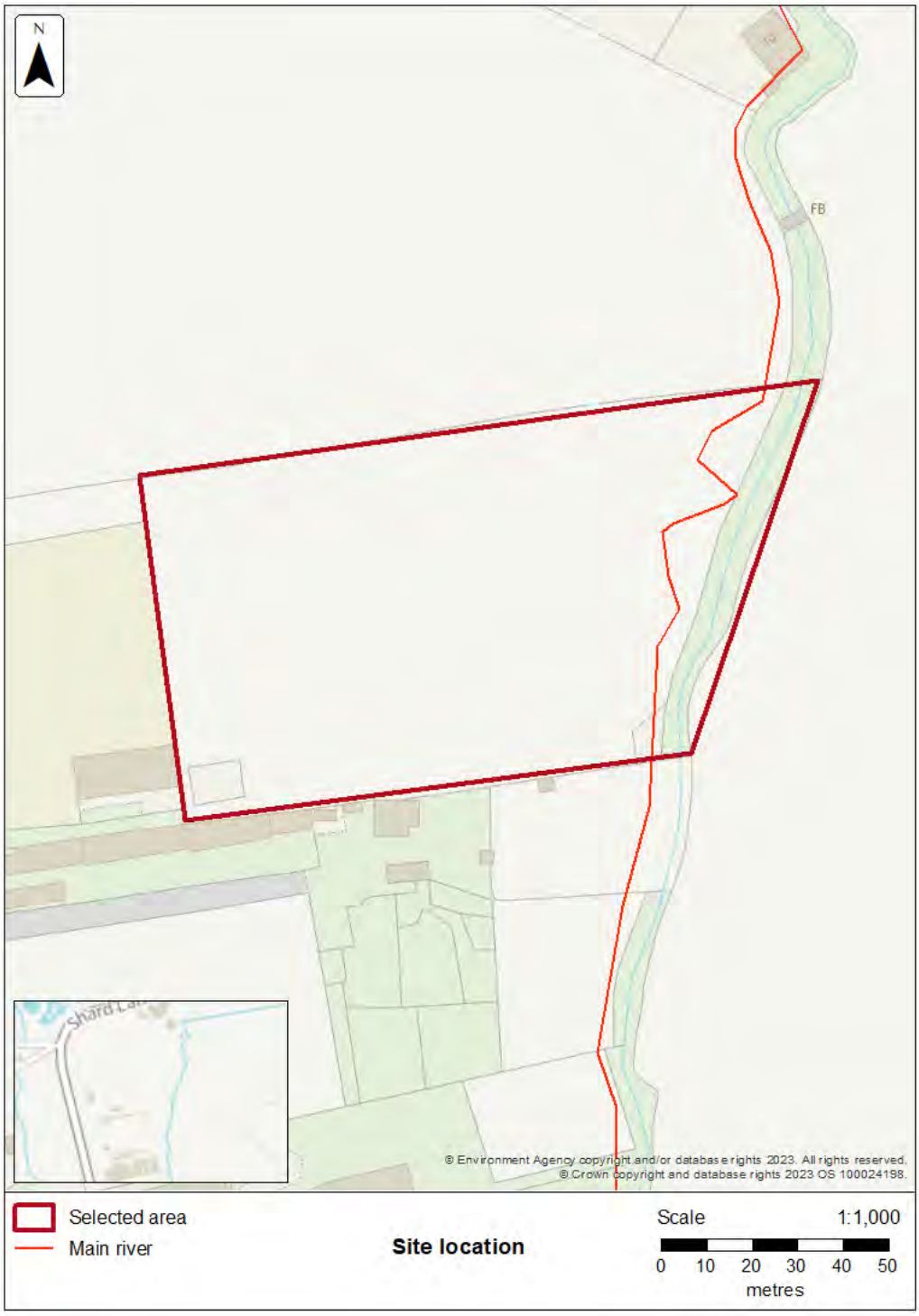
DRAWING No. A021/289/P/07 — Revision

APPENDIX 4
ENVIRONMENT AGENCY FLOOD LEVEL MAPPING

Flood risk assessment data

Location of site: 337087 / 441889 (shown as easting and northing coordinates)
Document created on: 31 July 2023
This information was previously known as a product 4.
Customer reference number: W2RGM3F7PK3U

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
- flood defences and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- 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.cmblnc@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.

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: Wyre Estuary_Tidal 2014
Scenario(s): Defended tidal, defences removed tidal, defended climate change tidal, defences removed climate change tidal
Date: 30 July 2014

These models contain 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 occuring 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

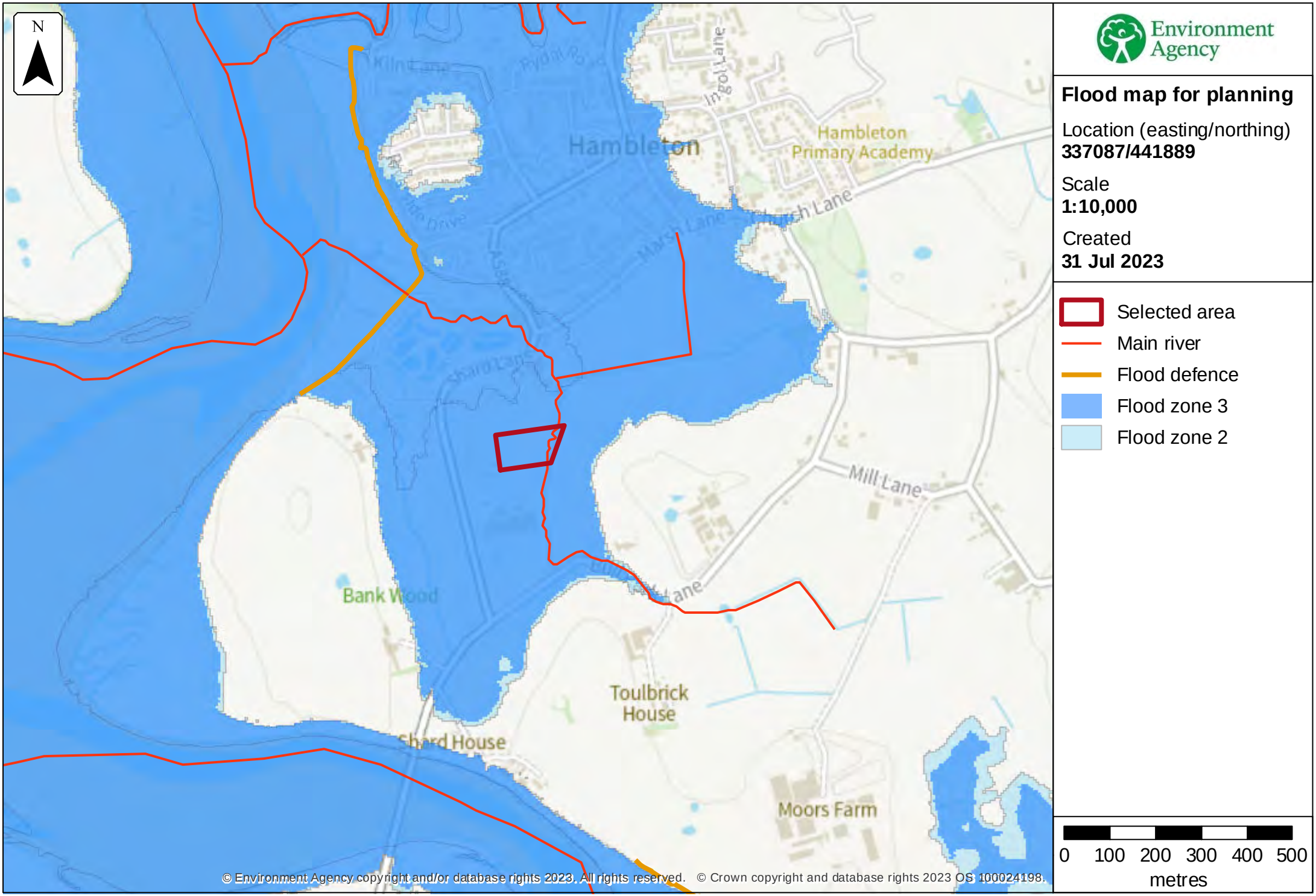
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- 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.


