

TOPPING ENGINEERS

CONSULTING CIVIL & STRUCTURAL ENGINEERS

FLOOD RISK ASSESSMENT

LOCATION:

The Cruck Barn
Penistone

CLIENT: Donaldson's Vets

DOCUMENT REF:
21642-FRA-001

REVISION/DATE:
Revision C

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Revision	Description	Date	Author	Checked
A	First Issue	March 2022	T Andrews	A Dyson
B	Amended to EA comments	Dec 2022	A Dyson	R Thacker
C	Amended to EA comments	Jan 2023	A Dyson	R Thacker

1.0 INTRODUCTION

This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of Donaldson's Vet in respect of a planning application at The Cruck Barn, Penistone.

Site Name	The Cruck Barn
Location	Bridge End, Penistone, S36 8AQ
NGR (approx.)	424554, 403870
Application Site Area (ha)	0.130 ha
Development Type	Veterinarian
NPPF Vulnerability	More
EA Flood Zone	Flood Zone 2 & 3
EA Office	Yorkshire
Local Planning Authority	Penistone Town Council

Table 1.1 - Site Summary

1.1 SOURCES OF DATA

The report is based on the following information:

i. Environment Agency information
ii. Topographical Survey by MT Surveys
iii. Proposed Site Layout by Donald Williamson Architects
iv. Barnsley Strategic Flood Risk Assessment

1.2 EXISTING SITE

The site in question lies within the South Yorkshire settlement of Penistone. The development area in question is bounded to the south by the A628, to the east by Scout Dike and to the north and west by further rural buildings.

From the topographical survey it is clear that the site falls towards Scout Bike. The highest region of the site is on the western boundary with an approximate level 195.30 AOD. Contrastingly, the eastern boundary has an approximate level of 192.27 AOD.



Figure 1.1 - Site Location

1.3 PROPOSED DEVELOPMENT

The proposed development is set to consist of the refurbishment of Nether Hill Barn to form a new Veterinary Surgery, along with associated infrastructure.

1.4 FLOOD RISK PLANNING POLICY

National Planning Policy Framework

The NPPF sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Planning Practice Guidance is also available online.

The Planning Practice Guidance sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.

The Planning Practice Guidance also states that alternative sources of flooding, other than fluvial (river flooding), should also be considered when preparing a Flood Risk Assessment.

This Flood Risk Assessment is written in accordance with the NPPF and the Planning Practice Guidance.

As the development is a minor change of use it is therefore not subject to any sequential or exception testing.

Flood Zones

The Flood Zone Map for Planning has been prepared by the Environment Agency. This identifies areas potentially at risk of flooding from fluvial or tidal sources. An extract from the mapping is included as Figure 1.2.

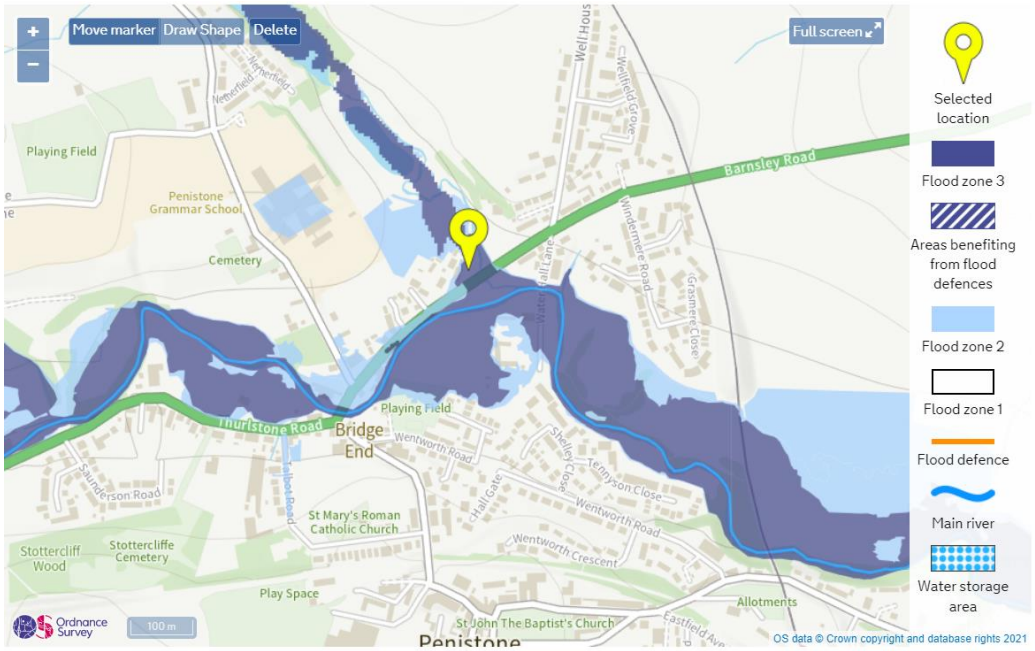


Figure 1.2 - Environment Agency Flood Zone Mapping

The site is shown to be located within Flood Zone 3 (High Probability) and Flood Zone 2 (Medium Probability). Therefore, the site is considered to be high risk of flooding. Flood Zone 3 is defined as land assessed as having an annual probability of flooding from fluvial and tidal sources greater than 1%. Flood Zone 2 is defined as land assessed as having an annual probability of flooding from fluvial and tidal sources between 0.1% and 1%.

Table 2 of the Planning Practice Guidance classifies land use. Under these classifications the proposed refurbishment is considered to be 'More Vulnerable' to the potential impacts of flooding.

Strategic Flood Risk Assessment

The Barnsley Flood Risk Assessment (SFRA) was prepared to review flood risks on a much wider scale to assess the potential for new development within the study area. The SFRA was used as an evidence base for Local Development Frameworks for each Local Planning Authority.

The SFRA therefore aims to bring together all available flood risk information for a variety of sources to provide a robust assessment. The SFRA therefore is useful for this site-specific FRA by highlighting available data and instances of known flooding in the area. Although written under the guidance of Planning Policy Statement 25, the SFRA is still considered to include relevant information.

2.0 POTENTIAL SOURCES OF FLOOD RISK

The table below identifies the potential sources of flood risk to the site, and the impacts which the development could have in the wider catchment prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location are discussed within Section 3.0.

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial	X				The site is located in flood zone 3.
Tidal				X	Due to the location of the site, there are no potential impacts of tidal flooding.
Canals				X	None present.
Groundwater			X		Ground conditions are not conducive to fluctuating groundwater levels.
Reservoirs and waterbodies		X			The site is shown to fall inside of the catchment for reservoir and waterbodies flooding.
Sewers			X		The site in question is higher than the surrounding sewers therefore there is a very low risk.
Pluvial runoff		X			The site is shown to fall in the medium-risk area of pluvial flooding.
Effect of Development on Wider Catchment				X	The impermeable area of the site is not being altered.

Table 2.1 - Pre-Mitigation Sources of Flood Risk

2.1 FLUVIAL FLOOD RISK

As previously mentioned, the site is shown to be within Flood Zone 3 and therefore poses a high risk to the proposed development.

Mitigation measures to address the residual risk posed by the watercourses surrounding the site are discussed within **Section 3.0** of this report.

