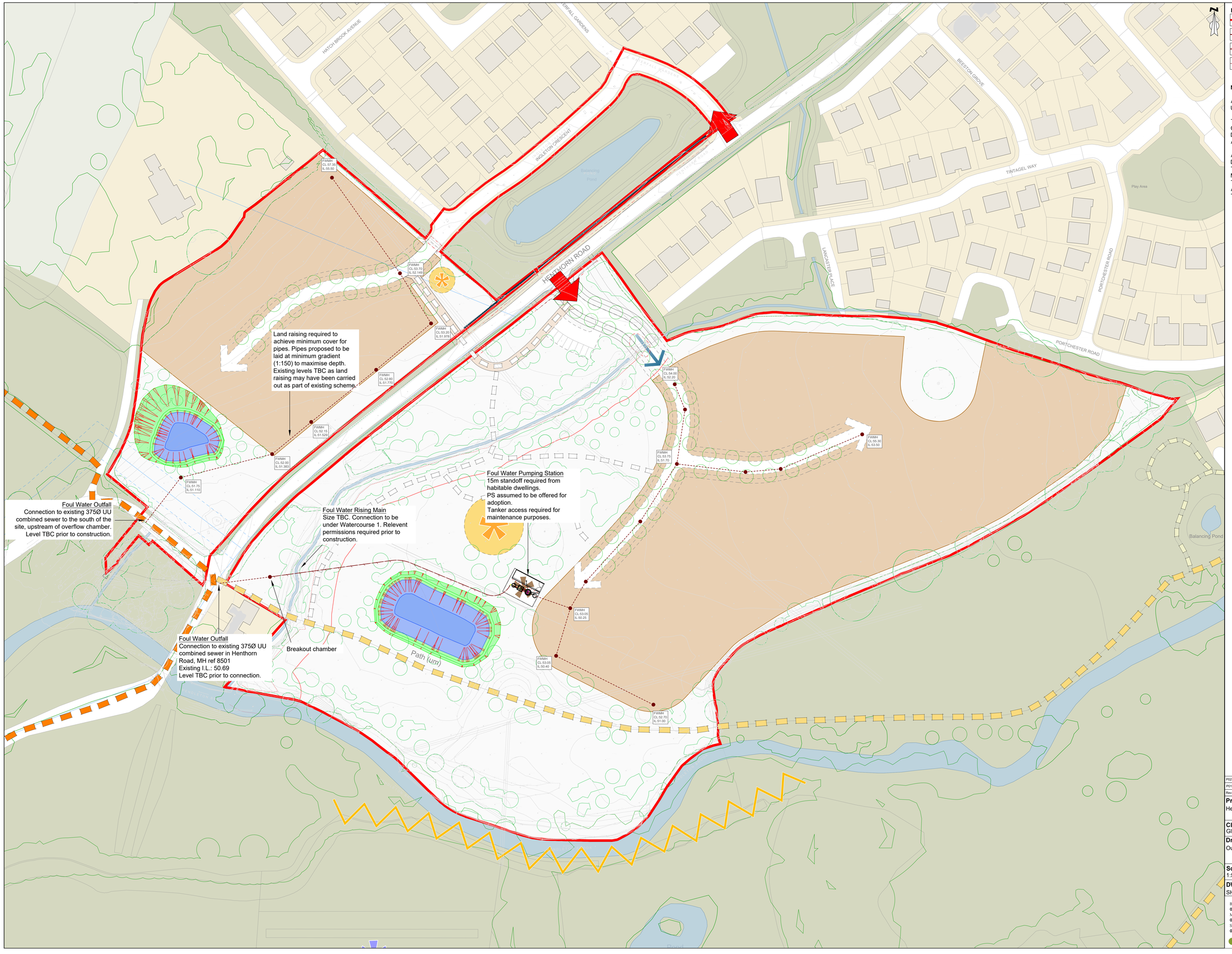


KEY:

- Site Boundary
- Foul Water Sewer
- Foul Water Manhole
- Foul Rising Main

NOTES:

ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND DOCUMENTS ASSOCIATED WITH THIS PROJECT.

ALL EXISTING AND PROPOSED DIMENSIONS, LEVELS AND LOCATIONS TO BE CHECKED AND VERIFIED BY THE MAIN CONTRACTOR ON SITE PRIOR TO THE COMMENCEMENT OF THE WORKS AND ANY ANOMALIES REPORTED TO THE ENGINEER.

Rev	Date	Description	DRA	CHK	APP
P02	01/10/25	Western parcel outfall route amended.	RB	DA	DA
P01	29/09/25	Issued for comment / approval	RB	DA	DA

Project
Henthorn Road, Clitheroe

Client
Gladman Developments Ltd

Drawing Title
Outline Foul Water Drainage

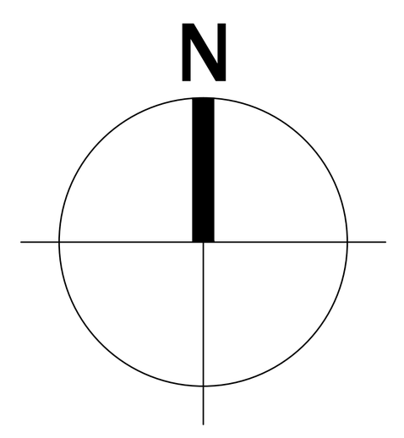
Scale	Date	Status
1:500@A0	29/09/25	Preliminary

DWG No. SHF.1132.306-ENZ-XX-XX-DR-D-0011 **Revision** P01

Bristol 01454 269 237
Cardiff 02920 023 700
Manchester 0161 413 6444
Cambridge 01799 542 473
Sheffield 0114 321 5151
Belfast 07377673948
@enzygo
enzygo.com
hello@enzygo.com

APPENDICES

Appendix 1 - Topographic Survey



NOTES

THIS SURVEY IS ORIENTATED TO ORDNANCE SURVEY GRID NORTH. THE SURVEY IS TO A PLANE GRID. HORIZONTAL MEASUREMENTS TAKEN FROM THIS SURVEY WILL BE GROUND DISTANCES.

SITE CENTRE: E 372939.9018, N 440822.9844

LOCAL SCALE FACTOR: 0.9996103

ALL LEVELS RELATE TO ORDNANCE SURVEY DATUM GENERATED BY ACTIVE GPS NETWORK.

DRAINAGE:-

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ROAD MARKINGS:-

ROAD MARKINGS DISPLAYED ARE SYMBOLIC. LENGTH, SPACING AND THICKNESS ETC. ARE INDICATIVE ONLY.

ORIGINAL SURVEY:-

THIS DRAWING IS AN UPDATE TO THE ORIGINAL SURVEY:
2018-015_Topo_01-03_2d_RevD.dwg

LEGEND

30.29	SPOT LEVEL
	SURVEY STATION
	SAPLING
	BUSHES/SHRUB
	TREE (INDICATIVE ONLY)
	HEDGE/AREA OF UNDERGROWTH
99.90	CONTOUR
	GATE
	OVERHEAD CABLE
	FENCE
1	PHOTOGRAPH LOCATION AND NUMBER

ABBREVIATIONS

ArL	ARCH LEVEL	LB	LETTER BOX
AV	AIR VALVE	LP	LAMPOST
B	BOLLARD	MH	MANHOLE
BB	BELISHA BEACON	MKR	MARKER
BH	BOREHOLE	OHC	OVERHEAD CABLE
BL	BED LEVEL	OpL	OPENING LEVEL
BS	BUS STOP	OSBM	OS BENCHMARK
BT	BT COVER	P	POST
C/B	CLOSED BOARD FENCE	P/R	POST AND RAIL FENCE
C/L	CHAIN LINK FENCE	P/W	POST AND WIRE FENCE
CATV	CABLE TELEVISION COVER	PEC	PEDESTRIAN CROSSING
CC	CONTROL CABIN	PM	PARKING METER
COL	COLUMN	RE	RODDING EYE
Conc/p	CONCRETE PANEL FENCE	RWL	RETAINING WALL
CPY	CANOPY	SAP	SAPLING
CrL	CROWN LEVEL	SEC	SECURITY CAMERA
Csty	CABLE STAY	SGY	STRIP GULLY
CTV	CABLE TELEVISION POINT	SoL	SOFFIT LEVEL
CYR	CYCLE RACK	SP	SIGNPOST
DK	DROPPED KERB	SpL	SPRINGING LEVEL
DP	DOWNPIPE	SV	STOP VALVE
EiP	ELECTRIC INLET POINT	Tac	TACTILE PAVING
EL	ELECTRIC INSPECTION COVER	TCB	TELEPHONE BOX
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Gpi	GAS PIPE	W/M	WIRE MESH FENCE
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IC	INSPECTION CHAMBER	WLV	WATER LEVEL
IL	INVERT LEVEL	WM	WATER METER
I/R	IRON RAILING FENCE	WO	WASH OUT
KO	KERB OUTLET		

STATION CO-ORDINATES

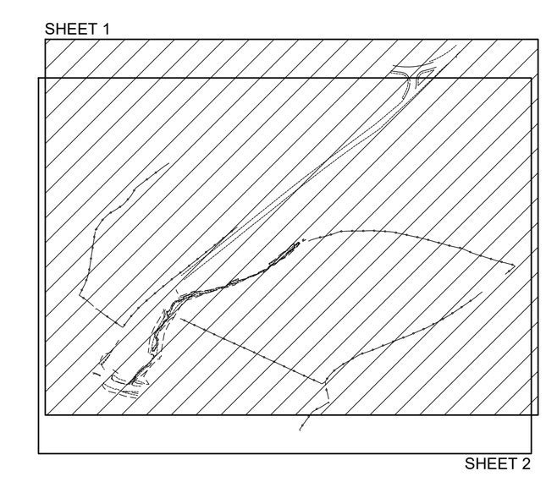
STATION	EASTING	NORTHING	LEVEL	DESCRIPTION
STN/3	373124.26	440823.83	58.90	Survey Nail
STN/5	373096.78	440846.93	60.36	Survey Nail
STN/6	373041.19	440882.09	59.99	Survey Nail
STN/754	373147.95	440850.97	60.12	Survey Nail
STN/800	373039.13	440761.59	56.42	Survey Nail
STN/801	372982.54	440767.25	57.32	Survey Nail
STN/802	372916.91	440713.26	54.53	Survey Nail
STN/805	372899.23	440721.94	55.18	Survey Nail

TREE SCHEDULE

No.	DIAM.	SPREAD Ø	HEIGHT
TE/1	0.70	14	14
TE/15	0.65	16	13
TE/16	0.30	6	6
TE/17	0.50	12	16
TE/18	0.70	12	16
TE/19	0.50	14	14
TE/20	0.90	18	18
TE/21	0.80	16	16
TE/22	1.00	20	18
TE/23	0.20	6	6
TE/24	0.40	6	6
TE/25	0.60	14	14
TE/26	1.10	14	14
TE/27	0.60	10	14
TE/28	0.75	14	14
TE/29	1.00	20	15
TE/30	0.80	12	16
TE/31	0.70	14	16
TE/32	0.70	14	16
TE/33	0.50	10	8
TE/34	0.50	10	10
TE/35	0.70	14	14
TE/36	0.80	16	16
TE/37	0.50	10	8
TE/38	0.20	4	5
TE/39	0.60	10	8
TE/40	0.40	8	4
TE/41	0.30	12	8
TE/42	1.00	8	10
TE/43	1.00	20	18
TE/44	0.45	12	16
TE/45	0.70	12	20
TE/46	0.80	12	20
TE/47	0.60	12	20
TE/48	0.70	12	20
TE/49	0.65	12	20
TE/50	0.50	12	20
TE/51	0.95	12	20
TE/52	0.50	12	16
TE/53	0.55	12	16
TE/54	0.55	12	16
TE/55	0.80	12	16
TE/56	0.90	12	20
TE/57	0.60	12	20
TE/58	0.50	12	20
TE/59	0.90	12	20
TE/60	0.50	12	20
TE/61	1.00	12	20
TE/62	0.70	12	20
TE/63	0.70	12	20
TE/64	0.60	10	7

TREE DIAMETER MEASURED APPROXIMATELY 1.5M ABOVE GROUND LEVEL. TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE GENERALISED CANOPY SIZE. TREE BOLE MAY NOT SIT CENTRALLY TO THE CANOPY. TREE HEIGHT ESTIMATED FROM GROUND LEVEL.

PLOT LOCATIONS



Rev	Date	Revision notes	By
*	*	*	*

DO NOT SCALE FROM THIS DRAWING

Status

INFORMATION

THE SURVEY ASSOCIATION
AFFILIATE MEMBER

Project

Clitheroe, Ribble Valley.

Title

**TOPOGRAPHICAL SURVEY
AS OF 02.09.24
SHEET 1 OF 2**

GLADMAN
Gladman House, Alexandria Way
Congleton Business Park
Congleton, Cheshire
CW12 1LB
Tel: 01260 288800
Fax: 01260 288801
www.gladman.co.uk

Drawn By	Publish Date	Scale(s)	Sheet Size
JW	17.10.24	1:500	A0

Project no.	Drawing no.	Revision
2018-128	Topo_01_2D	0

N

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TE/21	0.80	16	16
TE/22	1.00	20	18
TE/23	0.20	6	6
TE/24	0.40	6	6
TE/25	0.60	14	14
TE/26	1.10	14	14
TE/27	0.60	10	14
TE/28	0.75	14	14
TE/29	1.00	20	15
TE/30	0.80	12	16
TE/31	0.70	14	16
TE/32	0.70	14	16
TE/33	0.50	10	8
TE/34	0.50	10	10
TE/35	0.70	14	14
TE/36	0.80	16	16
TE/37	0.50	10	8
TE/38	0.20	4	5
TE/39	0.60	10	8
TE/40	0.40	8	4
TE/41	0.30	12	8
TE/42	1.00	8	10
TE/43	1.00	20	18
TE/44	0.45	12	16
TE/45	0.70	12	20
TE/46	0.80	12	20
TE/47	0.60	12	20
TE/48	0.70	12	20
TE/49	0.65	12	20
TE/50	0.50	12	20
TE/51	0.95	12	20
TE/52	0.50	12	16
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TE/54	0.55	12	16
TE/55	0.80	12	16
TE/56	0.90	12	20
TE/57	0.60	12	20
TE/58	0.50	12	20
TE/59	0.90	12	20
TE/60	0.50	12	20
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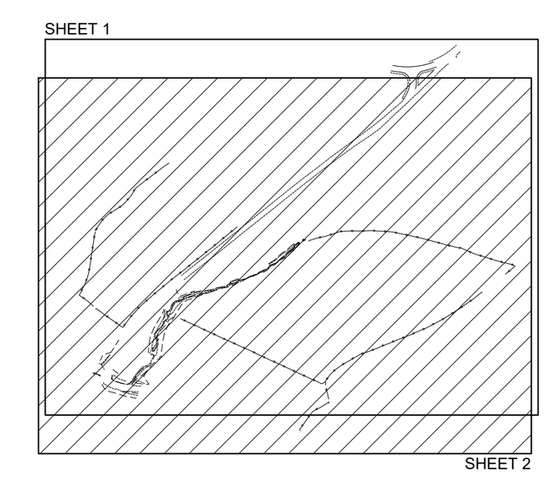


Rev	Date	Revision notes	By
*	*	*	*

DO NOT SCALE FROM THIS DRAWING

Status

INFORMATION

THE SURVEY ASSOCIATION
AFFILIATE MEMBER

Project

Clitheroe, Ribble Valley.