N
Hambleton
Hambleton Primary Academy
Ingol Lane
Mill Lane
Bank Wood
Toulbrick House
Moors Farm
Environment Agency
Flood map for planning
Location (easting/northing)
337087/441889
Scale
1:10,000
Created
31 Jul 2023
Selected area
Main river
Flood defence
Flood zone 3
Flood zone 2
0 100 200 300 400 500
metres
© Environment Agency copyright and/or database rights 2023. All rights reserved. © Crown copyright and database rights 2023 OS 100024198.

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

Environment Agency

Historic flood map

Location (easting/northing)
337087/441889

Scale
1:10,000

Created
31 Jul 2023

Selected area

Main river

Date of flood event

February, 2002

0 100 200 300 400 500
metres

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	No

Flood defences and attributes

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

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

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

Use this information:

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

Environment Agency

Flood defences

Location (easting/northing)
337087/441889

Scale
1:5,000

Created
31 Jul 2023

Selected area
Main river
Flood defence

0 50 100 150 200 250
metres

Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	107000	Embankment	25	Poor	6.89	7.15	6.89

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

Modelled data

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

- outline maps showing the area at risk from flooding in different modelled scenarios
- modelled node point map(s) showing the points used to get the data to model the scenarios and table(s) providing details of the flood risk for different return periods
- 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

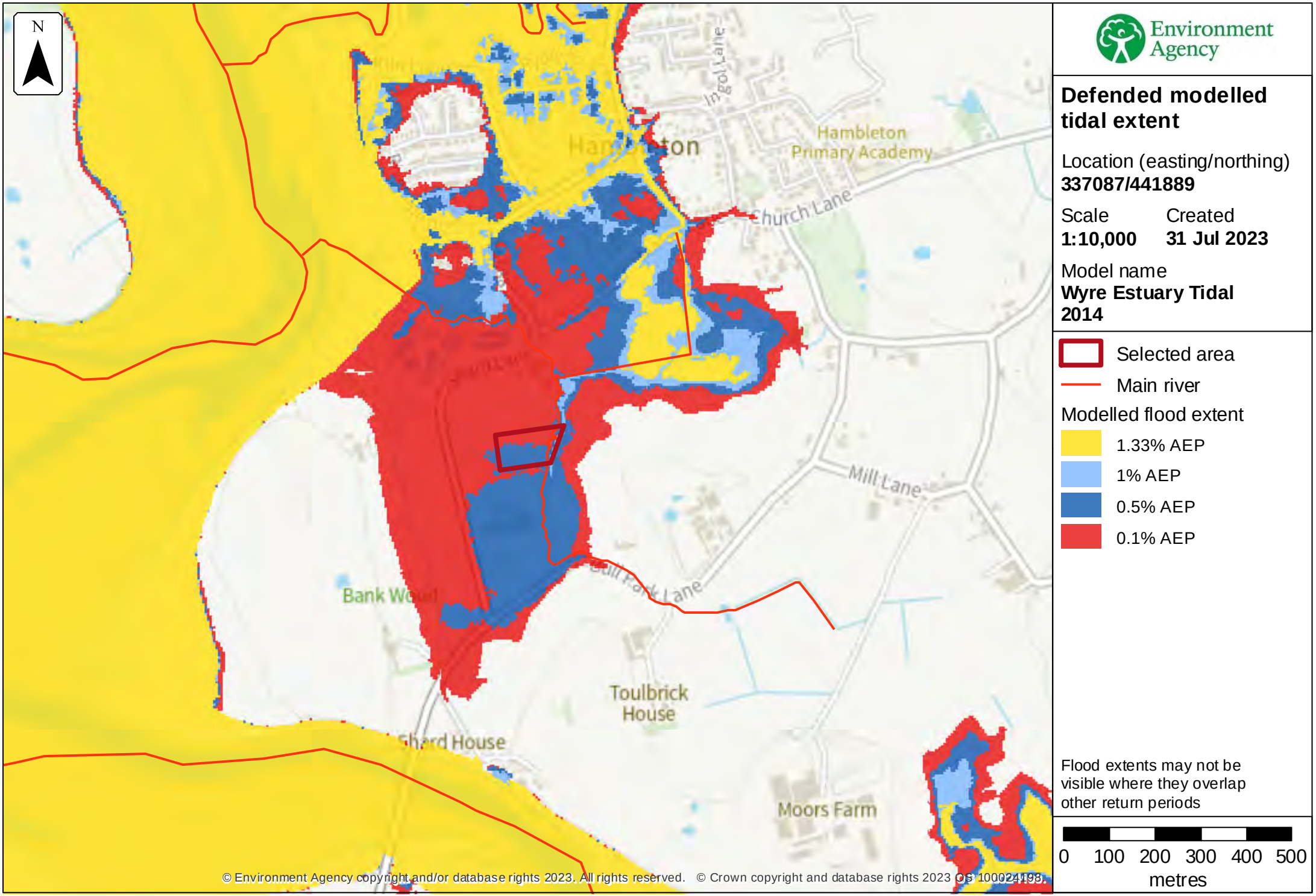
The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

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:

- No defences exist modelled fluvial: risk of flooding from rivers where there are no flood defences
- Defended modelled tidal: risk of flooding from the sea where there are flood defences
- Defences removed modelled tidal: risk of flooding from the sea where flood defences have been removed
- No defences exist climate change modelled fluvial: risk of flooding from rivers where there are no flood defences, including estimated impact of climate change
- Defended climate change modelled tidal: risk of flooding from the sea where there are flood defences, including estimated impact of climate change
- Defences removed climate change modelled tidal: risk of flooding from the sea where flood defences have been removed, including estimated impact of climate change



