4 Brewery Drive, Lockwood, Huddersfield, HD4 6EN

Flood Risk Assessment

For Harris Property Restoration Ltd

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December 2025

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Project	Flood Risk Assessment
Client	Harris Property Restoration Ltd
Status	Final
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EXECUTIVE SUMMARY

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

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

1.0 INTRODUCTION

1.1 Background

This Flood Risk Assessment (FRA) has been prepared by KRS Enviro at the request of Harris Property Restoration Ltd to support a planning application for the change of use from commercial (Class E) to a residential house (Class C3) and demolition of existing redundant outbuilding ("the Proposed Development") at 4 Brewery Drive, Lockwood, Huddersfield, HD4 6EN ("the Site").

This FRA has been carried out in accordance with guidance contained in the National Planning Policy Framework (NPPF)[1], associated Planning Practice Guidance on flood risk and coastal change[2] (PPG) and the PPG 'Site-specific flood risk assessment checklist'. This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

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

1.2 National Planning Policy Framework (NPPF)

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

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

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

The report findings are based upon professional judgement and are summarised below with detailed recommendations provided at the end of the report. The report includes rainfall data

[1] Ministry for Housing, Communities and Local Government (2025) National Planning Policy Framework: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf
[2] Communities and Local Government (2022) Planning Practice Guidance - Flood Risk and Coastal Change: https://www.gov.uk/guidance/flood-risk-and-coastal-change

from the Flood Estimation Handbook (FEH) and hydrogeological information from the British Geological Survey (BGS). The assessment will summarise and refer to these datasets in the text.

1.3 Report Structure

This FRA has the following report structure:

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

2.0 LOCATION & DEVELOPMENT DESCRIPTION

2.1 Site Location

The Site is located at 4 Brewery Drive, Lockwood, Huddersfield, HD4 6EN (see Figure 1). The National Grid Reference (NGR) of the Site is 413529, 414947.

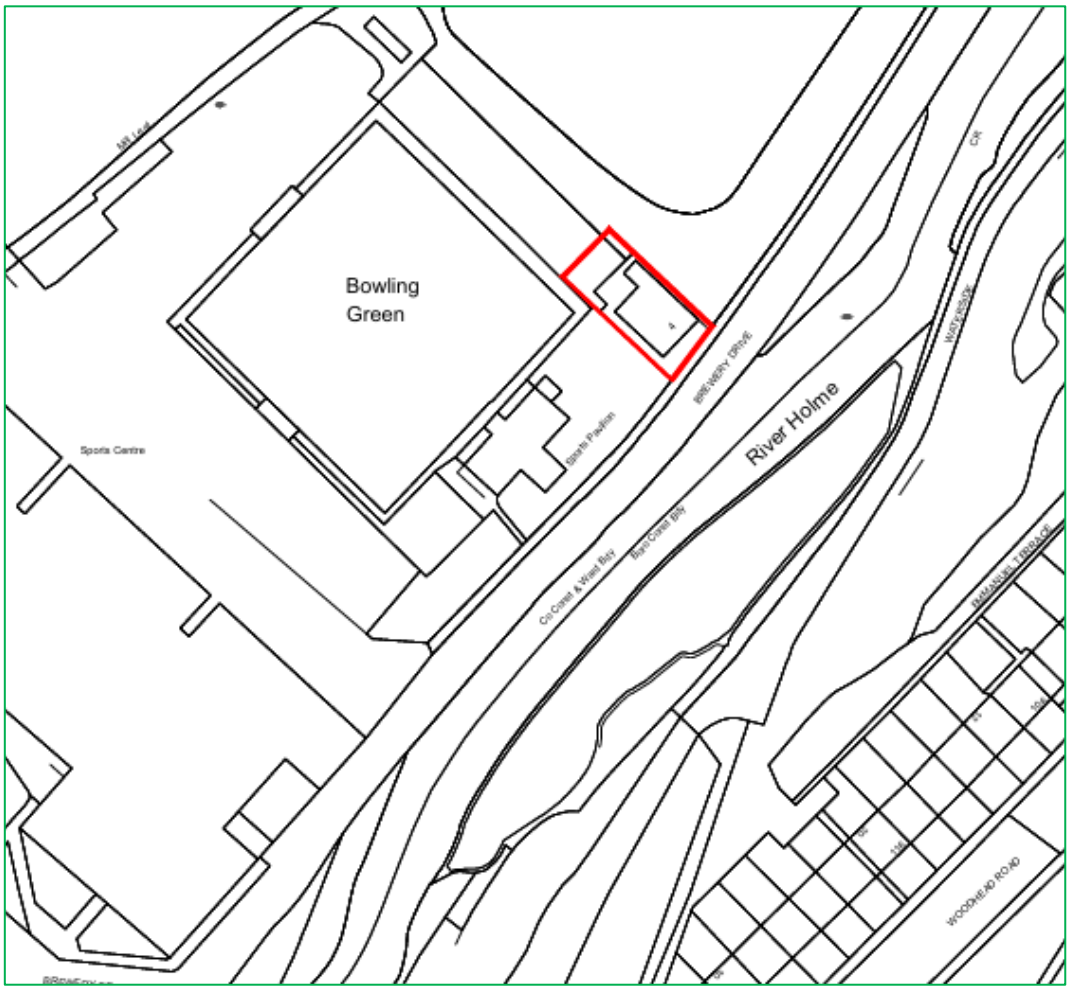


Figure 1 - Site Location

2.2 Existing Development

The existing Site consists of a detached 2 storey commercial building (see Appendix 1).

2.3 Proposed Development

It is understood the Proposed Development is for the change of use from commercial (Class E) to a 4 bedroom residential house (Class C3) and demolition of existing redundant outbuilding (see Appendix 1). Further details with regard to the Proposed Development can be found in the accompanying information submitted with the planning application.

2.4 Ground Levels

The Site has an average ground level of 74.25 metres Above Ordnance Datum (mAOD).

2.5 Catchment Hydrology

The River Holme flows approximately 9m to the southeast of the Site and is a tributary of the River Colne which is located approximately 1.23km to the northeast of the Site. The Mill Pond is located approximately 10m to the north of the Site.

2.6 Ground Conditions

The British Geological Survey (BGS) map[3] shows that the bedrock deposits underneath the Site consist of the Rough Rock Flags - sandstone. The superficial deposits consist of Alluvium - clay, silt, sand and gravel. Information from the National Soil Resources Institute[4] details the Site area as being situated on freely drainage slightly acid loamy soils.

[3] https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.14476159.932338379.1655890995-1831306757.1655472887
[4] http://www.landis.org.uk/soilscapes/

3.0 FLOOD RISK

3.1 Sources of Flooding

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

3.2 Environment Agency

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

3.3 Calderdale Council

Kirklees Council is the LPA and the LLFA and has responsibilities for 'local flood risk', which includes surface runoff, groundwater and ordinary watercourses. Planning guidance written by Kirklee Council regarding flood risk was consulted to assess the mitigation policies in place. The Kirklees Council Strategic Flood Risk Assessment (SFRA) and the Kirklees Council Preliminary Flood Risk Assessment (PFRA) which cover the Site have been reviewed.

3.4 Climate Change

Projections of future climate change, in the UK, indicate more frequent, short-duration, high intensity rainfall and more frequent periods of long duration rainfall. Guidance included within the NPPF recommends that the effects of climate change are incorporated into FRA's. Recommended precautionary sensitivity ranges for peak rainfall intensities and peak river flows are outlined in the flood risk assessments: climate change allowances guidance[5].

The flood risk assessments: climate change allowances guidance recommends that for 'less vulnerable' that the central allowances are used to assess climate change throughout the lifetime of the development which is 75 years. Table 1 shows the peak river flow allowances by river catchment therefore, the fluvial design event for the Site is the 1 in 100 year (+23%) event.

Table 1 - Peak River Flow Allowances by River Catchment

River Catchment	Allowance Category	2020s	2050s	2080s
Aire & Calder Management Catchment	Upper	+24%	+31%	+51%
	Higher	+15%	+18%	+31%
	Central	+11%	+13%	+23%

3.5 Environment Agency Flood Zones

A review of the Environment Agency's Flood Zones indicates that the Site is located within Flood Zones 1, 2 and 3, with a 'low to high probability' of fluvial flooding, with less than 1 in 1000 annual probability of river flooding in any year (<0.1%) to a 1 in 100 or greater annual probability of river flooding (>1%) in any year, as shown in Figure 2. Figure 3 shows how the combined extent of Flood Zones 2 and 3 could increase with climate change over the next 100 years.

The Site should not be designated as Flood Zone 3b 'Functional Floodplain'. The definition of Flood Zone 3b 'Functional Floodplain' as per the PPG is: "*This zone comprises land where water*

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

from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:

- *land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or*
- *land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).*

Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency."

The Site does not comprise land where water has to flow or be stored in times of flood. The Site does not perform a water conveyance flood route or a flood storage area. The Site does not provide a function of flood conveyance (i.e. free flow) or flood storage, either through natural processes, or by design (e.g. washlands and flood storage areas). The Site is already developed therefore, the Site is located within Flood Zone 3a.

The Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. They show the worst case scenario. The Environment Agency Flood Zones and acceptable development types are explained in Table 2. Table 2 shows that some development types are generally acceptable in Flood Zones 1, 2 and 3a.

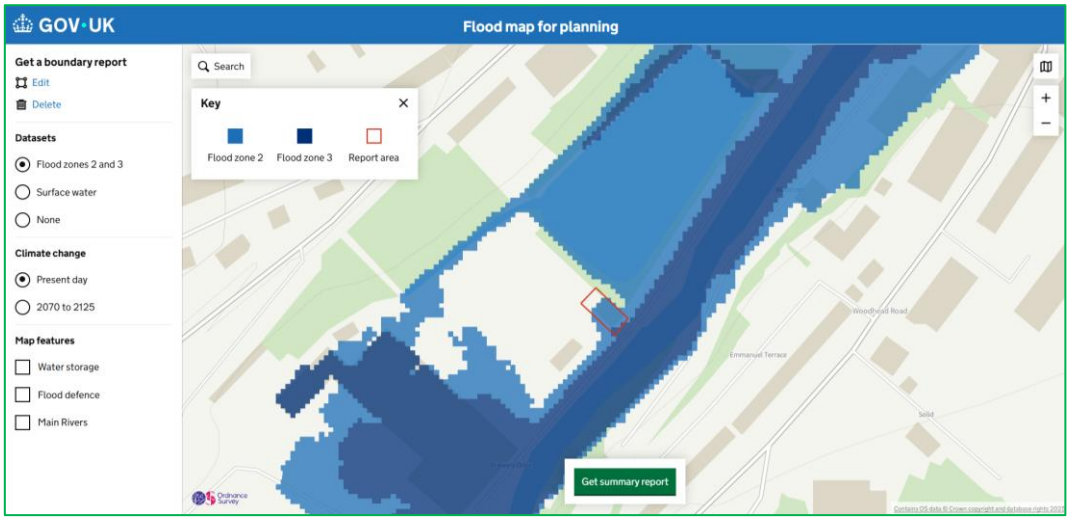


Figure 2 - Environment Agency Flood Zones: Present Day

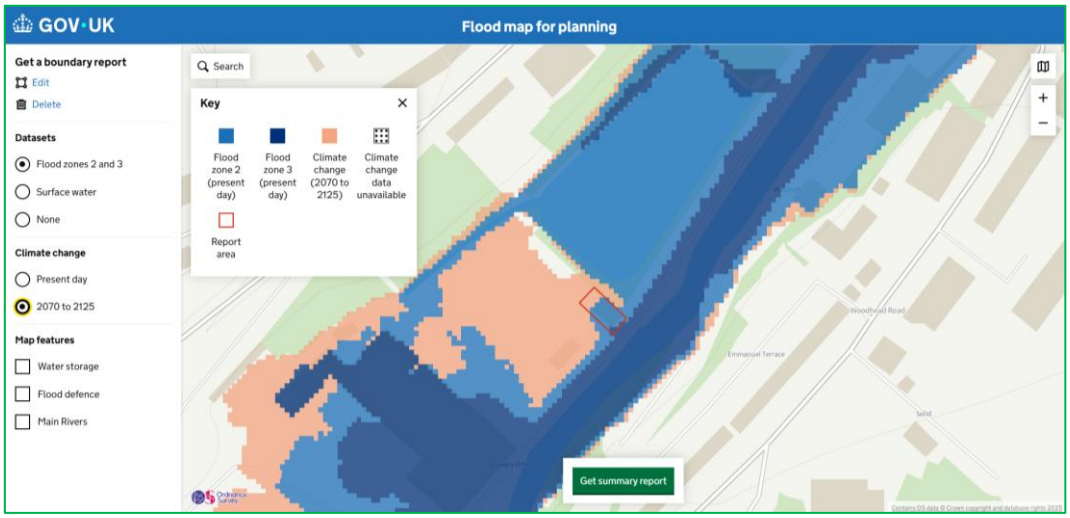


Figure 3 - Environment Agency Flood Zones: Climate Change 2070 to 2125

Table 2 - Environment Agency Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land Use
Zone 1	Low	Less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%)	All development types generally acceptable
Zone 2	Medium	Between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% 0.1%) in any year	Most development type are generally acceptable
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year	Some development types not acceptable
Zone 3b	'Functional Floodplain'	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of	Some development types not acceptable

		functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)	

3.6 Flood Vulnerability

In the PPG, appropriate uses have been identified for the Flood Zones. Applying the Flood Risk Vulnerability Classification in the PPG, the proposed use is classified as 'more vulnerable'. Table 3 of this report and the PPG state that 'more vulnerable' uses are appropriate within Flood Zones 1, 2 and 3a after the completion of a satisfactory FRA.

Table 3 - Flood Risk Vulnerability and Flood Zone 'Compatibility'

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

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

3.7 Historic Flooding

The Environment Agency data confirms that the Site has not historically flooded (see Figure 4). It is noted that areas to the southwest of the Site have historically flooded in February 2022 due to the channel capacity being exceeded as no raised defences but these records do not give an indication of the depth of flooding, however this flood event did not affect the Site.

There are no other records of anecdotal information of flooding at the Site. The British Hydrological Society "Chronology of British Hydrological Event[6]" has no information on flooding within the vicinity of the Site. No other historical records of flooding for the Site have been recorded. Therefore, it has been concluded that the Site has not recently flooded.

[6] https://cbhe.hydrology.org.uk/

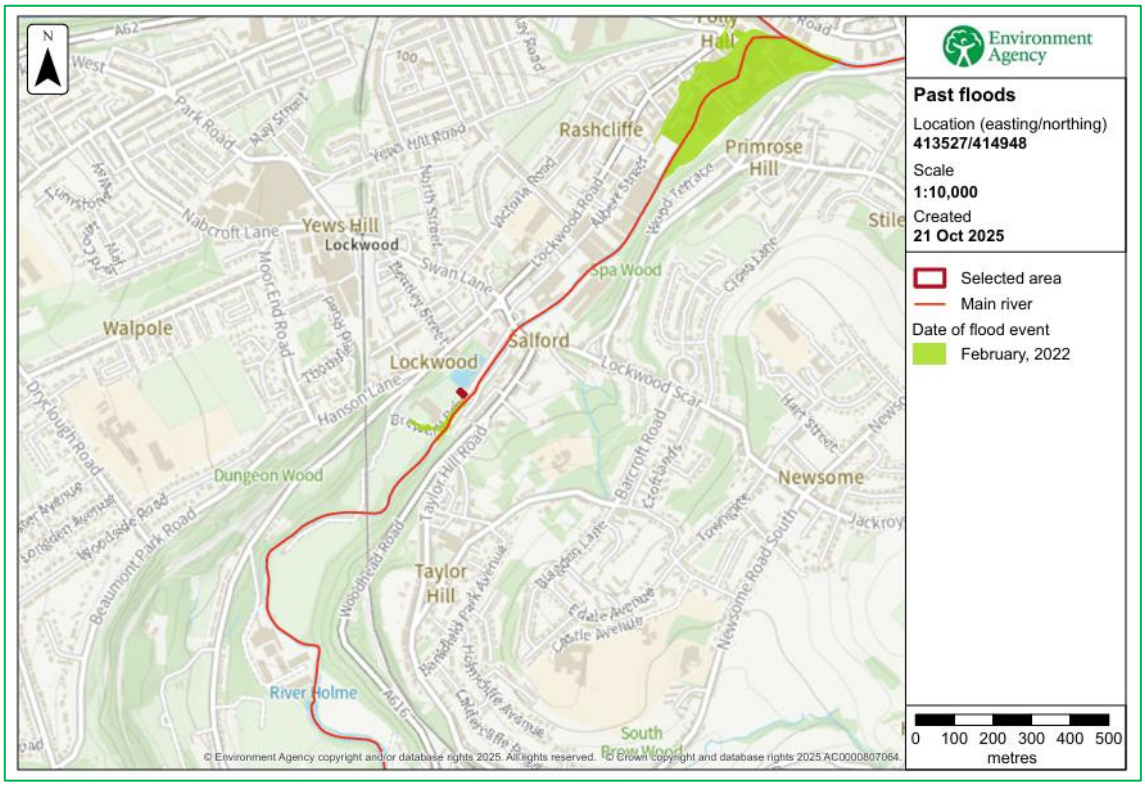


Figure 4 – Environment Agency Historic Flood Map

3.8 Existing and Planned Flood Defence Measures

The Environment Agency data shows that there are currently no flood defence measures within the vicinity of the Site. Further property level protection measures will be used to protect the Site from flooding these are discussed in Section 5.0.