2.2 GROUNDWATER FLOOD RISK

Subject to completion of site investigation to confirm we would assume that natural ground water level is located well below the site surface and the nature of the strata means it is unlikely that there will be perched water above this level.

We therefore do not consider there is a risk of groundwater flooding affecting the development subject to final confirmation upon completion of suitable site investigation.

2.3 FLOOD RISK FROM RESERVOIRS & LARGE WATERBODIES

Reservoir failure flood risk mapping has been prepared by the Environment Agency, this shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The map displays a worst-case scenario and is only intended as a guide. An extract from the mapping is included as **Figure 2.1**.



Figure 2.1 - Environment Agency Reservoir Failure Flood Risk Map

Mapping demonstrates the site and possible access routes are within the proposed area of reservoir flooding.

As such, there is considered to be a risk of flooding from this source.

2.4 FLOOD RISK FROM SEWERS

The site in question is within an urban area. Therefore, it is likely that any existing sewers are at considerable depth.

As such, it is considered that there is no risk of flooding from sewers.

2.5 PLUVIAL FLOOD RISK

Risk of flooding from surface water mapping has been prepared by the Environment Agency, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. An extract from the mapping is included as Figure 2.22



Figure 2.2 - Risk of Flooding from Surface Water Mapping

The mapping produced by the Environment Agency shows that the entire site is at risk of surface flooding.

Therefore, it is concluded that the pluvial flooding will be addressed within the surface water drainage of this site.

2.6 EFFECT OF DEVELOPMENT ON WIDER CATCHMENT

2.6.1 Development Drainage

The current site is considered to be brownfield. The amount of impermeable area will not be altered.

3.0 FLOOD RISK MITIGATION

Section 2.0 has identified the sources of flooding which could potentially pose a risk to the site and the proposed development. This section of the FRA sets out the mitigation measures which are to be considered within the proposed development detail design to address and reduce the risk of flooding to within acceptable levels.

3.1 SITE ARRANGEMENTS

Sequential Arrangement

The Flood Zone mapping shows the site to be located within Flood Zone 3.

Mitigation

Given the site's location within Flood Zone 3 measures are required to mitigate the risk of flooding. As the proposals for the site is to convert an existing building the ability to raise floor levels has been removed. The existing floor levels vary on the buildings so will be rationalised to a new FFL throughout as below:

Northern building 193.60m
Southern building 194.30m

The northern building will have split FFLs as noted above – and the plan below shows these areas with white set at 194.05 to clinical areas and yellow 193.60 to non clinical areas. It should be noted The lower level (+193.60) is set by the existing threshold level and the requirements for a new door opening to enter the building on the south east facing elevation. It should be noted there has been a considerable amount of dialogue with the LA Conservation Officer regarding this elevation, access arrangements and the listed status of the building.



However, from Appendix A it can be seen that there is a wall the follows route of Scout Dike. The top of the wall has a varying level from 194.260 AOD to 194.200 AOD. Given

the 1in100 year flood level, from the product 4 data, is 193.750 AOD there will be some level of defence provided. The EA holds no modelling data for the 1in100 year plus climate change event.

It is proposed that flood resilient building techniques will be implemented for this building, flood proofing to the ground floor up to 800mm. The new building will incorporate some of the following, details of which will be finalised by the Architect at detailed design stage:

- Electricity supply cables to enter building from roof level and wired downwards; electric sockets to be positioned at least 800mm above floor level.
- Anti-flood valves on internal building drainage.
- Watertight external door construction to minimum of 800mm above proposed floor level.
- Ceramic tiles or lime-based plaster should be used on the internal face of the external walls at ground floor level.
- Water resilient ground floor coverings should be considered, such as clay tiles.

In addition to the flood resilient techniques above a safe place of refuge should be provided for the building, the site is site situated within an Environment Agency Flood Alert Area. It is recommended that the resident registers with this service. In the event of an extreme storm notification on the alert service the following Flood Management Plan should be put in place:

- Advise all occupiers on the site that a Flood Alert has been issued and they should prepare to vacate.
- Maintain contact with the Environment Agency and Local Authority.
- Monitor flood levels of the nearby watercourse, if water levels rise up top of the bank level, retreat to a safe place of refuge which will be outside of the Flood Zone 3.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of Donaldson's Vet.

This report demonstrates that the proposed development is a significant flood risk. Therefore, the proposed mitigation measures addressed in section 3.0 aim to remove the risk to the occupants of the building as best possible.

Flood Source	Proposed Mitigation Measure
Fluvial	Site is shown to be in Flood Zone 3.
Impact of the Development	Strategic surface water drainage strategy prepared for wider development will ensure a sustainable approach to surface water management.

Table 4.1 - Summary of Flood Risk Assessment

In compliance with the requirements of National Planning Policy Framework, and subject to the mitigation measures proposed, the development could proceed whilst being at risk of flooding as suitable mitigation has been provided. Moreover, the development will not increase flood risk to the wider catchment area as a result of suitable management of surface water runoff discharging from the site.

Appendix A – Topographical Survey

Appendix B – Proposed Site Layout

Appendix C – Environmental Agency Product 4 Data



Notes

This drawing and the information contained therein is issued in confidence and is the copyright of MT Surveys Ltd. Disclosure of this information to Third Parties and unauthorised copying or replication of this data without approval is forbidden.

Direction of North

NORTH

GRID

OS NATIONAL GRID.
Using the OS GPS Network and applying OSTN15 transformation and then removing the scale factor for true distances.

DATUM

OS LEVEL DATUM.
Using the OS GPS Network and applying OSGM15 National Geoid Model to obtain local area corrections.

STATION LISTING

Station	Easting	Northing	Level
S1	424554.015	403870.412	193.904
S2	424577.319	403894.025	193.156
S3	424577.220	403919.952	193.446

TOPOGRAPHICAL SURVEY KEY

DRAINAGE & WATER SERVICES

- DG Drain/Gully
- KO Kerb Outlet
- MH Circular Manhole
- MH Square Manhole
- MH Triangular Manhole
- RE Rodding Eye
- FH Fire Hydrant
- ST Stop Tap
- SV Stop Valve
- TAP Tap
- WO Wash Out
- WM Water Meter
- WV Water Valve
- AV Air Valve

STREET FURNITURE & GEOTEC

- MAIL Post Box
- BUS Bus Stop
- BOL Bollard
- SIGN Sign
- TL Traffic Light
- CCTV Camera
- LP Lamp Post
- LIGHT Light
- COL Column
- V Vent
- BM Bench Mark
- M Marker Post
- Trial Pit
- BH Borehole

SERVICES

- G Gas Valve
- IC Inspection Cover
- C Cable TV Cover
- C Cable TV Supply
- E Electric Cover
- EP Electricity Pole
- ER Earth Rod
- T Telecoms Cover
- TP Telegraph Pole
- GAS Gas Riser Pipe
- RWP Rainwater Pipe
- SVP Soil Vent Pipe

ABBREVIATIONS

- CL Cover Level
- IL Invert Level
- UTR Unable To Raise
- THR Threshold Level
- TOF Top Of Fence
- TOH Top Of Hedge
- TOW Top Of Wall
- U/S Underside
- WC Window Cill Level
- WH Window Head Level
- DH Door Head Level

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CLIENT
Dawson Williamson Architects

SITE
Cruck Barn,
Barnsley Road, Penistone.