Environment Agency

Defended modelled tidal extent

Location (easting/northing)
337087/441889

Scale
1:10,000

Created
31 Jul 2023

Model name
Wyre Estuary Tidal 2014

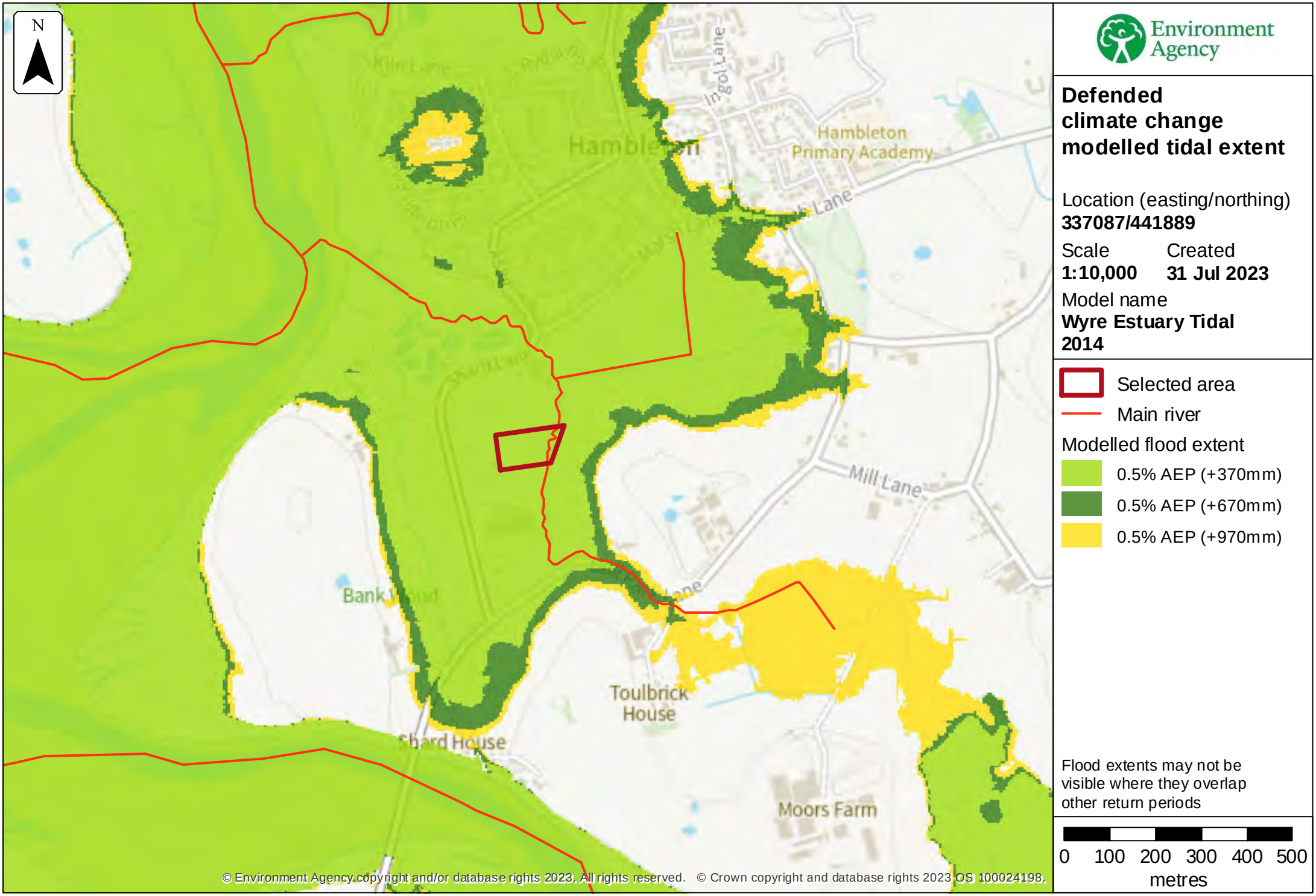
- Selected area
- Main river

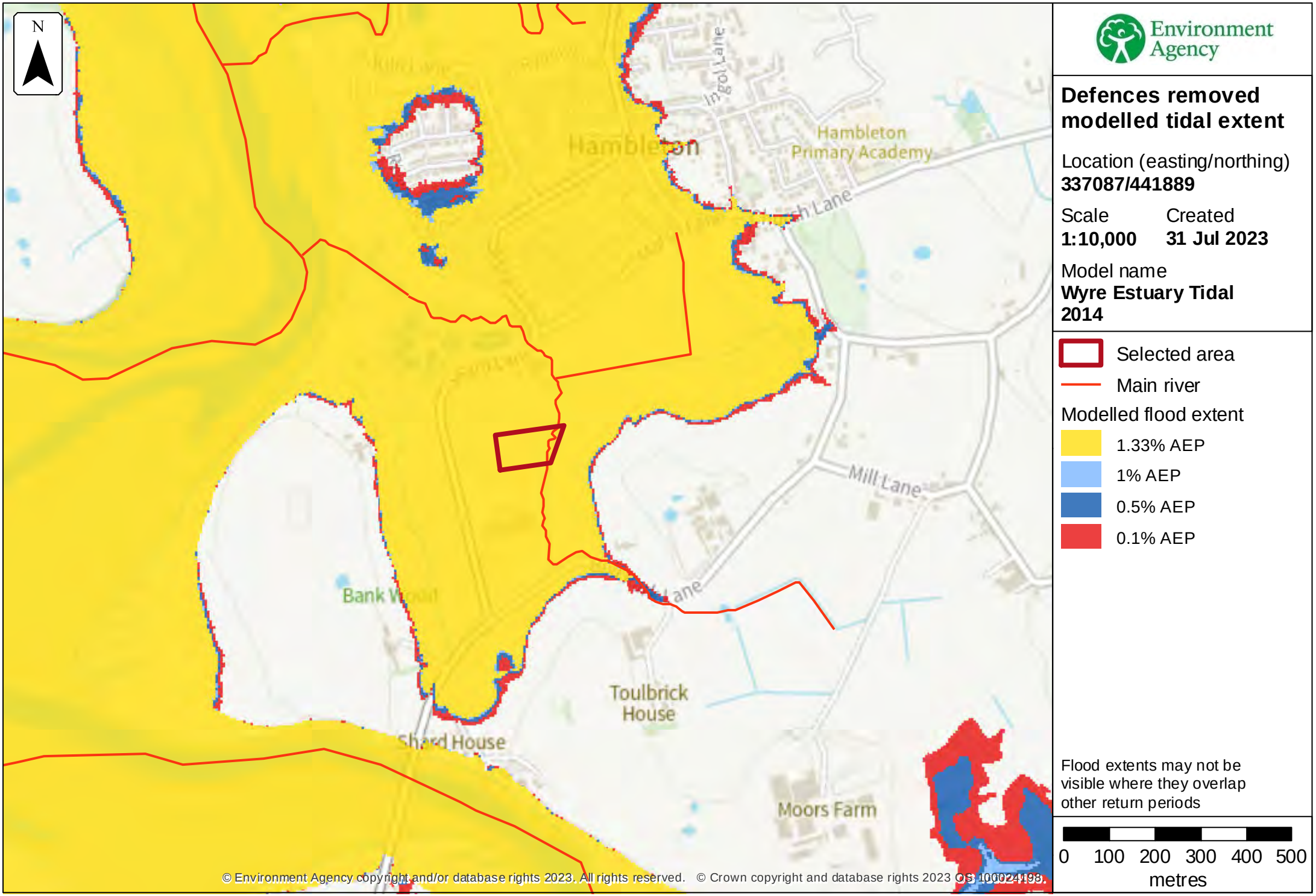
Modelled flood extent

- 1.33% AEP
- 1% AEP
- 0.5% AEP
- 0.1% AEP

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

0 100 200 300 400 500
metres




N
Hambleton
Hambleton Primary Academy
Ingol Lane
Mill Lane
Bank Wood
Toulbrick House
Moors Farm
Environment Agency
Defences removed modelled tidal extent
Location (easting/northing)
337087/441889
Scale
1:10,000
Created