3.9 Fluvial (River) Flooding

The River Holme flows approximately 9m to the southeast of the Site and is a tributary of the River Colne which is located approximately 1.23km to the northeast of the Site. Therefore, fluvial flooding poses the primary, but unlikely, flood risk to the Site. The fluvial design event for the Site is the 1 in 100 year (+23%) event however, in this case the 1 in 100 year (+20%) event has been used as the design event due to the small difference between the two events.

River Colne

The Environment Agency has provided modelled flood data for the River Colne at the Site. Node 5 has been used as this is the closest to the Site.

Actual Risk

Table 4 shows the defended Environment Agency floodplain water levels for the Site. The modelled water levels have been compared to the ground level of the Site and areas within the vicinity of the Site to assess the flood risk at the Site in detail.

Figure 5 shows the Environment Agency defended modelled flood outlines, this shows that the Site will not be inundated with floodwater for all events up to and including the defended 1 in 100 year event. The Environment Agency modelled flood outlines show that the Site will be flood free during the defended 1 in 100 year event.

Water levels have been modelled at 74.79mAOD during the defended 1 in 1000 year event therefore, the Site along the southeast boundary, may be inundated with floodwater to a depth of 0.54m however, the north of the Site will be flood free.

It should be noted that the finished floor levels of the building's door threshold to the northeast of the Site is raised 800mm above the external ground level which will give a freeboard of 260mm above the defended 1 in 1000 year event. Therefore, the building will be flood free up to and including the defended 1 in 1000 year event.

Table 4 - River Colne: Environment Agency Defended Modelled Water Levels (mAOD)

Node Label	Easting	Northing	Return Period (years)					
			25	50	75	100	200	1000
1	413343	414680	74.85	75.06	75.19	75.29	75.56	75.85
2	413361	414714	74.70	74.93	75.06	75.16	75.44	75.73
3	413432	414783	74.37	74.59	74.72	74.83	75.08	75.35
4	413459	414826	74.24	74.46	74.59	74.70	74.99	75.30
5	413536	414925	73.80	74.01	74.14	74.24	74.50	74.79
6	413609	415029	73.29	73.53	73.68	73.79	74.11	74.47
7	413664	415103	73.15	73.42	73.57	73.68	73.98	74.31
8	413682	415121	73.11	73.36	73.50	73.60	73.87	74.15
9	413717	415145	73.00	73.25	73.38	73.48	73.75	74.02
10	413771	415178	72.84	73.09	73.22	73.32	73.58	73.83

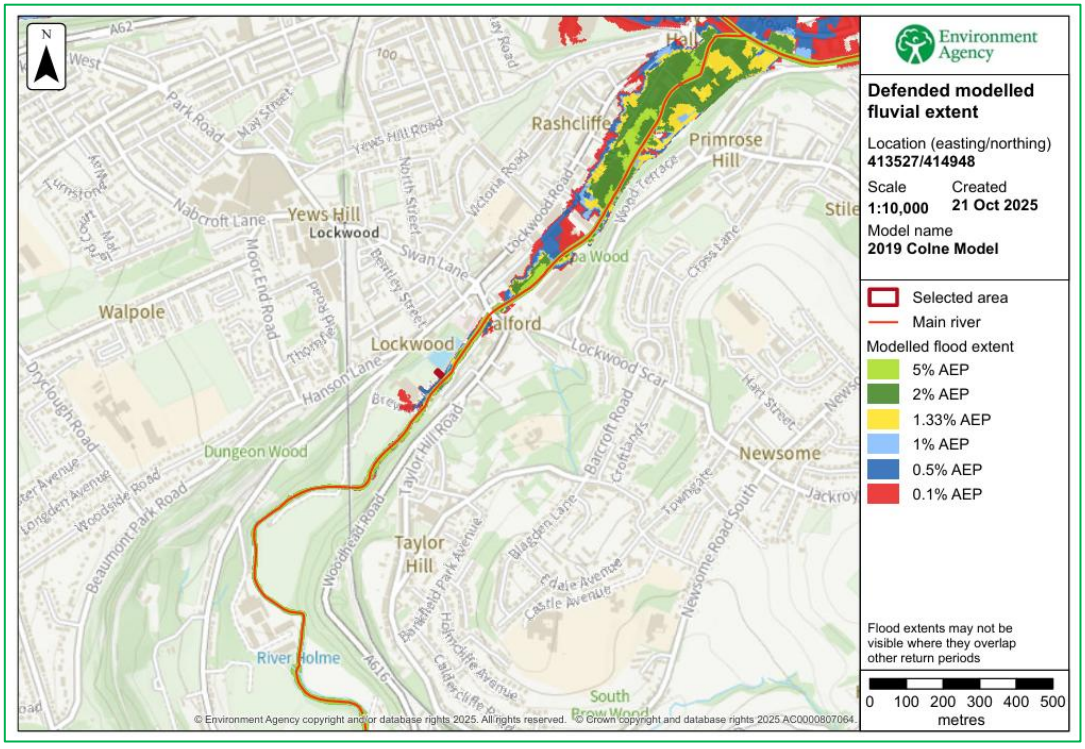


Figure 5 - River Colne: Environment Agency Defended Modelled Flood Outlines

Residual Risk

Table 5 show the undefended Environment Agency floodplain water levels for the Site. The modelled water levels have been compared to the ground level of the Site and areas within the vicinity of the Site to assess the flood risk at the Site in detail.

Figures 6 and 7 show the undefended modelled flood outlines, these show that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 100 year event. The Environment Agency modelled flood outlines show that the Site will be flood free during the undefended 1 in 100 year event.

Water levels have been modelled at 74.52mAOD during the undefended 1 in 100 year (+20%) event, and at 74.79mAOD during the undefended 1 in 1000 year event. Therefore, the Site along the southeast boundary, may be inundated with floodwater during the undefended 1 in 100 year (+20%) event to a depth of 0.27m and during the undefended 1 in 1000 year event to a depth of 0.54m however, the north of the Site will be flood free.

It should be noted that the finished floor levels of the building's door threshold to the northeast of the Site is raised 800mm above the external ground level which will give a freeboard of 190mm above the undefended 1 in 100 year (+20%) event. Therefore, the building will be flood free up to and including the undefended 1 in 100 year (+20%) event.

Table 5 - River Colne: Environment Agency Undefended Modelled Water Levels (mAOD)

Node Label	Easting	Northing	Return Period (years)						
			30	100	100 (+20%)	100 (+30%)	100 (50%)	1000	1000 (+20%)
1	413343	414680	74.91	75.29	75.57	75.69	75.92	75.85	76.13
2	413361	414714	74.76	75.16	75.45	75.58	75.81	75.73	76.03
3	413432	414783	74.43	74.83	75.10	75.21	75.42	75.35	75.61
4	413459	414826	74.29	74.70	75.00	75.14	75.38	75.30	75.64
5	413536	414925	73.85	74.24	74.52	74.64	74.86	74.79	75.09
6	413609	415029	73.35	73.79	74.13	74.28	74.57	74.47	74.86
7	413664	415103	73.22	73.68	74.00	74.13	74.39	74.31	74.65
8	413682	415121	73.18	73.60	73.89	74.00	74.22	74.15	74.41
9	413717	415145	73.07	73.48	73.76	73.88	74.09	74.02	74.29
10	413771	415178	72.91	73.32	73.59	73.70	73.89	73.83	74.05

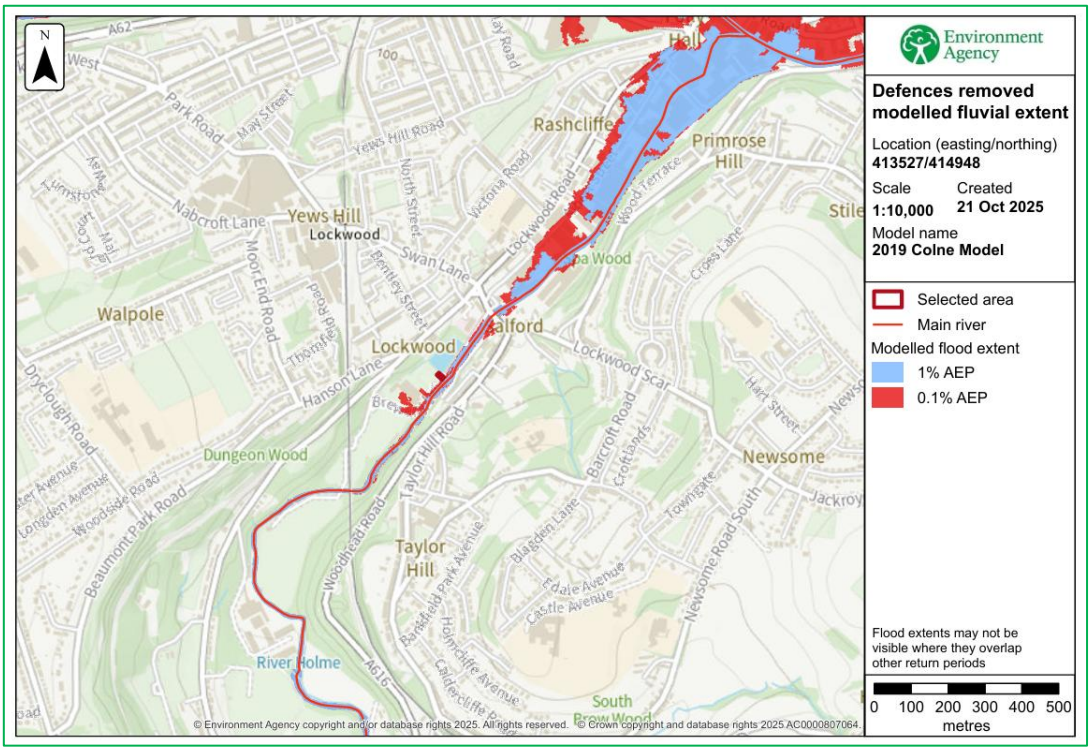


Figure 6 - River Colne: Environment Agency Undefended Modelled Flood Outlines

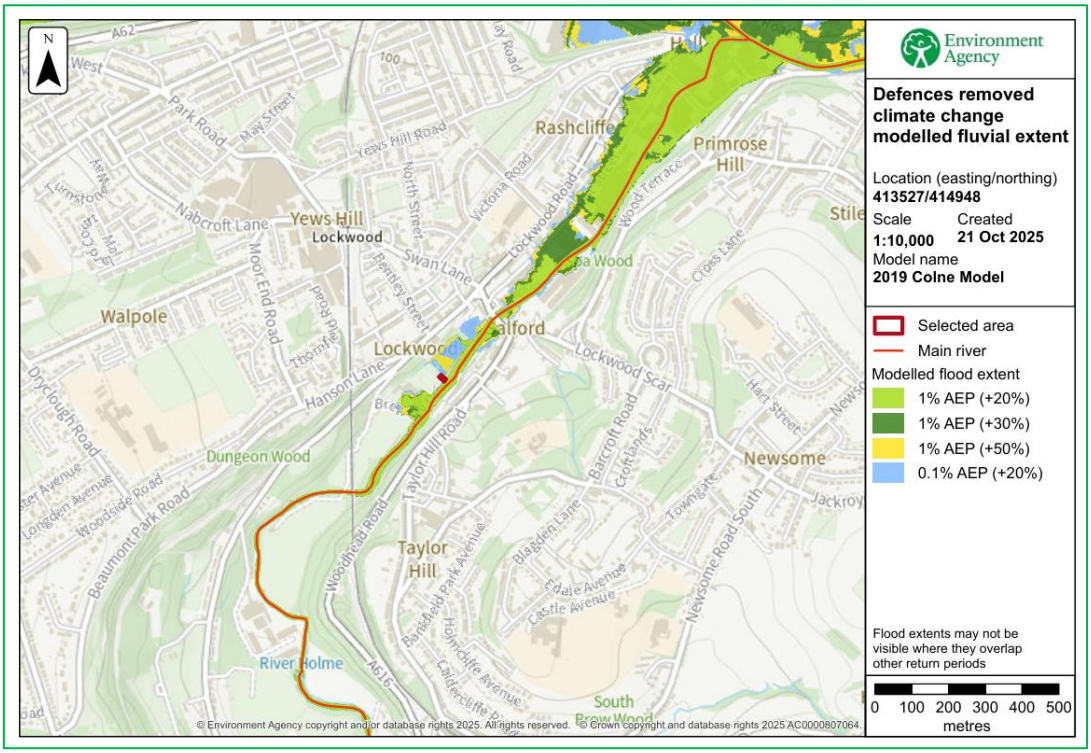


Figure 7 - River Colne: Environment Agency Undefended Climate Change Modelled Flood Outlines

River Holme

The Environment Agency has provided modelled flood data for the River Holme at the Site. Node 6 has been used as this is the closest to the Site.

Residual Risk

Table 6 show the undefended Environment Agency floodplain water levels for the Site. The modelled water levels have been compared to the ground level of the Site and areas within the vicinity of the Site to assess the flood risk at the Site in detail.

Figures 8 and 9 show the undefended modelled flood outlines, these show that the Site will not be inundated with floodwater for all events up to and including the undefended 1 in 25 year event. The Environment Agency modelled flood outlines show that the Site will be flood free during the undefended 1 in 25 year event.

Water levels have been modelled at 74.63mAOD during the undefended 1 in 100 year event, at 74.91mAOD during the undefended 1 in 100 year (+20%) event and at 75.63mAOD during the undefended 1 in 1000 year event. Therefore, the Site along the southeast boundary, may be inundated with floodwater during the undefended 1 in 100 year event to a depth of 0.38m, during the undefended 1 in 100 year (+20%) event to a depth of 0.66m and during the undefended 1 in 1000 year event to a depth of 1.38m.

It should be noted that the finished floor levels of the building's door threshold to the northeast of the Site is raised 800m above the external ground level which will give a freeboard of 140mm above the 1 in 100 year (+20%) event. Therefore, the building will be flood free up to and including the 1 in 100 year (+20%) event.

Table 6 - River Colne: Environment Agency Undefended Modelled Water Levels (mAOD)

Node Label	Easting	Northing	Return Period (years)						
			30	100	100 (+20%)	100 (+30%)	100 (50%)	1000	1000 (+20%)
1	413321	414641	75.47	75.87	76.16	76.26	76.51	76.80	77.19
2	413342	414679	75.32	75.72	76.01	76.12	76.37	76.52	76.91
3	413361	414714	75.20	75.60	75.90	76.02	76.27	76.42	76.73
4	413431	414782	74.86	75.23	75.50	75.59	75.85	75.98	76.27
5	413459	414826	74.73	75.15	75.47	75.61	75.97	76.15	76.53
6	413536	414925	74.26	74.63	74.91	75.00	75.44	75.63	76.03
7	413609	415028	73.78	74.22	74.59	74.71	75.33	75.54	75.98
8	413666	415106	73.66	74.07	74.39	74.48	75.12	75.34	75.81
9	413678	415118	73.59	73.94	74.18	74.23	74.39	74.47	74.63
10	413767	415176	73.33	73.71	73.98	74.03	74.15	74.24	74.41