Title

TOPOGRAPHICAL SURVEY
AS OF 02.09.24
SHEET 2 OF 2

GLADMAN
Gladman House, Alexandria Way
Congleton Business Park
Congleton, Cheshire
CW12 1LB
Tel: 01260 288800
Fax: 01260 288801
www.gladman.co.uk

Drawn By	Publish Date	Scale(s)	Sheet Size
JW	17.10.24	1:500	A0

Project no.	Drawing no.	Revision
2018-128	Topo_02_2D	0

Appendix 2 - Environment Agency Correspondence

Outlook

RESPONSE: CL385520RI- Flood Risk and Drainage Enquiry - Henthorn Road, Clitheroe (3)

From CMBLNC Info Requests <Inforequests.cmblnc@environment-agency.gov.uk>
Date Tue 17/12/2024 09:17
To Daniel Alstead <daniel.alstead@enzygo.com>

Dear Daniel,

Thank you for your enquiry received on 19th November 2024.

We respond under the Freedom of Information Act 2000 and Environment Information Regulations 2004. Please find further information below.

We've noticed that Enzygo aren't requesting Product 4 data (modelled flood information) via ***Flood map for planning - GOV.UK (flood-map-for-planning.service.gov.uk)****. You will need to submit all product 4 requests via this method. If you do require products 5-7 then please contact Inforequests.cmblnc@environment-agency.gov.uk as usual.*

- ***Please can you provide modelled flood levels, where available for Pendleton Brook? Can you comment on the age of the model from which the levels have been extracted? Where the 1 in 100-year modelled flood levels do not current climate change allowances, would you allow an interpolated level, or would you require a model re-run?***
  To request product 4 (modelled flood levels) data for this site, please do so using the following link: ***Flood map for planning - GOV.UK (flood-map-for-planning.service.gov.uk)****.*

  Regarding the current climate change allowances, it is up to you to determine the suitability of the modelling for your FRA. Please see the Using modelling for flood risk assessments - GOV.UK (www.gov.uk) guidance. For information on the latest climate change allowance, please visit: www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances. If you require advice for your planning application, you will need to contact CLPlanning@environment-agency.gov.uk for charged advice.

- ***If a model re-run is required, please can you provide us with the model files and associated modelling report. Would you require an update to the input hydrology/geometry, and what level of allowance for climate change would be required when considering mitigation measures and access/egress?***

  For more information on the latest climate change allowance, please visit: www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances. If you require advice for your planning application, you will need to contact CLPlanning@environment-agency.gov.uk for charged advice.

  - ***Do you agree with our above interpretation of surface water flooding?***
    This is a matter for the LLFA (Lancashire County Council)
  - ***Do you have any records of historic flooding events on this Site, either from fluvial, surface water, groundwater, sewers or infrastructure failure sources? If you are aware of historical flooding at the Site, can you please provide us with details of these historical flood events where it is available, including flood levels, estimated return periods, photographs, and other such data as may be relevant to our study?***
    The Environment Agency holds no records of flooding for the site of interest. Please be aware, however, that this does not necessarily mean that flooding has not occurred here in the past as our records are not comprehensive. For all queries relating to flooding from surface water, ordinary watercourses and groundwater flooding, please contact the Lead Local Flood Authority. Surface

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

- *Most of the information requested, or answers to the questions posed, can be found on Magic.gov.uk. This includes the dominant soil type (deep loam) and superficial deposits (glacial till) that will mean any Sustainable Urban Drainage Systems will not be able to cope with large amounts of water (unless large areas are allowed for infiltration). In any event, we would hope that rainfall runoff from roofs would need to be kept separate from that from highways OR oil/water interceptors installed with remote monitoring systems and alarms.*

- *There is a pond at SD 72963 40738 (south of Ingleton Cresent), this aquatic feature should be retained and not lost to the development, any losses will need to be mitigated for*
- *There is a drain which runs through the red line boundary, again this aquatic feature should be incorporated into the development design*
- *Pendleton Water and the River Ribble are salmonid rivers and support populations of protected fish species and otters which are a European Protected Species, these watercourses should not be impacted by the proposed development*
- *There is a block of deciduous woodland at SD7270440493*
- *The River Ribble in a designated Biological Heritage Site (Local Wildlife Site), " River Ribble from London Road Bridge Preston in West to County Boundary in East": The designation covers:*
- *Bird species protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)*
- *Bryophyte species*
- *Flowering plants and ferns – species protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended)*
- *Invertebrate species protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)*
- *Habitats that support mammals (Otter) protected under the Habitats and Bird Directive and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)*
- *Mullusc protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)*
- *Freshwater habitats – River and Streams and associated shingle beds, earth banks, riverine trees, shrubs and grassy banks*

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

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

Kind regards.

Rosie Irlam
Customer Engagement officer
Cumbria and Lancashire

From: CMBLNC Info Requests
Sent: 19 November 2024 08:57
To: daniel.alstead@enzygo.com
Subject: CL385520RI- Flood Risk and Drainage Enquiry - Henthorn Road, Clitheroe (3)

Dear Daniel,

Thank you for contacting the Environment Agency.

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

Your request has now been sent to the relevant team.

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

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

If you need to contact me in the meantime, please do not hesitate to do so using the details below and quoting reference number CL385520RI

Kind regards,

Rosie

Customer and Engagement Officer
Cumbria and Lancashire

From: Enquiries, Unit <enquiries@environment-agency.gov.uk>
Sent: 18 November 2024 10:30
To: 'daniel.alstead@enzygo.com' <daniel.alstead@enzygo.com>
Subject: FW: 241118/RS02 Flood Risk and Drainage Enquiry - Henthorn Road, Clitheroe (3)

Hi Daniel

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

The Freedom of Information Act and Environmental Information Regulations state that a public authority must respond to requests for information within 20 working days.

You can find more information about our service commitment by clicking on the link below:

https://www.gov.uk/government/publications/environment-agency-customer-service-commitment

You can contact our customer team directly on the contact details below or call the National Customer Contact Centre on 03708 506506 who will transfer you to the area team.

Please quote your enquiry reference 241118/RS02 in any correspondence with us regarding this matter.

Customers & Engagement Team
Environment Agency
Cumbria and Lancashire (Preston office) Email address - Inforequests.cmbInc@environment-agency.gov.uk

Thanks

Richard

Richard Staniland
Customer Service Adviser
Environment Agency: Contact Centre Services - Part of Strategy, Transformation & Assurance (STA)
Phone: 03708 506506
Working hours Mon to Wed 9am to 5pm

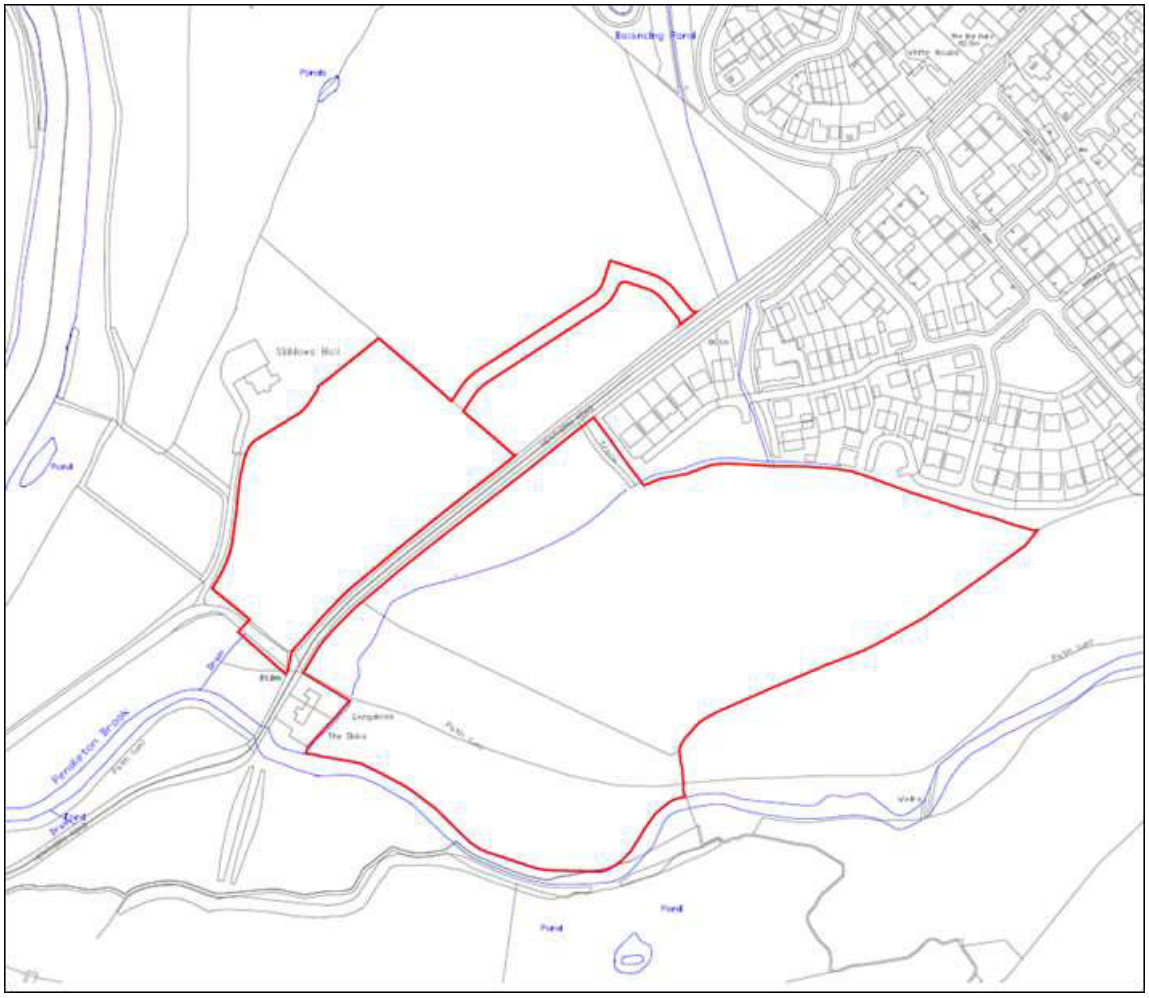
From: Daniel Alstead <daniel.alstead@enzygo.com>
Sent: 15 November 2024 12:29
To: Enquiries, Unit <enquiries@environment-agency.gov.uk>; Suds <suds@lancashire.gov.uk>
Cc: Helena Du-Roe (Guest) <helena.du-roe@enzygo.com>; Edward Willis <Edward.willis@enzygo.com>
Subject: 241118/RS02 Flood Risk and Drainage Enquiry - Henthorn Road, Clitheroe (3)

Our Reference: SHF.1132.306 - Henthorn Road, Clitheroe [3]

Location: Henthorn Road, Clitheroe, Lancashire, BB7 2PL [NGR: 372919, 440609]

Enzygo Ltd have been commissioned to prepare a Flood Risk Assessment [FRA], inclusive of an outline surface water and foul drainage strategy, for a proposed outline planning application for a residential development [up to 160 dwellings], located on the above 6.96ha 'Site'. A location plan is included in Figure 1.

Figure 1: Location Plan



1. Background

Our Client [Gladman Developments Ltd] previously prepared and submitted an outline planning application during November 2019 [Application 3/2019/0999 - https://webportal.ribblevalley.gov.uk/site/scripts/planx_details.php?appNumber=3%2F2019%2F0999]. Ribble Valley Borough Council refused the application during September 2021, based on reasons other than flood risk and drainage.

As part of the November 2019 application, Enzygo prepared an FRA report [Reference. SHF.1132.227.HY.R.001.A - Henthorn Road, Clitheroe [2], dated October 2019]. A copy of the FRA can be viewed online at the above link.