31 Jul 2023
Model name
Wyre Estuary Tidal 2014
Selected area
Main river
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
0 100 200 300 400 500
metres
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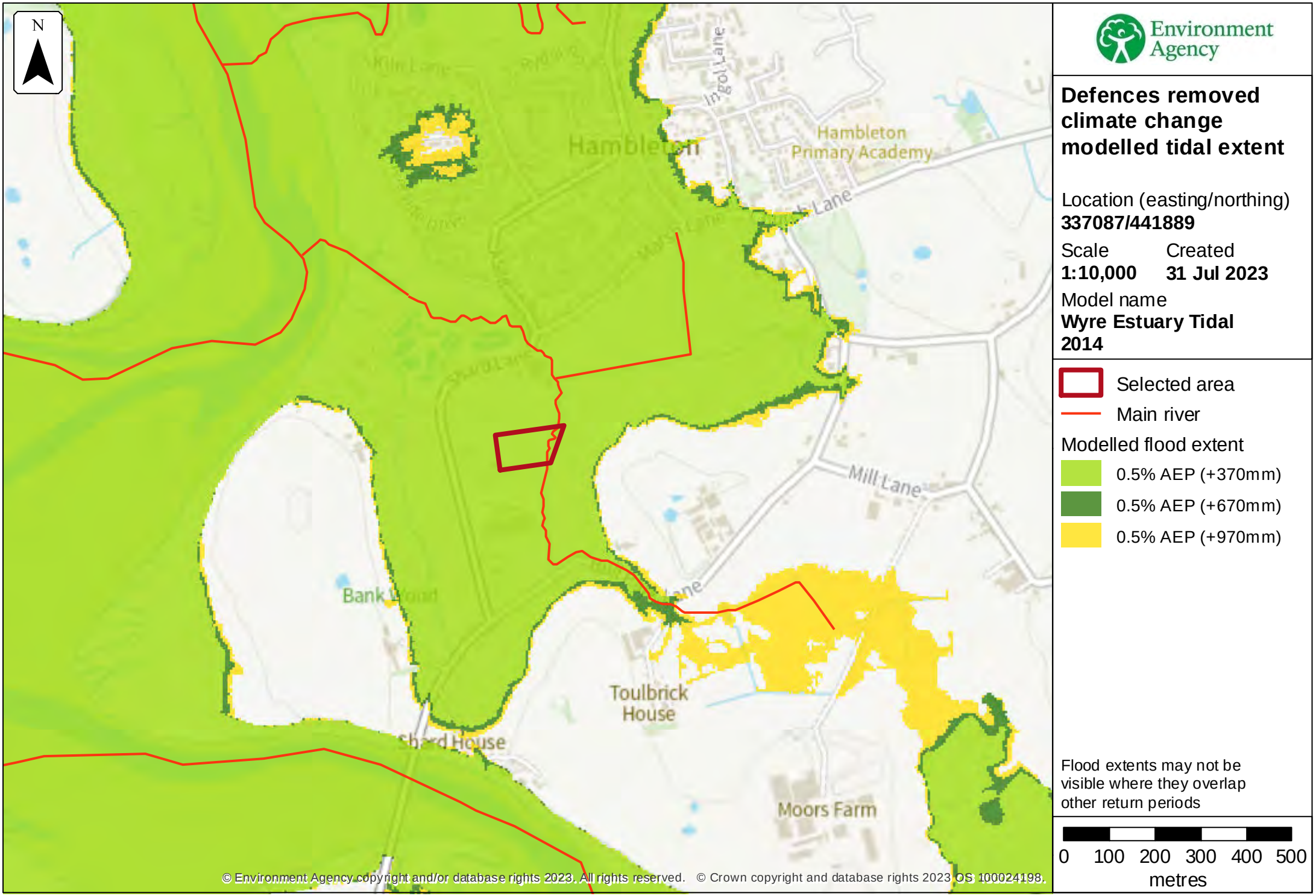
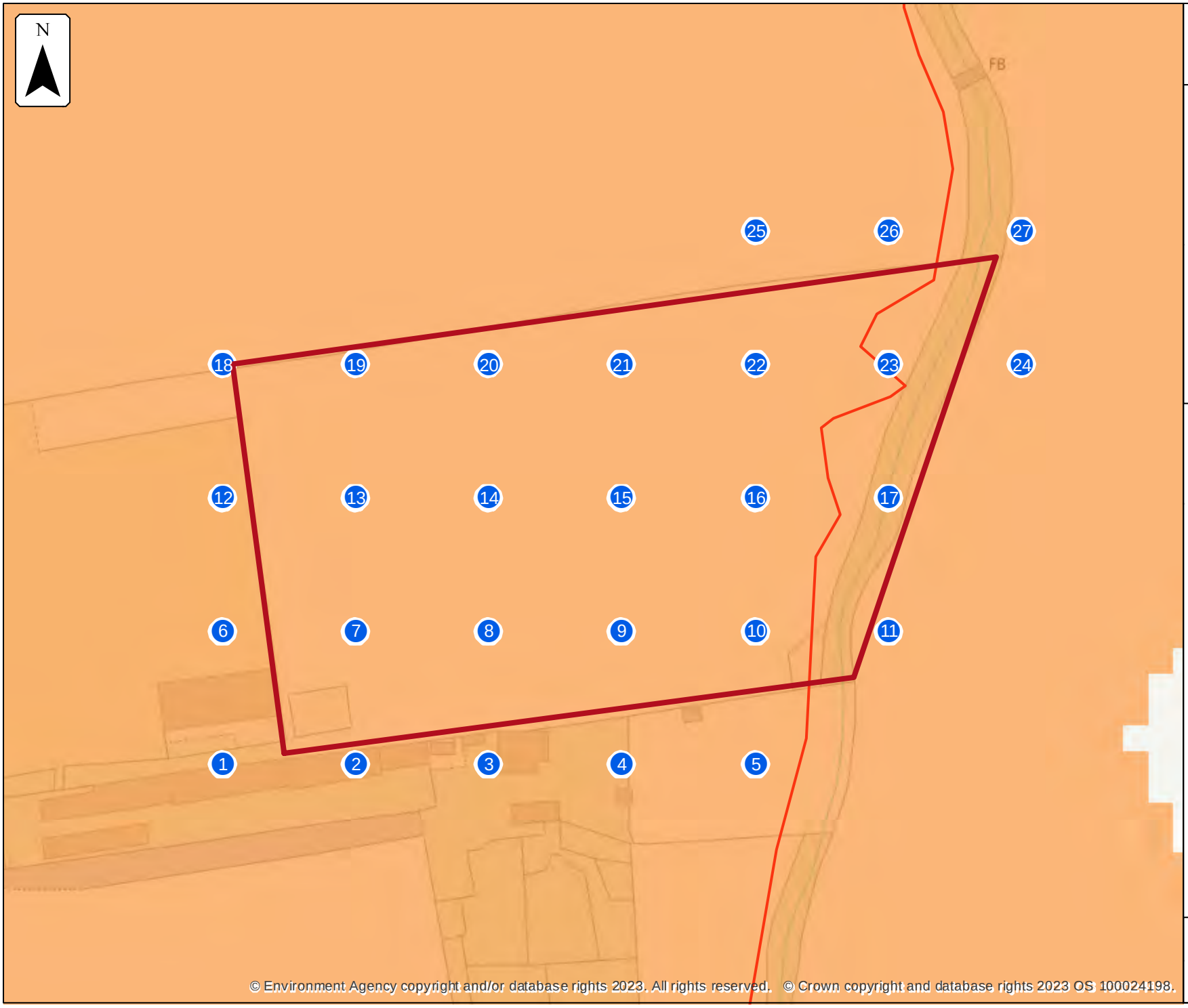




Environment Agency

Defended modelled tidal extent and height

Location (easting/northing)
337087/441889

Scale
1:1,000

Created
31 Jul 2023

Model name
Wyre Estuary Tidal 2014

Selected area

Main river

Modelled 2D grid

Water level in mAOD

- 0 - 5.0
- 5.0 - 5.125
- 5.125 - 5.25
- 5.25 - 5.375
- 5.375 - 5.5
- 5.5 - 5.625
- 5.625 - 5.75
- 5.75 - 5.875
- 5.875 - 6.0