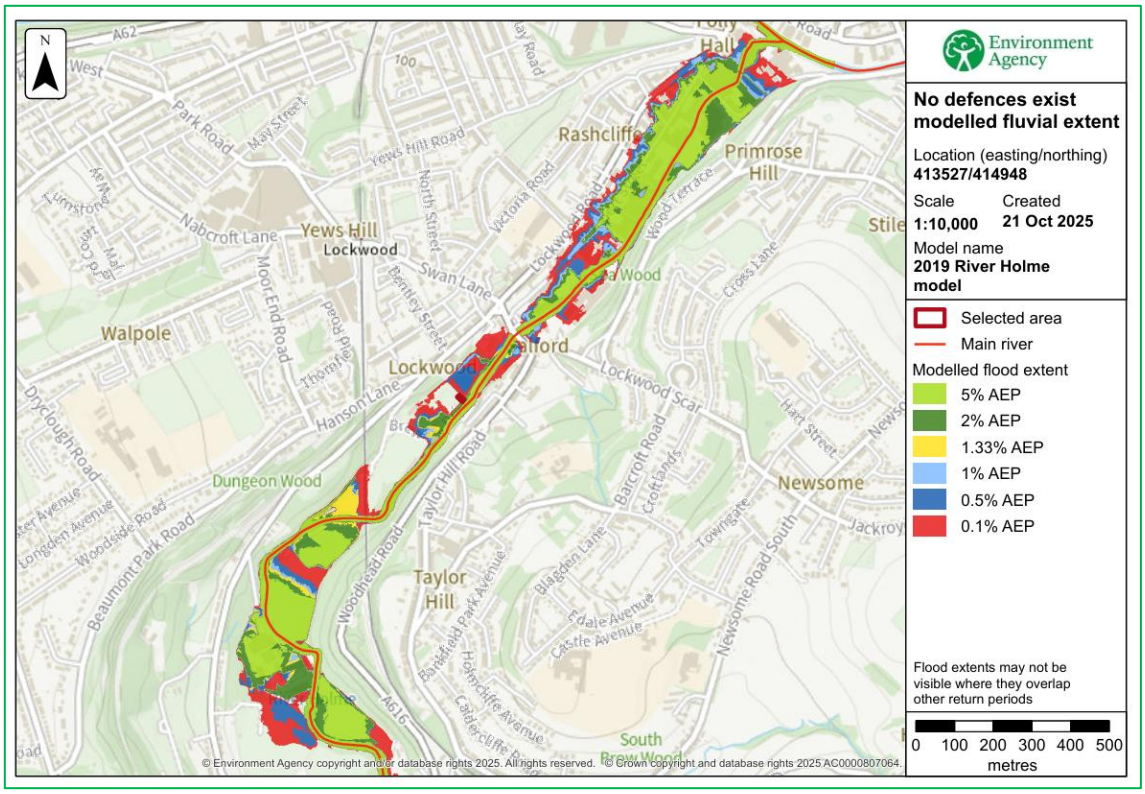


Figure 8 - River Colne: Environment Agency Undefended Modelled Flood Outlines

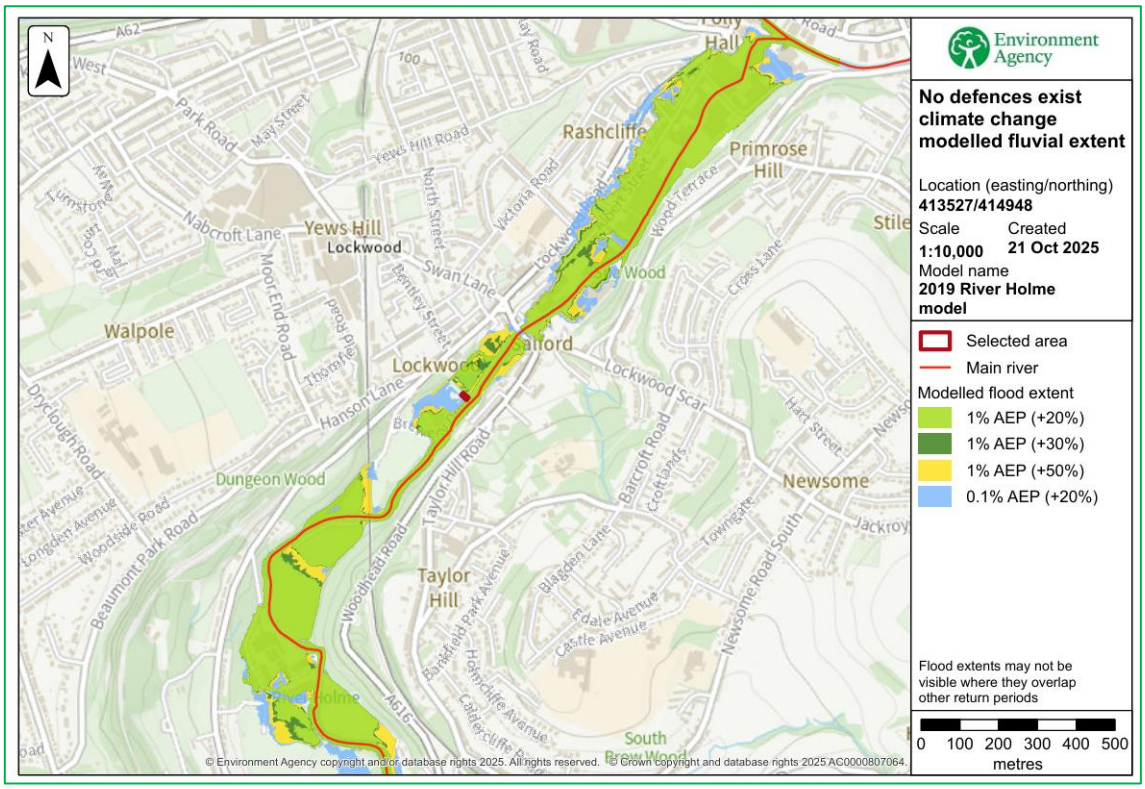


Figure 9 - River Colne: Environment Agency Undefended Climate Change Modelled Flood Outlines

Summary

The likelihood of a rapid river level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

Fluvial flood risk to the Site can be considered to be limited. Any overbank flow would follow the contours of the surrounding area and would flow away from the Site rather than flowing towards the Site. It should also be noted that the Site has not historically flooded in the recent past.

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

3.10 Tidal (Coastal) Flooding

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

3.11 Groundwater Flooding

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

Groundwater flooding tends to occur sporadically in both location and time. When groundwater flooding does occur, it tends to mostly affect low-lying areas, below surface infrastructure and buildings (for example, tunnels, basements and car parks) underlain by permeable rocks (aquifers). Site ground conditions suggest a low potential for groundwater flooding. Environment Agency data shows that flooding from groundwater is unlikely in this area. This is confirmed within the Kirklees Council SFRA (see Figure 10). The risk of flooding from groundwater flooding is considered to be not significant.

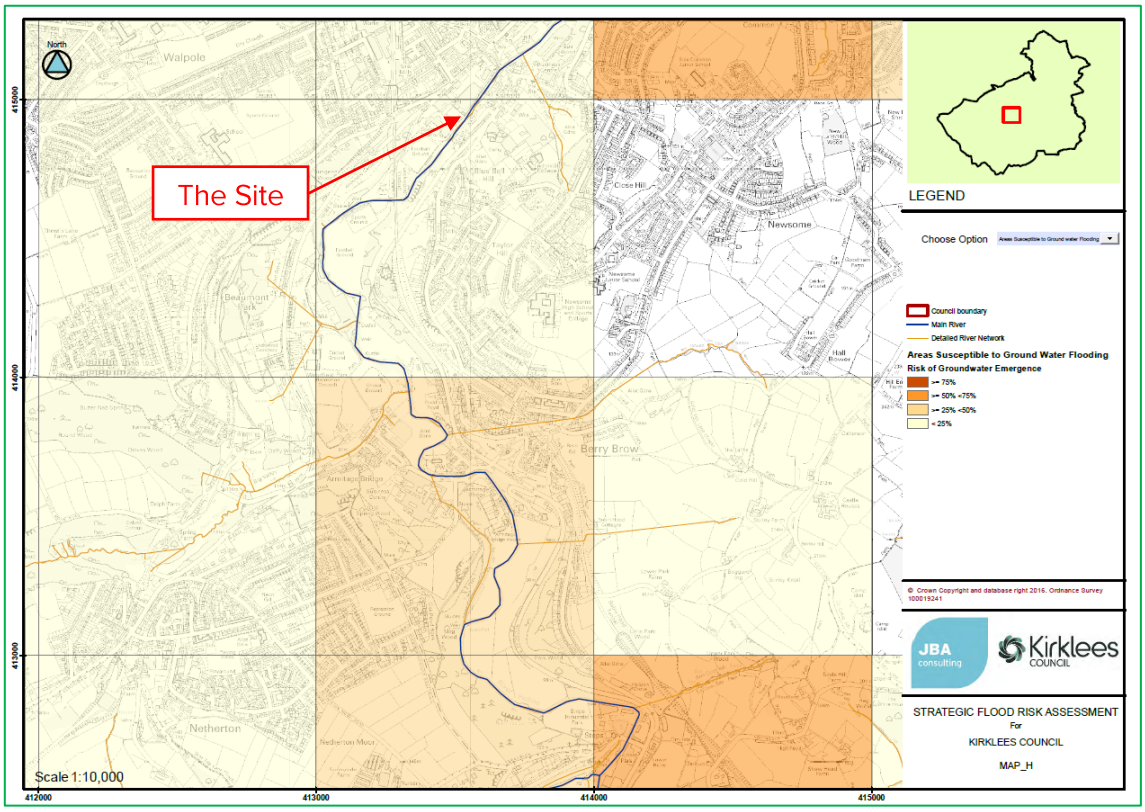


Figure 10 - Kirklees Council SFRA Areas Susceptible to Groundwater Flooding

3.12 Surface Water (Pluvial) Flooding

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

The Environment Agency Surface Water flood map shows that the Site has a very low risk of surface water flooding with an annual probability of flooding of less than 1 in 1000 (0.1%) (see Figures 11 to 13). Given the scale and nature of the Proposed Development and the size and location of the surface water flooding sources it has been concluded that surface water flooding poses a low flood risk to the Site and the risk of surface water flooding is considered to be not significant.

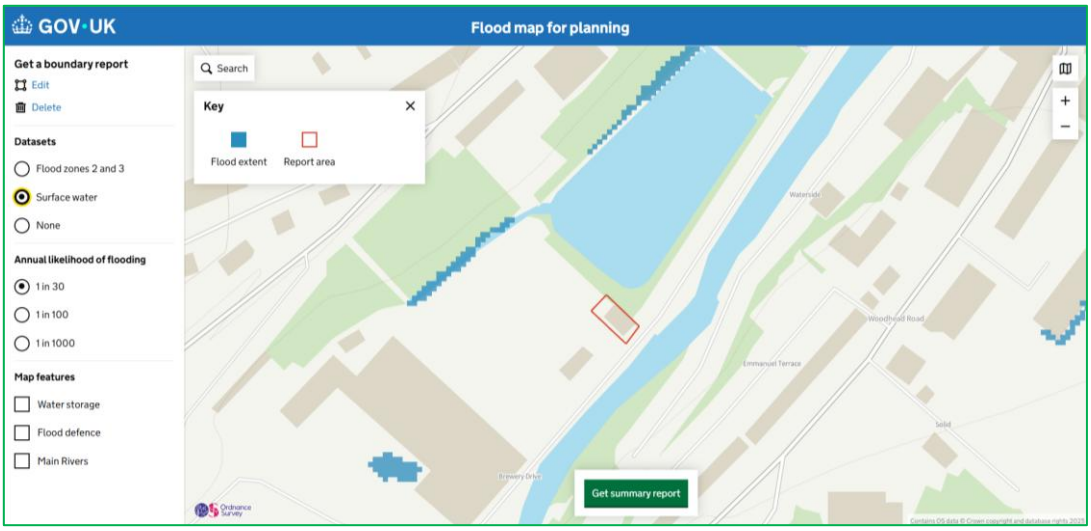


Figure 11 - Environment Agency Surface Water Flood Map: 1 in 30 Year Extent

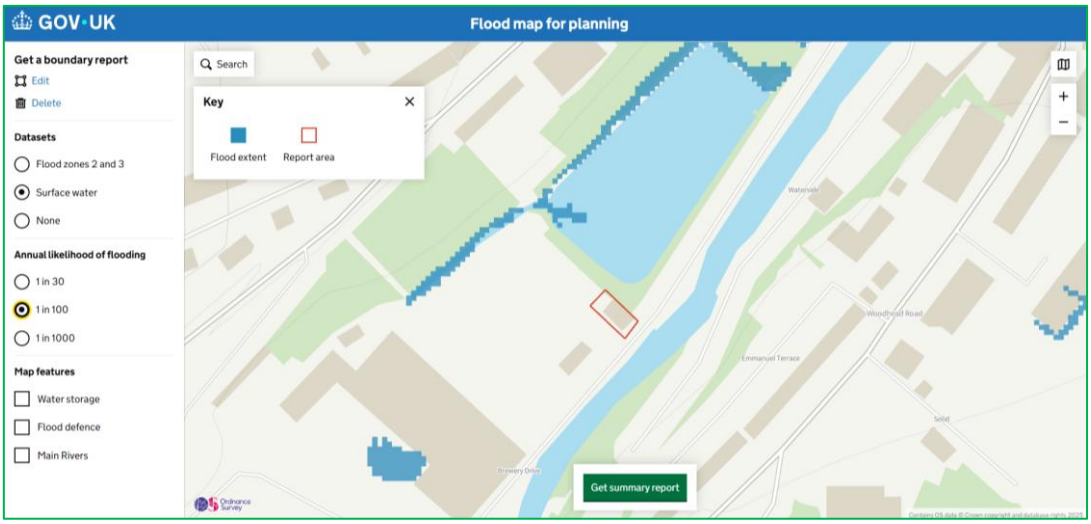


Figure 12 - Environment Agency Surface Water Flood Map: 1 in 100 Year Extent

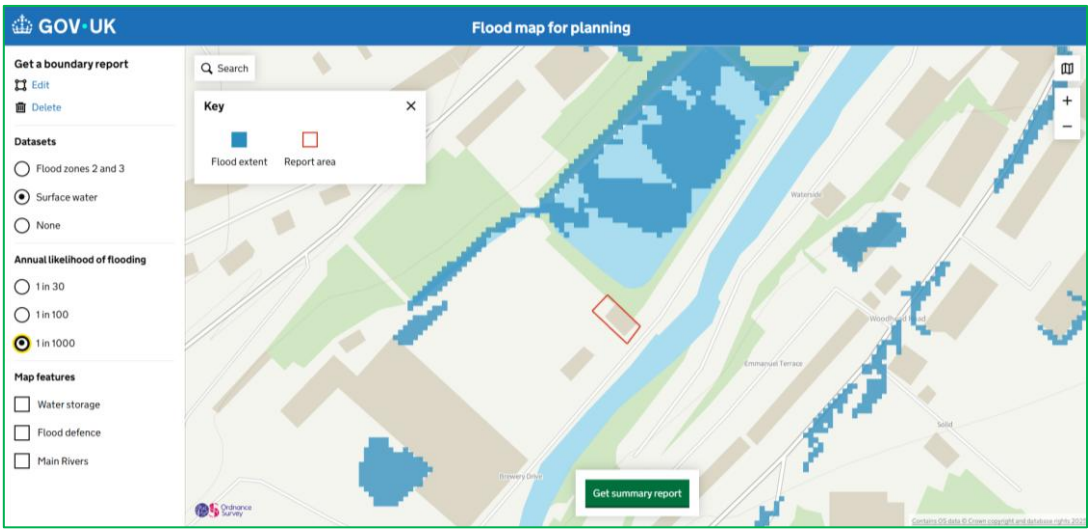


Figure 13 - Environment Agency Surface Water Flood Map: 1 in 1000 Year Extent

3.13 Sewer Flooding

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

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

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

3.14 Flooding from Artificial Drainage Systems/Infrastructure Failure

Reservoirs are located within the vicinity of the Site. The Environment Agency Reservoir flood map shows that the Site is at risk of reservoir flooding (see Figure 14). Reservoir flooding is extremely unlikely; reservoirs in the UK have a very good safety record. There has been no loss of life in the UK from reservoir flooding since 1925.

Since then, reservoir safety legislation has been introduced to make sure reservoirs are well maintained. The hazard is well managed through effective legislation and it is unlikely that the impact zone downstream of the reservoirs should preclude the Proposed Development.

There are no other nearby artificial water bodies, water channels and artificial drainage systems that could be considered a flood risk to the Site. The risk of flooding from these sources is considered to be not significant. There are no other nearby artificial water bodies, reservoirs, water channels and artificial drainage systems that could be considered a flood risk to the Site. The risk of flooding from artificial drainage systems/infrastructure failure is considered to be not significant.

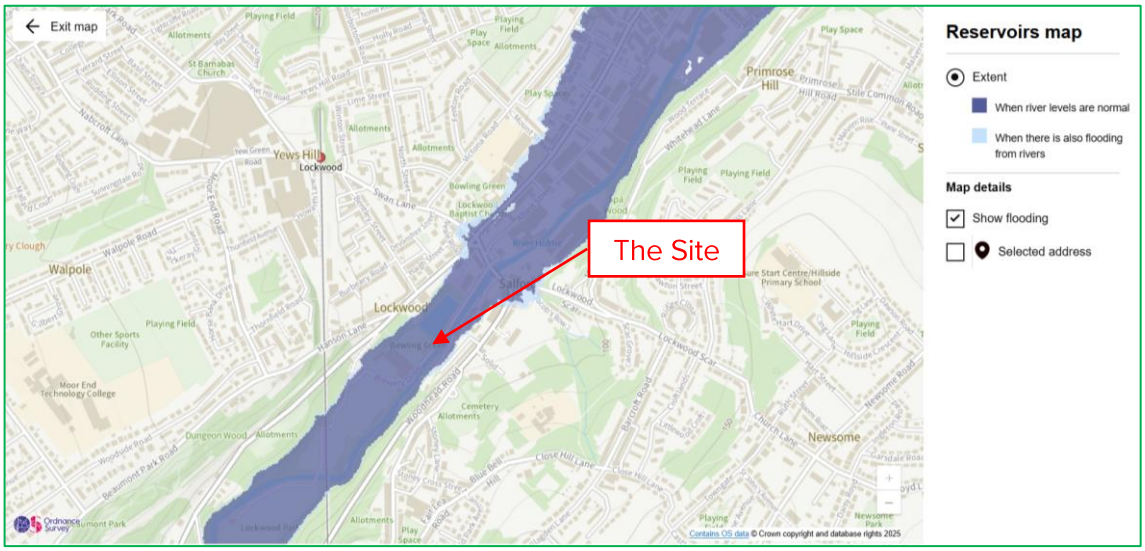


Figure 14 - Environment Agency Reservoir Flood Map

3.15 Impact of the Proposed Development on Flood Risk

The Proposed Development will not increase the footprint of the building and no land raising will occur within the Site therefore, the Proposed Development will not impede the movement of floodwater across the Site. This will ensure no detriment to the flood storage capacity of the Site.

The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. There will be no loss in flood storage capacity and no change in the on-site and off-site flood risk.

3.16 Summary of Site Specific Flood Risk

A summary of the sources of flooding and a review of the risk posed by each source at the Site is shown in Table 7.

Table 7 - Risk Posed by Flooding Sources

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

The Site is unlikely to flood except in extreme conditions, the primary, but unlikely, flood risk posed to the Site is from fluvial flooding from the River Colne and River Holme. The Environment Agency's Flood Zones indicates that the Site is located within Flood Zones 1, 2 and 3a, with a 'low to high probability' of fluvial flooding, with less than 1 in 1000 annual

probability of river flooding in any year (<0.1%) to a 1 in 100 or greater annual probability of river flooding (>1%) in any year. However, the Site has no history of flooding and the Site did not flood during the recent February 2022 flood event. The proposed use is classified as 'more vulnerable', 'more vulnerable' uses are appropriate within Flood Zones 1, 2 and 3a after the completion of a satisfactory FRA.