DRAWING TITLE
3D Topographical Survey

DRAWING REF (LAYOUT TAB)	SCALE@A1
1001-170_3D (A1)	1/125
PROJECT REF	REV
1001-170	Ø

SURVEYED	WS	DRAWN	AT
CHECKED	KW	DATE	23 / 08 / 2021

REV	DATE	DRAWN	DESCRIPTION	CHECKED
-	-- / -- / ----	--	--	--

403920N

403900N

403880N

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING

RIDGE 198.80
EAVES 197.64
THR 195.30
THR 195.30
CONCRETE
BUILDING CANOPY
THR 195.31
TOF 196.20
TIMBER FENCE
GRAVEL
KENNEL
CONCRETE PAD
POST
TOW 196.12
TOW 196.37
TOW 195.60
POST
CONCRETE WALL
METAL FENCE
TOW 194.33
TOW 193.65
S3
193.446
ASPHALT
CHANGE IN SLOPE
WATER LEVEL
27.08.21
NORTH
BUSH
STONE WALL
SCOUT DIKE
TREE TOP
205.63
TREE TOP
206.13
RIDGE 202.21
EAVES 200.05
RWP
DG 195.17
DG 195.21
DG 195.22
GM
IC 195.23
OH ELEC CABLE
THR 195.42
RIDGE 197.23
EAVES 195.38
THR 193.53
RIDGE 201.07
EAVES 199.03
THR 193.33
EAVES 195.38
RWP
IC 194.60
IC 194.52
IC 193.96
STONE
DG 193.18
OH ELEC CABLE
TOW 194.44
TOW 194.25
CONCRETE
CONCRETE
CONCRETE
CONCRETE WALL
RWP
POST'S
STONE WALL
BUSH
RIDGE 201.94
EAVES 199.74
RIDGE 196.38
EAVES 197.70
RIDGE 201.96
EAVES 199.97
THR 195.44
DG 195.28
DG 195.14
IC 195.17
STONE WALL
STONE WALL
STONE
STONE
TOW 196.31
TOW 196.26
THR 194.05
THR 193.82
EAVES 195.61
DG 193.32
DG 193.39
THR 193.64
THR 193.60
THR 193.62
DG 193.41
DG 193.48
DG 193.37
EAVES 195.63
RIDGE 201.43
EAVES 199.61
DRAINAGE CHANNEL
IC 194.47
OH COM CABLE
OH COM CABLE
OH COM CABLE
STONE
STONE
FH
ST
ST
S2
193.156
IC 193.23
TOW 194.20
PØ0.15m
CONCRETE
CONCRETE WALL
TOW 195.95
GAS
GRASS
POST
TOW 194.63
TOW 195.46
STONE WALL
DG 194.44
Barnsley Rd
TOW 195.81
TOW 195.76
TOW 196.33
STONE WALL
OH COM CABLE
TOW 196.32
PØ0.1m
Ø0.6m
Ø0.1m
PØ0.1m
Ø0.2m
Ø0.2m
Ø0.6m

DO NOT SCALE FROM THIS DRAWING

Notes

All dimensions to be checked on site

Any discrepancies to be reported immediately to the Architect

Drawing to be read in conjunction with all relevant design information, including Architects, Services, Civil and Structural Engineers drawings

All existing site, tree, building and survey information has been compiled from different sources, including information supplied by third parties

NOT FOR CONSTRUCTION

Drawing Notes:

This drawing has been produced utilising survey data from information supplied by a Third Party:

MT Surveys Ltd Drawing Ref: 1001-170_2D-(A1)

Red line indicates the extent of land which is within the ownership of Donaldson's Vets Ltd based on information supplied by the Client and it's accuracy is so restricted

C1096 001 Rev 0

TITLE EXISTING DRAWING
SITE PLAN

SCALE 1:100 @ A1 / 1:200 @ A3

PRELIMINARY

PROJECT REFURBISHMENT OF NETHER HILL BARN
(GRADE II LISTED BUILDING)
TO FORM NEW VETERINARY SURGERY
BARNSLEY ROAD
PENISTONE
S36

CLIENT DONALDSONS VETS LTD

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Planning advice for developers – FAQs

Introduction

Local planning authorities (LPAs) across Yorkshire are required to consult us on certain planning applications which affect flood risk, groundwater, waste, or water quality.

If your development falls into one of these categories, we'll be invited to comment on your planning application. Your LPA, when considering your application, will take our comments into account.

We've produced this guidance to summarise the environmental issues we're responsible for. The guidance forms part of our free advice service; if you require site-specific or face-to-face advice, we'll need to recover our costs through our charged advice service. Engaging with us early can help you identify the big issues, reduce the chances of subsequent delays and help you design a more sustainable and attractive development.

Development and flood risk

Is my development proposal at risk of flooding?

The flood map for planning shows where flooding from rivers and the sea may occur. Whilst this map isn't suitable for a detailed flood risk assessment, it'll show which flood zone your development is located within and therefore will indicate whether further assessment is needed. You should also refer to your LPA's strategic flood risk assessment which will provide additional local information on flood risk, including the location of functional floodplain and areas which are susceptible to other sources of flooding such as from surface water or reservoirs.

Will my application need to pass the sequential and exception tests?

Local planning authorities apply the sequential test to steer development towards areas at the lowest risk of flooding. If your proposal is located within flood zones 2 or 3, you should contact your LPA to discuss the sequential test **before** submitting your application. The LPA may require you to submit information with your application in support of the sequential test.

If the LPA confirm that the sequential test has ruled out steering the development to lower risk sites, the development may also need to pass the exception test by demonstrating that its sustainability benefits outweigh flood risk and that it can be made safe for its lifetime, through the production of a site-specific flood risk assessment. Planning practice guidance advises when an exception test will be required, which will depend on the vulnerability of the development and the flood zone it lies within.

Do I need to submit a flood risk assessment with my planning application?

You'll need to submit a flood risk assessment if your application lies within flood zones 2 or 3 or is over 1 hectare within flood zone 1. You'll also need to submit an assessment if your proposal could be affected by sources of flooding other than from rivers or the sea. For certain lower risk applications, we've provided 'flood risk standing advice' which enables local planning authorities to assess flood risk assessments without the need to consult us.

What information should I include in my flood risk assessment?

We recommend that you refer to the checklist for a site-specific flood risk assessment for detailed advice on what to include in your flood risk assessment. Alongside referring to your LPA's strategic flood risk assessment, you should contact your LPA to find out whether there are any development guidelines which are specific to your locality.

Can I undertake my own flood risk assessment?

Your FRA must be appropriate to the scale, nature and location of the development whilst being credible and fit-for-purpose. Whilst it's possible to undertake your own assessment, most applicants employ suitably experienced professionals. We're not able to recommend specific consultants, but a simple web search should help you source a competent individual or company.

Do I need to consider how climate change will affect my proposal's flood risk?

Yes, you should demonstrate how flood risk will be managed now and over the development's lifetime, taking climate change into account. Please refer to the following guidance when undertaking your flood risk assessment. In some cases we'll hold the climate change flood data you need. In others you'll need to undertake your own analysis to understand the impacts.