This map shows the 0.1% AEP height data

0 10 20 30 40
metres

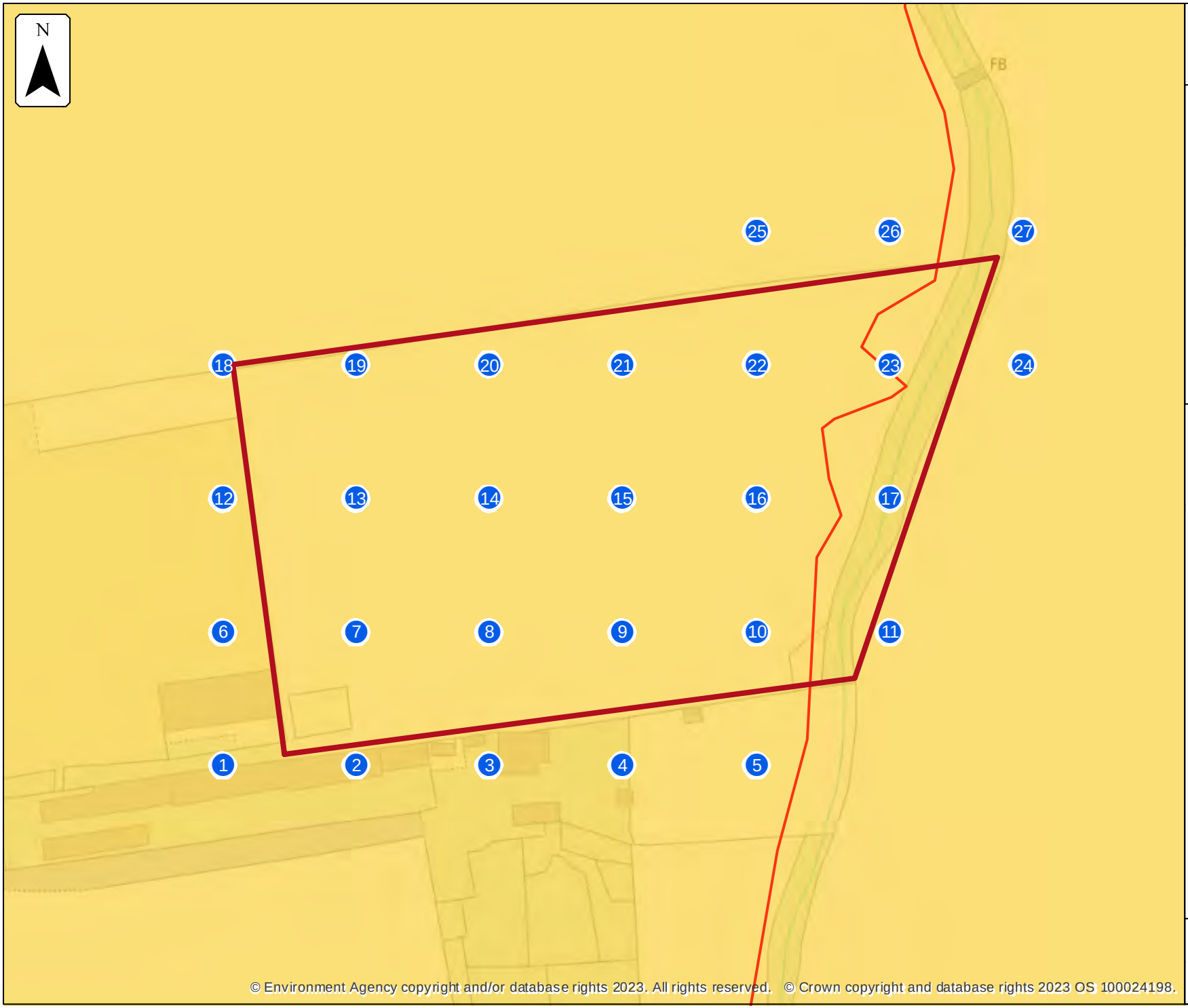
Sample point data

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	337015	441839					NoData	NoData	NoData	NoData	0.19	4.78	1.19	5.79
2	337041	441839					NoData	NoData	NoData	NoData	0.35	4.78	1.37	5.79
3	337067	441839					NoData	NoData	NoData	NoData	0.07	4.78	1.06	5.79
4	337093	441839					NoData	NoData	NoData	NoData	NoData	NoData	0.74	5.79
5	337119	441839					NoData	NoData	NoData	NoData	NoData	NoData	1.03	5.79
6	337015	441865					NoData	NoData	NoData	NoData	0.11	4.78	1.13	5.79
7	337041	441865					NoData	NoData	NoData	NoData	0.20	4.78	1.22	5.79
8	337067	441865					NoData	NoData	NoData	NoData	0.22	4.78	1.24	5.79
9	337093	441865					NoData	NoData	NoData	NoData	0.23	4.78	1.25	5.79
10	337119	441865					NoData	NoData	NoData	NoData	0.32	4.78	1.34	5.79
11	337145	441865					NoData	NoData	NoData	NoData	0.41	4.78	1.42	5.79
12	337015	441891					NoData	NoData	NoData	NoData	0.02	4.78	1.02	5.79
13	337041	441891					NoData	NoData	NoData	NoData	0.10	4.78	1.12	5.79
14	337067	441891					NoData	NoData	NoData	NoData	0.08	4.78	1.10	5.79
15	337093	441891					NoData	NoData	NoData	NoData	0.10	4.78	1.11	5.79
16	337119	441891					NoData	NoData	NoData	NoData	NoData	NoData	1.05	5.79

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	337145	441891					NoData	NoData	1.21	4.21	1.76	4.78	2.78	5.79
18	337015	441917					NoData	NoData	NoData	NoData	NoData	NoData	0.89	5.79
19	337041	441917					NoData	NoData	NoData	NoData	NoData	NoData	0.97	5.79
20	337067	441917					NoData	NoData	NoData	NoData	NoData	NoData	0.98	5.79
21	337093	441917					NoData	NoData	NoData	NoData	NoData	NoData	0.94	5.79
22	337119	441917					NoData	NoData	NoData	NoData	NoData	NoData	0.92	5.79
23	337145	441917					NoData	NoData	NoData	NoData	NoData	NoData	0.93	5.79
24	337171	441917					NoData	NoData	NoData	NoData	0.09	4.78	1.10	5.79
25	337119	441943					NoData	NoData	NoData	NoData	NoData	NoData	1.00	5.79
26	337145	441943					NoData	NoData	NoData	NoData	0.09	4.78	1.10	5.79
27	337171	441943					NoData	NoData	NoData	NoData	0.32	4.78	1.33	5.79

Data in this table comes from the Wyre Estuary 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.



Environment Agency

Defended climate change modelled tidal extent and height

Location (easting/northing)
337087/441889

Scale
1:1,000

Created
31 Jul 2023

Model name
Wyre Estuary Tidal 2014

Selected area

Main river

Modelled 2D grid

Water level in mAOD

- 0 - 7.0
- 7.0 - 7.125
- 7.125 - 7.25
- 7.25 - 7.375
- 7.375 - 7.5
- 7.5 - 7.625
- 7.625 - 7.75
- 7.75 - 7.875
- 7.875 - 8.0