2. Updated FRA/Outline Drainage Strategy

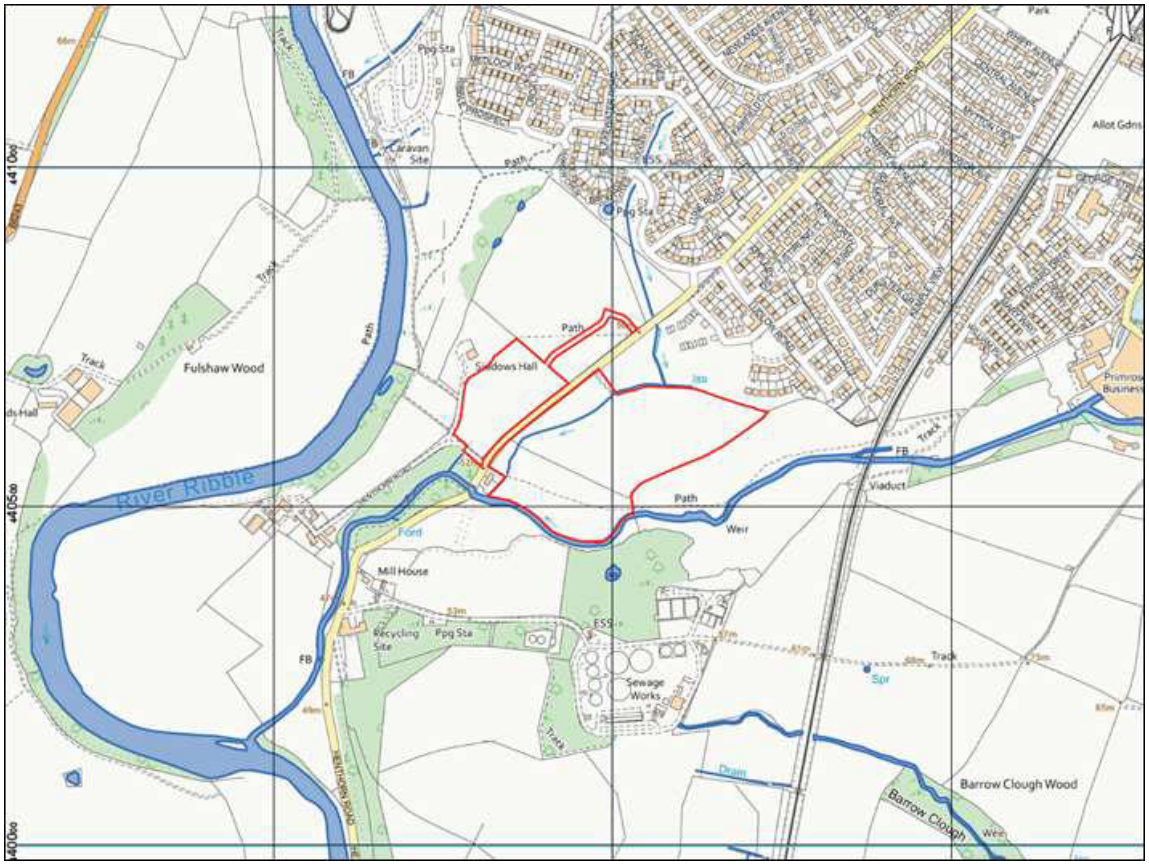
Enzygo will draw upon the material in the November 2019 FRA, and prepare a new FRA report in line with current policy/guidance and recent project experience. As part of the update, we wish to engage with the Environment Agency, Lancashire Council as the Lead Local Flood Authority [LLFA], and United Utilities to avoid any issues at a later date.

Flood Risk Considerations

Ordnance Survey mapping shows thew following:

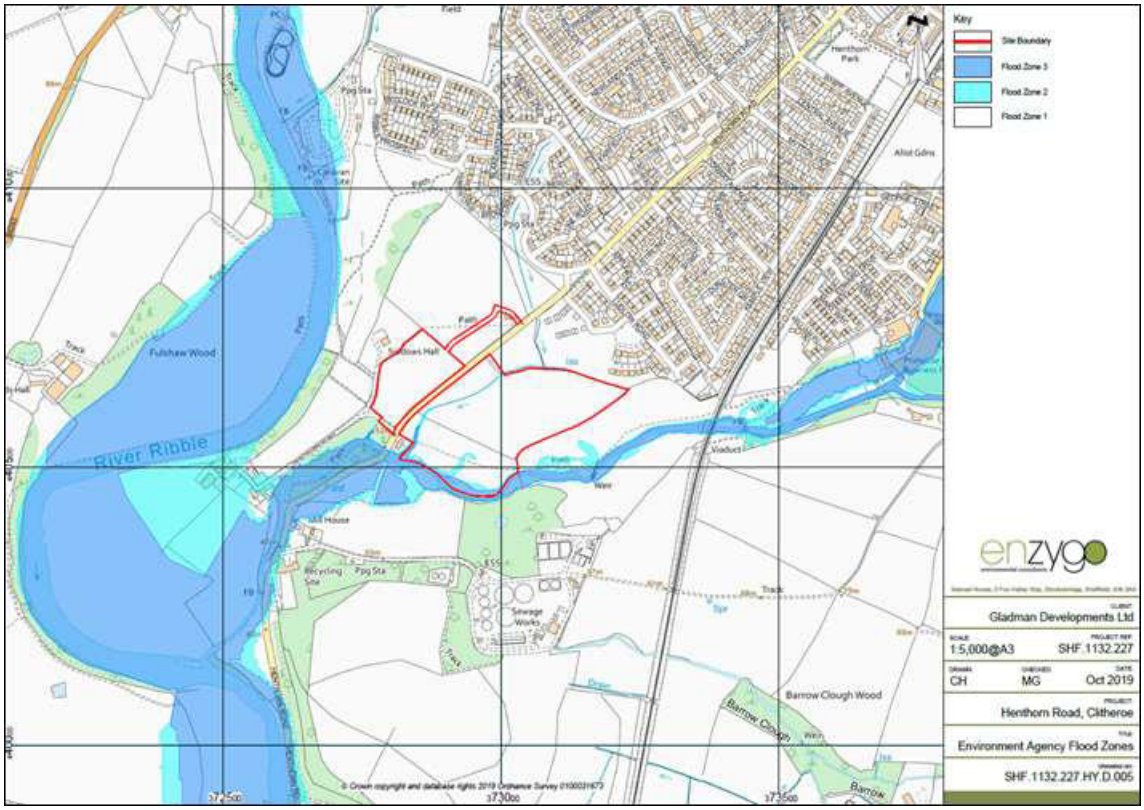
- Pendleton Brook [a main river] conveys flows west along the southern parcel. Pendleton Brook is a tributary of the River Ribble [main river], which conveys flows south, approximately 110m to the west of the northern parcel.
- Watercourse 1 [an ordinary watercourse] conveys flows south-west through the north-west extent of the southern parcel.
- Drains 1 and 2 [ordinary watercourses] originate in land to the south of the northern parcel, which are tributaries of Pendleton Brook

Figure 1: Map of Watercourses



Environment Agency online mapping flood map shows most of the Site is in Flood Zone 1, at 'low' risk of fluvial flooding. There I an area of Flood Zone 2 and 3 [medium to high risk] of fluvial flooding in the southern extent of the southern parcel, associated with Pendleton Brook and downstream (southern) reach of Watercourse 1.

Figure 2: Environment Agency Flood Zone Mapping



The Environment Agency Complex Surface Water Flood Mapping [Figure 3] shows the following:

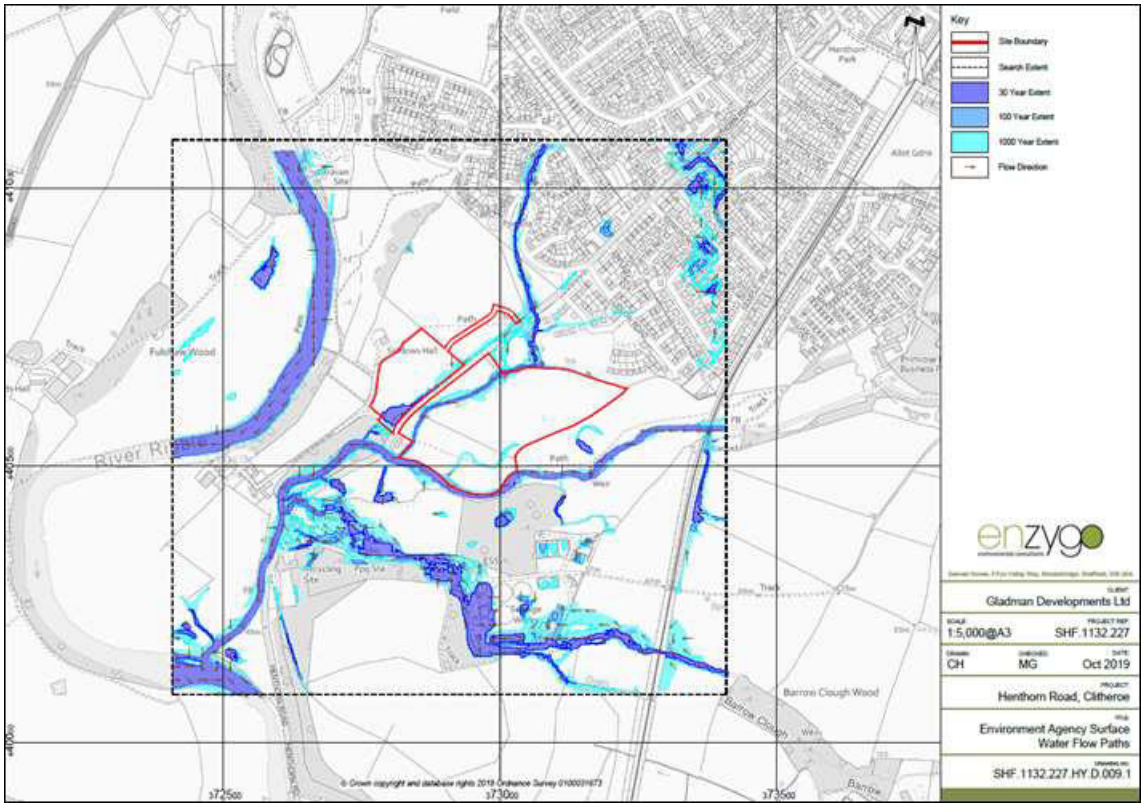
- A surface water flow pathway originates and conveys flows through the southern extent of the southern parcel. This is an overland flow pathway, generated by local topography and low

permeable [clayey] soils. The catchment associated with the flow pathway will be investigated further through flow pathway/watershed catchment analysis.

- **Do you agree with our above interpretation of surface water flooding and approach to further assessment?**

- A surface water flow pathway along the reachs of Pendleton Brook and Watercourse 1 [low to high risk], which are indicative of fluvial flooding.
  - The Flood Zone mapping (derived through hydraulic modelling) should supersede the Complex Surface Water mapping outlines along Pendleton Brook, subject to a review of climate change allowances.
    - **Please can you provide modelled flood levels, where available for Pendleton Brook? Can you comment on the age of the model from which the levels have been extracted? Where the 1 in 100-year modelled flood levels do not current climate change allowances, would you allow an interpolated level, or would you require a model re-run?**
    - **If a model re-run is required, please can you provide us with the model files and associated modelling report. Would you require an update to the input hydrology/geometry, and what level of allowance for climate change would be required when considering mitigation measures and access/egress?**
  - Watercourse 1 appears to come out of bank where there is a culvert crossing beneath Henthorne Road, which is directed south-west along the eastern/south-east boundary of the northern parcel. The mapping is based on a carse ground model, which does not capture the conveyance capacity of a surveyed channel and associated structures. The flow pathway [both in and out of bank flows] affects access to the northern and southern parcels, and could potentially trigger the requirement for the Sequential Test.
    - **Do you agree with our above interpretation of surface water flooding? If so, would you agree that a 1D/2D hydraulic modelling exercise is required to confirm the fluvial flood outlines along Watercourse 1, as indicated by the surface water flow pathway. The modelling exercise would determine the baseline fluvial flood outlines/depths/velocity/hazard ratings, and could be used to guide management measures, as well as size culvert crossings [scaled to the 1 in 100-year +CC event, with a freeboard allowance].**

Figure 3: Environment Agency Complex Surface water Flood Mapping



Further to the above, do you have any records of historic flooding events on this Site, either from fluvial, surface water, groundwater, sewers or infrastructure failure sources? If you are aware of historical flooding at the Site, can you please provide us with details of these historical flood events where it is available, including flood levels, estimated return periods, photographs, and other such data as may be relevant to our study?

Drainage Considerations

- **Do you have any information on drainage within the Site and in the local area, including any known drainage problems?**
- **The proposal is for a development of a greenfield Site. Please could you indicate the maximum allowable discharge rate?**
- **What level of allowance for climate change would be required when considering surface water attenuation?**
- **Please can you also indicate to us whether you are aware of any relevant environmentally sensitive receptors [such as aquatic wildlife in receiving watercourses, etc.] in the area around the Site that we should be aware of when preparing the surface water drainage strategy?**

3. Closure

We trust that the details presented herein are self-explanatory and clear. If, for any reason you should have any queries or comments, please do not hesitate to contact me.