Where can I get modelled or historic flood levels from?

Email our Customers and Engagement team (neyorkshire@environment-agency.gov.uk) to find out whether we have any modelled or historic flood levels available for your development site. A list of the packages of information we're able to provide can be found under the 'get information to complete an assessment' section of the planning practice guidance. They'll aim to provide this information within 20 days. We no longer charge for providing this information.

The risk portrayed by your flood map doesn't seem to reflect the site's actual risk. How do I 'challenge' your flood map?

If you have evidence suggesting that our flood map is inaccurate, please contact our Customers and Engagement team (neyorkshire@environment-agency.gov.uk) who will provide you with any existing data we hold. To formally contest our flood zones, you'll need to submit supporting evidence, such as digital copies of a topographic survey or modelling for quality assurance purposes. Digital files of the proposed new flood zones in ArcMap or MapInfo format should also be supplied. Any new outline data you submit must conform to our flood zones policy, copies of which are available on request.

Whilst we'll usually be happy to review any topographical survey or model prior to the application being submitted, we would have to recover our costs for this work. In some cases where work to review and update our existing models is already underway, we may decline to consider a challenge.

As we have to be certain that the data which informs our flood map is fit-for-purpose, any revisions will need to meet stringent quality checks.

SURFACE WATER AND DRAINAGE

Who's responsible for managing surface water?

Lead local flood authorities are responsible for providing advice on the management of surface water resulting from new major development. Internal drainage boards, where established, have permissive powers to manage water levels within their drainage districts, so also play a key role in managing surface water.

Will I need to provide surface water storage and limit the discharge rate?

You should contact your lead local flood authority to discuss surface water discharge rates and storage requirements. Typically, they'll ask that your development does not increase run-off and limits the discharge to the existing greenfield run-off rate (usually 1.4l/s/ha if not calculated).

Do I need to install sustainable drainage systems?

Sustainable Drainage Systems (SuDS) should always be carefully considered in discussion with your lead local flood authority. A SuDS scheme can reduce flood risk, improve water quality, create better habitats for wildlife, and produce pleasant, more amenable places for people.

Infiltration drainage must not, however, pose a risk to groundwater quality. All infiltration SuDS must:

- Meet the groundwater protection criteria set out on GOV.UK
- Not be constructed in ground affected by contamination

Who should I contact about connecting my development to the mains sewer?

Talk to your water company about connecting to their sewerage system. Here are some contact details for water companies operating in the Yorkshire Environment Agency area:

Yorkshire Water	planningconsultation@yorkshirewater.co.uk
Northumbrian Water	developmentenquiries@nwl.co.uk
Severn Trent Water	new.connections@severntrent.co.uk

My development is a long way from the mains sewer. Can I install a 'non-mains' drainage system, such as a package treatment plant?

New development should connect to the public mains sewer wherever possible. Individual treatment plants can deteriorate local water quality and are more challenging to monitor and regulate. If you can't connect to the mains sewer, your planning submission should outline how you will deal with foul drainage discharge. You should include evidence as to why it is not possible to connect to the mains system, including details of any prohibitive costs. Please note that some 'non-mains' foul water drainage systems will require an environmental permit, irrespective of any planning approval.

OTHER ENVIRONMENTAL CONSIDERATIONS

What other environmental issues will you consider with my planning application?

Your planning application will need to demonstrate that any environmental risks can be managed, through design and construction, for the development's lifetime. Alongside flood risk, the key environmental risks we'll consider are:

- **Land Contamination**
  We're mainly interested in those sites where there is a risk of pollution to controlled waters. You should investigate any contamination to see whether the environmental risk or cost of clean-up (remediation) would hinder your proposal. If contamination is known or suspected, a desktop study, investigation, remediation and other works may be required to enable safe development. Our model procedures for the management of land contamination provide further information.

- **Pollution prevention**
  Your application should demonstrate how you'll minimise the risk of pollution from all aspects of your development, including construction and

operation phases. Groundwater can be vulnerable to pollution, as well as rivers and streams. Some areas (source protection zones and aquifers) are especially sensitive to pollutants as they typically supply public drinking water. To find out whether your development is located in an area sensitive to groundwater pollution, visit our interactive maps. Advice on groundwater protection can be found on GOV.UK

- **Fisheries, biodiversity, geomorphology and protected species**
  If your proposal is likely to affect the ecology of a main river, you'll need to carry out a risk assessment. This assessment should show that your development can proceed without demonstrable harm, and should propose mitigation, compensation or enhancements where required. A survey should be carried out if any protected species are thought to be nearby. If this survey confirms the presence of protected species or their habitat, measures should be taken to manage the development's risks. Natural England are the statutory consultee for other biodiversity-related matters. Further information on their remit can be found on GOV.UK

- **Water framework directive**
  If your proposal affects ground or surface waterbodies, you'll need to consider the Water Framework Directive (WFD) and the actions set out in the Humber River Basin Management Plan. You'll also need to submit a WFD Assessment demonstrating how the development will prevent deterioration and improve the waterbody's ecological status.

- **River buffer zone**
  Your development should ensure that an 8m strip of land (planted with locally appropriate, native species) is left undisturbed next to the bank of any main river. This 'river corridor' will improve habitat connectivity and will ensure we're able to access the bank for any future flood defence construction and maintenance.

- **Culverting**
  We're opposed to culverting. Culverts degrade watercourses' ecology and prevent the movement of wildlife and fish. As culverts can easily become blocked, they increase flood risk. They're also difficult to inspect and maintain. We may object to any planning applications involving culverting on a main river and may refuse to grant an environmental permit. Existing culverts should be removed and the river channel and bankside habitat reinstated to restore the ecological continuity of the river channel and its corridor.

Will I need any other Environment Agency permits for my development?

You might need an environmental permit if your development manages or produces waste or emissions that pollute the air, water or land or is work that affects a main river or a sea defence. The lead local flood authority is responsible for any consents relating to ordinary watercourses.

The Environmental Permitting Regulations (England and Wales) 2015 cover water discharges, groundwater activities, flood risk activities, radioactive substances, waste, mining waste and installations. They also include provision for a number of directives including batteries. Further information, including contact details for further permitting related enquiries, can be found here.

As planning and permitting decisions are often closely linked, we have issued detailed guidance for developments requiring planning permission and environmental permits. This guidance explains how, when responding to planning consultations that require environmental permits, we will advise of three possible positions:

- No major permitting concerns
- More detailed consideration is required and parallel tracking is recommended
- Don't proceed – unlikely to grant a permit.

PRE-APPLICATION ADVICE

Can you provide site-specific advice, review a submission document, or attend a site meeting before I submit my planning application?

We encourage you to seek pre-application advice as it can help you solve key environmental issues early, reduce the chance of an objection and help you design a more sustainable development. If you'd like to take advantage of this service, please email our Sustainable Places team so that we can provide further details and estimated costs.

Please note that any pre-application guidance we provide doesn't represent our final view in relation to any future planning application. We recommend that you seek your own expert advice prior to submitting your application.

Who should I contact for further information?