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

0 10 20 30 40
metres

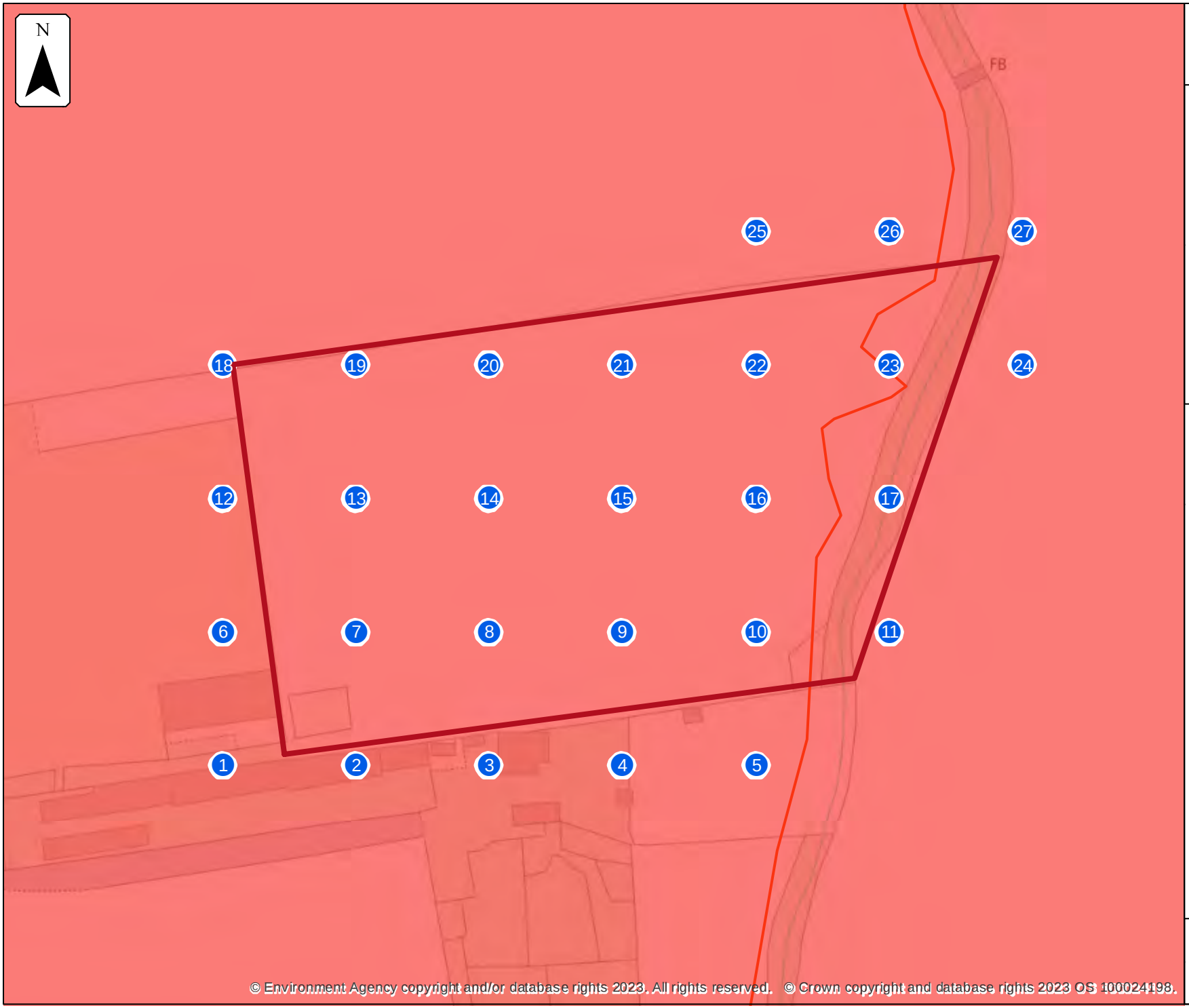
Sample point data

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	337015	441839	1.48	6.08	2.67	7.27	3.12	7.72
2	337041	441839	1.66	6.08	2.85	7.27	3.30	7.72
3	337067	441839	1.36	6.08	2.54	7.27	3.00	7.72
4	337093	441839	1.03	6.08	2.22	7.27	2.67	7.72
5	337119	441839	1.33	6.08	2.51	7.27	2.97	7.72
6	337015	441865	1.42	6.08	2.60	7.27	3.06	7.72
7	337041	441865	1.51	6.08	2.70	7.27	3.15	7.72
8	337067	441865	1.53	6.08	2.72	7.27	3.17	7.72
9	337093	441865	1.54	6.08	2.73	7.27	3.18	7.72
10	337119	441865	1.63	6.08	2.82	7.27	3.27	7.72
11	337145	441865	1.71	6.08	2.90	7.27	3.35	7.72
12	337015	441891	1.31	6.08	2.50	7.27	2.95	7.72
13	337041	441891	1.41	6.08	2.60	7.27	3.05	7.72
14	337067	441891	1.39	6.08	2.57	7.27	3.03	7.72
15	337093	441891	1.41	6.08	2.59	7.27	3.05	7.72
16	337119	441891	1.34	6.08	2.52	7.27	2.98	7.72

Label	Easting	Northing	0.5% AEP (+370mm)		0.5% AEP (+670mm)		0.5% AEP (+970mm)	
			Depth	Height	Depth	Height	Depth	Height
17	337145	441891	3.07	6.08	4.26	7.27	4.71	7.72
18	337015	441917	1.18	6.08	2.37	7.27	2.82	7.72
19	337041	441917	1.26	6.08	2.45	7.27	2.90	7.72
20	337067	441917	1.27	6.08	2.46	7.27	2.91	7.72
21	337093	441917	1.24	6.08	2.42	7.27	2.88	7.72
22	337119	441917	1.21	6.08	2.40	7.27	2.85	7.72
23	337145	441917	1.23	6.08	2.41	7.27	2.87	7.72
24	337171	441917	1.39	6.08	2.58	7.27	3.03	7.72
25	337119	441943	1.29	6.08	2.48	7.27	2.93	7.72
26	337145	441943	1.39	6.08	2.58	7.27	3.03	7.72
27	337171	441943	1.62	6.08	2.81	7.27	3.26	7.72

Data in this table comes from the Wyre Estuary 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.



Environment Agency

Defences removed modelled tidal extent and height

Location (easting/northing)
337087/441889

Scale
1:1,000

Created
31 Jul 2023

Model name
Wyre Estuary Tidal 2014

Selected area

Main river

Modelled 2D grid

Water level in mAOD

- 0 - 6.0
- 6.0 - 6.125
- 6.125 - 6.25
- 6.25 - 6.375
- 6.375 - 6.5
- 6.5 - 6.625
- 6.625 - 6.75
- 6.75 - 6.875
- 6.875 - 7.0

This map shows the 0.1% AEP height data

0 10 20 30 40
metres

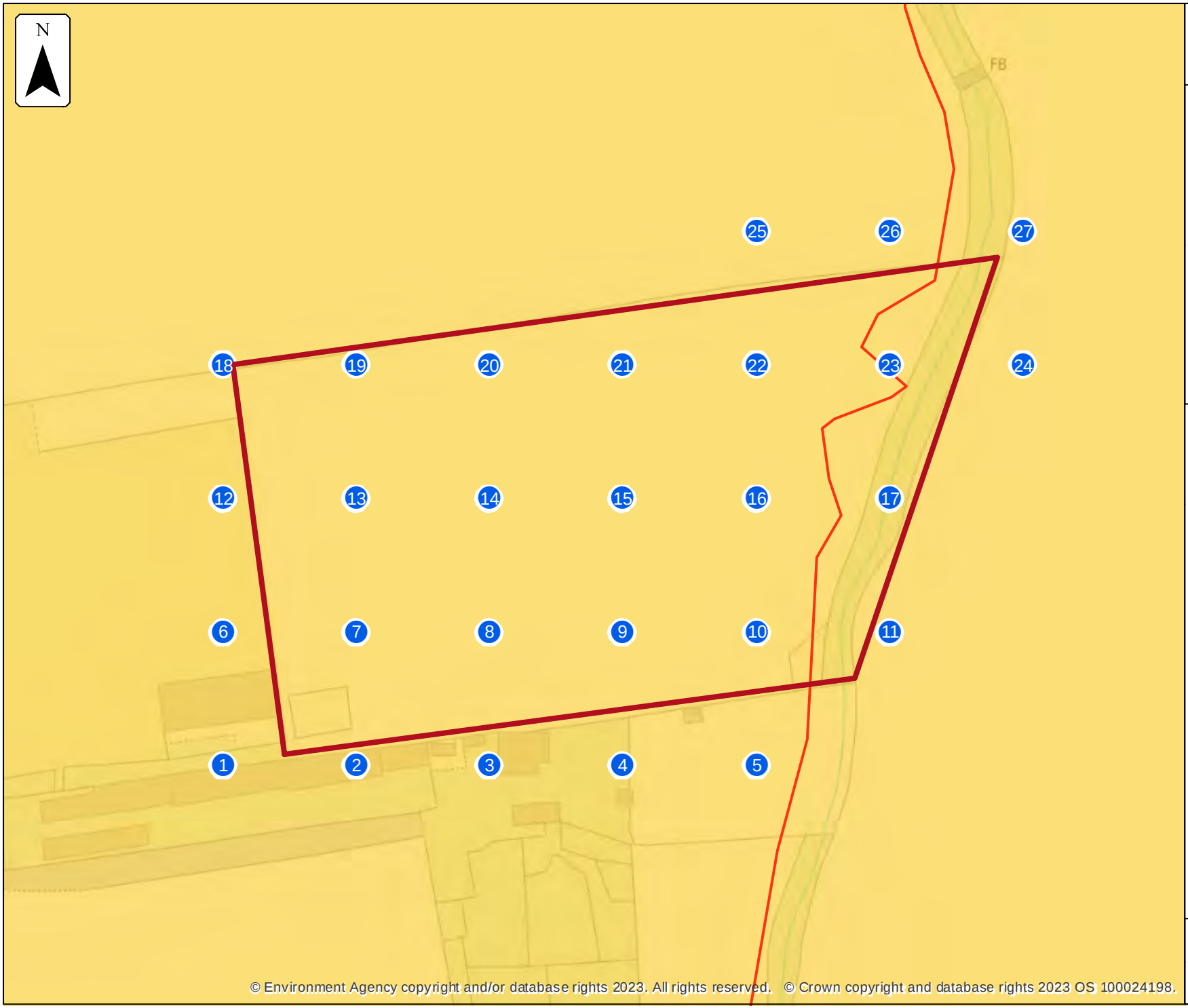
Sample point data

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	337015	441839					1.93	6.53	1.98	6.58	2.11	6.72	2.37	6.98
2	337041	441839					2.11	6.53	2.16	6.58	2.30	6.72	2.56	6.98
3	337067	441839					1.81	6.53	1.85	6.58	1.99	6.72	2.25	6.98
4	337093	441839					1.48	6.53	1.53	6.58	1.67	6.72	1.93	6.98
5	337119	441839					1.78	6.53	1.82	6.58	1.96	6.72	2.22	6.98
6	337015	441865					1.87	6.53	1.91	6.58	2.05	6.72	2.31	6.98
7	337041	441865					1.96	6.53	2.01	6.58	2.14	6.72	2.40	6.98
8	337067	441865					1.98	6.53	2.03	6.58	2.16	6.72	2.42	6.98
9	337093	441865					1.99	6.53	2.04	6.58	2.18	6.72	2.44	6.98
10	337119	441865					2.08	6.53	2.13	6.58	2.26	6.72	2.53	6.98
11	337145	441865					2.16	6.53	2.21	6.58	2.35	6.72	2.61	6.98
12	337015	441891					1.76	6.53	1.81	6.58	1.95	6.72	2.21	6.98
13	337041	441891					1.86	6.53	1.91	6.58	2.04	6.72	2.31	6.98
14	337067	441891					1.84	6.53	1.88	6.58	2.02	6.72	2.28	6.98
15	337093	441891					1.86	6.53	1.90	6.58	2.04	6.72	2.30	6.98
16	337119	441891					1.79	6.53	1.83	6.58	1.97	6.72	2.23	6.98