Best Regards

Daniel Alstead BSc (Hons), MSc, MCIWEM, C.WEM
Director of Hydrology

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Building with Nature Approved Assessor

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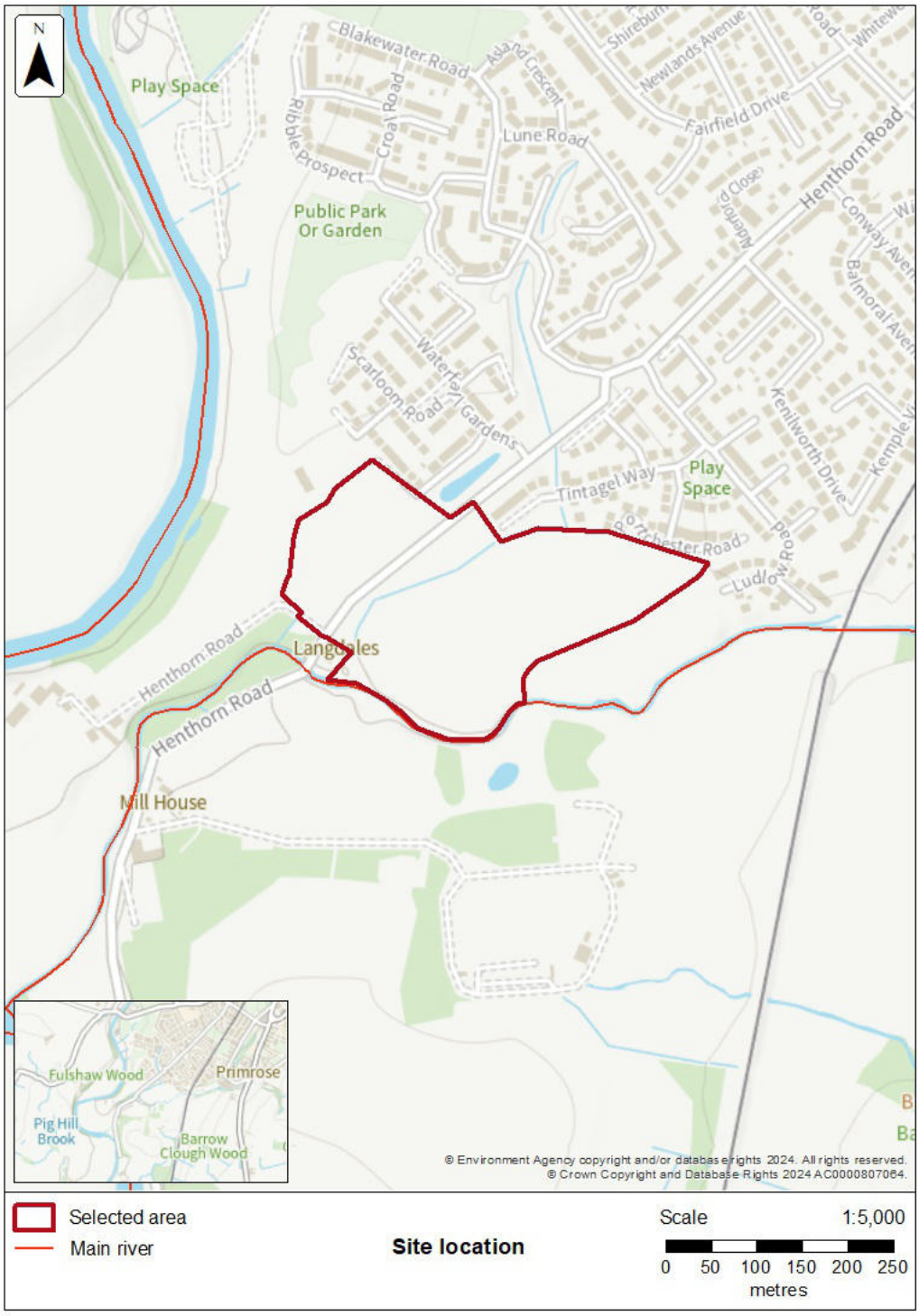
Please consider the environment before printing this email

Flood risk assessment data

Location of site: 372960 / 440602 (shown as easting and northing coordinates)
Document created on: 19 December 2024
This information was previously known as a product 4.
Customer reference number: HDXW5BHTUVV7

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)
- past floods
- 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

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

Or you can contact your Lead Local Flood Authority for further information.

Your Lead Local Flood Authority is Lancashire County.

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

About the models used

Model name: Low Moor 2006
Scenario(s): Defences removed fluvial, defences removed climate change fluvial
Date: 1 June 2006

Model name: Mearley Brook 2018
Scenario(s): Defended fluvial, defences removed fluvial, defended climate change fluvial
Date: 1 December 2017

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

The flood zones are not currently being updated. The last update was in November 2023. Some of the flood zones may have changed, however all source data is included in the models below.

Environment Agency

Flood map for planning

Location (easting/northing)
372960/440602

Scale
1:10,000

Created
19 Dec 2024

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

0 100 200 300 400 500
metres

Past floods

Past flood events included in this document

The recorded flood outlines included in this document are for areas of land local to your site location that have been flooded by any of these sources:

- ephemeral water
- main rivers
- ordinary watercourses
- the sea

Data limitations

The outlines do not include flooding from:

- drainage where rainfall has led to surface water ponding or overland runoff
- artificial, water-bearing sewer, water supply and wastewater treatment pipelines

Changes to flood defences

The defences (also known as assets) that were in place may also have changed. For example, assets may have been built more recently than the last recorded flood outline.

What the recorded flood outlines dataset is

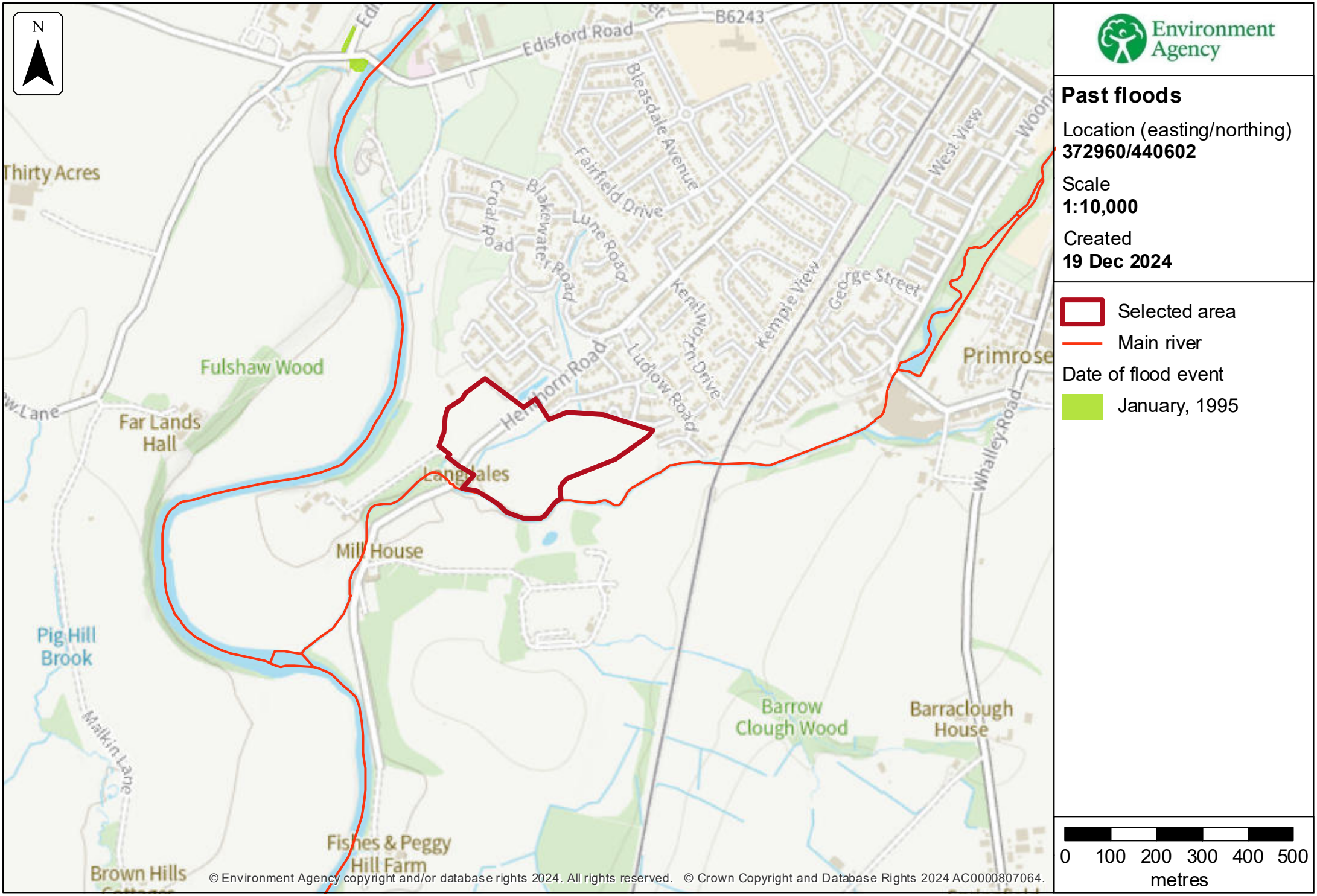
The recorded flood outlines are a geographical information system (GIS) data layer that show our verified records of areas that have flooded in the past from:

- rivers
- the sea
- groundwater
- surface water

Download the complete recorded flood outlines dataset, which includes data quality flags for outlines recorded after April 2020. This indicates the confidence we have in an outline.

Get flood information from other organisations

Contact Lancashire County Lead Local Flood Authority (LLFA) and your drainage board to get information about past flooding caused by surface water or drainage systems.


N
Edisford Road
B6243
Thirty Acres
Fulshaw Wood
Far Lands Hall
Langdales
Mill House
Pig Hill Brook
Malkin Lane
Brown Hills
Fishes & Peggy Hill Farm
Barrow Clough Wood
Barraclough House
Primrose
Whalley Road
Bleasdale Avenue
Fairfield Drive
Croal Road
Blakewater Road
Lune Road
Hermitage Road
Ludlow Road
Kentmere Drive
Kemple View
George Street
West View
Environment Agency
Past floods
Location (easting/northing)
372960/440602
Scale
1:10,000
Created
19 Dec 2024
Selected area
Main river
Date of flood event
January, 1995
0 100 200 300 400 500
metres
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Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
31 January 1995	1 February 1995	main river	channel capacity exceeded (no raised 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)
372960/440602

Scale
1:2,500

Created
19 Dec 2024

Selected area
Main river
Flood defence

0 25 50 75 100
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	65630	Embankment		Fair	51.04	50.04	49.97

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

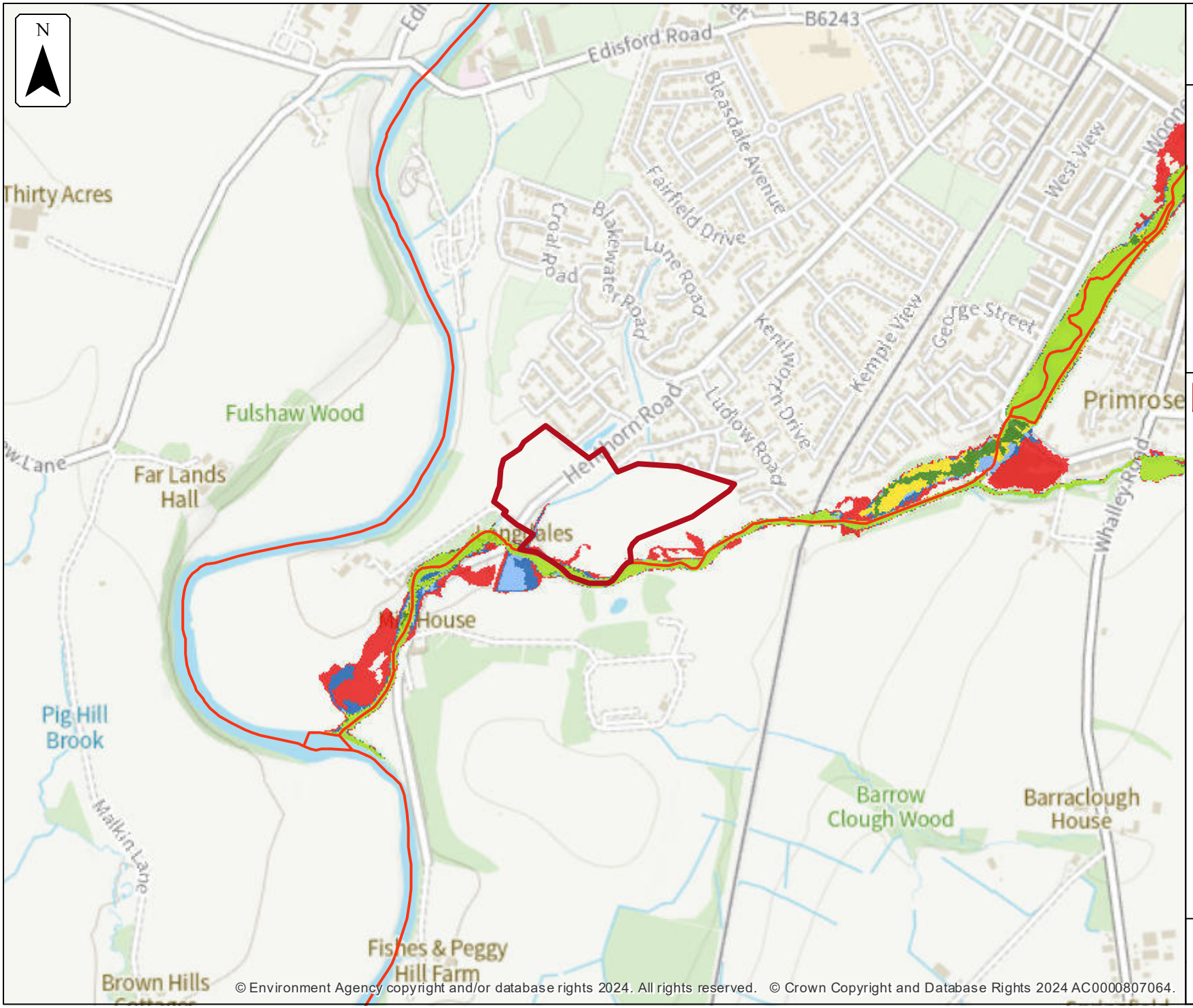
The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

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:

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



Environment Agency

Defended modelled fluvial extent

Location (easting/northing)
372960/440602

Scale
1:10,000

Created
19 Dec 2024

Model name
Mearley Brook 2018

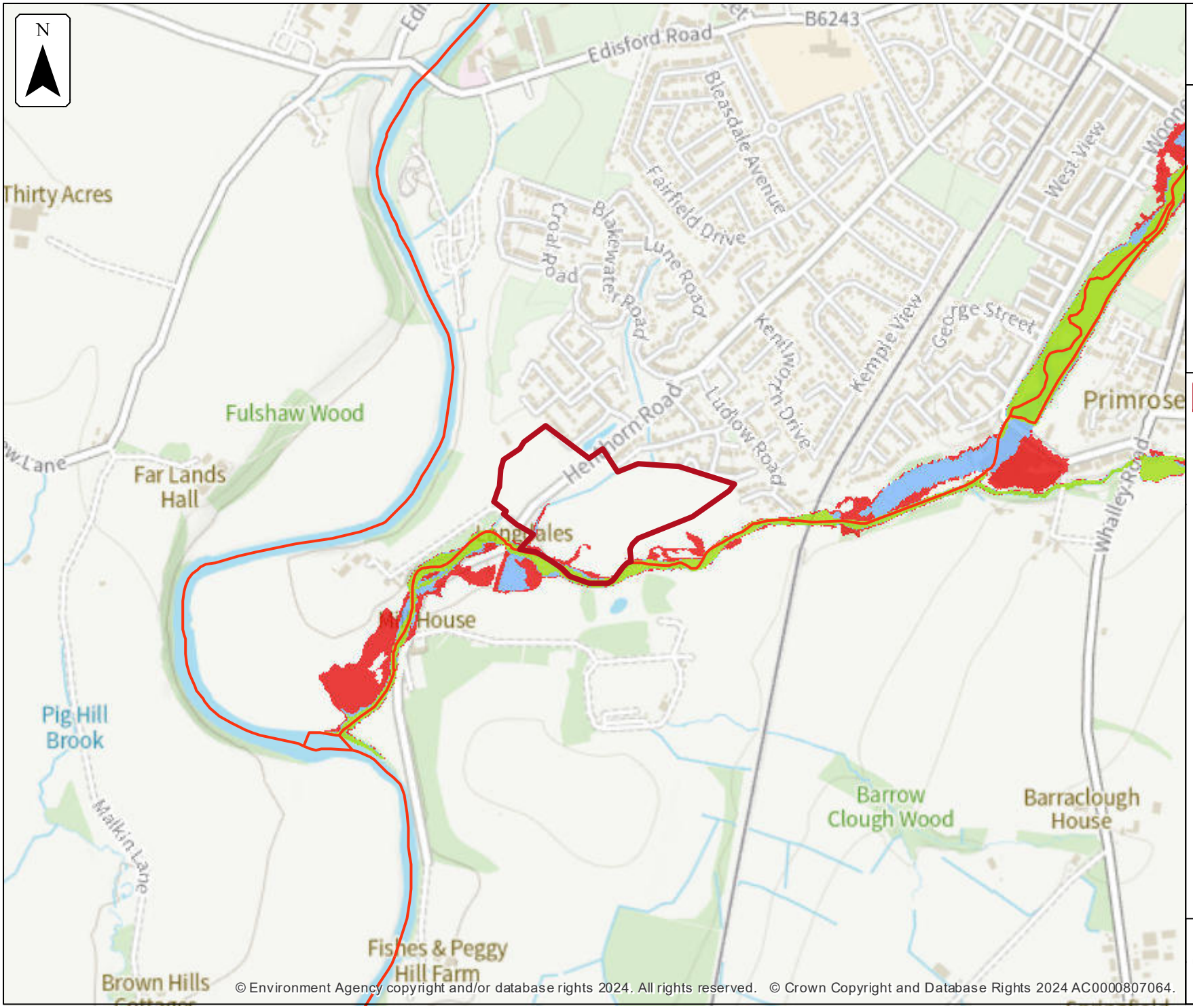
- Selected area
- Main river

Modelled flood extent

- 5% AEP
- 2% AEP
- 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



Environment Agency

Defences removed modelled fluvial extent

Location (easting/northing)
372960/440602

Scale
1:10,000

Created
19 Dec 2024

Model name
Mearley Brook 2018

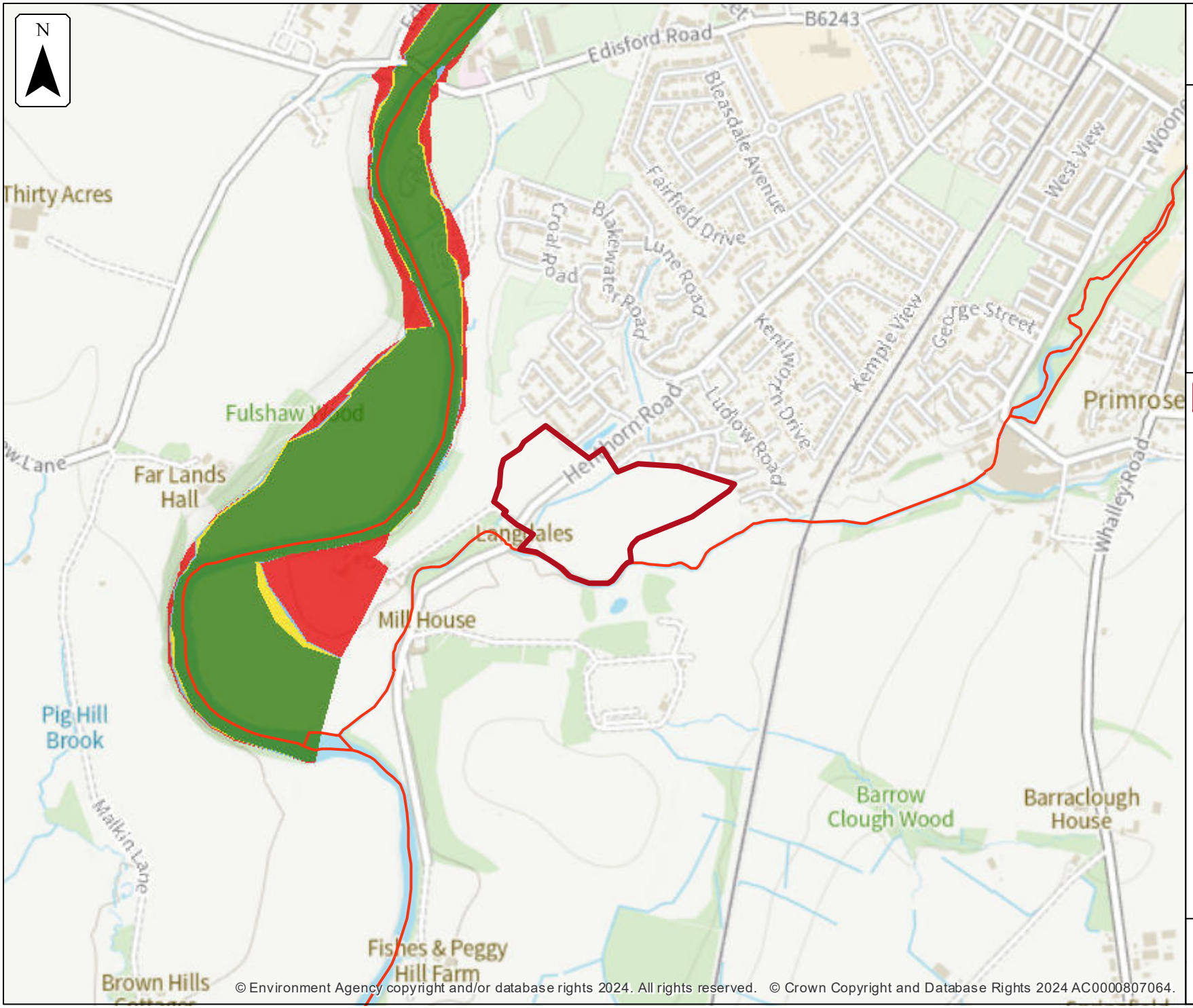
- Selected area
- Main river

Modelled flood extent

- 5% AEP
- 1% AEP
- 0.1% AEP

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

0 100 200 300 400 500
metres



Environment Agency

Defences removed modelled fluvial extent

Location (easting/northing)
372960/440602

Scale
1:10,000

Created
19 Dec 2024

Model name
Low Moor 2006

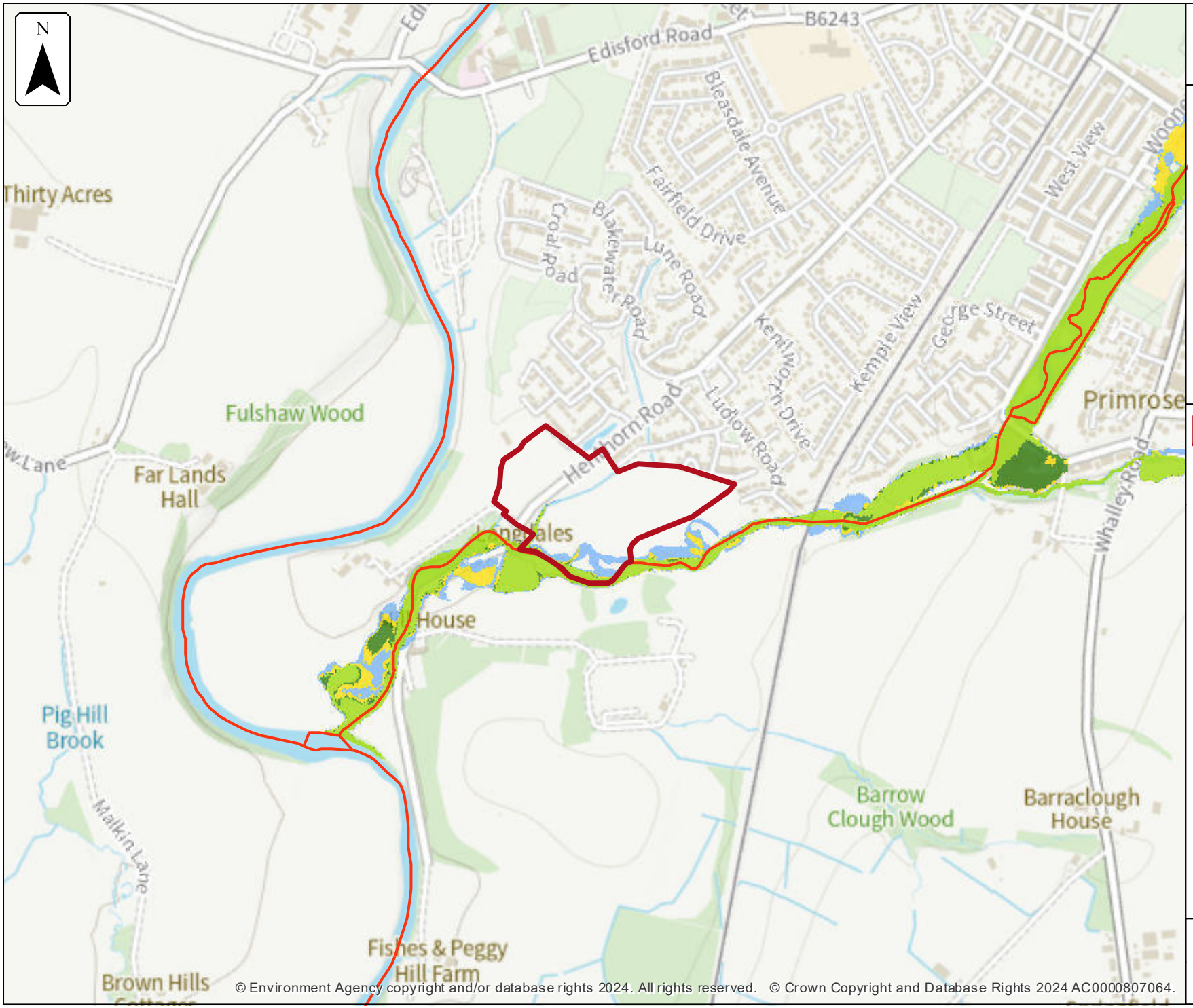
- Selected area
- Main river

Modelled flood extent

- 2% AEP
- 1.33% AEP
- 1% AEP
- 0.1% AEP

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

0 100 200 300 400 500
metres



Environment Agency

Defended climate change modelled fluvial extent

Location (easting/northing)
372960/440602

Scale
1:10,000

Created
19 Dec 2024

Model name
Mearley Brook 2018

- Selected area
- Main river

Modelled flood extent

- 1.0% AEP (+30%)
- 1.0% AEP (+35%)
- 1.0% AEP (+70%)
- 0.1% AEP (+30%)

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

0 100 200 300 400 500
metres

Environment Agency

Defences removed climate change modelled fluvial extent

Location (easting/northing)
372960/440602

Scale
1:10,000

Created
19 Dec 2024

Model name
Low Moor 2006

Selected area

Main river

Modelled flood extent

1.0% AEP (+20%)

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

0 100 200 300 400 500
metres

Environment Agency

Defended modelled fluvial node locations

Location (easting/northing)
372960/440602

Scale
1:2,500

Created
19 Dec 2024

Model name
Mearley Brook 2018

Selected area
Modelled location
Main river

0 25 50 75 100
metres

Modelled node locations data

Defended

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
1	982257	372732	440548	48.16	48.33	48.47	48.61	48.64	48.67	48.73	48.81	48.90	49.06	49.42
2	982193	372790	440529	48.56	48.71	48.82	48.95	48.99	49.01	49.07	49.15	49.23	49.37	49.62
3	982403	372795	440525	48.69	48.91	49.12	49.37	49.43	49.48	49.60	49.76	49.98	50.44	50.92
4	982188	372817	440507	48.72	48.94	49.15	49.39	49.45	49.50	49.62	49.78	50.01	50.51	50.99
5	982354	372877	440483	49.22	49.40	49.61	49.75	49.80	49.84	49.93	50.05	50.23	50.60	51.06
6	982247	372990	440451	50.56	50.77	50.85	50.91	50.92	50.94	50.97	51.02	51.11	51.32	51.76
7	982385	373058	440490	51.41	51.60	51.72	51.85	51.88	51.91	51.97	52.05	52.14	52.34	52.88
8	982190	373117	440489	52.14	52.27	52.36	52.45	52.47	52.49	52.53	52.58	52.66	52.82	53.45
9	982311	373149	440488	52.62	52.75	52.86	52.98	53.0	53.03	53.08	53.15	53.24	53.44	53.91
10	982408	373168	440489	52.93	53.04	53.13	53.23	53.25	53.27	53.31	53.37	53.45	53.62	54.16

Data in this table comes from the Mearley Brook 2018 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.
If no level or flow data is available for a scenario, no table will be shown.

Defended

Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow
1	982257	372732	440548	19.28	24.77	29.68	34.90	36.19	37.35	40.01	43.32	48.03	59.03	92.92
2	982193	372790	440529	19.28	24.77	29.68	34.90	36.19	37.35	40.01	43.32	48.04	59.03	92.92
3	982403	372795	440525	19.28	24.77	29.68	34.90	36.19	37.35	40.01	43.32	48.04	59.03	92.92
4	982188	372817	440507	19.28	24.77	29.68	34.90	36.19	37.35	40.01	43.32	48.04	59.03	92.92
5	982354	372877	440483	19.0	24.40	29.22	34.36	35.62	36.76	39.33	42.57	47.25	58.12	91.48
6	982247	372990	440451	19.0	24.40	29.23	34.36	35.62	36.76	39.33	42.58	47.26	58.16	91.48
7	982385	373058	440490	19.0	24.40	29.23	34.36	35.62	36.76	39.33	42.58	47.26	58.17	91.49
8	982190	373117	440489	19.0	24.40	29.23	34.36	35.62	36.76	39.33	42.58	47.26	58.16	91.49
9	982311	373149	440488	19.0	24.40	29.23	34.36	35.62	36.76	39.33	42.58	47.27	58.16	91.59
10	982408	373168	440489	19.0	24.40	29.23	34.36	35.62	36.76	39.33	42.58	47.27	58.16	91.49

Data in this table comes from the Mearley Brook 2018 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.
If no level or flow data is available for a scenario, no table will be shown.