Yorkshire planning enquiries: sp-yorkshire@environment-agency.gov.uk

General enquiries: 03708 506 506

Environment Agency, Lateral, 8 City Walk, Leeds LS11 9AT
https://www.gov.uk/government/organisations/environment-agency

Flood risk assessment data

Location of site: 424555 / 403893 (shown as easting and northing coordinates)
Document created on: 18 February 2022
This information was previously known as a product 4.
Customer reference number: 51W231FN49TV

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



How to use this information

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

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

Included in this document

In this document you'll find:

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

Information that's unavailable

This document **does not** contain:

- flood defences and attributes
- climate change modelled data

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

There is not any modelled climate change data for this location. This is because detailed modelling hasn't been carried out in this area. You will need to consider the latest flood risk assessment climate change allowances and factor in the new allowances to demonstrate the development will be safe from flooding.

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: 2012 Sheffield Comprehensive Flood Review
Scenario(s): Defended fluvial, defences removed fluvial
Date: 1 June 2012

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

Terminology used

Annual exceedance probability (AEP)

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

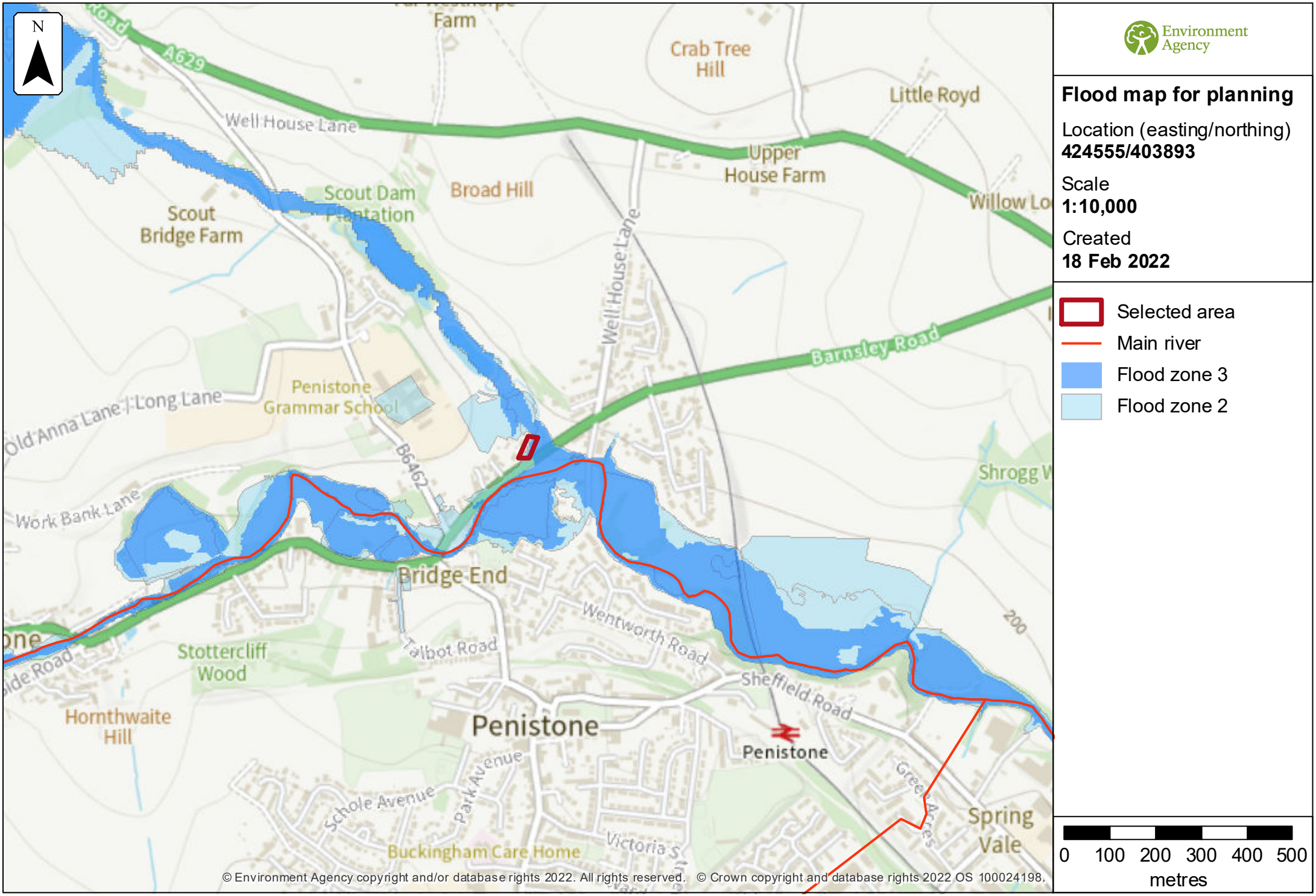
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- 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
Environment Agency
Flood map for planning
Location (easting/northing)
424555/403893
Scale
1:10,000
Created
18 Feb 2022
Selected area
Main river
Flood zone 3
Flood zone 2
0 100 200 300 400 500
metres
Farm
Crab Tree Hill
Little Royd
A629
Well House Lane
Upper House Farm
Willow Lo
Scout Dam Plantation
Broad Hill
Scout Bridge Farm
Well House Lane
Barnsley Road
Penistone Grammar School
Old Anna Lane
Long Lane
B6462
Work Bank Lane
Shrogg W
Bridge End
Wentworth Road
Talbot Road
Stottercliff Wood
Sheffield Road
Hornthwaite Hill
Penistone
Penistone
Park Avenue
Schole Avenue
Victoria S
Buckingham Care Home
Spring Vale
200
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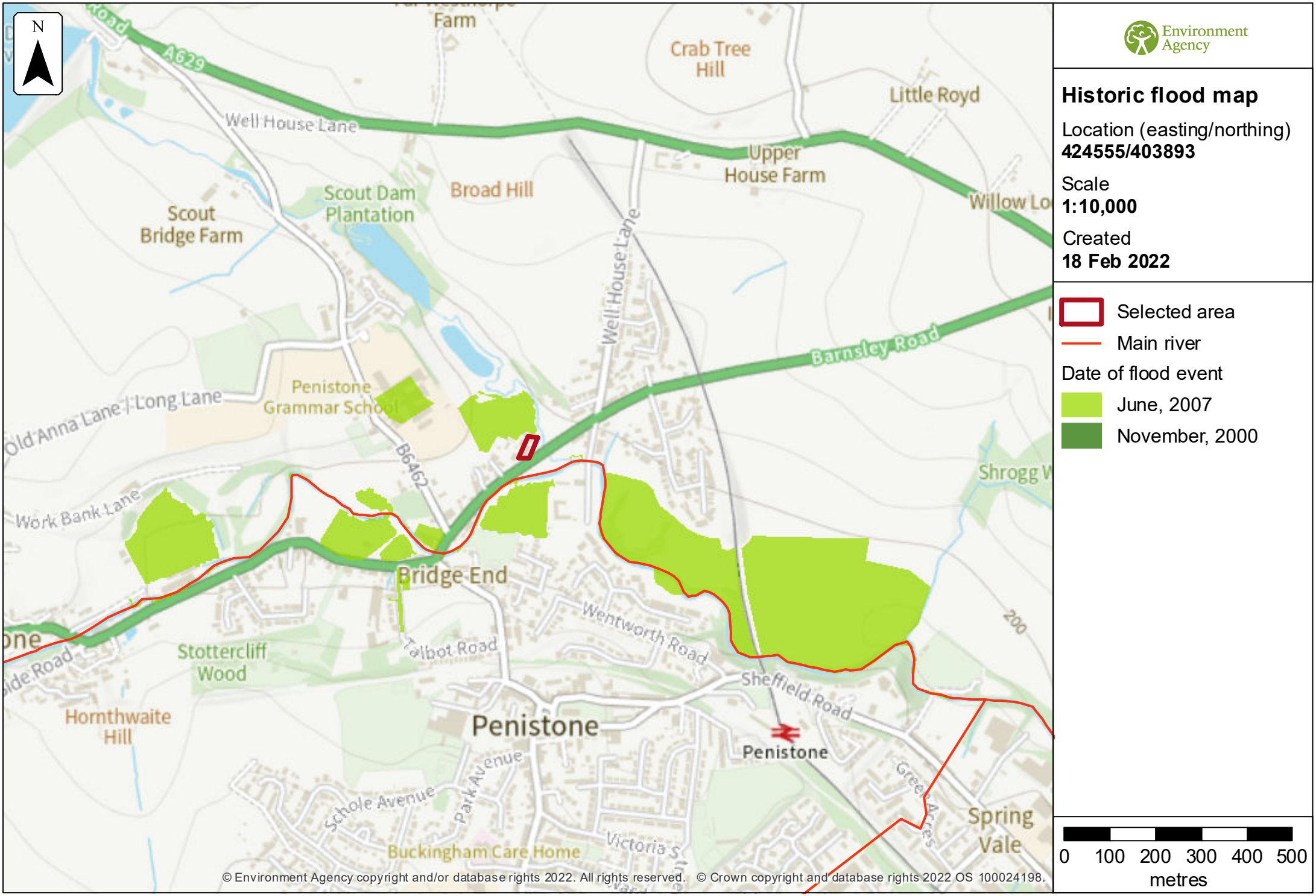
Historic flooding

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

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

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

Download recorded flood outlines in GIS format


N
Environment Agency
Historic flood map
Location (easting/northing)
424555/403893
Scale
1:10,000
Created
18 Feb 2022
Selected area
Main river
Date of flood event
June, 2007
November, 2000
0 100 200 300 400 500
metres
Farm
Crab Tree Hill
Little Royd
A629
Well House Lane
Upper House Farm
Scout Dam Plantation
Broad Hill
Scout Bridge Farm
Well House Lane
Barnsley Road
Penistone Grammar School
Old Anna Lane
Long Lane
B6462
Work Bank Lane
Bridge End
Shrogg
Wentworth Road
Talbot Road
Stottercliff Wood
Sheffield Road
Hornthwaite Hill
Penistone
Penistone
Park Avenue
Schole Avenue
Buckingham Care Home
Spring Vale
200
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Historic flood event data

Start date	End date	Source of flood	Cause of flood	Affects location
15 June 2007	30 June 2007	main river	channel capacity exceeded (no raised defences)	No
7 November 2000	4 December 2000	main river	unknown	No

Modelled data

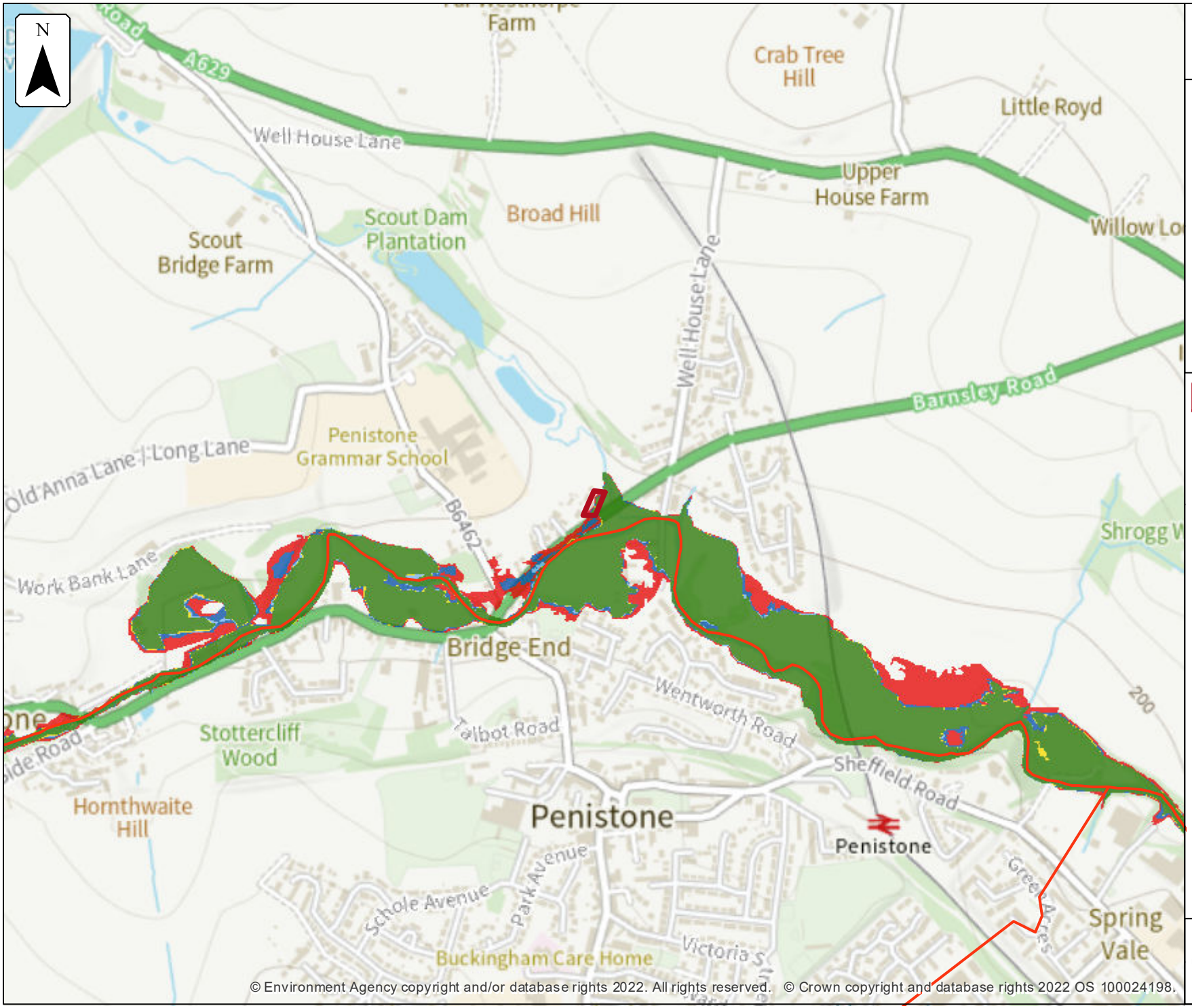
This section provides details of different scenarios we have modelled and includes the following (where available):