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	337145	441891					3.52	6.53	3.56	6.58	3.70	6.72	3.96	6.98
18	337015	441917					1.63	6.53	1.68	6.58	1.82	6.72	2.08	6.98
19	337041	441917					1.71	6.53	1.76	6.58	1.89	6.72	2.15	6.98
20	337067	441917					1.72	6.53	1.77	6.58	1.90	6.72	2.16	6.98
21	337093	441917					1.69	6.53	1.73	6.58	1.87	6.72	2.13	6.98
22	337119	441917					1.66	6.53	1.71	6.58	1.84	6.72	2.11	6.98
23	337145	441917					1.67	6.53	1.72	6.58	1.86	6.72	2.12	6.98
24	337171	441917					1.84	6.53	1.89	6.58	2.03	6.72	2.29	6.98
25	337119	441943					1.74	6.53	1.79	6.58	1.92	6.72	2.19	6.98
26	337145	441943					1.84	6.53	1.89	6.58	2.03	6.72	2.29	6.98
27	337171	441943					2.07	6.53	2.12	6.58	2.26	6.72	2.52	6.98

Data in this table comes from the Wyre Estuary 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.



Environment Agency

Defences removed climate change modelled tidal extent and height

Location (easting/northing)
337087/441889

Scale
1:1,000

Created
31 Jul 2023

Model name
Wyre Estuary Tidal 2014

Selected area

Main river

Modelled 2D grid

Water level in mAOD

- 0 - 7.0
- 7.0 - 7.125
- 7.125 - 7.25
- 7.25 - 7.375
- 7.375 - 7.5
- 7.5 - 7.625
- 7.625 - 7.75
- 7.75 - 7.875
- 7.875 - 8.0

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

0 10 20 30 40
metres

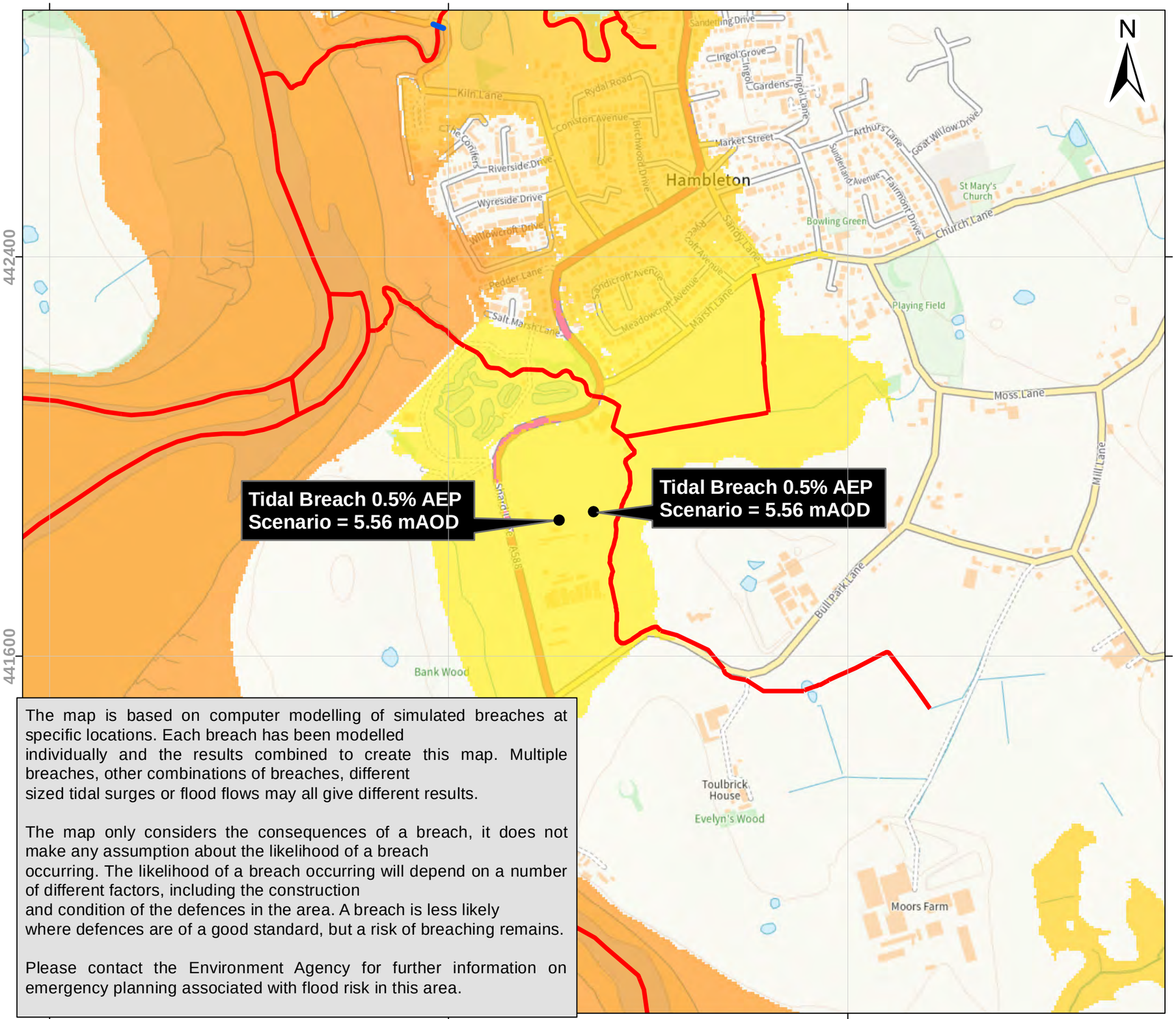
Sample point data

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	337015	441839	2.46	7.06	2.80	7.40	3.07	7.67
2	337041	441839	2.64	7.06	2.98	7.40	3.25	7.67
3	337067	441839	2.33	7.06	2.68	7.41	2.95	7.67
4	337093	441839	2.01	7.06	2.35	7.41	2.62	7.67
5	337119	441839	2.30	7.06	2.65	7.41	2.92	7.67
6	337015	441865	2.39	7.06	2.74	7.40	3.01	7.67
7	337041	441865	2.49	7.06	2.83	7.40	3.10	7.67
8	337067	441865	2.51	7.06	2.85	7.41	3.12	7.67
9	337093	441865	2.52	7.06	2.86	7.41	3.13	7.67
10	337119	441865	2.61	7.06	2.95	7.41	3.22	7.67
11	337145	441865	2.69	7.06	3.03	7.41	3.30	7.67
12	337015	441891	2.29	7.06	2.63	7.40	2.90	7.67
13	337041	441891	2.39	7.06	2.73	7.40	3.00	7.67
14	337067	441891	2.36	7.06	2.71	7.40	2.98	7.67
15	337093	441891	2.38	7.06	2.73	7.41	3.00	7.67
16	337119	441891	2.31	7.06	2.66	7.41	2.93	7.67

Label	Easting	Northing	0.5% AEP (+370mm)		0.5% AEP (+670mm)		0.5% AEP (+970mm)	
			Depth	Height	Depth	Height	Depth	Height
17	337145	441891	4.05	7.06	4.39	7.41	4.66	7.67
18	337015	441917	2.16	7.06	2.50	7.40	2.77	7.67
19	337041	441917	2.24	7.06	2.58	7.40	2.85	7.67
20	337067	441917	2.25	7.06	2.59	7.40	2.86	7.67
21	337093	441917	2.21	7.06	2.56	7.40	2.83	7.67
22	337119	441917	2.19	7.06	2.53	7.40	2.80	7.67
23	337145	441917	2.20	7.06	2.55	7.41	2.82	7.67
24	337171	441917	2.37	7.06	2.71	7.41	2.98	7.67
25	337119	441943	2.27	7.06	2.61	7.40	2.88	7.67
26	337145	441943	2.37	7.06	2.71	7.40	2.98	7.67
27	337171	441943	2.60	7.06	2.94	7.41	3.21	7.67

Data in this table comes from the Wyre Estuary 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.