River Colne

Actual Risk

The Environment Agency modelled flood outlines show that the Site will be flood free during the defended 1 in 100 year event. During the defended 1 in 1000 year event the Site along the southeast boundary, may be inundated with floodwater to a depth of 0.54m however, the north of the Site will be flood free.

The finished floor levels of the building's door threshold to the northeast of the Site is raised 800mm above the external ground level which will give a freeboard of 260mm above the defended 1 in 1000 year event. Therefore, the building will be flood free up to and including the defended 1 in 1000 year event.

Residual Risk

The Environment Agency modelled flood outlines show that the Site will be flood free during the undefended 1 in 100 year event. The Site along the southeast boundary, may be inundated with floodwater during the undefended 1 in 100 year (+20%) event to a depth of 0.27m and during the undefended 1 in 1000 year event to a depth of 0.54m however, the north of the Site will be flood free.

The finished floor levels of the building's door threshold to the northeast of the Site is raised 800mm above the external ground level which will give a freeboard of 190mm above the undefended 1 in 100 year (+20%) event. Therefore, the building will be flood free up to and including the undefended 1 in 100 year (+20%) event.

River Holme

Residual Risk

The Environment Agency modelled flood outlines show that the Site will be flood free during the undefended 1 in 25 year event. The Site along the southeast boundary, may be inundated with floodwater during the undefended 1 in 100 year event to a depth of 0.38m, during the undefended 1 in 100 year (+20%) event to a depth of 0.66m and during the undefended 1 in 1000 year event to a depth of 1.38m.

The finished floor levels of the building's door threshold to the northeast of the Site is raised 800m above the external ground level which will give a freeboard of 140mm above the 1 in 100 year (+20%) event. Therefore, the building will be flood free up to and including the 1 in 100 year (+20%) event.

Summary

The likelihood of a rapid river level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

Fluvial flood risk to the Site can be considered to be limited. Any overbank flow would follow the contours of the surrounding area and would flow away from the Site rather than flowing towards the Site. It should also be noted that the Site has not historically flooded in the recent past.

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

The Proposed Development will not increase the footprint of the building and no land raising will occur within the Site therefore, the Proposed Development will not impede the movement of floodwater across the Site. This will ensure no detriment to the flood storage capacity of the Site.

The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. There will be no loss in flood storage capacity and no change in the on-site and off-site flood risk.

4.0 SURFACE WATER DRAINAGE

4.1 Surface Water Management Overview

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

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

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

4.2 Surface Water Runoff Rates/Volumes

The Proposed Development will not alter the impermeable areas of the Site. There will be no increase in surface water runoff or exacerbation of off-site risk as a result of the development. It is understood that the existing drainage infrastructure at the Site efficiently and effectively manages surface water runoff generated at the Site. The Proposed Development will continue to discharge to the public sewers. No changes are proposed.

5.0 RISK MANAGEMENT

5.1 Introduction

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

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

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

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

5.2 Finished Floor Levels

It is proposed that the finished floor levels of the Proposed Development will be set no lower than the existing finished floor levels of the building which are raised 800mm above the external ground level at the building's door threshold to the northeast of the Site. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site are sign up to receive flood warnings from the Environment Agency and a Flood Plan to a safe area away from the building during times of flood is developed.

A combination of resistance (proofing) and resilience measures will be included to provide further protection. This is discussed below.

5.3 First Floor Accommodation

Accommodation will be located on the first floor as well as the ground floor of the building. This will allow occupants of the proposed ground floor flat to retreat to higher floor levels if needed. The levels of the first floor are located well above any floodwater levels. This provides a 'safe haven' above any floodwater levels. This will enable rapid escape should flooding occur which is unlikely.

The first floor level is accessed via internal stairs and is sufficient in size to safely house all occupants of the building. The 'safe haven' will only be required in very extreme events or if a flood warning has not been received.

5.4 Flood Resilience and Resistance

The development of the layout should always consider that the site is potentially at risk from an extreme event and as such the implementation of flood resilience and resistance methods should be assessed.

Flood risk can be mitigated through the design of building. Flood resistance measures are measures that help resist floodwaters entering a property (airbrick covers are an example of a flood resistance measure). Flood resilient and resistant measures will be used, including:

- The walls of the building are thick.
- Windows are a minimum of 1000mm above the external ground levels.
- Sealant will be used around all external doors and windows.
- All windows will be located above ground levels.
- All external doors and windows are constructed from hard wearing materials.
- All electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor levels.

5.5 Flood Warning and Evacuation

The Site is located in a flood risk area therefore; the Site will participate in the Environment Agency flood warning telephone service. The Site will register contact details with the Environment Agency' Flood Warning Service (Floodline 0345 988 1188) in order to receive Flood Warnings.

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

The Environment Agency uses Flood Warnings Codes. They can be issued in any order, usually ending with an 'all clear'. They are issued by the Environment Agency through their website and Floodline. The flood warning will be passed onto the visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

5.6 Flood Plan

A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed. The Flood Plan is a 'living' document and therefore should be periodically reviewed and updated to provide advice and guidance to occupants in the event of an extreme flood. The Flood Plan will therefore reduce the vulnerability of the occupants and visitors to flooding and makes them aware of the mechanisms of flooding at the Site.

Residual Risk

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

- Occupants and visitors should consider evacuating the site.

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

The Flood Warden will monitor flood levels and keep occupants and visitors informed and will decide whether to initiate the Flood Plan.

5.7 Safe Access and Egress Routes

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

The Site is one of the last places in the area to flood and remains flood free when other areas close by are flooded. The Site is at such a ground level that it would only flood in the most extreme flood events; the Site will remain flood free for the vast majority of flood events during the lifetime of the Proposed Development. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

Safe access and egress routes, including emergency access can be maintained for vehicles and/or by foot via the Site entrance. The Safe Access and Egress Route shown in Figure 15 indicates the exit routes that all people (i.e. occupants and visitors) on Site should follow once a flood warning has been received. People should make their way to areas outside of the flood zone.

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

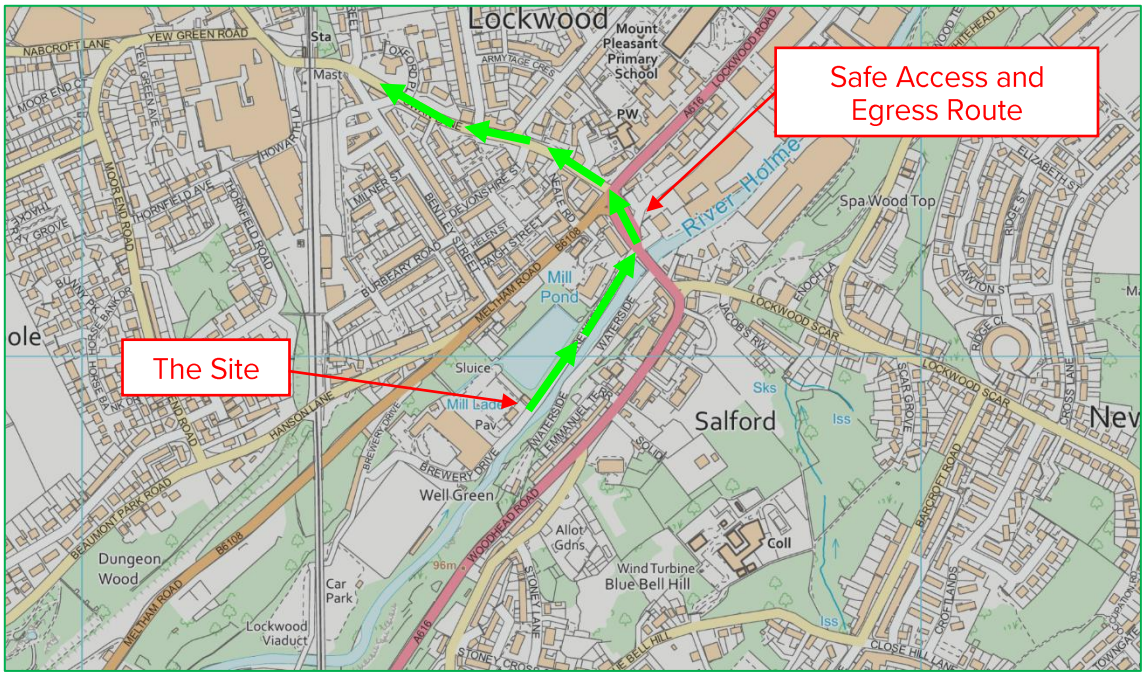


Figure 15 - Safe Access and Egress Route

5.8 Flood Warning Codes/Flood Evacuation Procedures

In order for the following evacuation procedures to be effective:

- The Site will participate in the Environment Agency flood warning telephone service. The Site will register contact details with the Environment Agency' Flood Warnings Service (Floodline 0345 988 1188) in order to receive Flood Warnings/Alerts.
- The flood warning will be passed onto the visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

Flood Alert



'Flooding of low-lying land and roads is expected. Be aware, be prepared, watch out!'.

The Environment Agency will issue a Flood Alert status when flooding is possible, based upon weather and river/sea conditions. Be prepared to act on your flood plan. At this stage occupants and visitors should make themselves aware of the Flood Plan and evacuation routes. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast.

Flood Warning



'Flooding of homes and businesses is expected. Act now!'.

The Flood Warning alert will be issued when water levels are rising, and further rain is expected. The Site will be evacuated. Move family, pets and valuables to a safe place.

Safe access and egress, including emergency access can be maintained for vehicles and/or by foot. Water, electricity and gas supplies should be located and switched off before evacuating. The Environment Agency Floodline on 0345 988 1188 to get more information should be contacted to get more information, periodically and listen to and watch for weather and flood warnings on local radio and television stations.

Severe Flood Warning



'Severe Flooding is expected. There is extreme danger life and property. Act now!'.

If the Site has not already been evacuated, it will be evacuated immediately. Co-operate with the emergency services and call 999 if immediately in danger. Safe access and egress, including emergency access can be maintained for vehicles and/or by foot.

Warning No Longer in Force

'Flood Watches or Flood Warnings are no longer in force for this area'.

Occupants and visitors should contact the Council to check that it is safe to return to the Site. Please be careful water may be around for several days. If there is any doubt that appliances may be water damaged, they must be checked before switching the power or gas back on. Contact your insurance company as soon as possible to get their approval before arranging any clean-up or repairs.

5.9 Residual Risk

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

6.0 SEQUENTIAL APPROACH

6.1 Sequential Test/Exception Tests

The risk-based Sequential Test in accordance with the NPPF aims to steer new development to areas at the lowest probability of flooding (i.e. Flood Zone 1). However, paragraph 176 of the NPPF confirms that: *'Applications for some minor development and changes of use[7] should not be subject to the Sequential or Exception Tests but should still meet the requirements for site-specific flood risk assessments'.*

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

[7] This includes householder development, small non-residential extensions (with a footprint of less than 250m^2) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate.

7.0 SUMMARY AND CONCLUSIONS

7.1 Introduction

This report presents a FRA in accordance with the NPPF for the Proposed Development at 4 Brewery Drive, Lockwood, Huddersfield, HD4 6EN.

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

7.2 Flood Risk

The Site is unlikely to flood except in extreme conditions, the primary, but unlikely, flood risk posed to the Site is from fluvial flooding from the River Colne and River Holme. The Environment Agency's Flood Zones indicates that the Site is located within Flood Zones 1, 2 and 3a, with a 'low to high probability' of fluvial flooding, with less than 1 in 1000 annual probability of river flooding in any year (<0.1%) to a 1 in 100 or greater annual probability of river flooding (>1%) in any year. However, the Site has no history of flooding and the Site did not flood during the recent February 2022 flood event. The proposed use is classified as 'more vulnerable', 'more vulnerable' uses are appropriate within Flood Zones 1, 2 and 3a after the completion of a satisfactory FRA.

River Colne

Actual Risk

The Environment Agency modelled flood outlines show that the Site will be flood free during the defended 1 in 100 year event. During the defended 1 in 1000 year event the Site along the southeast boundary, may be inundated with floodwater to a depth of 0.54m however, the north of the Site will be flood free.

The finished floor levels of the building's door threshold to the northeast of the Site is raised 800mm above the external ground level which will give a freeboard of 260mm above the defended 1 in 1000 year event. Therefore, the building will be flood free up to and including the defended 1 in 1000 year event.

Residual Risk

The Environment Agency modelled flood outlines show that the Site will be flood free during the undefended 1 in 100 year event. The Site along the southeast boundary, may be inundated with floodwater during the undefended 1 in 100 year (+20%) event to a depth of 0.27m and during the undefended 1 in 1000 year event to a depth of 0.54m however, the north of the Site will be flood free.

The finished floor levels of the building's door threshold to the northeast of the Site is raised 800mm above the external ground level which will give a freeboard of 190mm above the undefended 1 in 100 year (+20%) event. Therefore, the building will be flood free up to and including the undefended 1 in 100 year (+20%) event.

River Holme

Residual Risk

The Environment Agency modelled flood outlines show that the Site will be flood free during the undefended 1 in 25 year event. The Site along the southeast boundary, may be inundated with floodwater during the undefended 1 in 100 year event to a depth of 0.38m, during the undefended 1 in 100 year (+20%) event to a depth of 0.66m and during the undefended 1 in 1000 year event to a depth of 1.38m.

The finished floor levels of the building's door threshold to the northeast of the Site is raised 800m above the external ground level which will give a freeboard of 140mm above the 1 in 100 year (+20%) event. Therefore, the building will be flood free up to and including the 1 in 100 year (+20%) event.

Summary

The likelihood of a rapid river level rise and possible rapid inundation of urban areas posing a risk to life is considered to be minimal. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

Fluvial flood risk to the Site can be considered to be limited. Any overbank flow would follow the contours of the surrounding area and would flow away from the Site rather than flowing towards the Site. It should also be noted that the Site has not historically flooded in the recent past.

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

The Proposed Development will not increase the footprint of the building and no land raising will occur within the Site therefore, the Proposed Development will not impede the movement of floodwater across the Site. This will ensure no detriment to the flood storage capacity of the Site.

The overall direction of the movement of water will be maintained within the developed Site and surrounding area. The conveyance routes (flow paths) will not be blocked or obstructed. There will be no increase in the floodwater levels due to the Proposed Development. There will be no loss in flood storage capacity and no change in the on-site and off-site flood risk.

7.3 Surface Water Drainage

The Proposed Development will not alter the impermeable areas of the Site. There will be no increase in surface water runoff or exacerbation of off-site risk as a result of the development. It is understood that the existing drainage infrastructure at the Site efficiently and effectively manages surface water runoff generated at the Site. The Proposed Development will continue to discharge to the public sewers. No changes are proposed.

7.4 Risk Management

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

Finished Floor Levels: It is proposed that the finished floor levels of the Proposed Development will be set no lower than the existing finished floor levels of the building which are raised 800mm above the external ground level at the building's door threshold to the northeast of the Site. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further. Therefore, in order to mitigate against this, it is recommended that the occupants of the Site are sign up to receive flood warnings from the Environment Agency and a Flood Plan to a safe area away from the building during times of flood is developed.

A combination of resistance (proofing) and resilience measures will be included to provide further protection. This is discussed below.

First Floor Accommodation: Accommodation will be located on the first floor as well as the ground floor of the building. This will allow occupants of the proposed ground floor flat to retreat to higher floor levels if needed. The levels of the first floor are located well above any floodwater levels. This provides a 'safe haven' above any floodwater levels. This will enable rapid escape should flooding occur which is unlikely.

The first floor level is accessed via internal stairs and is sufficient in size to safely house all occupants of the building. The 'safe haven' will only be required in very extreme events or if a flood warning has not been received.

Flood Resilience and Resistance: Flood resilient and resistant measures will be used, including:

- The walls of the building are thick.
- Windows are a minimum of 1000mm above the external ground levels.
- Sealant will be used around all external doors and windows.
- All windows will be located above ground levels.
- All external doors and windows are constructed from hard wearing materials.
- All electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor levels.

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

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

Safe Access and Egress Route: The Site is one of the last places in the area to flood and remains flood free when other areas close by are flooded. The Site is at such a ground level that it would only flood in the most extreme flood events; the Site will remain flood free for the vast majority of flood events during the lifetime of the Proposed Development. The Site is located within a low risk area where the onset of flooding is very gradual (many hours) as per Flood Risk Assessment Guidance for New Development Phase 2, R&D Technical Report FD2320/TR2. The speed of inundation and rate of floodwater rise would be low.

Safe access and egress routes, including emergency access can be maintained for vehicles and/or by foot via the Site entrance. The Safe Access and Egress Route indicates the exit routes that all people (i.e. occupants and visitors) on Site should follow once a flood warning has been received. People should make their way to areas outside of the flood zone.

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

Flood Warning Codes / Flood Evacuation Procedures: The flood evacuation procedures have been developed so that the Site can be safely evacuated. The property will participate in the Environment Agency flood warning telephone service. The Site will register contact details with the Environment Agency' Flood Warnings Direct Service (Floodline 0345 988 1188) in order to receive Flood Warnings. Flood warning will be passed onto the visitors of the Site verbally, by telephone and/or in person. It will be ensured that everyone receives the flood warnings when required.

7.5 Sequential Approach

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

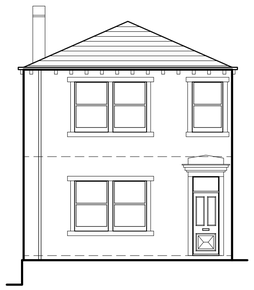
7.6 Conclusion

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

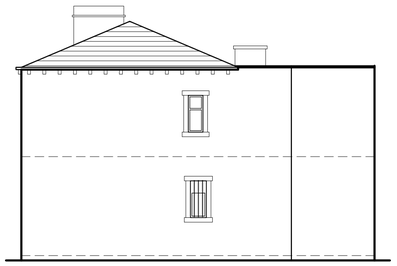
This FRA demonstrates that the Proposed Development would be operated with minimal risk from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF. The development should not therefore be precluded on the grounds of flood risk.

APPENDICES

APPENDIX 1 – Existing and Proposed Site Layout



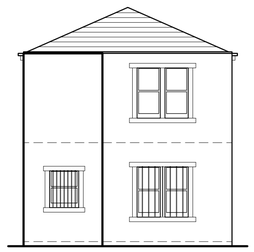
EXISTING FRONT ELEVATION
1 : 100



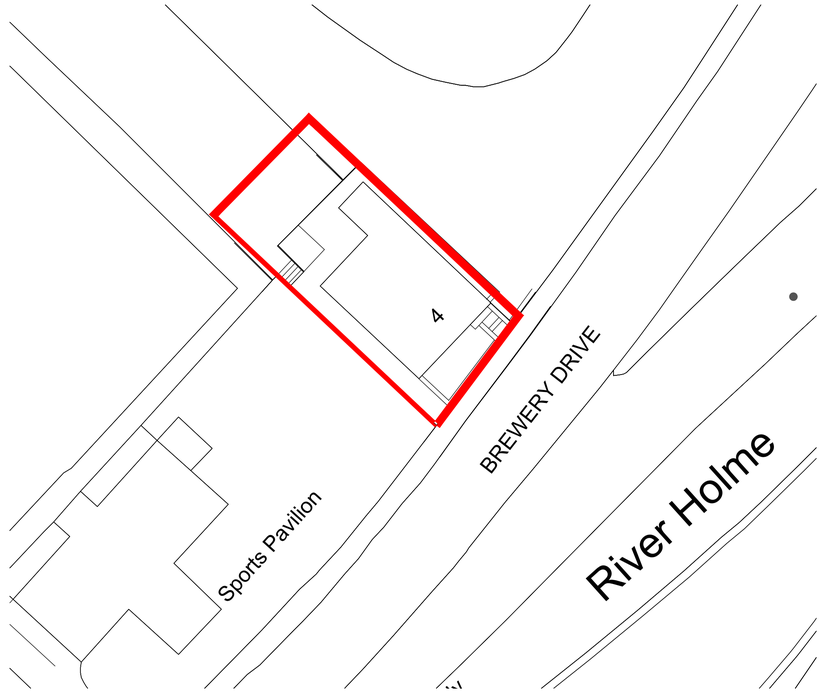
EXISTING SIDE ELEVATION 1
1 : 100



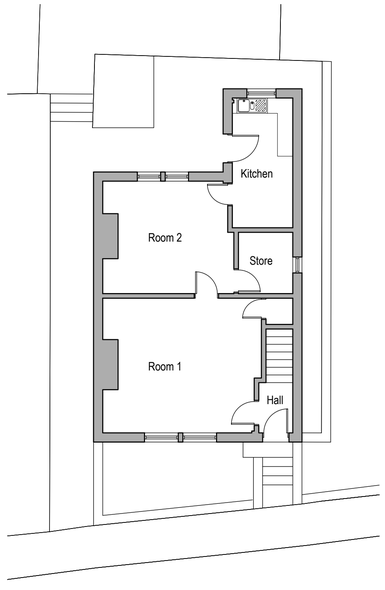
EXISTING SIDE ELEVATION 2
1 : 100



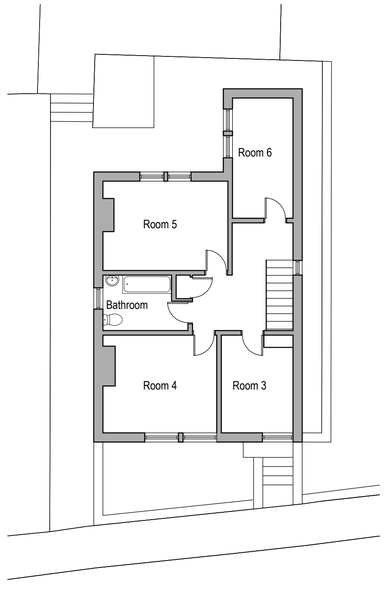
EXISTING REAR ELEVATION
1 : 100



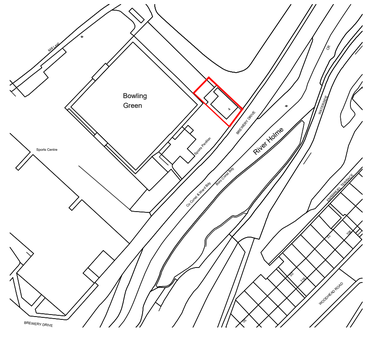
EXISTING SITE PLAN
1 : 200



EXISTING GROUND FLOOR PLAN
1 : 100



EXISTING FIRST FLOOR PLAN
1 : 100



SITE LOCATION PLAN
1 : 1250

1:100 0 2 4 6 8 10 m
1:200 0 5 10 15 20 m
1:1250 0 25 50 75 100 125 m

Rev:	Date:	Description:	By:	Auth:
P02	20/11/25	Issue for Prior Approval Application	NP	-
P01	10/11/25	Initial drawing issue	AC	NP

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W: www.farrarbamforth.co.uk

Client:
D. HARRIS

Project Name:
CHANGE OF USE FROM COMMERCIAL (CLASS E) TO RESIDENTIAL (CLASS C3)

Project Address:
4 BREWERY DRIVE, LOCKWOOD, HD4 6EN

Reference:

Project	Originator	Functional	Spatial	Form	Discipline	Number
25C32	FBA	ZZ	XX	DR	A	0200

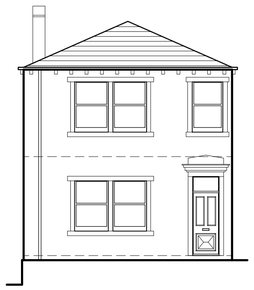
Title:
EXISTING GA PLANS & ELEVATIONS

Status:

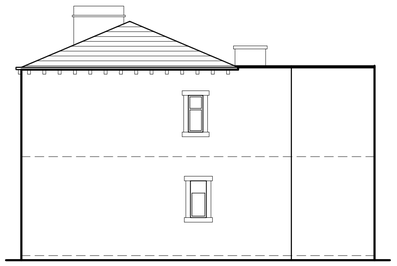
Code	Description	Revision: Code
S2	INFORMATION	P02

Created By:	Authorised By:	Date:	Scale at A1:
AC	NP	NOV. 2025	1:100, 1:200, 1:1250

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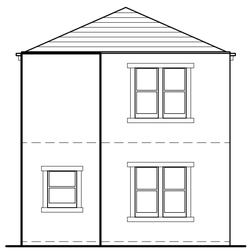
PROPOSED FRONT ELEVATION
1 : 100



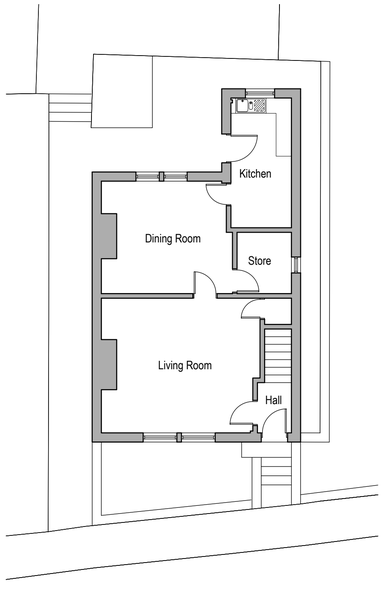
PROPOSED SIDE ELEVATION 1
1 : 100



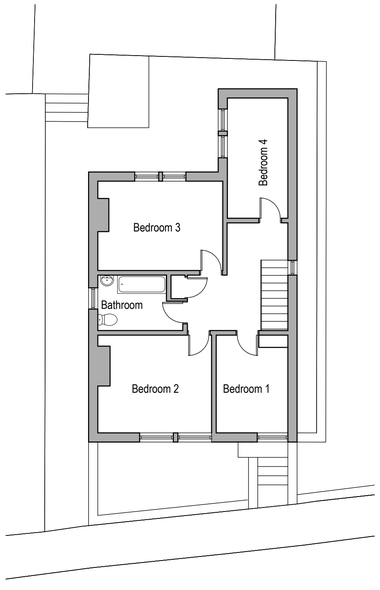
PROPOSED SIDE ELEVATION 2
1 : 100



PROPOSED REAR ELEVATION
1 : 100



PROPOSED GROUND FLOOR PLAN
1 : 100



PROPOSED FIRST FLOOR PLAN
1 : 100



PROPOSED SITE PLAN
1 : 200

1:100 0 2 4 6 8 10 m

1:200 0 5 10 15 20 m

Rev:	Date:	Description:	By:	Auth:
P04	02/12/25	Further updates for Prior Approval Application	NP	-
P03	20/11/25	Updated for Prior Approval Application	NP	-
P02	13/11/25	Updated drawing issue to include removal of security grilles.	NP	-
P01	10/11/25	Initial drawing issue	AC	NP

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CHANGE OF USE FROM COMMERCIAL (CLASS E) TO RESIDENTIAL (CLASS C3)

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4 BREWERY DRIVE, LOCKWOOD, HD4 6EN

Reference:

Project	Originator	Functional	Spatial	Form	Discipline	Number
25C32	FBA	ZZ	XX	DR	A	2000

Title:
PROPOSED GA PLANS & ELEVATIONS

Status: Code	Description	Revision: Code
A3	DEVELOPED DESIGN	P04

Created By:	Authorised By:	Date:	Scale at A1:
AC	NP	NOV. 2025	1:100, 1:200

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APPENDIX 2 – Environment Agency Correspondence

Flood risk assessment data

Location of site: 413527 / 414948 (shown as easting and northing coordinates)
Document created on: 21 October 2025
This information was previously known as a product 4.
Customer reference number: R6NU7KYPBC8V

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
- 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

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

Surface water and other sources of flooding

When using the surface water map on the check your long term flood risk service the following considerations apply:

- surface water extents are suitable for use in planning
- surface water climate change scenarios may help to inform risk assessments, but the available data fall short of what is required to assess planned development
- surface water depth information should not be used for planning purposes

To find out about other factors that might affect the flood risk of this location, you should also check:

- reservoir flood risk
- groundwater flood risk - you could use the British Geological Survey groundwater flooding data, groundwater: current status and flood risk and the guide on mining and groundwater constraints for development - further information may be available from the lead local flood authority (LLFA)
- your local planning authority's SFRA, which includes future flood risk

Your Lead Local Flood Authority is Kirklees District.

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

About the models used

Model name: 2019 Colne Model
Scenario(s): Defended fluvial, defences removed fluvial, defences removed climate change fluvial
Date: 1 August 2019

Model name: 2019 River Holme model
Scenario(s): No defences exist fluvial, no defences exist climate change fluvial
Date: 1 August 2019

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:

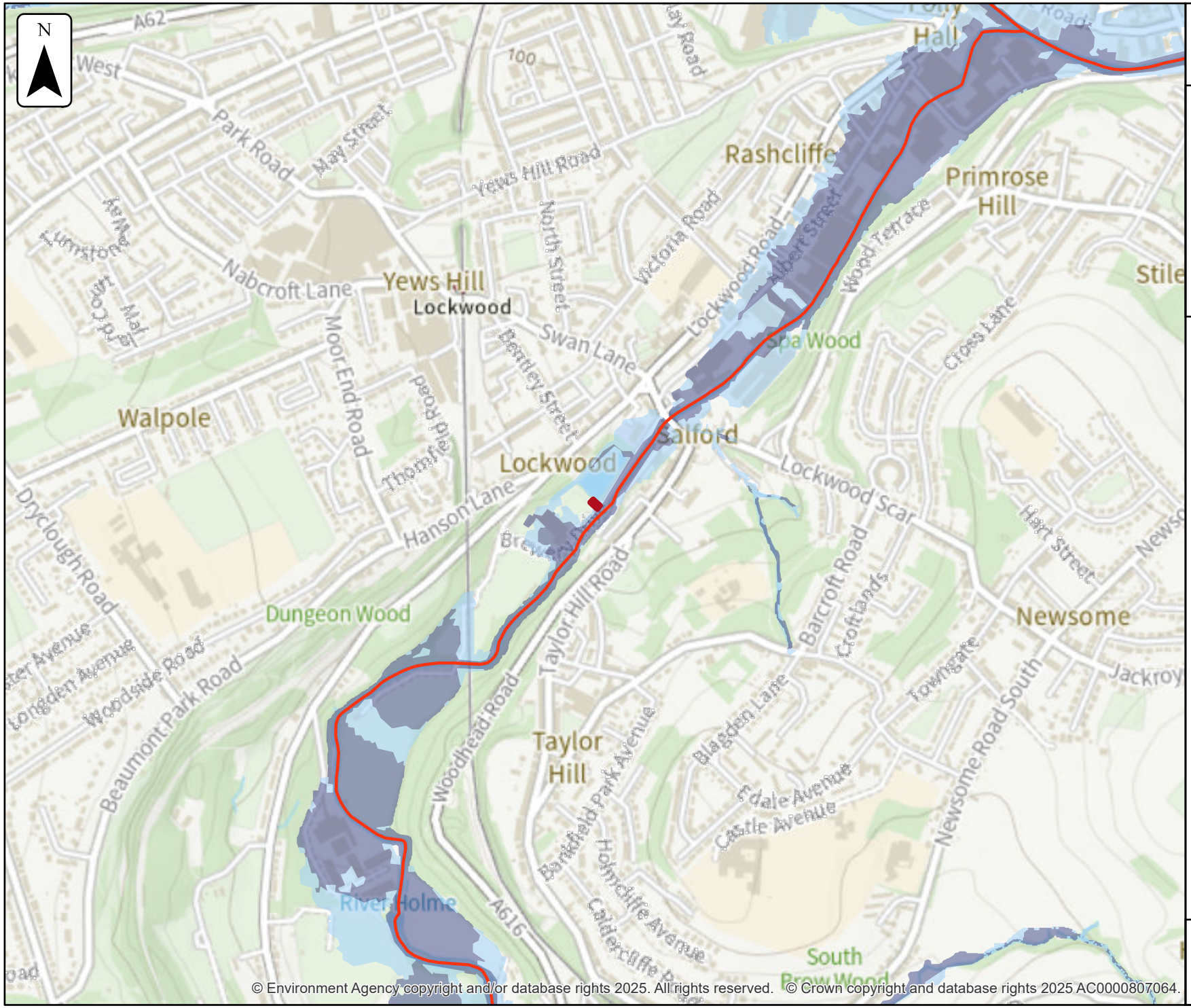
- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

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



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Environment Agency

Flood map for planning

Location (easting/northing)
413527/414948

Scale
1:10,000

Created
21 Oct 2025

- 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
- unknown

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

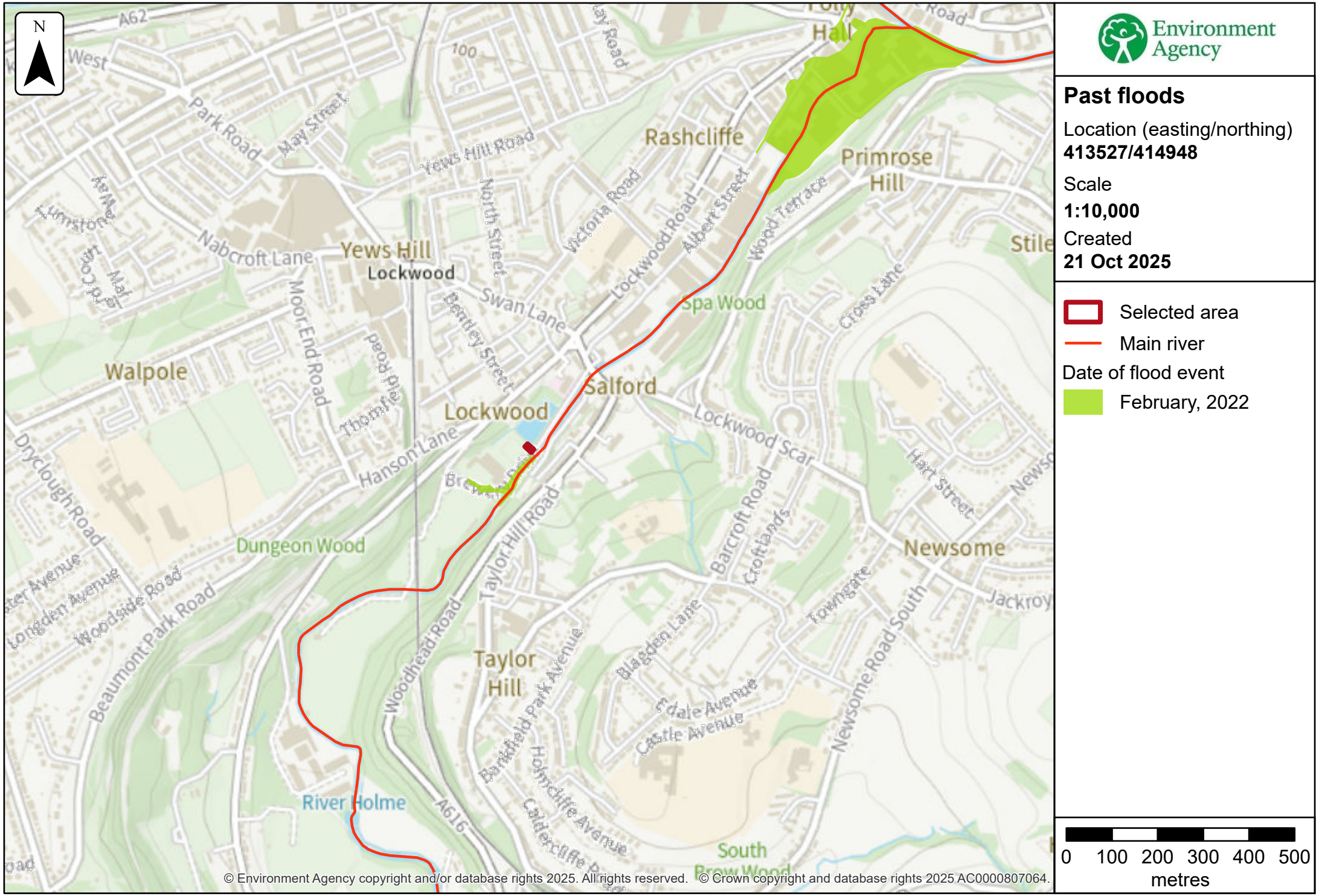
The recorded flood outlines are a geographical information system (GIS) data layer that show our verified records of areas that have flooded in the past from:

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



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Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
20 February 2022	28 March 2022	main river	channel capacity exceeded (no raised defences)	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

Climate change

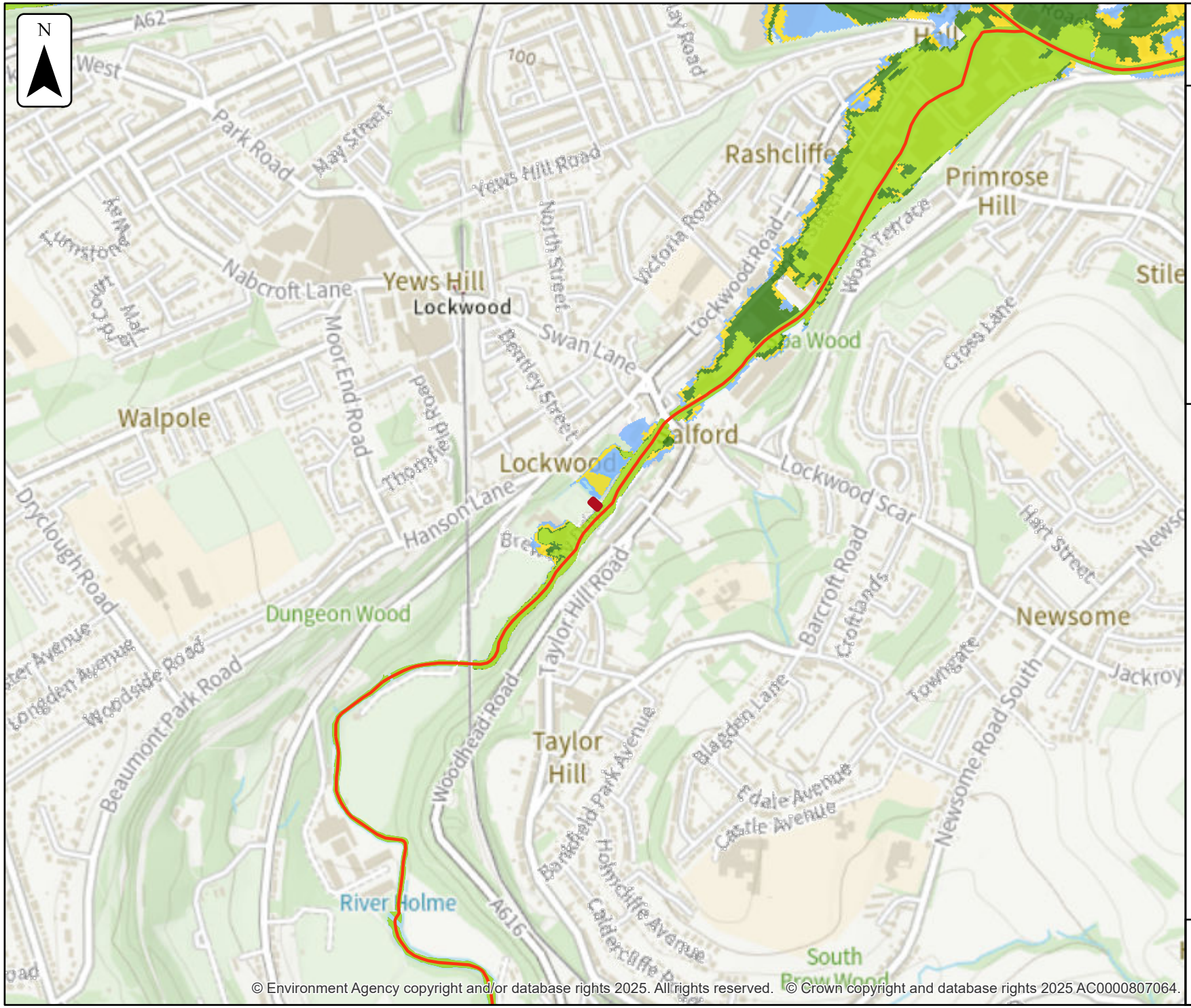
The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

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



Environment Agency

Defences removed climate change modelled fluvial extent

Location (easting/northing)
413527/414948

Scale
1:10,000

Created
21 Oct 2025

Model name
2019 Colne Model

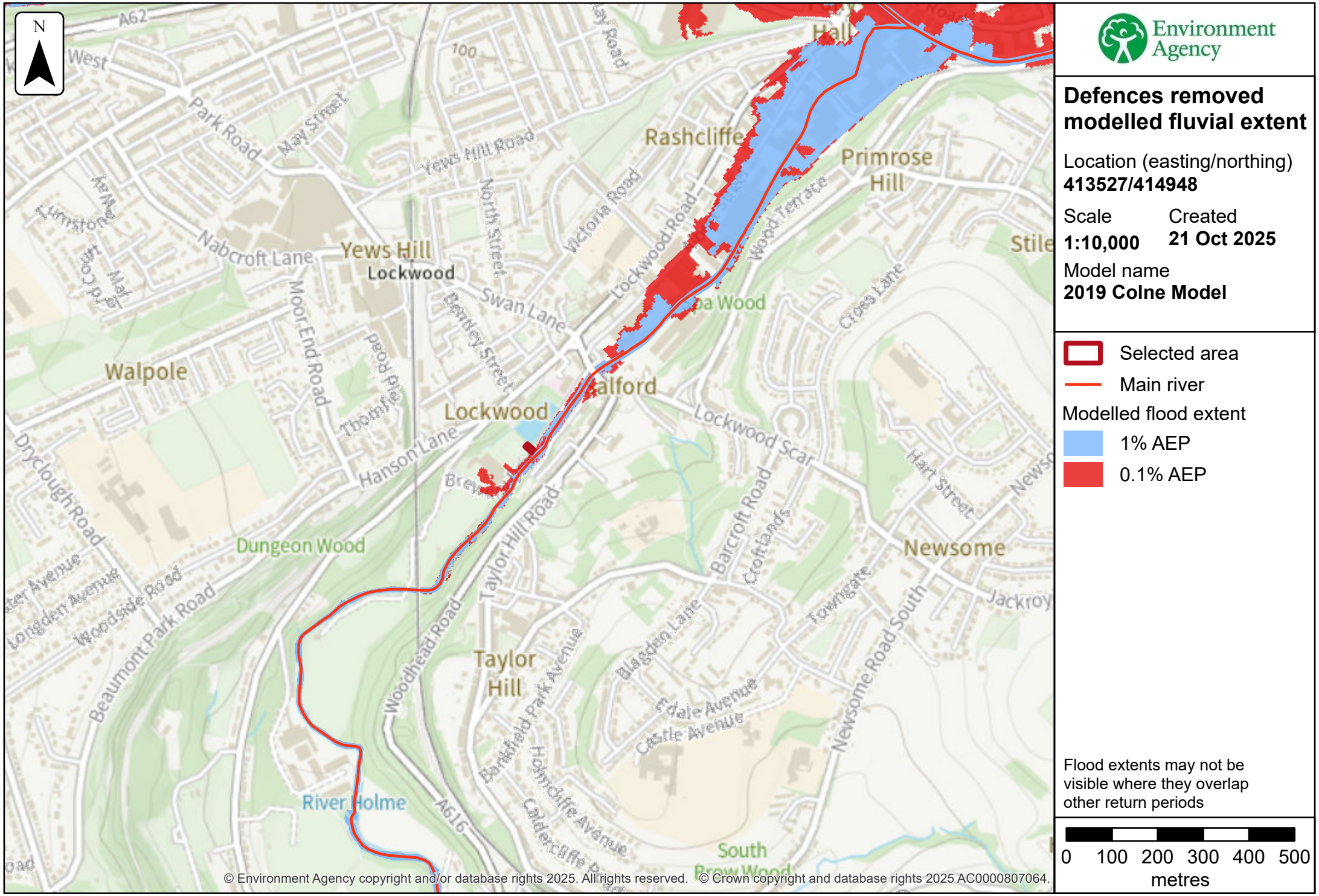
- Selected area
- Main river

Modelled flood extent

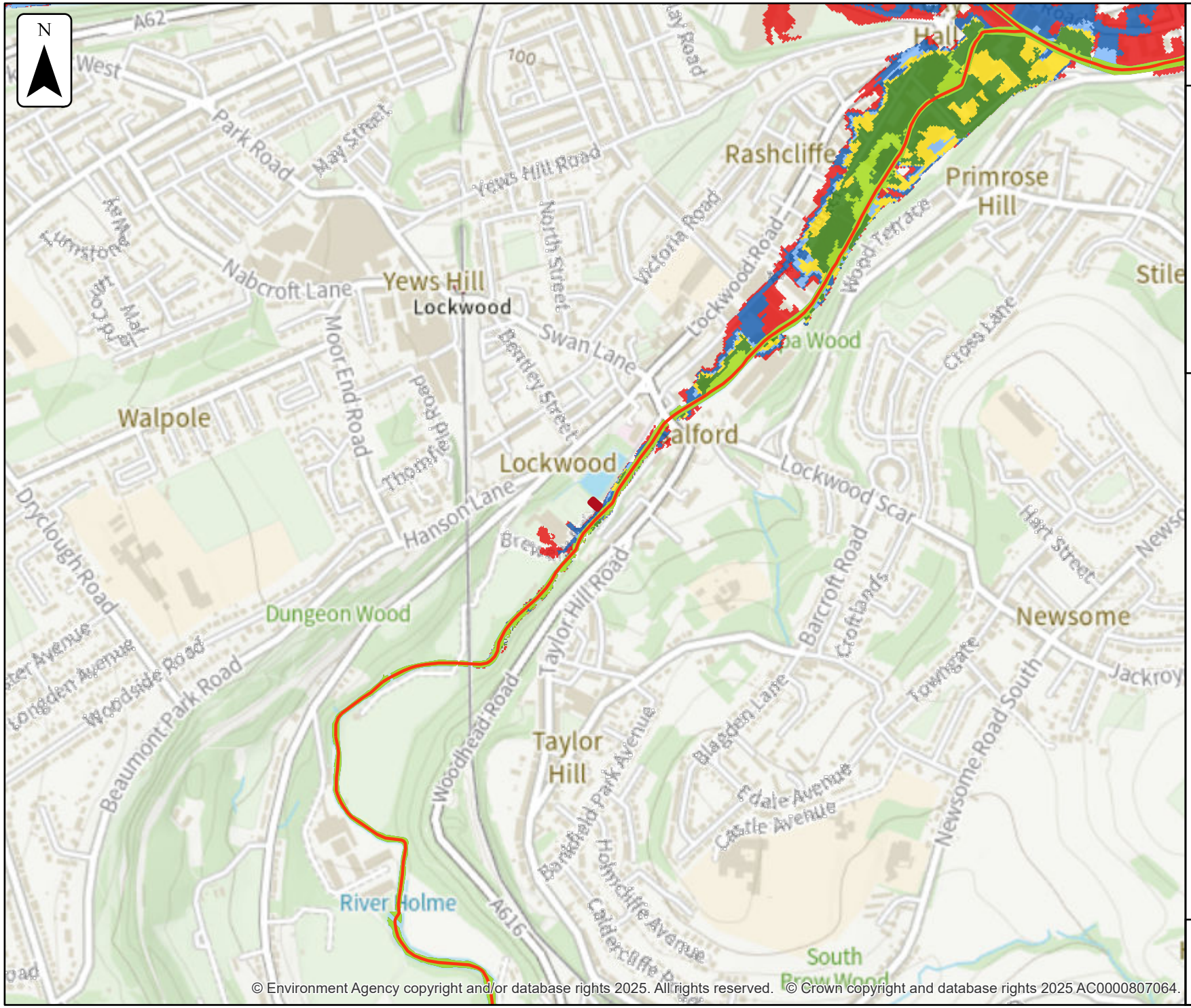
- 1% AEP (+20%)
- 1% AEP (+30%)
- 1% AEP (+50%)
- 0.1% AEP (+20%)

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

0 100 200 300 400 500
metres



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Environment Agency

Defended modelled fluvial extent

Location (easting/northing)
413527/414948

Scale
1:10,000

Created
21 Oct 2025

Model name
2019 Colne Model

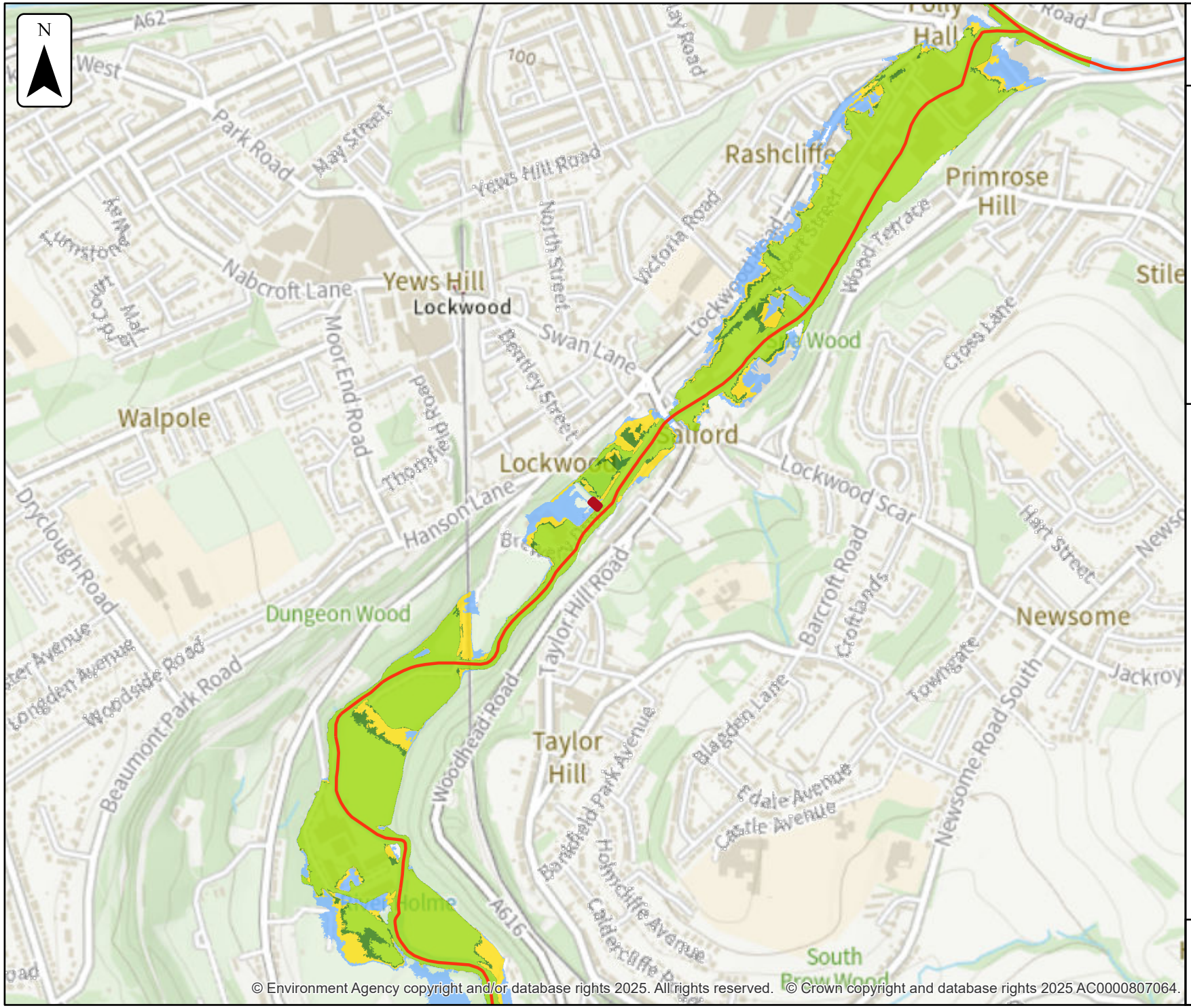
- Selected area
- Main river

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

No defences exist climate change modelled fluvial extent

Location (easting/northing)
413527/414948

Scale
1:10,000

Created
21 Oct 2025

Model name
2019 River Holme model

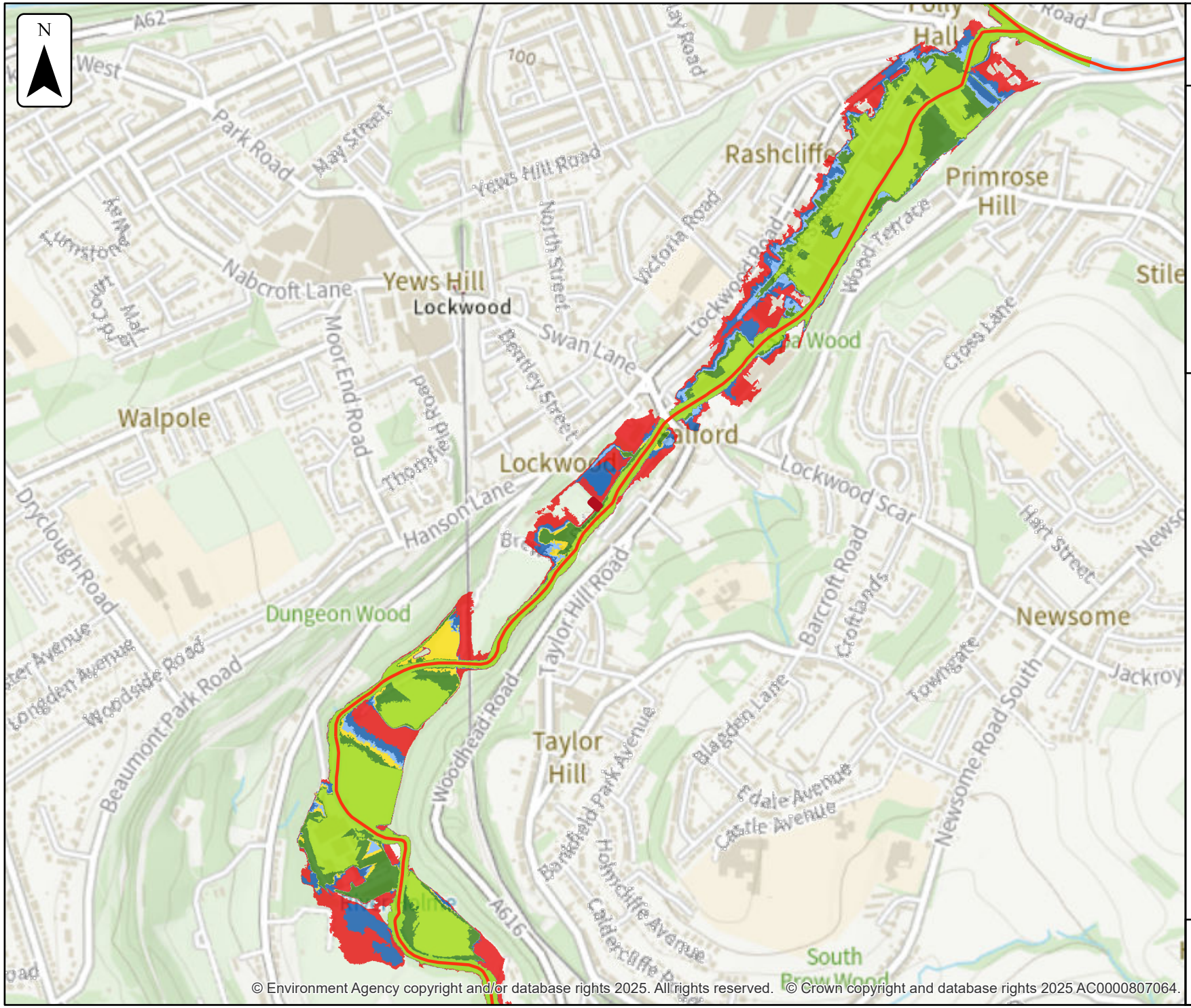
- Selected area
- Main river

Modelled flood extent

- 1% AEP (+20%)
- 1% AEP (+30%)
- 1% AEP (+50%)
- 0.1% AEP (+20%)

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

0 100 200 300 400 500
metres



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Environment Agency

No defences exist modelled fluvial extent

Location (easting/northing)
413527/414948

Scale
1:10,000

Created
21 Oct 2025

Model name
2019 River Holme model

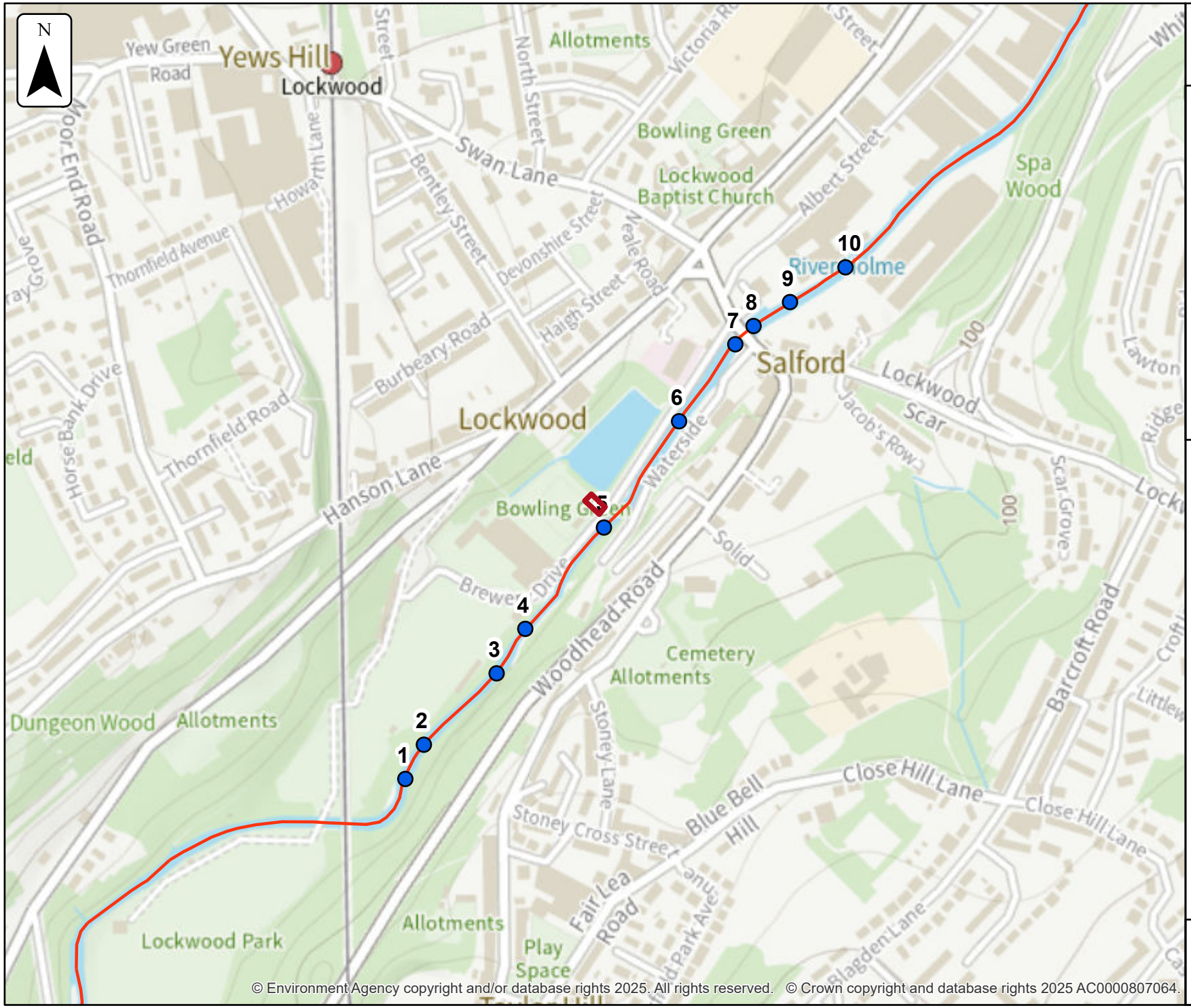
- Selected area
- Main river

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 climate change modelled fluvial node locations

Location (easting/northing)
413527/414948

Scale
1:5,000

Created
21 Oct 2025

Model name
2019 Colne Model

- Selected area
- Modelled location
- Main river

0 50 100 150 200 250
metres

Modelled node locations data

Defences removed climate change

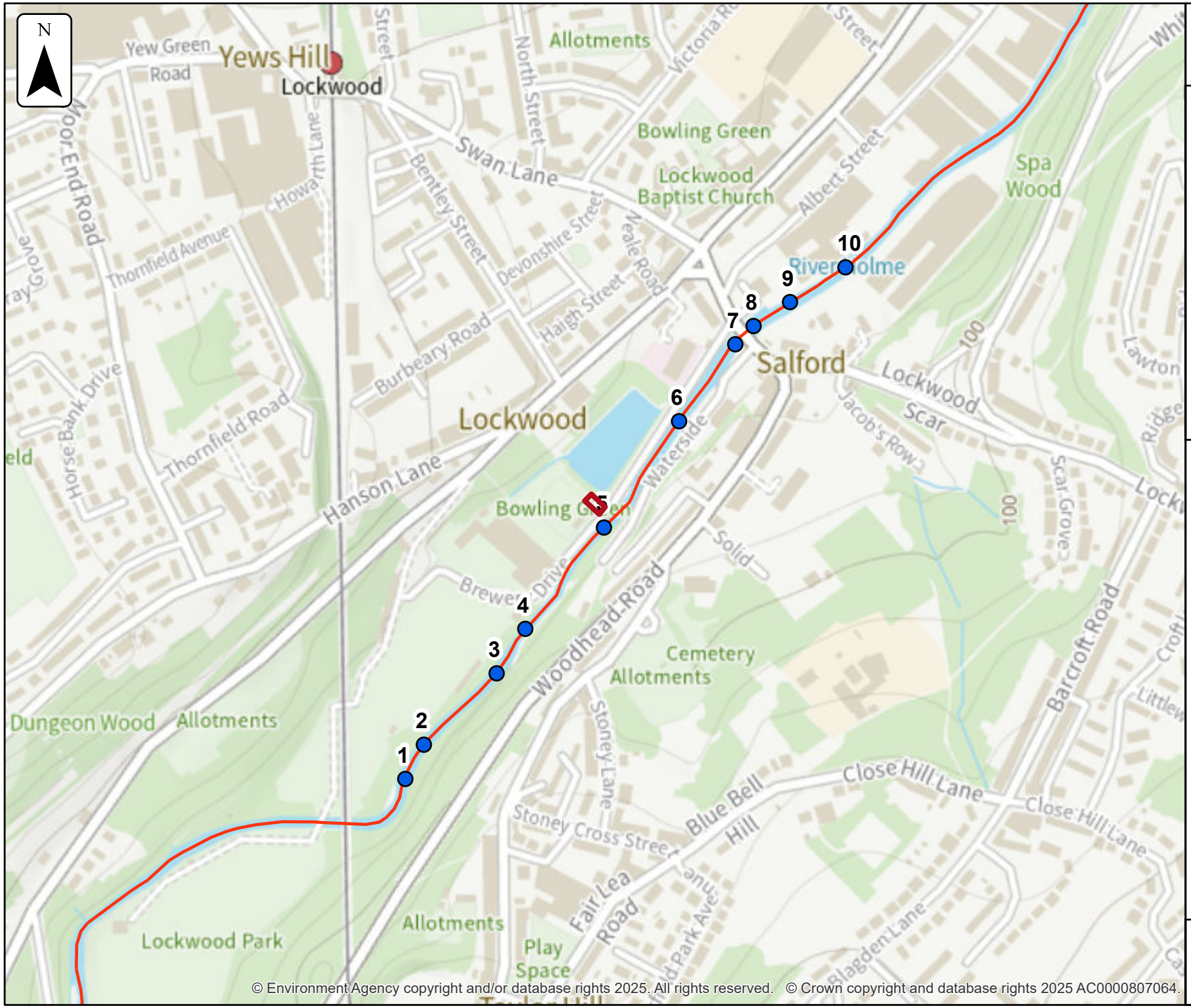
Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+30%)	1% AEP (+50%)	0.1% AEP (+20%)
				Level	Level	Level	Level
1	1198116	413343	414680	75.57	75.69	75.92	76.13
2	1198007	413361	414714	75.45	75.58	75.81	76.03
3	1198218	413432	414783	75.10	75.21	75.42	75.61
4	1197935	413459	414826	75.0	75.14	75.38	75.64
5	1198200	413536	414925	74.52	74.64	74.86	75.09
6	1198223	413609	415029	74.13	74.28	74.57	74.86
7	1197971	413664	415103	74.0	74.13	74.39	74.65
8	1198169	413682	415121	73.89	74.0	74.22	74.41
9	1197819	413717	415145	73.76	73.88	74.09	74.29
10	1197885	413771	415178	73.59	73.70	73.89	74.05

Data in this table comes from the 2019 Colne Model 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.

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+30%)	1% AEP (+50%)	0.1% AEP (+20%)
				Flow	Flow	Flow	Flow
1	1198116	413343	414680	89.86	97.39	112.39	128.57
2	1198007	413361	414714	89.85	97.39	112.41	128.58
3	1198218	413432	414783	89.86	97.40	112.41	128.57
4	1197935	413459	414826	89.86	97.39	112.42	128.57
5	1198200	413536	414925	89.86	97.38	112.40	128.55
6	1198223	413609	415029	89.86	97.40	112.44	128.59
7	1197971	413664	415103	89.85	97.39	112.42	128.59
8	1198169	413682	415121	89.85	97.39	112.42	128.59
9	1197819	413717	415145	89.19	96.09	109.45	123.24
10	1197885	413771	415178	87.82	94.77	108.53	123.16

Data in this table comes from the 2019 Colne Model 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)
413527/414948

Scale
1:5,000

Created
21 Oct 2025

Model name
2019 Colne Model

- Selected area
- Modelled location
- Main river

0 50 100 150 200 250
metres

Modelled node locations data

Defences removed

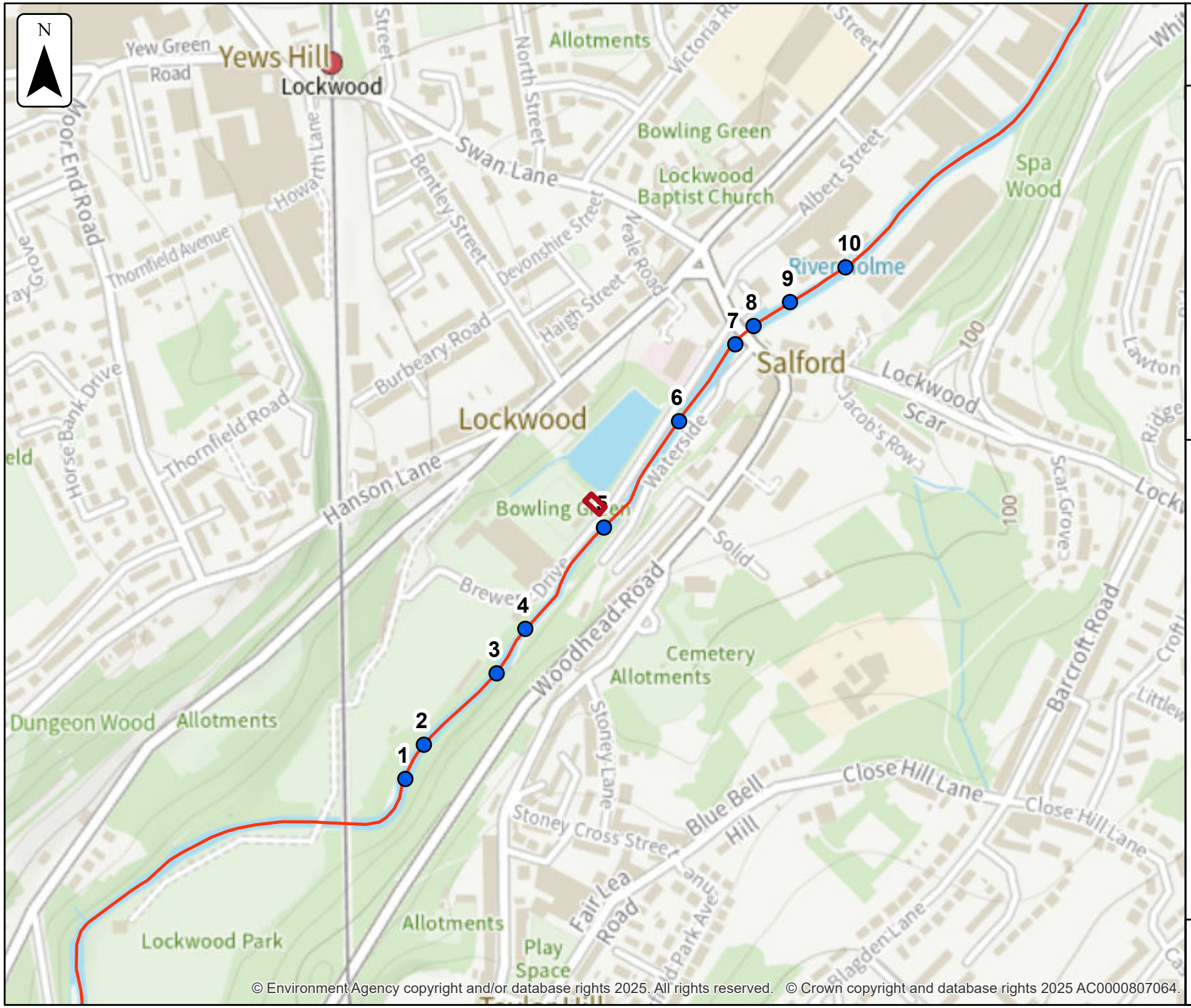
Label	Modelled location ID	Easting	Northing	10% AEP	3.33% AEP	1% AEP	0.1% AEP
				Level	Level	Level	Level
1	1198116	413343	414680	74.86	74.91	75.29	75.85
2	1198007	413361	414714	74.72	74.76	75.16	75.73
3	1198218	413432	414783	74.38	74.43	74.83	75.35
4	1197935	413459	414826	74.25	74.29	74.70	75.30
5	1198200	413536	414925	73.81	73.85	74.24	74.79
6	1198223	413609	415029	73.30	73.35	73.79	74.47
7	1197971	413664	415103	73.17	73.22	73.68	74.31
8	1198169	413682	415121	73.13	73.18	73.60	74.15
9	1197819	413717	415145	73.02	73.07	73.48	74.02
10	1197885	413771	415178	72.86	72.91	73.32	73.83

Data in this table comes from the 2019 Colne Model 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.

Defences removed

Label	Modelled location ID	Easting	Northing	10% AEP	3.33% AEP	1% AEP	0.1% AEP
				Flow	Flow	Flow	Flow
1	1198116	413343	414680	54.92	56.76	74.84	107.21
2	1198007	413361	414714	54.92	56.76	74.84	107.21
3	1198218	413432	414783	54.92	56.75	74.83	107.23
4	1197935	413459	414826	54.92	56.75	74.83	107.23
5	1198200	413536	414925	54.91	56.75	74.83	107.21
6	1198223	413609	415029	54.91	56.75	74.82	107.24
7	1197971	413664	415103	54.91	56.74	74.82	107.22
8	1198169	413682	415121	54.91	56.74	74.82	107.22
9	1197819	413717	415145	54.90	56.74	74.82	104.86
10	1197885	413771	415178	54.89	56.71	74.02	103.79

Data in this table comes from the 2019 Colne Model 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

Defended modelled fluvial node locations

Location (easting/northing)
413527/414948

Scale
1:5,000

Created
21 Oct 2025

Model name
2019 Colne Model

- Selected area
- Modelled location
- Main river

0 50 100 150 200 250
metres

Modelled node locations data

Defended

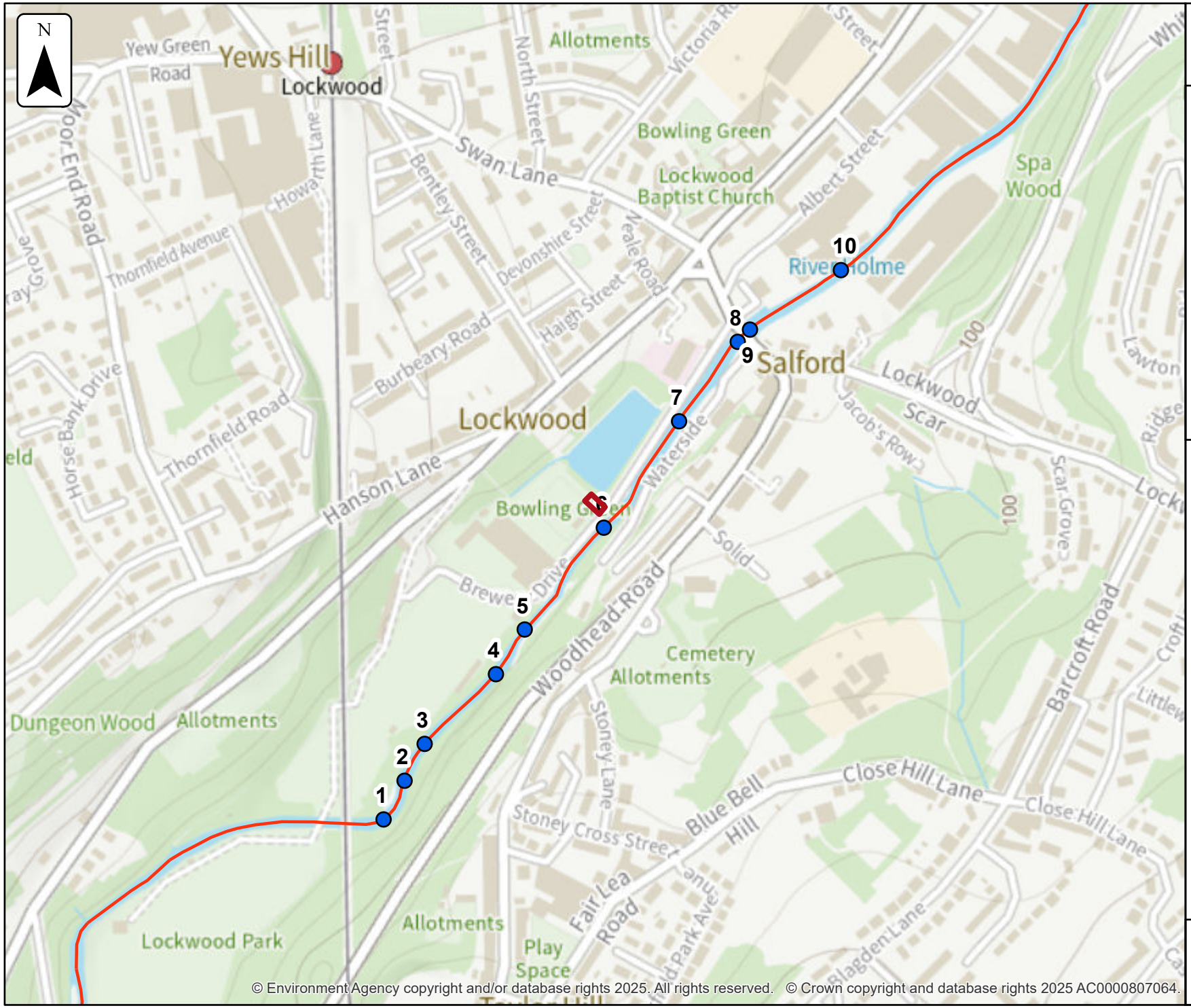
Label	Modelled location ID	Easting	Northing	50% AEP	20% AEP	10% AEP	5% AEP	4% AEP	3.33% AEP	2% AEP	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Level	Level	Level	Level	Level	Level	Level	Level	Level	Level	Level
1	1198116	413343	414680	74.34	74.43	74.79	74.86	74.85	74.91	75.06	75.19	75.29	75.56	75.85
2	1198007	413361	414714	74.18	74.28	74.64	74.72	74.70	74.76	74.93	75.06	75.16	75.44	75.73
3	1198218	413432	414783	73.86	73.96	74.31	74.38	74.37	74.43	74.59	74.72	74.83	75.08	75.35
4	1197935	413459	414826	73.73	73.84	74.18	74.25	74.24	74.29	74.46	74.59	74.70	74.99	75.30
5	1198200	413536	414925	73.32	73.41	73.74	73.81	73.80	73.85	74.01	74.14	74.24	74.50	74.79
6	1198223	413609	415029	72.74	72.84	73.22	73.30	73.29	73.35	73.53	73.68	73.79	74.11	74.47
7	1197971	413664	415103	72.55	72.67	73.08	73.17	73.15	73.22	73.42	73.57	73.68	73.98	74.31
8	1198169	413682	415121	72.53	72.64	73.05	73.13	73.11	73.18	73.36	73.50	73.60	73.87	74.15
9	1197819	413717	415145	72.42	72.53	72.94	73.02	73.0	73.07	73.25	73.38	73.48	73.75	74.02
10	1197885	413771	415178	72.26	72.37	72.78	72.86	72.84	72.91	73.09	73.22	73.32	73.58	73.83

Data in this table comes from the 2019 Colne Model 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.

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	1198116	413343	414680	35.35	38.76	52.09	54.92	54.45	56.76	63.88	69.97	74.84	89.16	107.22
2	1198007	413361	414714	35.35	38.75	52.08	54.92	54.45	56.76	63.88	69.97	74.83	89.15	107.23
3	1198218	413432	414783	35.35	38.75	52.08	54.92	54.45	56.75	63.88	69.97	74.83	89.16	107.24
4	1197935	413459	414826	35.35	38.75	52.08	54.92	54.45	56.75	63.88	69.97	74.83	89.16	107.25
5	1198200	413536	414925	35.35	38.75	52.08	54.91	54.45	56.75	63.88	69.97	74.83	89.16	107.22
6	1198223	413609	415029	35.34	38.75	52.07	54.91	54.44	56.75	63.87	69.96	74.82	89.15	107.27
7	1197971	413664	415103	35.34	38.74	52.07	54.91	54.44	56.74	63.87	69.96	74.82	89.15	107.23
8	1198169	413682	415121	35.34	38.74	52.07	54.91	54.44	56.74	63.87	69.96	74.82	89.15	107.23
9	1197819	413717	415145	35.34	38.74	52.07	54.90	54.44	56.74	63.87	69.96	74.82	88.55	104.89
10	1197885	413771	415178	35.34	38.74	52.06	54.89	54.43	56.71	63.65	69.46	74.02	87.18	103.81

Data in this table comes from the 2019 Colne Model 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

No defences exist climate change modelled fluvial node locations

Location (easting/northing)
413527/414948

Scale
1:5,000

Created
21 Oct 2025

Model name
2019 River Holme model

- Selected area
- Modelled location
- Main river

0 50 100 150 200 250
metres

Modelled node locations data

No defences exist climate change

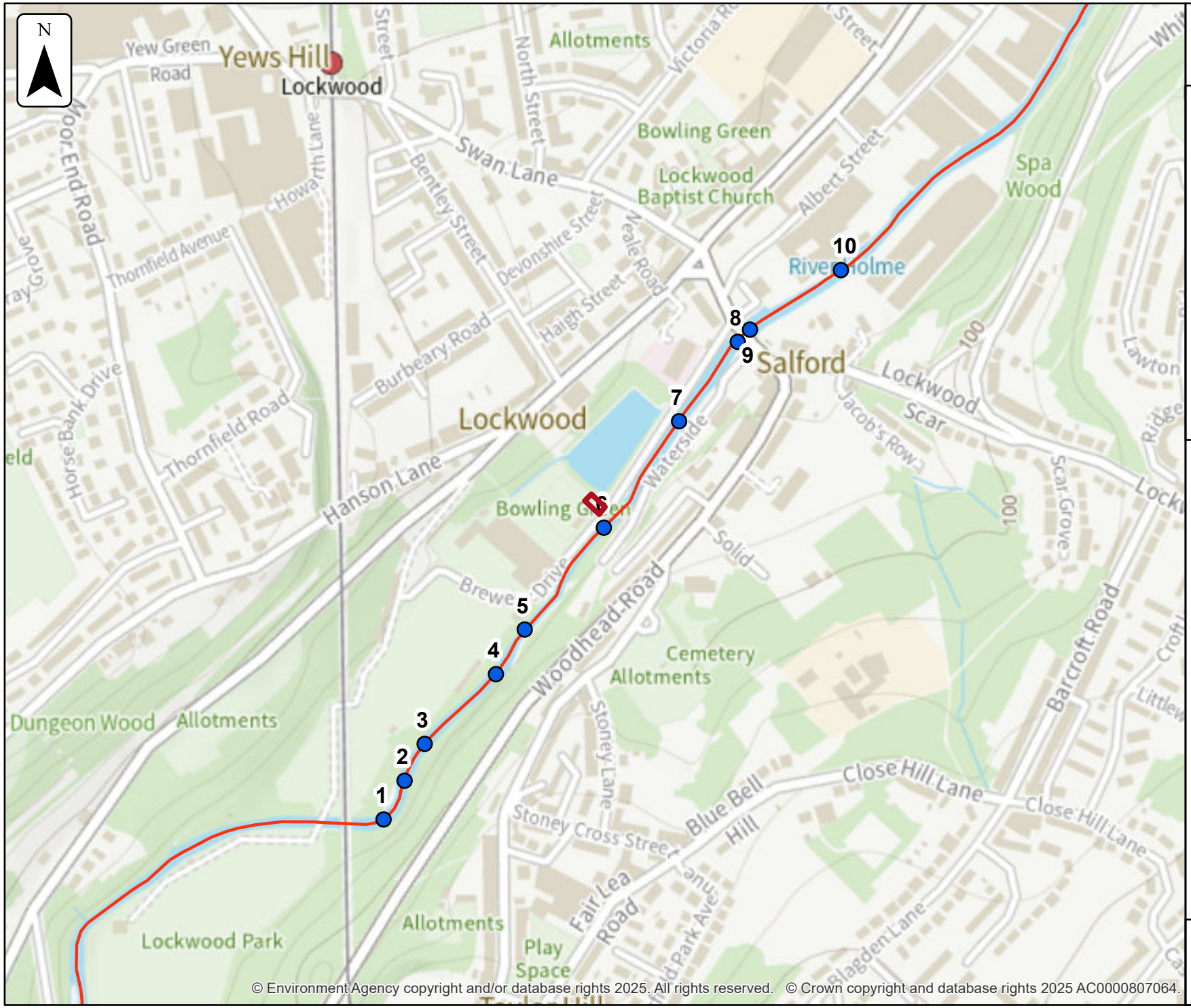
Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+30%)	1% AEP (+50%)	0.1% AEP (+20%)
				Level	Level	Level	Level
1	1199066	413321	414641	76.16	76.26	76.51	77.19
2	1198858	413342	414679	76.01	76.12	76.37	76.91
3	1199199	413361	414714	75.90	76.02	76.27	76.73
4	1199015	413431	414782	75.50	75.59	75.85	76.27
5	1199171	413459	414826	75.47	75.61	75.97	76.53
6	1199052	413536	414925	74.91	75.0	75.44	76.03
7	1198866	413609	415028	74.59	74.71	75.33	75.98
8	1198840	413666	415106	74.39	74.48	75.12	75.81
9	1198845	413678	415118	74.18	74.23	74.39	74.63
10	1199128	413767	415176	73.98	74.03	74.15	74.41

Data in this table comes from the 2019 River Holme model 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.

No defences exist climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+20%)	1% AEP (+30%)	1% AEP (+50%)	0.1% AEP (+20%)
				Flow	Flow	Flow	Flow
1	1199066	413321	414641	119.81	128.81	148.45	192.26
2	1198858	413342	414679	119.81	128.81	148.45	192.25
3	1199199	413361	414714	119.81	128.81	148.44	192.24
4	1199015	413431	414782	119.80	128.80	148.40	192.23
5	1199171	413459	414826	119.79	128.79	148.33	192.20
6	1199052	413536	414925	119.77	128.76	148.16	192.13
7	1198866	413609	415028	119.74	128.73	148.03	192.08
8	1198840	413666	415106	119.72	128.72	147.99	192.06
9	1198845	413678	415118	119.72	128.72	147.99	192.06
10	1199128	413767	415176	119.71	128.71	147.98	192.05

Data in this table comes from the 2019 River Holme model 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.



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Environment Agency

No defences exist modelled fluvial node locations

Location (easting/northing)
413527/414948

Scale
1:5,000

Created
21 Oct 2025

Model name
2019 River Holme model

- Selected area
- Modelled location
- Main river

Modelled node locations data

No defences exist

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	1199066	413321	414641	74.58	74.92	75.13	75.34	75.41	75.47	75.62	75.77	75.87	76.14	76.80
2	1198858	413342	414679	74.42	74.75	74.97	75.19	75.25	75.32	75.47	75.61	75.72	75.99	76.52
3	1199199	413361	414714	74.27	74.61	74.83	75.06	75.13	75.20	75.36	75.50	75.60	75.89	76.42
4	1199015	413431	414782	73.96	74.28	74.50	74.72	74.79	74.86	75.0	75.13	75.23	75.48	75.98
5	1199171	413459	414826	73.83	74.15	74.36	74.59	74.66	74.73	74.89	75.04	75.15	75.46	76.15
6	1199052	413536	414925	73.40	73.70	73.91	74.13	74.19	74.26	74.40	74.53	74.63	74.89	75.63
7	1198866	413609	415028	72.83	73.18	73.40	73.64	73.71	73.78	73.95	74.10	74.22	74.58	75.54
8	1198840	413666	415106	72.66	73.04	73.27	73.52	73.59	73.66	73.82	73.96	74.07	74.37	75.34
9	1198845	413678	415118	72.63	73.0	73.23	73.46	73.52	73.59	73.73	73.85	73.94	74.17	74.47
10	1199128	413767	415176	72.36	72.73	72.95	73.18	73.25	73.33	73.48	73.61	73.71	73.96	74.24

Data in this table comes from the 2019 River Holme model 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.

No defences exist

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	1199066	413321	414641	38.20	50.52	59.52	69.92	73.26	76.69	85.13	92.77	99.34	118.69	161.43
2	1198858	413342	414679	38.20	50.52	59.51	69.92	73.26	76.69	85.0	92.77	99.34	118.69	161.42
3	1199199	413361	414714	38.20	50.52	59.51	69.91	73.26	76.69	84.72	92.77	99.34	118.69	161.41
4	1199015	413431	414782	38.20	50.52	59.49	69.91	73.25	76.69	84.68	92.76	99.34	118.68	161.38
5	1199171	413459	414826	38.20	50.52	59.48	69.91	73.25	76.68	84.68	92.76	99.33	118.67	161.33
6	1199052	413536	414925	38.20	50.52	59.46	69.90	73.25	76.68	84.67	92.75	99.32	118.63	161.20
7	1198866	413609	415028	38.20	50.51	59.45	69.89	73.24	76.67	84.68	92.73	99.30	118.59	161.10
8	1198840	413666	415106	38.19	50.51	59.44	69.88	73.23	76.67	84.72	92.72	99.30	118.57	161.06
9	1198845	413678	415118	38.19	50.51	59.44	69.88	73.23	76.67	84.72	92.72	99.30	118.57	161.06
10	1199128	413767	415176	38.19	50.50	59.43	69.87	73.22	76.66	84.76	92.71	99.29	118.56	161.05

Data in this table comes from the 2019 River Holme model 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

Your Lead Local Flood Authority is Kirklees District.

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



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