- 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

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



Environment Agency

Defended modelled fluvial extent

Location (easting/northing)
424555/403893

Scale
1:10,000

Created
18 Feb 2022

Model name
2012 Sheffield Comprehensive Flood

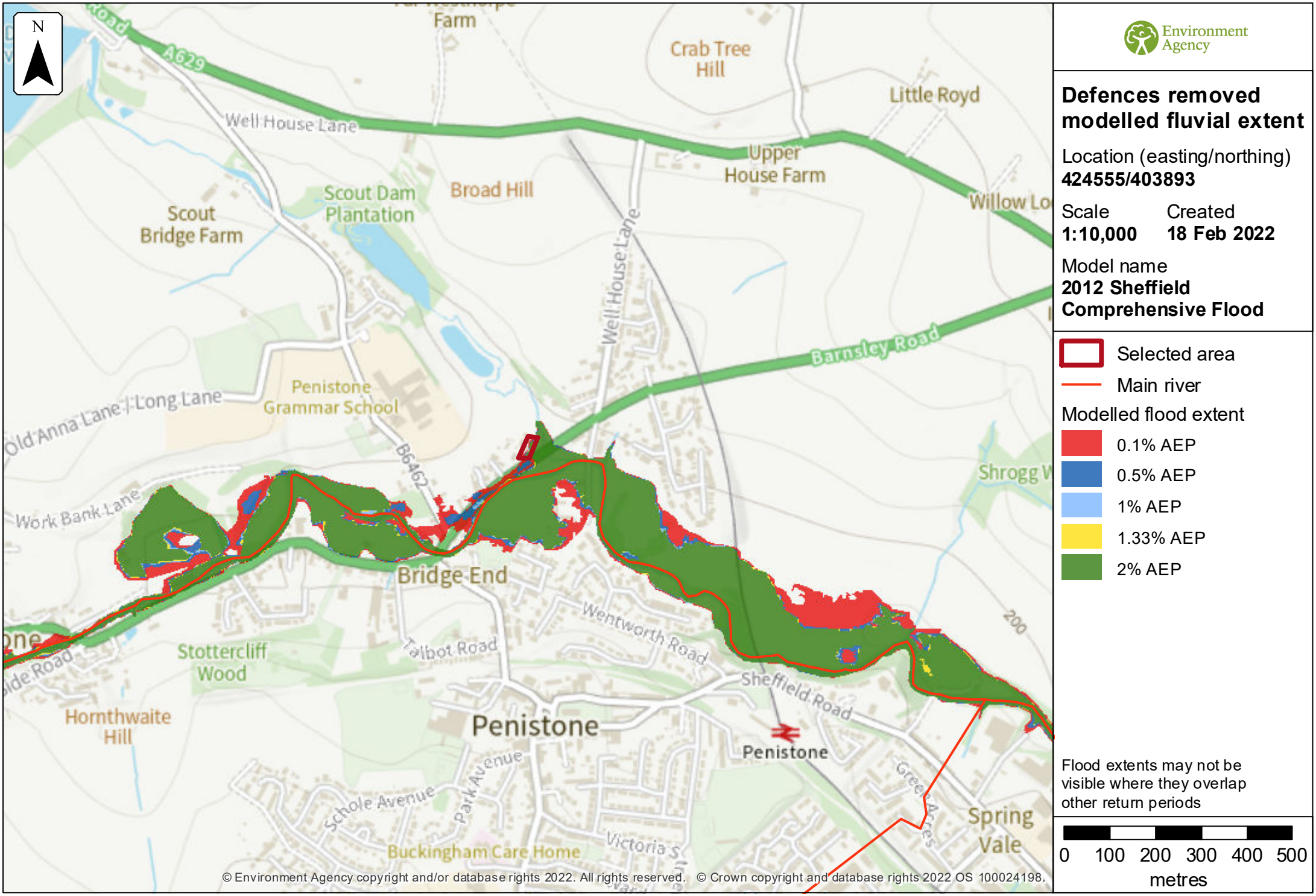
- Selected area
- Main river

Modelled flood extent

- 0.1% AEP
- 0.5% AEP
- 1% AEP
- 1.33% AEP
- 2% 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)
424555/403893

Scale
1:10,000

Created
18 Feb 2022

Model name
2012 Sheffield Comprehensive Flood

- Selected area
- Main river

Modelled flood extent

- 0.1% AEP
- 0.5% AEP
- 1% AEP
- 1.33% AEP
- 2% AEP

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)
424555/403893

Scale
1:2,500

Created
18 Feb 2022

Model name
2012 Sheffield Comprehensive Flood

- Selected area
- Modelled location
- Main river

0 25 50 75 100
metres

Modelled node locations data

Defended

Label	Modelled location ID	Easting	Northing	4% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1021516	424353	403663	194.92	38.13	195.04	42.98	195.07	44.16	195.11	45.93	195.30	55.37	195.98	91.16
2	1021155	424367	403659	194.84	38.13	194.92	42.98	194.94	44.16	194.97	45.93	195.10	55.37	195.44	91.16
3	1021523	424380	403662	194.64	38.13	194.71	42.98	194.73	44.16	194.76	45.93	194.87	55.37	195.20	91.15
4	1020852	424386	403664	194.47	38.13	194.54	42.98	194.55	44.16	194.57	45.94	194.68	55.37	194.99	91.15
5	1021210	424392	403667	194.17	38.14	194.23	42.99	194.24	44.16	194.27	45.94	194.36	55.36	194.67	91.15
6	1021211	424503	403813	193.90	38.13	193.97	42.98	193.98	44.16	194.01	45.93	194.12	55.35	194.46	91.15
7	1021322	424557	403829	193.62	38.13	193.71	43.11	193.72	44.15	193.75	45.93	193.89	55.35	194.25	91.14
8	1021649	424712	403734	192.59	40.89	192.67	47.22	192.68	47.50	192.70	49.62	192.82	59.82	193.14	97.18
9	1021017	424687	403866	193.49	38.12	193.58	42.96	193.59	44.14	193.62	45.92	193.76	55.34	194.12	91.13

Data in this table comes from the 2012 Sheffield Comprehensive Flood Review 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.



Environment Agency

Defences removed modelled fluvial node locations

Location (easting/northing)
424555/403893

Scale
1:2,500

Created
18 Feb 2022

Model name
2012 Sheffield Comprehensive Flood

Selected area
Modelled location
Main river

0 25 50 75 100
metres

Modelled node locations data

Defences removed

Label	Modelled location ID	Easting	Northing	4% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1021516	424353	403663	194.92	38.13	195.04	42.98	195.07	44.17	195.11	45.93	195.30	55.36	195.98	91.14
2	1021155	424367	403659	194.84	38.13	194.92	42.98	194.94	44.17	194.97	45.93	195.10	55.36	195.45	91.14
3	1021523	424380	403662	194.64	38.13	194.71	42.98	194.73	44.17	194.75	45.93	194.87	55.37	195.21	91.13
4	1020852	424386	403664	194.47	38.13	194.54	42.98	194.55	44.18	194.57	45.94	194.68	55.36	195.0	91.14
5	1021210	424392	403667	194.17	38.14	194.23	42.99	194.24	44.17	194.27	45.93	194.36	55.37	194.67	91.15
6	1021211	424503	403813	193.90	38.13	193.97	42.98	193.98	44.17	194.01	45.93	194.12	55.36	194.46	91.14
7	1021322	424557	403829	193.62	38.13	193.71	43.11	193.72	44.17	193.75	45.93	193.89	55.37	194.25	91.13
8	1021649	424712	403734	192.59	40.89	192.67	47.22	192.68	47.52	192.70	49.61	192.82	59.83	193.14	97.18
9	1021017	424687	403866	193.49	38.12	193.58	42.96	193.59	44.16	193.62	45.92	193.76	55.35	194.12	91.12

Data in this table comes from the 2012 Sheffield Comprehensive Flood Review 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.