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

Flood Map For Planning:
Shard Lane, Hambleton

Location (easting/northing)
337091/441889

Model Name
Lancashire Tidal ABD 2014
Produced: 01/08/2023

Key

Breach Locations

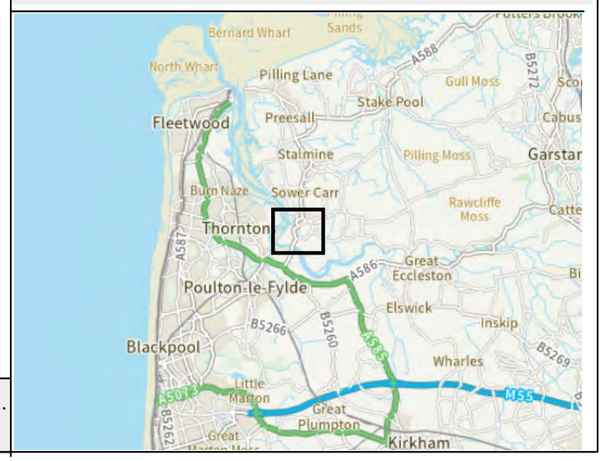
Statutory Main Rivers

0.5% AEP Tidal Breach Scenario 3

mAOD

High : 8

Low : 0



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

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

APPENDIX 5
FLOOD WARNING & EVACUATION PLAN

Keystone
Design Associates Ltd.

Flood Warning & Evacuation Plan

LAND ADJACENT MARSH VIEW, SHARD LANE, HAMBLETON

August 2023

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261 Church Street
Blackpool
FY1 3PB
Tel: 01253 649040
Fax: 01253 752901
Email: info@keystonedesign.co.uk

CONTENTS

Land adjacent Marsh View, Shard Lane

Flood Warning & Evacuation Plan

1.0 Introduction

This Flood Warning & Evacuation Plan (FWEP) has been produced by Keystone Design Associates Ltd in respect of the development for the erection of six glamping pods to land adjacent Marsh View, Shard Lane, Hambleton.

The FWEP captures a summary of the property's flood risk, taking into account flood mitigation measures incorporated in the design of the site and properties, and provides all relevant information, contact details and procedures to prepare for, respond to and recover from a flood event.

This is a plan to ensure the effective evacuation of the glamping pods adjacent to Marsh View, Shard Lane, Hambleton in the event of a flood.

2.0 Objectives

In the production of this FWEP Keystone Design Associates Ltd have identified the following key objectives:

- To ensure adequate ingress and egress for the emergency services & occupants; and
- Reduce the risk to life and damage to property.

3.0 Description of the Site

The development comprises of the erection of six glamping pods with associated car parking situated to the rear of Marsh View, Shard Lane, Hambleton. The site is accessed directly off Shard Lane and lies within Flood Zone 3.

4.0 Key Points from Flood Risk Assessment

The development site lies within Flood Zone 3 of the Environment Agency Flood Map, Flood Zone 3 being the zone with risk of 1 in 100 year (1% AEP) or less for fluvial flooding or 1 in 200 year (0.5% AEP) or less for tidal flooding.

5.0 Preparation

The works will be constructed in accordance with the FRA flood resistance requirements. A copy of this plan will be kept on-site throughout the life of the building.

6.0 Flood Warnings

The following action will be taken for each flood warning.

Warning	Message	*Timing*	*Action*
 FLOOD ALERT	**Flooding is possible.** **Be prepared.**	2 hours to 2 days in advance of flooding.	▪ Be prepared for flooding. ▪ Prepare a flood kit.
 FLOOD WARNING	**Flooding is expected.** **Immediate action required.**	Half an hour to 1 day in advance of flooding.	▪ Act now to protect your property. ▪ Block doors with flood boards or sandbags and cover airbricks and other ventilation holes. ▪ Move pets and valuables to a safe place. ▪ Keep a flood kit ready. ▪ Move any critical equipment and information to a safe location
 SEVERE FLOOD WARNING	**Severe flooding.** **Danger to life.**	When flooding poses a significant threat to life and different actions are required.	▪ Be ready should you need to evacuate from the property. ▪ Co-operate with the emergency services and call 999 if you are in immediate danger.

Warning Removed	**No further flooding is currently expected for your area.**	Issued when a flood warning is no longer in force.	▪ Flood water may still be around and could be contaminated. ▪ If you've been flooded, ring your buildings and contents insurance company as soon as possible.

7.0 Who to Inform and How

The Environment Agency's flood risk early warning system will contact Mr Bailey on 07590 273955. Mr Bailey has also signed up to the Environment Agency Flood Warning Scheme at https://www.gov.uk/sign-up-for-flood-warnings.

8.0 Action to be taken in the event of an Alarm Raised or Flood Warning received

1) If a flood warning is received:

a) Raise the alarm and evacuate the property to a point of safety above the flood, this is considered to be Hambleton Sports & Social Club, Church Lane, Hambleton.
b) Contact the Emergency Services (999) if necessary
c) If safe to do so, locate and turn off key services e.g. water, gas & electricity.
d) Following enquiries/assessment the house should either be invacuated, evacuated or stood down.

9.0 Evacuation

2) In the unlikely event that evacuation is required, with having received notice from the Environment Agency, evacuation to a point of safety Hambleton Sports & Social Club, Church Lane, Hambleton is necessary. If the site starts to flood whilst the property is occupied, immediate action is for all occupants to evacuate and contact the emergency services (999) and await rescue.

10.0 Stand Down

Following confirmation from the Environment Agency, the decision can be taken to stand down. In this eventuality, the property should return to normal following the agreed re-occupation procedure.

11.0 Site Reoccupation

Site Reoccupation cannot be done initially following a flood due to contamination from flood water. The owners are to contact their insurers and complete a claim. It is envisaged that the owners insurance will lead to the reinstatement of the property, decontamination and arrange suitable alternative accommodation.

12.0 Useful Sources of Information

Am I at Risk of Flooding?
http://www.environment-agency.gov.uk/homeandleisure/floods/31650.aspx

Floodline Warnings Direct
https://fwd.environment-agency.gov.uk/app/olr/register

Prepare a Flood Plan for your Business
http://www.environment-agency.gov.uk/business/topics/flooding/32362.aspx

Business Flood Checklist
http://www.environment-agency.gov.uk/business/topics/flooding/32358.aspx

Make an Emergency Flood Plan for your Home
https://www.gov.uk/government/publications/personal-flood-plan

Preparing your home or business for flooding
http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx

Improving the flood performance of new buildings: flood resilient construction.
http://www.communities.gov.uk/publications/planningandbuilding/improvingflood

Improving the flood resistance of your home - advice sheets
http://www.ciria.com/flooding/pdf/CIRIA_Advice_sheet_3.pdf

Flood Protection Association (Promote the interests of manufacturers and installers of flood protection equipment and requirements)
https://thefpa.org.uk/

Direct Gov Preparing for emergencies
https://www.gov.uk/government/publications/preparing-for-emergencies/preparing-for-emergencies

UK Resilience
http://www.cabinetoffice.gov.uk/ukresilience.aspx