Environment Agency

Defences removed modelled fluvial node locations

Location (easting/northing)
372960/440602

Scale
1:2,500

Created
19 Dec 2024

Model name
Mearley Brook 2018

Selected area
Modelled location
Main river

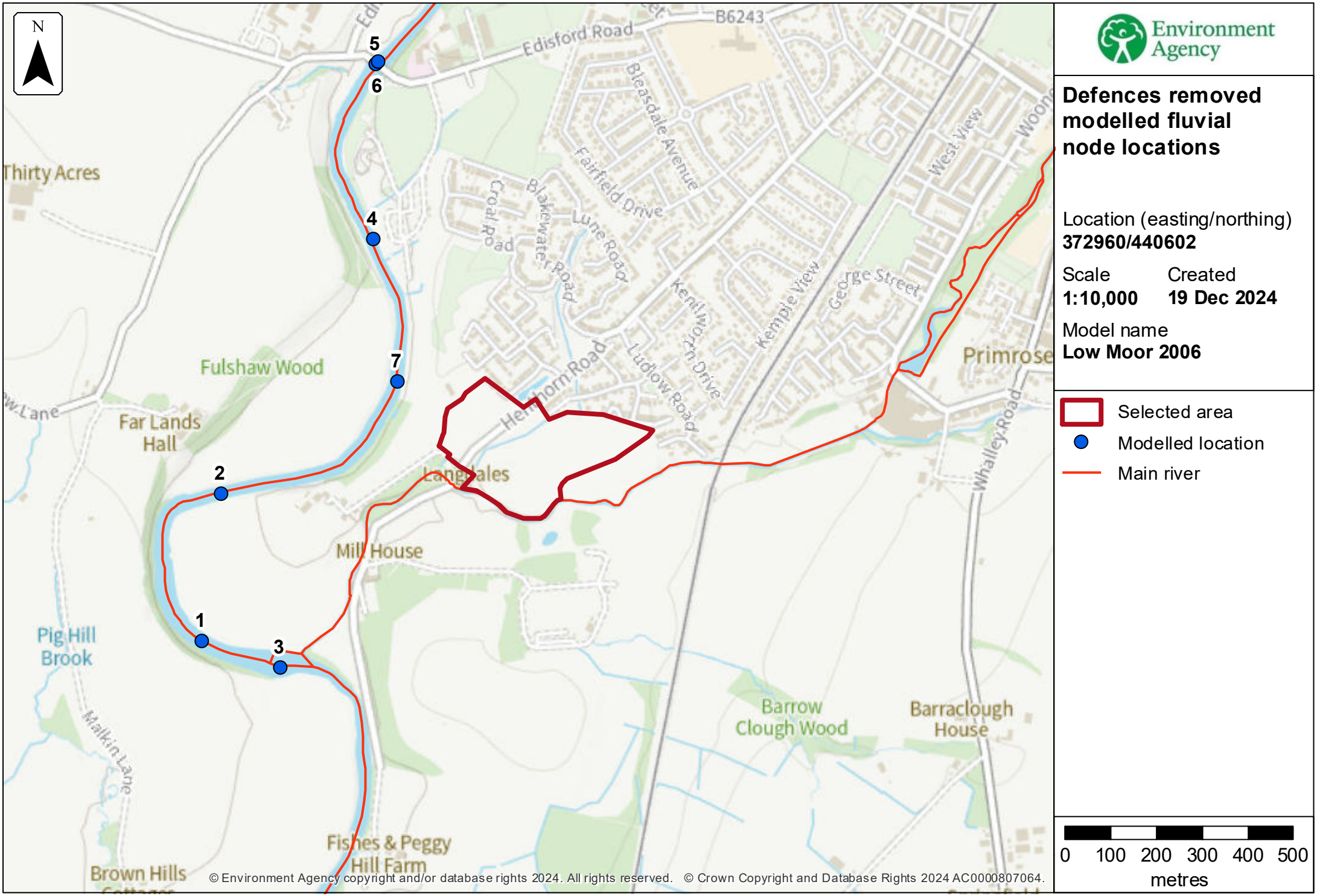
0 25 50 75 100
metres

Modelled node locations data

Defences removed

Label	Modelled location ID	Easting	Northing	5% AEP	1% AEP	0.1% AEP	5% AEP	1% AEP	0.1% AEP
				Level	Level	Level	Flow	Flow	Flow
1	982257	372732	440548	48.60	48.93	49.42	34.62	49.82	92.90
2	982193	372790	440529	48.95	49.26	49.62	34.62	49.75	92.91
3	982403	372795	440525	49.35	50.05	50.92	34.62	49.75	92.91
4	982188	372817	440507	49.38	50.09	50.99	34.62	49.75	92.91
5	982354	372877	440483	49.74	50.29	51.06	34.09	48.94	91.47
6	982247	372990	440451	50.90	51.14	51.76	34.09	48.95	91.48
7	982385	373058	440490	51.84	52.17	52.88	34.09	48.96	91.48
8	982190	373117	440489	52.45	52.68	53.45	34.09	48.93	91.48
9	982311	373149	440488	52.97	53.28	53.91	34.09	48.95	91.55
10	982408	373168	440489	53.22	53.48	54.16	34.09	48.94	91.49

Data in this table comes from the Mearley Brook 2018 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.
If no level or flow data is available for a scenario, no table will be shown.


N
Environment Agency
Defences removed modelled fluvial node locations
Location (easting/northing)
372960/440602
Scale
1:10,000
Created
19 Dec 2024
Model name
Low Moor 2006
Selected area
Modelled location
Main river
0 100 200 300 400 500
metres
1
2
3
4
5
6
7
Thirty Acres
Edisford Road
B6243
Bleasdale Avenue
Fairfield Drive
Croal Road
Blakewater Road
Lune Road
Kentworth Drive
Kemple View
George Street
West View
Primrose
Fulshaw Wood
Far Lands Hall
Hermitage Road
Ludlow Road
Whalley Road
Langdales
Mill House
Pig Hill Brook
Malkin Lane
Barrow Clough Wood
Barraclough House
Fishes & Peggy Hill Farm
Brown Hills
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Modelled node locations data

Defences removed

Label	Modelled location ID	Easting	Northing	20% AEP	10% AEP	4% AEP	2% AEP	1.33% AEP	1% AEP	20% AEP	10% AEP	4% AEP	2% AEP	1.33% AEP	1% AEP
				Level	Level	Level	Level	Level	Level	Flow	Flow	Flow	Flow	Flow	Flow
1	1000863	372246	440178	44.98	45.15	45.40	45.54	45.62	45.67	285.03	329.61	374.42	418.35	445.08	464.73
2	1000869	372289	440500	46.64	46.85	46.97	47.14	47.23	47.29	285.04	329.63	374.59	418.39	445.15	464.79
3	1000867	372418	440119	44.43	44.58	44.72	44.85	44.92	44.98	285.03	329.60	374.42	418.34	445.07	464.72
4	1000856	372622	441058	48.62	48.87	49.13	49.37	49.46	49.44	285.06	329.65	375.66	418.49	447.59	464.99
5	1000846	372627	441441	49.62	49.90	50.18	50.39	50.48	50.53	285.07	329.68	375.36	418.52	445.35	465.04
6	1000851	372632	441447	49.77	50.09	50.40	50.67	50.80	50.88	285.07	329.68	375.36	418.52	445.35	465.04
7	1000839	372675	440747	47.82	48.06	48.28	48.47	48.58	48.65	285.04	329.64	374.67	418.46	457.33	464.93

Data in this table comes from the Low Moor 2006 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.
If no level or flow data is available for a scenario, no table will be shown.

Environment Agency

Defended climate change modelled fluvial node locations

Location (easting/northing)
372960/440602

Scale
1:2,500

Created
19 Dec 2024

Model name
Mearley Brook 2018

Selected area
Modelled location
Main river

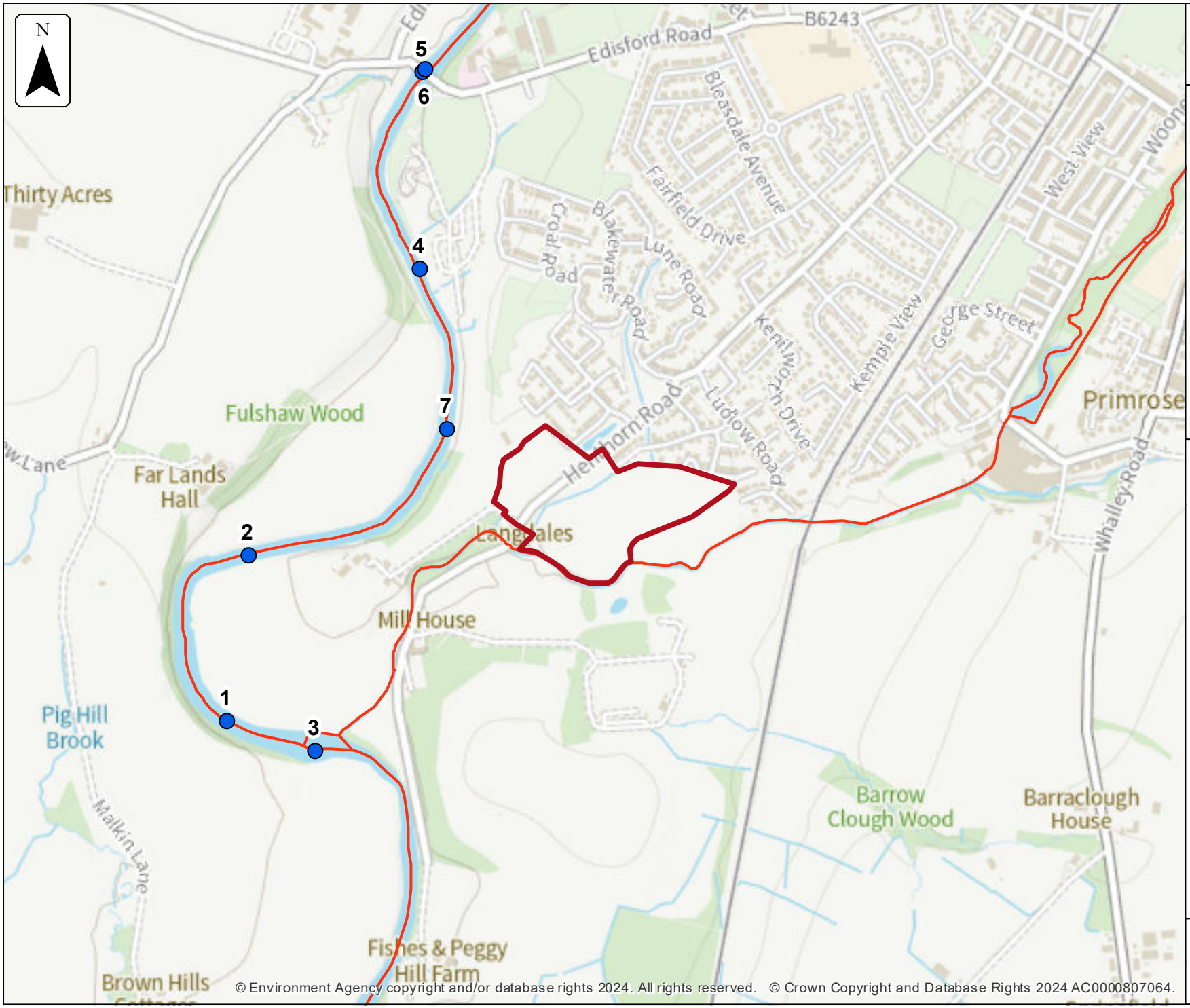
0 25 50 75 100
metres

Modelled node locations data

Defended climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
				Level	Level	Level	Level	Flow	Flow	Flow	Flow
1	982257	372732	440548	49.13	49.20	49.34	49.64	65.04	70.78	84.45	120.84
2	982193	372790	440529	49.43	49.48	49.57	49.88	65.04	70.81	84.45	120.84
3	982403	372795	440525	50.60	50.69	50.85	51.15	65.04	70.81	84.45	120.84
4	982188	372817	440507	50.67	50.76	50.92	51.22	65.04	70.80	84.45	120.84
5	982354	372877	440483	50.74	50.83	50.98	51.28	64.02	69.82	83.10	118.99
6	982247	372990	440451	51.42	51.50	51.66	52.18	64.03	69.92	83.11	119.0
7	982385	373058	440490	52.43	52.53	52.75	52.99	64.03	69.95	83.11	119.0
8	982190	373117	440489	52.91	53.01	53.27	53.70	64.03	69.96	83.11	119.0
9	982311	373149	440488	53.53	53.63	53.85	54.11	64.03	69.96	83.11	119.0
10	982408	373168	440489	53.71	53.79	54.08	54.38	64.03	69.97	83.11	119.01

Data in this table comes from the Mearley Brook 2018 model.
Level values are shown in mAOD, and flow values are shown in cubic metres per second.
Any blank cells show where a particular scenario has not been modelled for this location.
If no level or flow data is available for a scenario, no table will be shown.