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 Yorkshire Environment Agency team at neyorkshire@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

Assets

We have no record of formal flood defences (other than high ground) helping to reduce flood risk in your area of interest.

Please note that information about high ground, structures (such as weirs, control gates or screens) and channels (culverts) is no longer given out in Product 4, unless specifically requested. If you'd like to see this data, please let us know.

Modelling

2012 Sheffield Comprehensive Flood Review Model

Please see enclosed:

- Table of results for peak water levels for the 0.1% (1 in 1000), 0.5% (1 in 200) 1% (1 in 100), 1.3% (1 in 75), 2% (1 in 50) and 4% (1 in 25) Annual Exceedance Probabilities (AEP)
- and a map showing the location of the model node points
- modelled flood outlines

Please note that the climate change scenario for this model is not available. *If this information will be used to produce a flood risk assessment you will be expected to generate climate change levels for setting finished floor levels etc.*

Please note that the defended levels have not been verified and may change following an update.

If modelled flood outlines in GIS format from the model are required these can be provided as product 6.

2004 National Generalised Modelling

No detailed modelling has been undertaken for Scout Dike.

The Flood Zones along Scout Dike (outside of 2012 Sheffield CFR model outlines) are based on the 2004 **National Generalised Modelling** undertaken on a large regional scale. Neither water depths nor water levels outputs were specified when we commissioned this generalised modelling for Flood Zones. Whilst the modelling may provide some information on depth of water in some locations, these are not typically issued in our products as are not deemed suitable for use in Flood Risk Assessments or Strategic Flood Risk Assessments, as we have no information on the accuracy of this data. The JFLOW modelling method was developed, tested and reviewed for production of the Flood Zone extents only.

If you require advice on supporting your Flood Risk Assessment where no detailed modelling is available this may be requested via pre-application advice (see below guidance).

Climate Change

Updated guidance on how climate change could affect flood risk to new development - 'Flood risk assessments: climate change allowances' is published on gov.uk. You should confirm the flood risk vulnerability classification and lifetime of your proposed development in line with NPPF and apply the appropriate climate change allowances.

Bespoke Flood Risk Assessment (FRA) advice:

If the pre-application advice is required with regards the preparation of a site-specific Flood Risk Assessment, this can be requested via the Yorkshire Sustainable Places team (email: sp-yorkshire@environment-agency.gov.uk). Charges may apply for any advice that is provided, this currently stands at £100 per hour per person. The .gov.uk pages provide a good starting point on what to include within a site-specific Flood Risk Assessment and can be accessed via https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications. A site-specific Flood Risk Assessment will need to consider flood risks from all sources, including those associated with defence failure (e.g. breach) and accounting for the predicted impacts as a result of climate

change. Please contact the Sustainable Places team if you require advice on how to include these within a Flood Risk Assessment.

Non Main River

The watercourse at this location (Scout Dike) is not designated as Main River. It is classed as an Ordinary Watercourse. The local authority is the flood risk management authority for this river. The Environment Agency does not have any more information available in regard to past flooding issues or current flood risk. For any information on any past flooding and for any record of the impact of local drainage on that watercourse we suggest you speak to Barnsley District Council's Drainage Section and to Yorkshire Water.

Surface Water Map

Lead Local Flood Authorities (LLFA) are responsible for managing local flood risk from surface water flooding and groundwater flooding. You should check with the LLFA as they may have more up to date information regarding this type of flooding.

The Risk of Flooding from Surface Water Flood Map (including extents, depths and velocities) can be viewed and downloaded as a PDF file on GOV.UK by following this link: https://flood-warning-information.service.gov.uk/long-term-flood-risk
Risk of Flooding from Surface dataset is also available in GIS format from Defra Data Services Platform https://environment.data.gov.uk/

Surface Water Drainage

The Lead Local Flood Authority is the statutory consultee for planning matters relating to surface water drainage, therefore it is recommended they should be consulted separately regarding this.

Surface water discharge from new development should ideally 'mimic' the pre-development situation using a sustainable drainage system so that the flow and volume of water in watercourses is not increased.

A permit may be required, under the Environmental Permitting Regulations 2016 from the Environment Agency for any proposed works or structures in, under, over or within eight metres of a 'main river' (e.g. a new outfall). A permit is separate to and in addition to any planning permission granted. Further details and guidance are available on the GOV.UK website:
https://www.gov.uk/guidance/flood-risk-activities-environmental-permits

Risk of Flooding from Reservoirs Map

Outlines and simplified depth and velocity maps can be viewed on our website:
https://flood-warning-information.service.gov.uk/long-term-flood-risk/#x=438988&y=406600&scale=2

Please, zoom into the location of interest, and then click on the inundated location for details. As a result a list of reservoirs will be provided with supporting information and a links to other data, such as estimated depths and speed of flooding, at the bottom of the result page.

A map of showing the outlines can also be provided on request.

Flood Warning

The site is covered by a Flood Warning. To register to receive this service, you can call Floodline 24 hours a day on 0845 988 1188.

LIDAR Data

Please note that our LiDAR data is now available free of charge (Open Data) from

https://environment.data.gov.uk/DefraDataDownload/?Mode=survey (once zoomed to the relevant location the available LiDAR products as listed below will be available to choose from in the Layer List icon – top right).

Two LIDAR products are available:

1. Tiled LIDAR data - The full tiled dataset consists of historic LIDAR data which has been gathered since 1998. For some areas we have carried out repeat surveys and data is available in a range of resolutions.
2. Composite LIDAR data - The composite dataset is derived from a combination of our full tiled dataset which has been merged and re-sampled to give the best possible spatial coverage.

Light Detection and Ranging (LIDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground. This technique results in the production of an accurate, cost-effective terrain model suitable for assessing flood risk and other environmental applications.

The Environment Agency owns two LIDAR systems, which are installed in a survey aircraft along with its other operational remote sensing instruments.

The aircraft is positioned and navigated using Global Positioning System (GPS) corrected to known ground reference points. The aircraft typically flies at a height of about 800 metres above ground level and a scanning mirror allows a swath width of about 600 metres to be surveyed during a flight.

The Rights & Responsibilities of a Riverside Owner

The owner of property adjacent to a watercourse is usually deemed to be the riparian owner and, as such, has both riparian rights and responsibilities with regard to the watercourse within their ownership.

For more information on Rights and Responsibilities of a riverside owner, you can visit our website at:
https://www.gov.uk/guidance/owning-a-watercourse

Ordnance Survey Data

Under the terms of our licence agreement with the Ordnance Survey, we are unable to supply the OS data. Under this agreement we can only supply OS data to consultants/contractors carrying out work on our behalf.