Environment Agency

Defences removed climate change modelled fluvial node locations

Location (easting/northing)
372960/440602

Scale
1:10,000

Created
19 Dec 2024

Model name
Low Moor 2006

Selected area
Modelled location
Main river

0 100 200 300 400 500
metres

Modelled node locations data

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+20%)
				Level	Flow
1	1000863	372246	440178	45.89	557.76
2	1000869	372289	440500	47.51	557.80
3	1000867	372418	440119	45.20	557.76
4	1000856	372622	441058	49.71	558.07
5	1000846	372627	441441	50.83	560.0
6	1000851	372632	441447	51.32	560.0
7	1000839	372675	440747	48.90	557.89

Data in this table comes from the Low Moor 2006 model.
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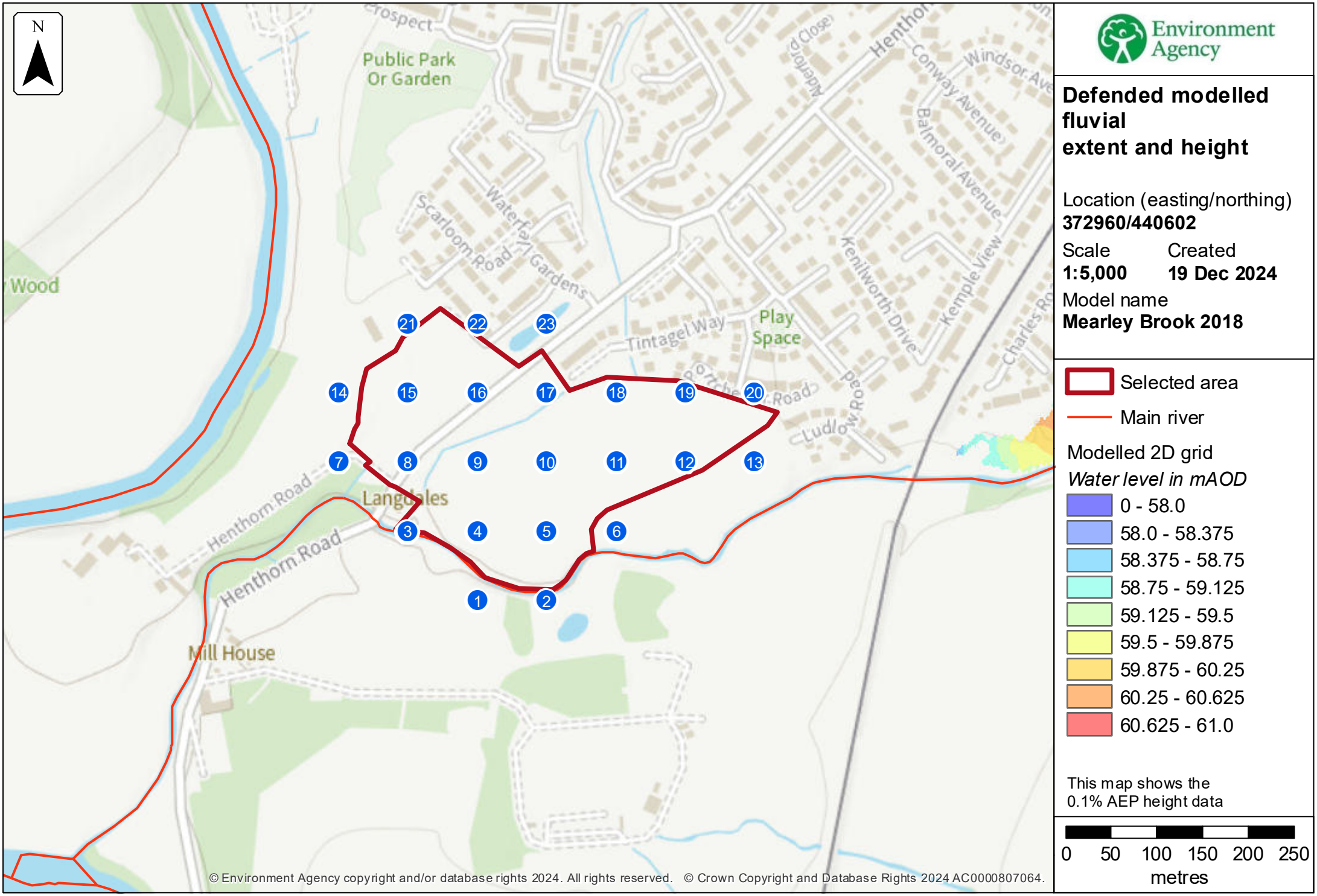

Environment Agency

Defended modelled fluvial extent and height

Location (easting/northing)
372960/440602

Scale
1:5,000

Created
19 Dec 2024

Model name
Mearley Brook 2018

Selected area

Main river

Modelled 2D grid
Water level in mAOD

- 0 - 58.0
- 58.0 - 58.375
- 58.375 - 58.75
- 58.75 - 59.125
- 59.125 - 59.5
- 59.5 - 59.875
- 59.875 - 60.25
- 60.25 - 60.625
- 60.625 - 61.0

This map shows the 0.1% AEP height data

0 50 100 150 200 250
metres

Sample point data

Defended

Label	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
1	372903	440435	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	372979	440435	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	372827	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	372903	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
5	372979	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	373055	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	372751	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
8	372827	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	372903	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	372979	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	373055	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	373131	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
13	373207	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	372751	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	372827	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	372903	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth	Depth
17	372979	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	373055	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
19	373131	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	373207	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	372827	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	372903	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	372979	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine

Data in this table comes from the Mearley Brook 2018 model.
Height values are shown in mAOD, and depth values are shown in metres.
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If no height or depth data is available for a scenario, no table will be shown.
'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

Defended

Label	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height	Height	Height	Height	Height	Height	Height
1	372903	440435	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	372979	440435	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	372827	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	372903	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
5	372979	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	373055	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	372751	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
8	372827	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	372903	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	372979	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	373055	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	373131	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
13	373207	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	372751	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	372827	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	372903	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
17	372979	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	373055	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height	Height	Height	Height	Height	Height	Height	Height
19	373131	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	373207	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	372827	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	372903	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	372979	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine

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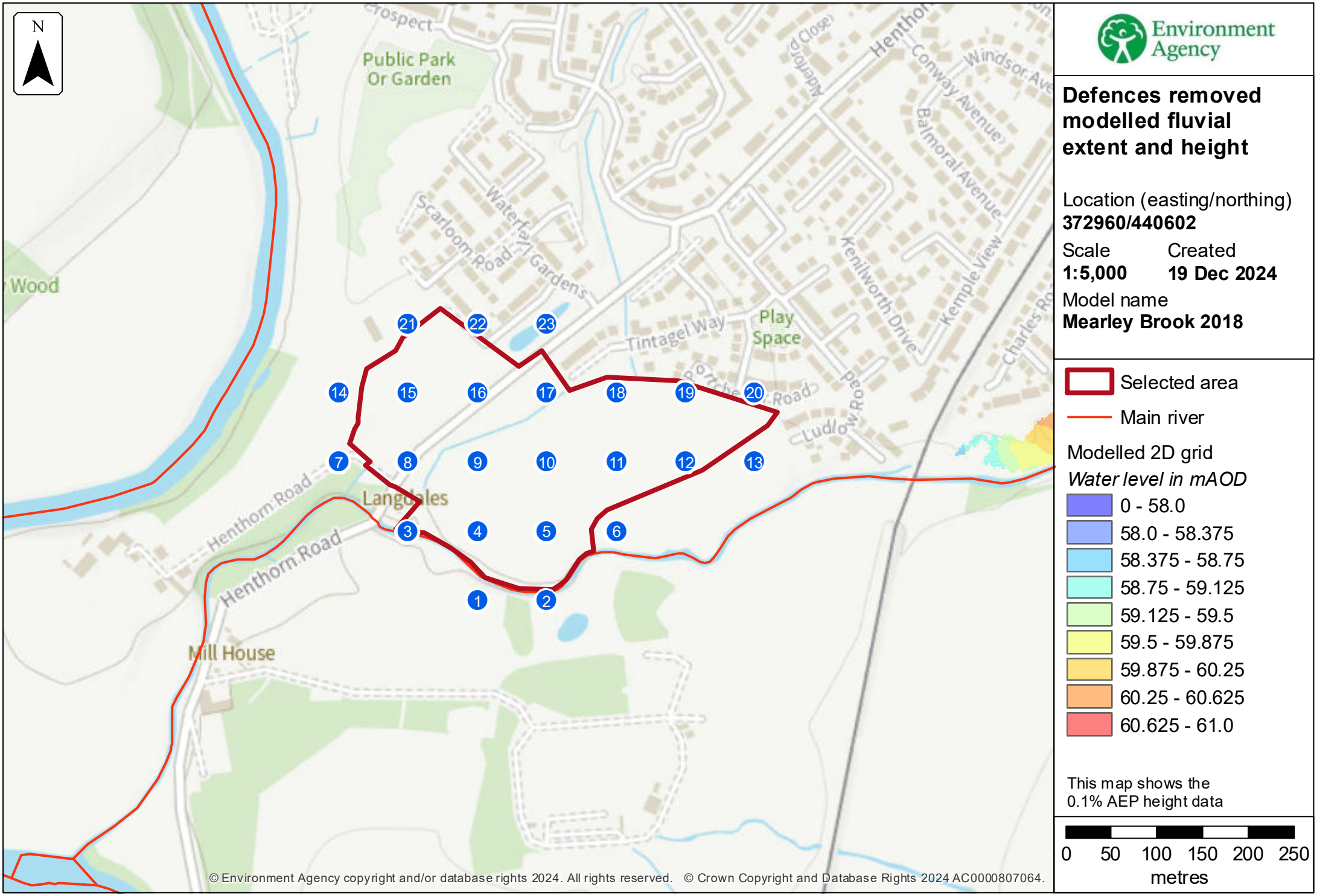

Environment Agency

Defences removed modelled fluvial extent and height

Location (easting/northing)
372960/440602

Scale
1:5,000

Created
19 Dec 2024

Model name
Mearley Brook 2018

Selected area

Main river

Modelled 2D grid
Water level in mAOD

- 0 - 58.0
- 58.0 - 58.375
- 58.375 - 58.75
- 58.75 - 59.125
- 59.125 - 59.5
- 59.5 - 59.875
- 59.875 - 60.25
- 60.25 - 60.625
- 60.625 - 61.0

This map shows the 0.1% AEP height data

0 50 100 150 200 250
metres

Sample point data

Defences removed

Label	Easting	Northing	5% AEP	1% AEP	0.1% AEP	5% AEP	1% AEP	0.1% AEP
			Depth	Depth	Depth	Height	Height	Height
1	372903	440435	NoData	NoData	NoData	NoData	NoData	NoData
2	372979	440435	NoData	NoData	NoData	NoData	NoData	NoData
3	372827	440511	NoData	NoData	NoData	NoData	NoData	NoData
4	372903	440511	NoData	NoData	NoData	NoData	NoData	NoData
5	372979	440511	NoData	NoData	NoData	NoData	NoData	NoData
6	373055	440511	NoData	NoData	NoData	NoData	NoData	NoData
7	372751	440587	NoData	NoData	NoData	NoData	NoData	NoData
8	372827	440587	NoData	NoData	NoData	NoData	NoData	NoData
9	372903	440587	NoData	NoData	NoData	NoData	NoData	NoData
10	372979	440587	NoData	NoData	NoData	NoData	NoData	NoData
11	373055	440587	NoData	NoData	NoData	NoData	NoData	NoData
12	373131	440587	NoData	NoData	NoData	NoData	NoData	NoData
13	373207	440587	NoData	NoData	NoData	NoData	NoData	NoData
14	372751	440663	NoData	NoData	NoData	NoData	NoData	NoData
15	372827	440663	NoData	NoData	NoData	NoData	NoData	NoData
16	372903	440663	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	5% AEP	1% AEP	0.1% AEP	5% AEP	1% AEP	0.1% AEP
			Depth	Depth	Depth	Height	Height	Height
17	372979	440663	NoData	NoData	NoData	NoData	NoData	NoData
18	373055	440663	NoData	NoData	NoData	NoData	NoData	NoData
19	373131	440663	NoData	NoData	NoData	NoData	NoData	NoData
20	373207	440663	NoData	NoData	NoData	NoData	NoData	NoData
21	372827	440739	NoData	NoData	NoData	NoData	NoData	NoData
22	372903	440739	NoData	NoData	NoData	NoData	NoData	NoData
23	372979	440739	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			NoData	NoData	NoData	NoData	NoData	NoData

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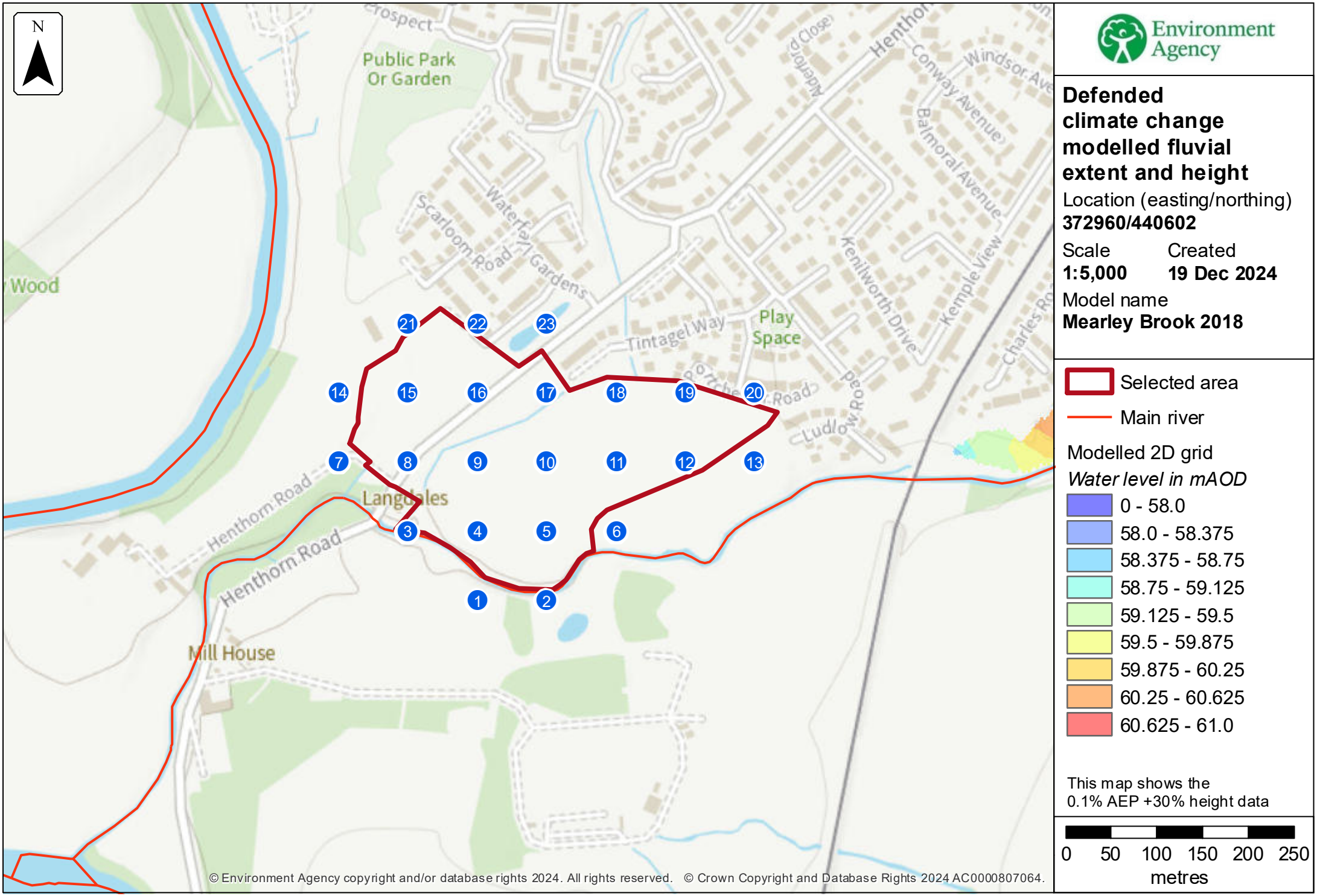

Environment Agency

Defended climate change modelled fluvial extent and height

Location (easting/northing)
372960/440602

Scale
1:5,000

Created
19 Dec 2024

Model name
Mearley Brook 2018

Selected area

Main river

Modelled 2D grid
Water level in mAOD

- 0 - 58.0
- 58.0 - 58.375
- 58.375 - 58.75
- 58.75 - 59.125
- 59.125 - 59.5
- 59.5 - 59.875
- 59.875 - 60.25
- 60.25 - 60.625
- 60.625 - 61.0

This map shows the 0.1% AEP +30% height data

0 50 100 150 200 250
metres

Sample point data

Defended climate change

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth	Height	Height	Height	Height
1	372903	440435	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
2	372979	440435	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
3	372827	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	372903	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
5	372979	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
6	373055	440511	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
7	372751	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
8	372827	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
9	372903	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
10	372979	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
11	373055	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
12	373131	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
13	373207	440587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
14	372751	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
15	372827	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
16	372903	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth	Height	Height	Height	Height
17	372979	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	373055	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
19	373131	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	373207	440663	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	372827	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	372903	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	372979	440739	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
Max value in selected area:			Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine	Could not determine

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'Max value in selected area' is the deepest depth or highest height at any location within your drawn boundary.

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

Your Lead Local Flood Authority is Lancashire County.

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 3 - Lancashire County Council Correspondence

Daniel Alstead,
Enzygo Ltd,
Samuel House,
5 Fox Valley Way,
Stocksbridge,
Sheffield,
S36 2AA

Phone: 0300 123 6780
Email: SUDS@lancashire.gov.uk
Your ref: Henthorn Road
Our ref: FRM1854
Date: 10 December 2024

Dear Daniel Alstead,

Thank you for requesting Lead Local Flood Authority planning advice for surface water and sustainable drainage.

Reference:	FRM1854
Location:	Henthorn Road, Clitheroe, Lancashire, BB7 2PL
Coordinates:	E: 372919 N: 440609
Description:	Residential - up to 160 dwellings

These comments have been provided in accordance with the Terms and Conditions of this service and include written advice from the Lead Local Flood Authority. The comments have been composed based on the current extent of the knowledge of the Lead Local Flood Authority and with regard to background information submitted to and received by the Lead Local Flood Authority on 15th November 2024. This includes:

- Planning Advice Service Application Form
- Delegated report / Ribble Valley Borough Council
- Decision Notice/ Ribble Valley Borough Council

The Local Planning Authority is ultimately responsible for approving, or otherwise, any surface water sustainable drainage strategy associated with the development proposal. It should not be assumed that an agreement with the Lead Local Flood Authority automatically means that planning permission will be granted.

Technical Meeting

A technical meeting was held via MS Teams between Harry McGaghey, Ben Rogers, Daniel Alstead, Helena Du-Roe, Anthony Etchells, Emma Tutton, Christien Lee, Finley White, Rob Devon, Dave Hough and Chris Still on 9th December 2024. The following topics were discussed at the meeting:

Site-Specific Advice

Surface Water Flood Risk

As required by footnote 59 of paragraph 173 of the National Planning Policy Framework, a site-specific flood risk assessment will be required as part of any subsequent planning application as the development is greater than 1 hectare in size.

The site-specific flood risk assessment should assess the current and future risks of flooding from all sources for the lifetime of the development, with an appropriate consideration of future climate change.

When assessing surface water flood risk, the site-specific flood risk assessment should consider the surface water flooding likely to occur with a 1% (1 in 100 year) annual exceedance probability, plus an allowance for climate change, in line with the Planning Practice Guidance. It must be demonstrated that any residual risk can be safely managed in line with paragraph 173d of the National Planning Policy Framework.

Identifying the areas at risk of flooding allows the site layout to be designed to locate the most vulnerable development in areas at the lowest flood risk, in line with the National Planning Policy Framework.

Detail must be provided on the natural contours of the land flow paths and existing points of discharge. If there are multiple catchments within the site these must be identified and retained following development unless it can be demonstrated that the alteration of catchments will provide betterment. Existing flow paths and natural drainage features must also be protected through the layout of the development to ensure flood risk is not increased elsewhere in line with the National Planning Policy Framework.

Surface Water Sustainable Drainage Strategy

As part of any subsequent planning application, you are expected to provide a detailed surface water sustainable drainage strategy to show how surface water will be safely managed over the lifetime of the proposed development.

For all sites, an assessment of the natural flow paths must be provided. The assessment should demonstrate how such paths are likely to be modified by the proposed development and identify mitigation measures to protect the development from any associated flood risk. It should be demonstrated that the existing flow paths are not altered. Appropriate allowances may need to be provided in the SuDS to accommodate these flows, as there is a risk that these flows may overload the SuDS if poorly designed.

It is important to consider within the detailed surface water sustainable drainage strategy, how surface water runoff will be managed within any non-drained areas of the site. For example, grassed areas, roadside verges and areas of open space. This is to ensure the surface water drainage system is sufficiently sized to accommodate all surface water runoff generated on the site, including runoff from any non-drained

areas that have the potential to contribute either directly or indirectly to the proposed surface water drainage system.

The layout of the development site and the sustainable drainage system must be designed so that any surface water that enters the site from off-site, beyond the red edge boundary, is conveyed safely around or through the site, without compromising the level of service of the proposed sustainable drainage system and without introducing unacceptable additional risks on-site or downstream, in line with the National Planning Policy Framework and Planning Practice Guidance. Developments should be designed so that natural flow routes are not disrupted, and flows can pass safely through the development site, mimicking the pre-development scenario wherever possible.

Where run-off from off-site sources is drained and attenuated together with the site run-off, the contributing catchment must be modelled as part of the sustainable drainage system to take full account of any additional inflows. Robust maintenance arrangements for any mitigation measures must be provided to ensure the development remains appropriately flood-resilient and resistant for the lifetime of the development. Mitigation measures to manage flow routes, such as interception drains or swales must be located in areas of open space, in order to secure such maintenance.

Sustainable drainage systems are defined by paragraph 055 of the Planning Practice Guidance as systems that "are designed to control surface water run off close to where it falls, combining a mixture of built and nature-based techniques to mimic natural drainage as closely as possible, and accounting for the predicted impacts of climate change. They provide benefits for water quantity, water quality, biodiversity and amenity". Failure to incorporate a sustainable drainage system, or provide clear evidence that this would be inappropriate, is considered contrary to paragraphs 173 and 175 of the National Planning Policy Framework.

Hierarchy of Drainage Options

The proposed surface water drainage is expected to mimic the existing surface water runoff characteristics on site, wherever possible. To achieve this, an assessment of current surface water flows should be carried out and the outcomes of this assessment used to inform the final surface water runoff destinations.

It must be clearly demonstrated that the hierarchy of drainage options is followed, as set out in paragraph 056 of the Planning Practice Guidance. Robust evidence is needed to explain why each level of the hierarchy can or cannot be achieved. As part of any subsequent planning application, you will be expected to provide evidence of:

- An assessment of site conditions including site investigation and test results to confirm infiltration rates and groundwater levels, in accordance with BRE 365.

- An assessment of any existing on-site watercourses to be used, to confirm that these systems are in sufficient condition and have sufficient capacity to accept surface water runoff generated from the development.

• A free-flowing outfall from the surface water sustainable drainage system. If this is not possible, evidence of a surcharged outfall applied to the sustainable drainage calculations will be required.

When designing the site layout, it is crucial that the future ownership of, and access to, any on-site watercourses is considered. The site layout must provide safe access to all on-site watercourses for maintenance purposes.

If the proposed discharge location is within third party land, it may require a legal agreement with a third party to access and construct the surface water outfall, in addition to any permissions from flood risk management authorities.

Surface Water Runoff Rates and Volumes

For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 100% (1 in 1-year) annual exceedance probability event and the 1% (1 in 100-year) annual exceedance probability event should never exceed the peak greenfield runoff rate for the same event.

The proposed discharge rates from the site post-development must be based on the same area used to calculate the existing greenfield, with appropriate allowances for climate change and urban creep. This ensures a consistent area is used in calculations, as per paragraph 24.2.2 of The SuDS Manual (C753). If the entire site area is used to calculate the greenfield runoff rate, then the volume and attenuation requirements should also be based on the entire site area. For any areas of the site that are discounted from the contributing area, you must provide evidence of how these areas will be drained to demonstrate that they will not contribute to the surface water sustainable drainage system.

The design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall from in excess of a 1 in 100-year rainfall event are managed in exceedance routes that minimise the risk to people and property, as required by standard S9 of the DEFRA Technical Standards for Sustainable Drainage Systems.

Surface Water Drainage Calculations

Surface water drainage calculations must be included with any associated planning application to demonstrate the suitability of the proposed surface water sustainable drainage system proposals. For the avoidance of doubt, the Lead Local Flood Authority expects the following parameters to be included within the calculations, as a minimum:

• Climate change - Within the Ribble Management Catchment, where this proposed site lies the climate change allowances are 40% and 50% for the 3.3% (1 in 30-year) and 1% (1 in 100-year) annual exceedance probability events respectively. These climate change allowances are expected to be applied.

• Volumetric Runoff Coefficient - The Lead Local Flood Authority expects a volumetric runoff coefficient of 1 to be applied when modelling impermeable areas. If using different parameters from those detailed, all applicants will be expected to provide robust evidence to justify their choices.

• Urban Creep - For developments with any permeable area, a 10% urban creep allowance is expected to be applied to the total impermeable site area.

General Advice

The Lead Local Flood Authority's general advice is provided through the Lancashire SuDS Pro-forma and accompanying guidance. All applications for major development are expected to follow this guidance and submit a completed SuDS pro-forma as part of any associated planning application.

Connecting to a Main River

The applicant many require an environmental permit from the Environment Agency to discharge to a main river. Information on environmental permits is available at: https://www.gov.uk/topic/environmental-management/environmental-permits.

Ordinary Watercourse Advice

Under the Land Drainage Act 1991 (as amended by the Flood & Water Management Act 2010), you need consent from the Lead Local Flood Authority if you want to carry out works within the banks of any ordinary watercourse which may alter or impede the flow of water, regardless of whether the watercourse is culverted or not.

- **Consent must be obtained before starting any works on site. It cannot be issued retrospectively.**
- **Sites may be inspected prior to the issuing of consent.**
- **Unconsented works within the Highway or Sustainable Drainage System may prevent adoption.**
- **Applications to culvert an existing open ordinary watercourse will generally be refused.**
- **Enforcement action may be taken against unconsented work.**

For the avoidance of doubt, once planning permission has been obtained it **does not** mean that Ordinary Watercourse Consent will be given. It is strongly advised that you obtain any required consent before or concurrently as you apply for planning permission to avoid delays.

You should contact the Lead Local Flood Authority to obtain Ordinary Watercourse Consent. Information on the application process and relevant forms can be found here:

https://www.lancashire.gov.uk/flooding/ordinary-watercourse-regulation/

What this response DOES NOT cover

For the avoidance of doubt, the Lead Local Flood Authority does not comment on matters pertaining to fluvial flood risk, highway drainage and/or sewers. This is for the

Environment Agency, Local Highway Authority and Water and Sewerage Company to comment on respectively.

This response does not cover matters pertaining to highway adoption (s38 Highways Act 1980) and/or off-site highway works (s278 Highways Act 1980). Should you intend to install any sustainable drainage systems under or within close proximity to a public road network (existing or proposed), then you will need to separately discuss the use and suitability of those systems with the relevant highway authority.

You will also need to discuss the suitability of any overland flow routes and/or flood water exceedance with the Local Highway Authority should they have the potential to impact the public highway network and/or public highway drainage infrastructure (either existing or proposed).

For the avoidance of doubt, as the Lead Local Flood Authority, we do not comment on the application of the sequential and/or exception tests.

Should you wish for any clarifications regarding the contents of this letter, please contact us at the email address above within 28 days of the date of this letter. This Planning Advice service request will be considered closed after 28 days and any further clarifications beyond this date will require a new application to be submitted and will be subject to additional charges.

I trust you will find this response helpful.

Yours faithfully,

Harry McGaghey

Lead Local Flood Authority

Appendix 4 - United Utilities Asset Plans and Correspondence

United Utilities
Water for the North West

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Helena Du-Roe

Samuel House
5 Fox Valley Way,
Stocksbridge, Sheffield
S36 2AA

FAO:

Your Ref: SHF.1132.306
Our Ref: UUPS-ORD-614717
Date: 26/11/2024

Dear Sirs

Location: 4 FAIRFIELD CLOSE, CLITHEROE, BB7 2PL

I acknowledge with thanks your request dated 20/11/2024 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
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Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP