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Flood Risk Assessment

Storage World, Middleton, Old Hall Street

Client:	Storage World
Document Type:	Report
Document No.:	TC-2578-2977-BH
Revision:	1.2
Date:	04/06/2026



Version History

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Revision	Date	Notes	Prepared by	Checked by	Approved by
1.1	15/04/2026	First Draft	Keelan Serjeant	Baden Hocking	Phil Barlow
1.2	04/06/2026	Second Draft	Keelan Serjeant	Baden Hocking	Phil Barlow



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Executive Summary

The proposed development would be expected to remain dry in all but the most extreme conditions. Providing the recommendations made in this Flood Risk Assessment (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 National Planning Policy Framework (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.



1. Introduction

1.1 Background

This Flood Risk Assessment (FRA) has been prepared by Tier Consult at the request of Storage World for the proposed Planning Application at Storage World, Middleton, Old Hall Street.

This FRA has been carried out in accordance with guidance contained in the National Planning Policy Framework (NPPF)¹, associated National Planning Practice Guidance (NPPG)² and the NPPG '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. This FRA has been prepared in accordance with the NPPF, in particular Paragraphs 170-182, which require that development:

- avoids inappropriate development in areas at risk of flooding;
- is directed to areas of lowest flood risk through the Sequential Test;
- is demonstrated to be safe for its lifetime, taking climate change into account;
- does not increase flood risk elsewhere; and
- incorporates appropriate opportunities for flood risk reduction and resilience.

The associated PPG has been used to structure this FRA and ensure that all sources of flooding, both now and in the future, have been assessed in accordance with current national policy.

¹ Ministry of Housing, Communities and Local Government (2025) National Planning Policy Framework.

² Department for Communities and Local Government (2022) Planning Practice Guidance - Flood Risk and Coastal Change.



1.3 Report Structure

This FRA has the following report structure:

- Section 2 details the sources of information that have been consulted;
- Section 3 describes the location area and the existing and proposed development;
- Section 4 outlines the flood risk to the existing and proposed development;
- Section 5 describes the risk management methods used to mitigate all sources of flood risk;
and
- Section 6 presents a summary and conclusions.



2. Sources of Information

2.1 Discussion with Regulators

Consultation and discussions with the relevant regulators have been undertaken during this FRA including the Environment Agency, the Local Planning Authority (LPA), the Lead Local Flood Authority (LLFA) and Sewerage Undertakers.

2.2 Environment Agency

The Flood and Water Management Act 2010 gives the Environment Agency a strategic overview role for all forms of flooding and coastal erosion. They also have direct responsibility for the prevention, mitigation and remediation of flood damage for main rivers and coastal areas. The Environment Agency is the statutory consultee with regards to flood risk and planning.

Information regarding the current flood risk at the application Site, local flood defences and flood risk has been obtained from the Environment Agency including Environment Agency published 'Open Data' datasets available online, reproduced with OS mapping under licence (contains Ordnance Survey data © Crown copyright and database right [2025], contains Environment Agency information © Environment Agency and database right) (see Appendix A).

2.3 Relevant Planning Policy

This FRA has been prepared in accordance with the relevant national, regional and local planning policy and statutory authority guidance as follows:

- National policy contained within the National Planning Policy Framework (NPPF) updated in 2024, issued by Communities and Local Government;
- The Planning Practice Guidance (PPG) released in 2014 and updated most recently in 2025 ('Flood Risk and Coastal Change' section); and
- The Environment Agency 'Flood Risk Assessments: Climate Change Allowances' guidance (updated 2022).

This FRA has been prepared in accordance with NPPF (2024) Paragraphs 170–182, with specific reference to Paragraph 181(e), which requires development to remain safe for its lifetime, including consideration of safe access and egress where appropriate. Local guidance documents including the Rochdale Metropolitan Borough Council Strategic Flood Risk Assessment have been reviewed to inform this report.

3. Location & Description

3.1 Site Location

The site is located at Storage World, Middleton, Old Hall Street (see Figure 3.1). The National Grid Reference (NGR) of the site is 387198, 405998.



Figure 3.1 - Site Location



3.2 Existing Development

There was an existing storage building on the site however, this has burnt down.

3.3 Proposed Development

The proposals are for a replacement storage unit (see Appendix B).

3.4 Ground Levels

A topographical survey of the site has recently been completed (see Appendix C). The site is relatively levels with ground levels of 82.80 metres Above Ordnance Datum (mAOD) in the southwestern corner, 82.20mAOD in the southeastern corner, 82.35mAOD in the northeastern corner and 82.14mAOD in the northwestern corner. The finished floor level of the building was a minimum of 82.10mAOD.

3.5 Catchment Hydrology

The River Irk is located on the southern boundary of the site and the Whit Brook, a tributary of the River Irk, is located approximately 70m to the east of the site. The normal water level of the River Irk adjacent to the site is 79.81mAOD to 80.29mAOD.

3.6 Ground Conditions

The British Geology Survey (BGS) shows that the superficial deposits that underlay the site to the north consist of Glaciofluvial sheet deposits, Devensian - sand and gravel. The superficial deposits to the south of the site consist of Alluvium - clay, silt, sand and gravel. The bedrock deposits are classified as the Pennine Lower Coal Measures Formation - mudstone, siltstone and sandstone.



4. Flood Risk

4.1 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.

4.2 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. The flood risk assessments: climate change allowances guidance recommends that the central allowances are used³. The proposed development has been assessed over a 75 year lifetime in accordance with NPPF guidance for residential development.

Flood risk has been assessed for the 1 in 100 year event with both central (+35%) and high end (+46%) climate change allowances. While the central allowance is used to define the design flood risk, the upper-end allowance has been used to test the sensitivity of flood risk and inform the design of mitigation, finished floor levels, flood resistance and resilience measures. This ensures the development will remain safe throughout its lifetime in accordance with the NPPF.

4.3 Environment Agency Flood Zones

A review of the Environment Agency's flood map indicates that the site is located within Flood Zone 2 and therefore has a 'medium probability' of fluvial flooding, as shown in Figure 4.1. The Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. The Environment Agency Flood Zones and acceptable development types are explained in Table 4.1. Table 4.1 shows that most development types are acceptable in Flood Zone 2.

³ <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#high-allowances>

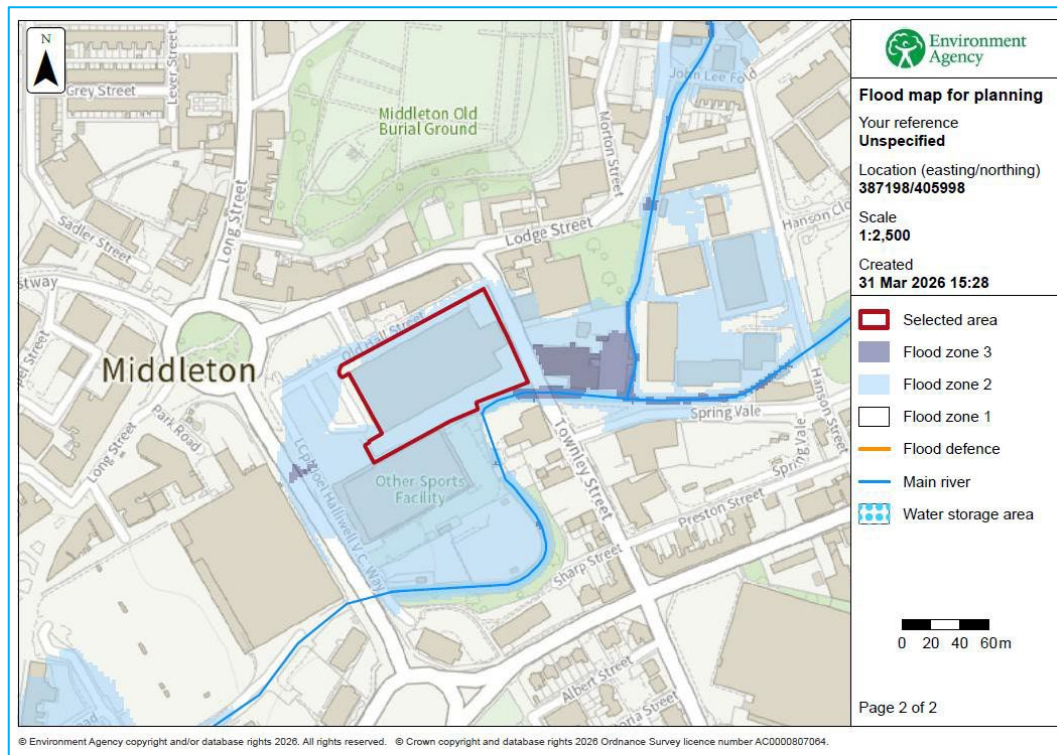


Figure 4.1 - Environment Agency Flood Zones: Present Day

Table 4.1 - 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	Some development types not acceptable



		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. (Not separately distinguished from Zone 3a on the Flood Map)	
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4.4 Flood Risk Vulnerability

In the PPG (Table 1) appropriate uses have been identified for the Flood Zones. Applying the Flood Risk Vulnerability Classification in Table 2 and 3 of the PPG, the existing (i.e. before the storage building burnt down) and proposed development is classified as 'less vulnerable'. The proposed development will not change the vulnerability of the site to flooding and will not introduce a new 'more vulnerable' use in the floodplain. Table 4.2 of this report and Table 3 of the PPG states that 'less vulnerable' uses are appropriate within Flood Zone 2 after the completion of a satisfactory FRA.

Table 4.2 - Flood Risk Vulnerability and Flood Zone 'Compatibility' as identified in Table 3 of the PPG

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.

4.5 Sequential and Exception Tests

The NPPF requires the Sequential Test to be applied to steer new development to areas at the lowest probability of flooding. Where development is proposed in areas at higher probability of flooding and cannot be located in areas of lower risk, the Exception Test may also be required.

As the development is located within Flood Zone 2 and comprises a compatible vulnerability classification, the Exception Test is not required. The suitability of the site is therefore assessed through this FRA, which demonstrates that the development will be safe for its lifetime, taking climate change into account, and will not increase flood risk elsewhere. The application of the Sequential Test is a matter for the LPA; however, in flood risk terms, the site represents land within a medium probability Flood Zone and is therefore sequentially appropriate.

The suitability of the site is therefore confirmed through this FRA, which demonstrates that the development will remain safe for its lifetime, taking climate change into account, and will not increase flood risk elsewhere, in accordance with NPPF Paragraphs 170-182.

4.6 Historic Flooding

Environment Agency data shows that the site has not historically flooded, as shown in Figure 4.2. There are no records of anecdotal information of flooding at the site including within the British Hydrological Society “Chronology of British Hydrological Events”. No other historical records of flooding at the site have been recorded. Therefore, it has been concluded that the site has not flooded within the recent past.

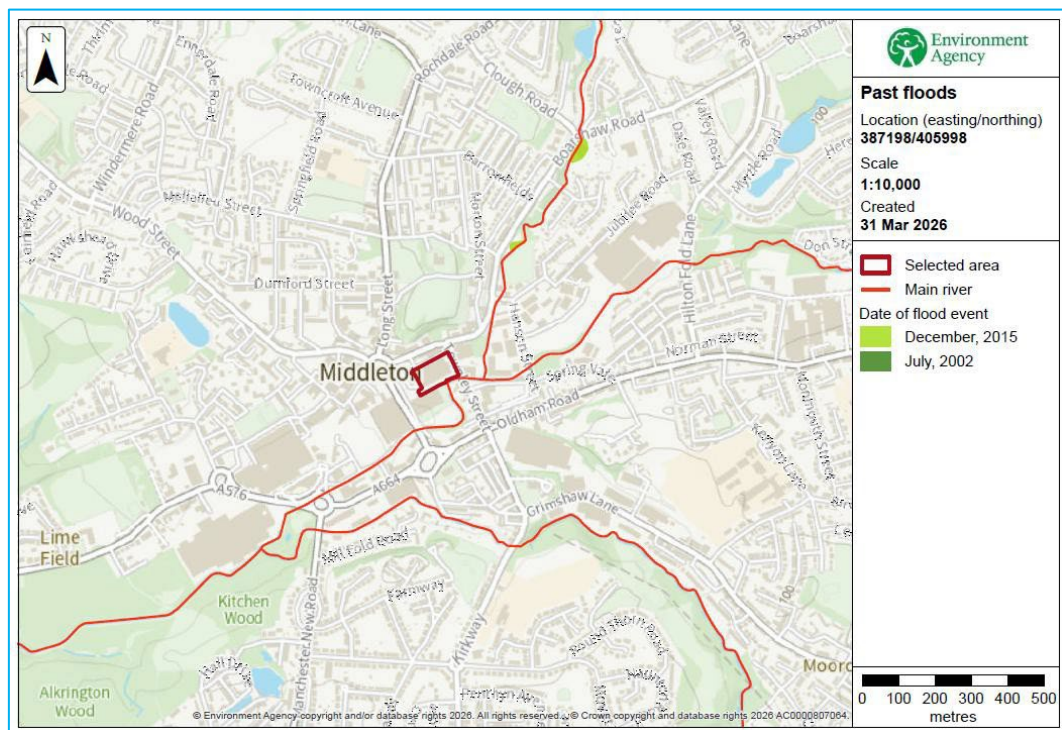


Figure 4.2 - Environment Agency Flood Zones: Present Day

4.7 Existing and Planned Flood Defence Measures

It is understood that there are no Environment Agency maintained defences in this area.

4.8 Fluvial (river) Flooding

Due to the proximity of the River Irk and Wince Brook fluvial flooding poses the primary flood risk to the site.

Wince Brook

The Environment Agency modelled undefended flood outlines for the Wince Brook (Wince Brook 2017 Model) are shown in Figures 4.3 and 4.4. These show that the site will not be inundated with floodwater for all events up to and including the undefended 1 in 1000 year (+30%) event. Therefore, the site is not predicted to be affected by flooding during the design event for the site (i.e. 1 in 100 year (+35%) event).

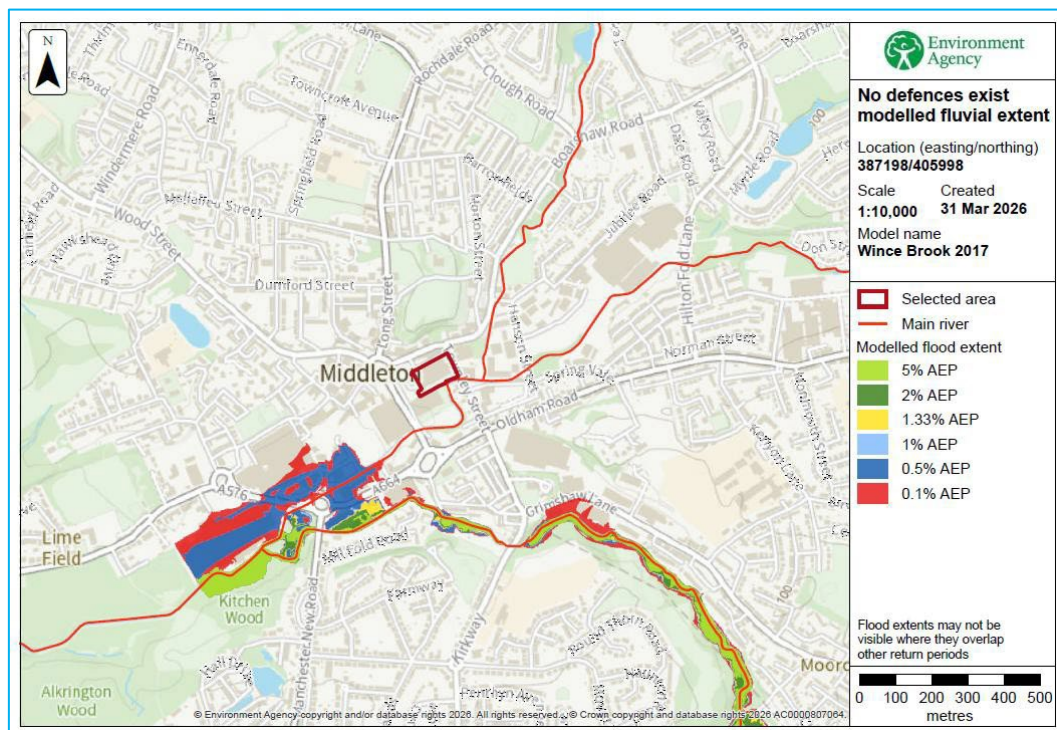


Figure 4.3 - Environment Agency Modelled Undefended Flood Outlines: Wince Brook 2017 Model

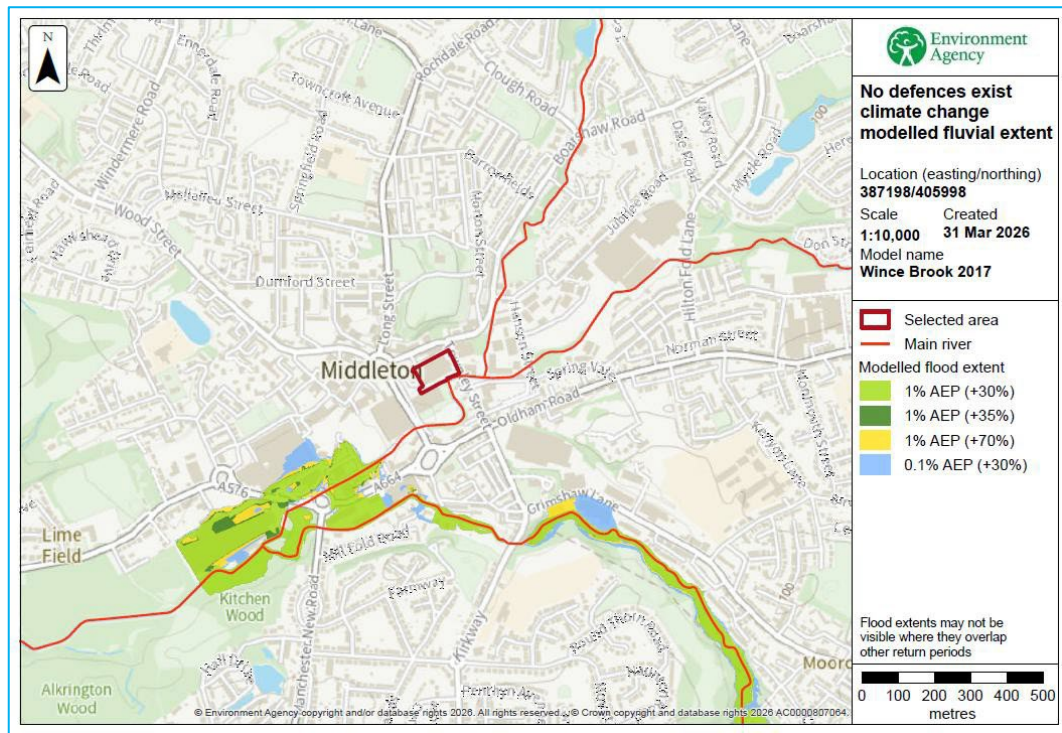


Figure 4.4 - Environment Agency Modelled Undefended Climate Change Flood Outlines: Wince Brook 2017 Model

River Irk

The Environment Agency modelled defended and undefended flood outlines for the River Irk (Irk, Moston and Whit Brook 2007 Model) are shown in Figures 4.5 and 4.6. These show that the site will not be inundated with floodwater for all events up to and including the defended 1 in 100 year event and the undefended 1 in 1000 year event.

Table 4.3 show the Environment Agency modelled undefended in-channel data. The modelled water levels have been compared to the ground levels of the Site and areas within the vicinity of the Site to assess the fluvial flood risk in detail.

The climate change events have been extrapolated from the modelled water level and flow data as per Figure 4.7. The +28% and +38% climate change allowances have therefore, been calculated and are shown in Table 4.3 for the in-channel nodes. The design event for the site is the undefended 1 in 100 year (+35%) event which has a water level of 81.37mAOD. In the absence of directly modelled climate change scenarios for the required allowances, climate change levels have been derived using available modelled data and rating curve relationships. This approach provides a reasonable and precautionary estimate of future flood levels for the purposes of this assessment.

The site is relatively levels with ground levels of 82.80mAOD in the southwestern corner, 82.20mAOD in the southeastern corner, 82.35mAOD in the northeastern corner and 82.14mAOD in the northwestern corner. The finished floor level of the building was a minimum of 82.10mAOD. Therefore, based on the Environment Agency modelled undefended in-channel data, the site would

not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+38%) and 1 in 1000 year events.

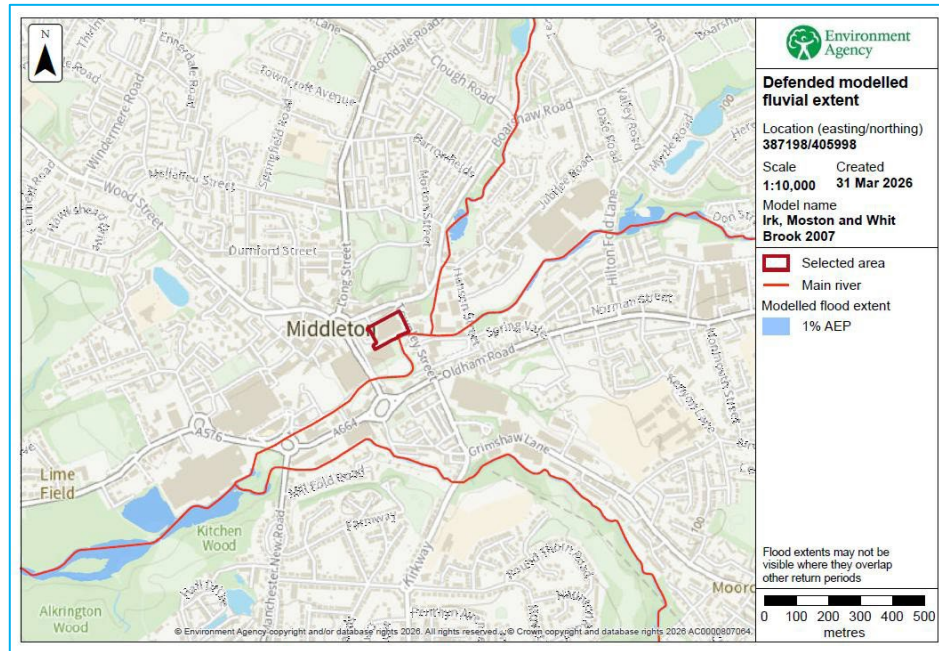


Figure 4.5 - Environment Agency Modelled Defended 1 in 100 Year Flood Outline: Irk, Moston and Whit Brook 2007 Model

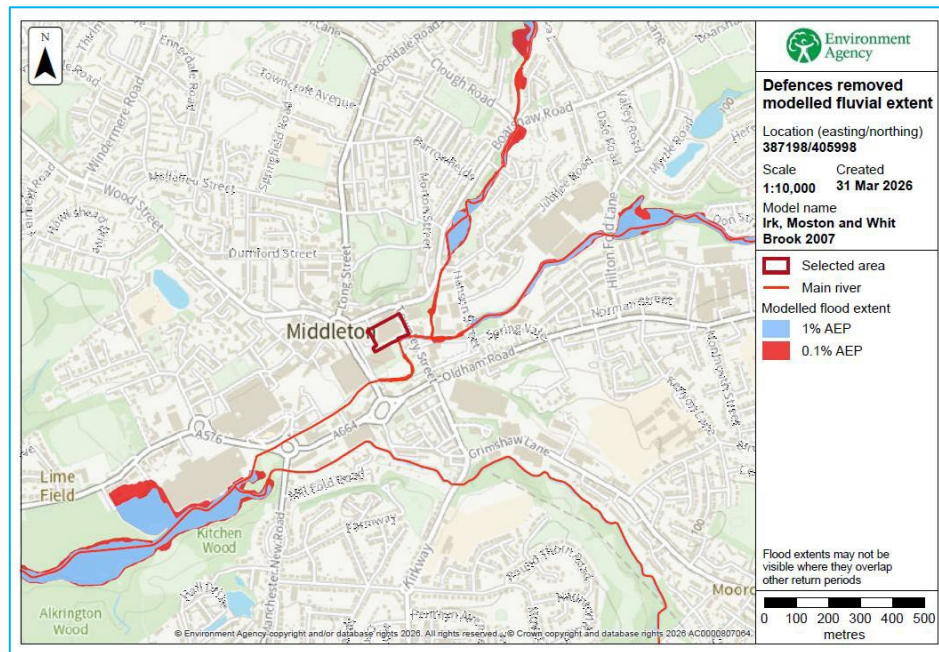


Figure 4.6 - Environment Agency Modelled Defended 1 in 100 and 1 in 1000 Year Flood Outlines: Irk, Moston and Whit Brook 2007 Model



Table 4.3 - Environment Agency Undefended 1D In-channel Modelled Data

Node Label	Modelled Location ID	Eastings	Northings	Parameter	Return Period (yrs)			
					100	100 (+35%)	100 (+46%)	1000
5	1544509	387266	405984	Level (mAOD)	81.10	81.37	81.46	81.78
				Flow (m ³ /s)	21.39	28.88	31.23	39.92

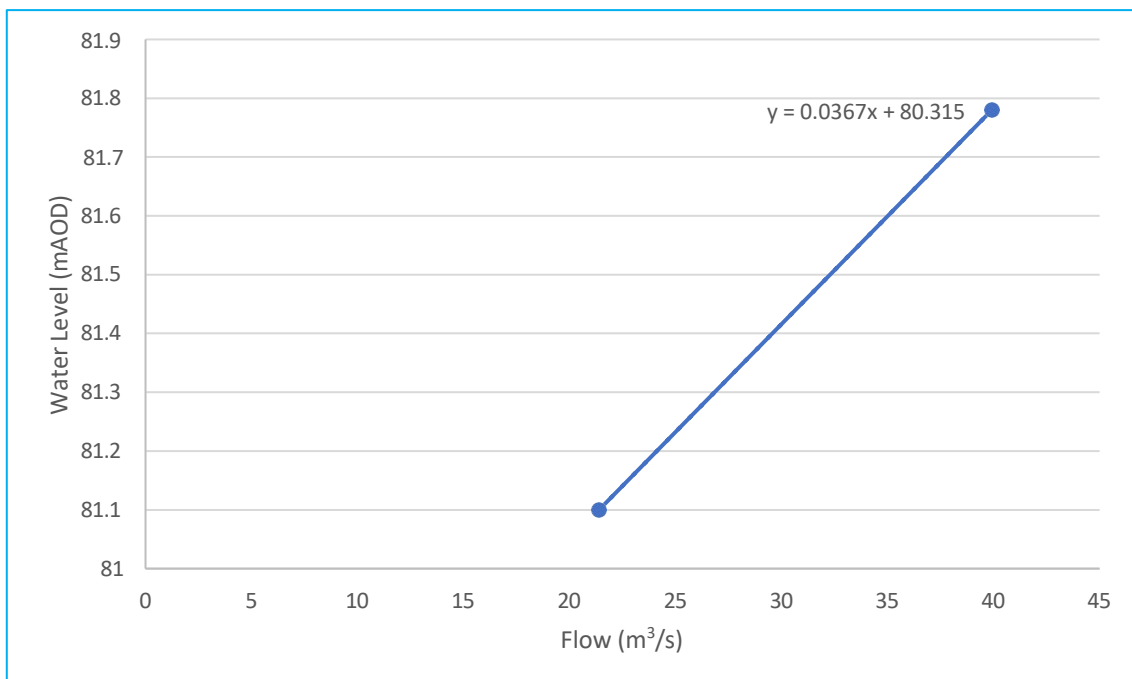


Figure 4.7 - Rating Curve

Notwithstanding the above, the site is identified as being located within Flood Zone 2 therefore, a review of Environment Agency Rivers and Sea mapping has been undertaken to further assess the fluvial flood risk posed to the site. The Environment Agency Rivers and Sea flood map shows that the site has a low chance of fluvial flooding with an annual probability of between a 1 in 1000 (0.1%) and 1 in 100 years (1%), as shown in Figure 4.8. However, the water depths during the 1 in 1000 year event are shown to be considerably less than 0.20m, as shown in Figure 4.9. The effects of climate change are shown to be limited to 2069 (see Figure 4.10) and the water depths during the 1 in 1000 year in 2069 event are shown to be less than 0.20m, as shown in Figure 4.11.

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. Any flooding would result in a 'low' flood hazard with a 'flood zone with shallow flowing water or deep standing water' as per the Supplementary Note on Flood Hazard Ratings and Thresholds for Development Planning and



Control Purpose - Clarification of the Table 13.1 of FD2320/TR2 and Figure 3.2 of FD/2321/TR1. On this basis, there is no evidence to suggest that the site is subject to significant fluvial flood risk.

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 poses a low flood risk to the site. The risk of flooding from fluvial flooding is considered be of low significance. The risk from these sources will be further managed and mitigated by using a number or risk management measures to manage and reduce the overall flood risk at the site (see Section 5.0).

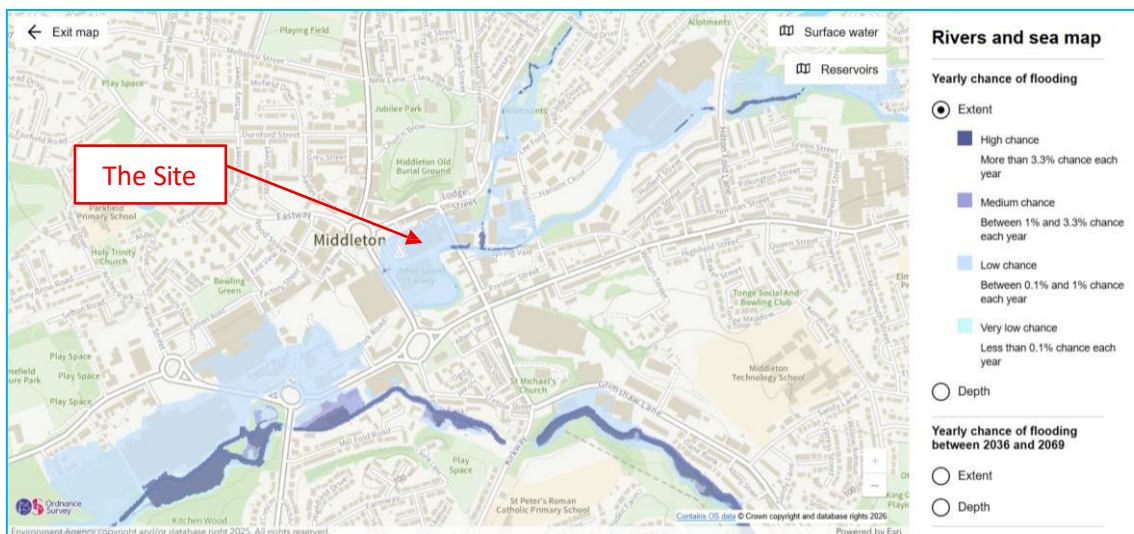


Figure 4.8 - Environment Agency River and Sea Flood Map: Present Day



Figure 4.9 - Environment Agency River and Sea Water Depths: Present Day

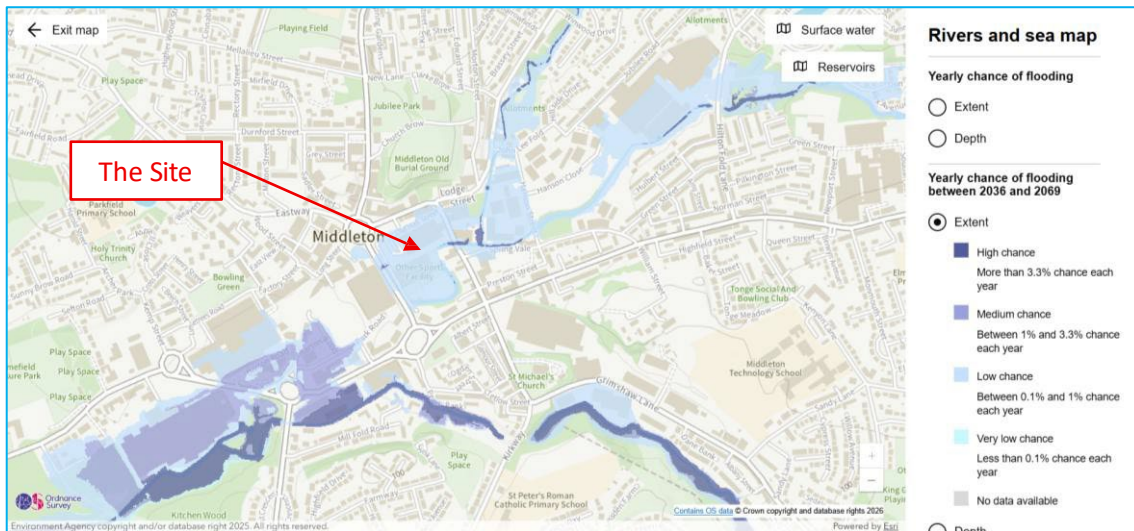


Figure 4.10 - Environment Agency River and Sea Flood Map: Future Flooding Extent (between 2036 and 2069)

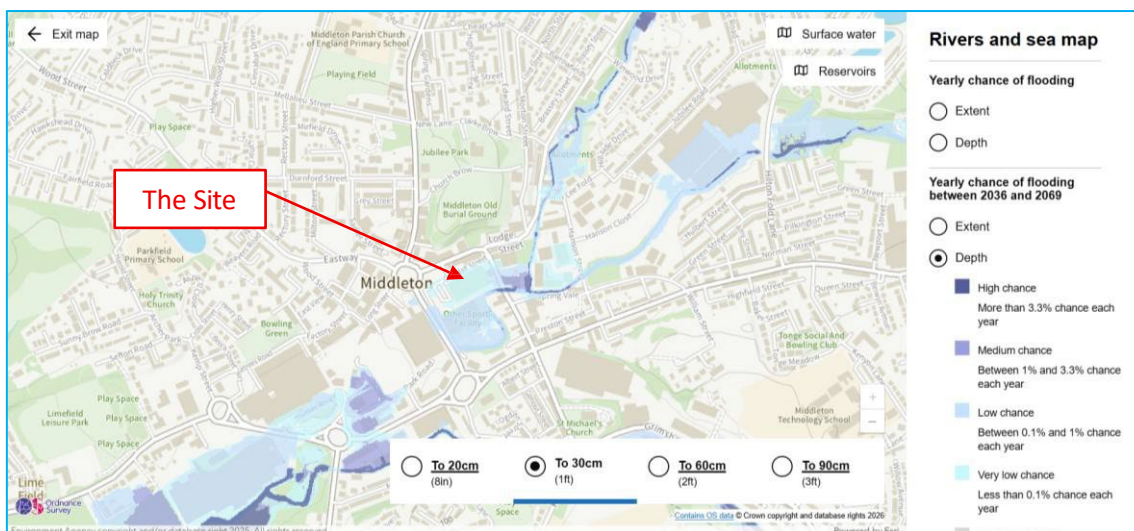


Figure 4.11 - Environment Agency River and Sea Water Depths: Future Flooding Extent (between 2036 and 2069)

4.9 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.



4.10 Groundwater Flooding

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

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

Site ground conditions suggest a low potential for groundwater flooding. The Environment Agency data shows that flooding from groundwater is unlikely in this area. Furthermore, no below surface infrastructure and buildings are proposed for the site. The risk of flooding from groundwater flooding is considered to be not significant.

4.11 Surface Water (pluvial) Flooding

The soil condition at the site and within the vicinity of the site and the topography of the site suggest that the site is relatively well drained and surface water flooding would not be expected to accumulate to any significant depths. 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 majority of the site is shown to have a 'low' probability of surface water flooding with a chance of flooding of less than 1 in 1000 years, as shown in Figures 4.12 to 4.14. The majority of the site is shown not to be at risk of flooding during the 1 in 1000 year event which is the 'low probability' event. The effect of climate change on surface water flooding is shown to be minimal, as shown in Figure 4.15. The surface water depths maps show that the site may experience water depths of considerably less than 0.20m, as shown in Figures 4.16 to 4.17.

The flooding will only inundate the site to a relatively low water depth and water velocity, will only last a short period of time, in very extreme cases. Mapping indicates that any surface water flooding is shallow, short duration and limited to extreme events. The site is at such a ground level that it would only flood in the most extreme flood events; surface water flooding is anticipated to be shallow, short-duration and limited to extreme events.

Given the scale and nature of the proposed development and the size and location of the surface flooding sources it has been concluded that surface water flooding poses a low flood risk to the site. It can therefore be concluded that the risk of surface water flooding is of low significance. The risk from this sources will be further managed and mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the site (see Section 5.0).

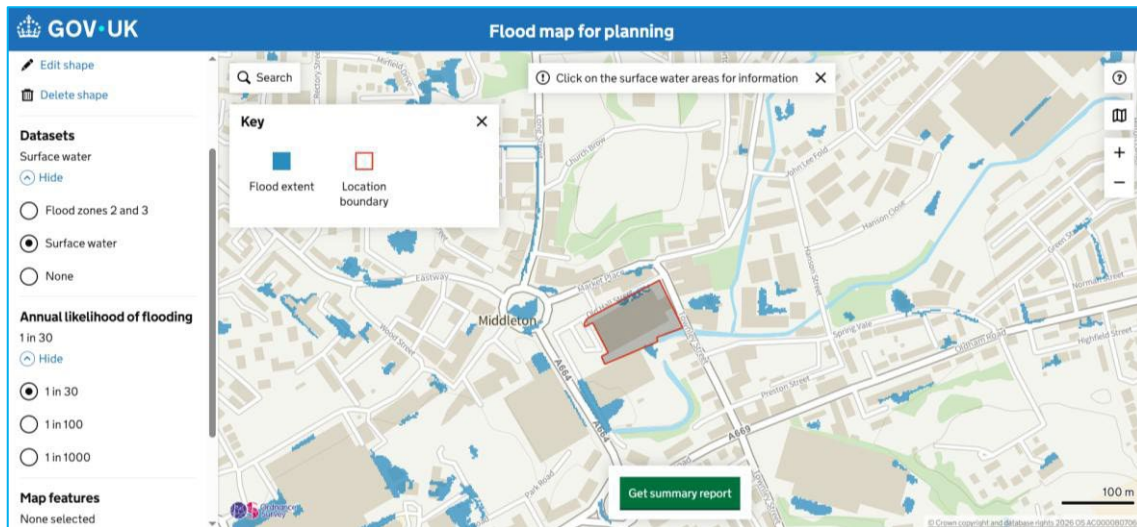


Figure 4.12 - Environment Agency Surface Water Flood Map: 1 in 30 Year Event

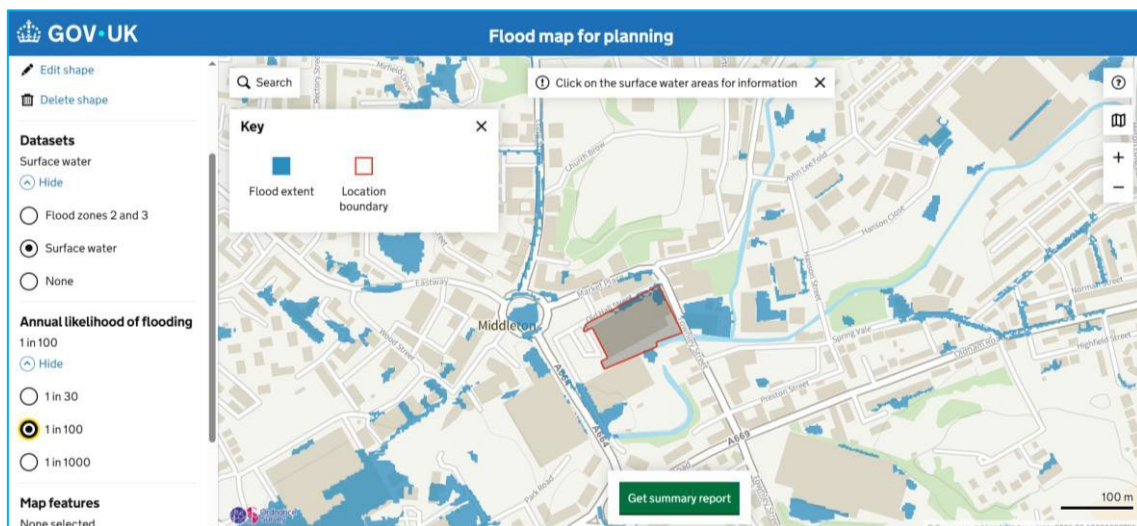


Figure 4.13 - Environment Agency Surface Water Flood Map: 1 in 100 Year Event

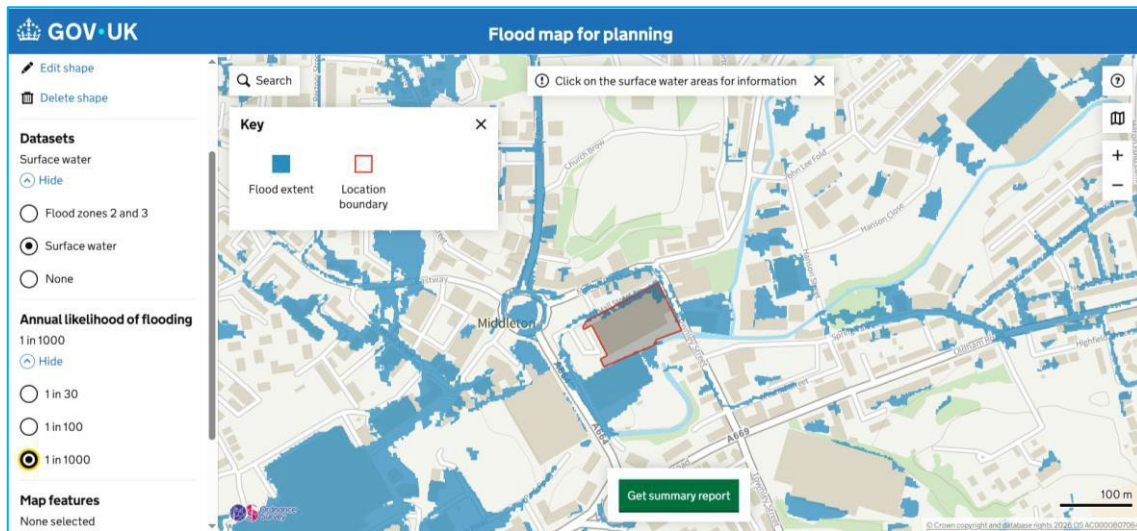


Figure 4.14 - Environment Agency Surface Water Flood Map: 1 in 1000 Year Event

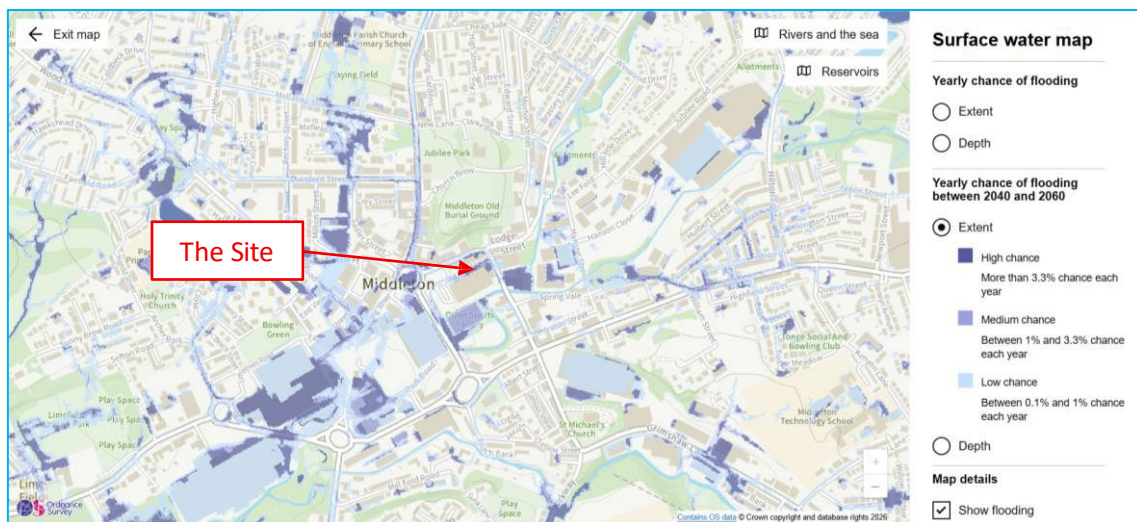


Figure 4.15 - Environment Agency Surface Water Flood Map: Climate Change 2040 to 2060

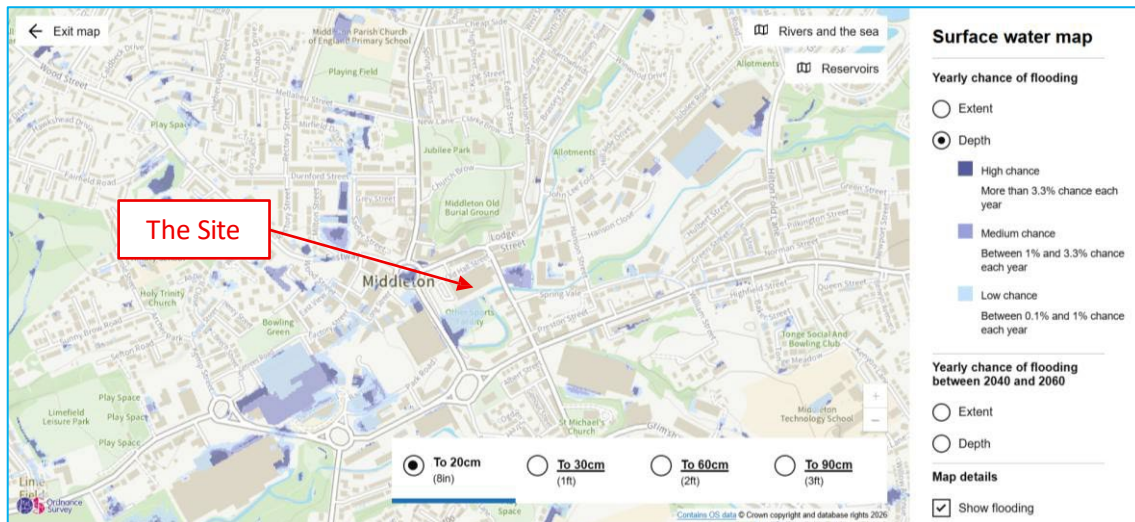


Figure 4.16 - Environment Agency Surface Water Flood Map: Present Day Water Depths

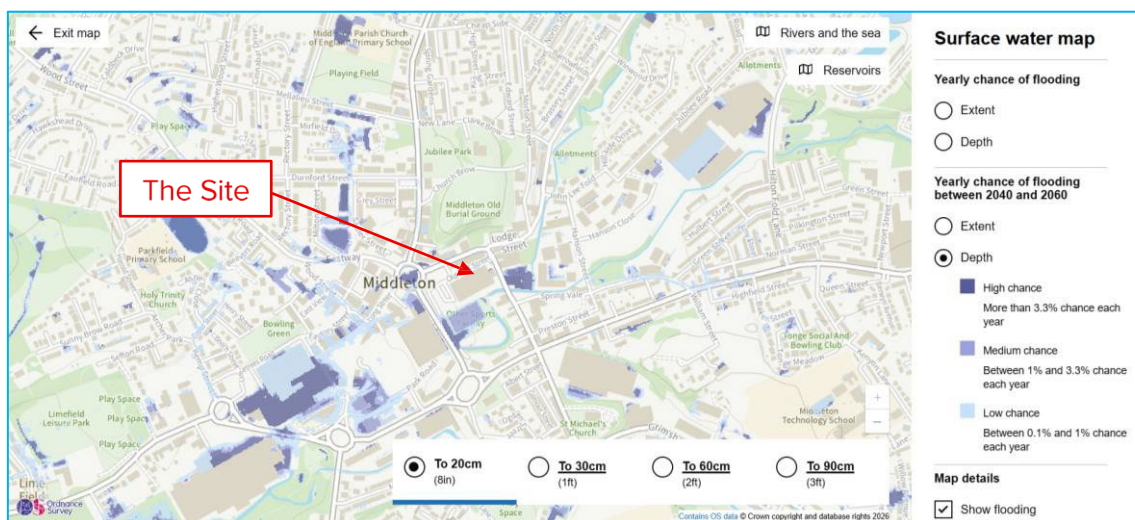


Figure 4.17- Environment Agency Surface Water Flood Map: Climate Change 2040 to 2060 Water Depths

4.12 Sewer Flooding

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

There are existing public sewers within roads adjacent to the site 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 30 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. Taking the above into consideration, the fact that there have been no infrastructure failure flooding events in the site area and the site's topography it can be concluded that the risk of flooding is very low. There are no records of sewer flooding in the vicinity of the site, and in the absence of confirmed DG5 entries, sewer flood risk is considered very low. It can therefore be concluded that the risk of sewer flooding is not significant.

4.13 Flooding from Artificial Drainage Systems/Infrastructure Failure

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 Environment Agency Reservoir flood map shows that the site is not at risk of reservoir flooding, as shown in Figure 4.18. The risk of flooding from artificial water bodies, water channels and artificial drainage systems is considered to be not significant.

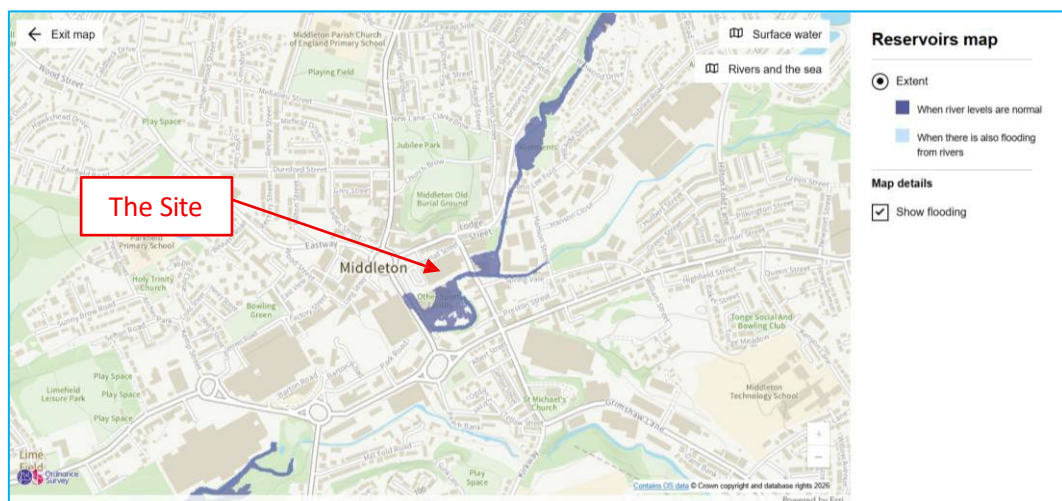


Figure 4.18 - Environment Agency Reservoir Flood Map

4.14 Effects of the Development on Flood Risk

The proposed development is not expected to result in an increase in flood risk elsewhere or materially alter existing flow paths.



4.15 Summary of Site Specific Flood Risk

A summary of the sources of flooding and a review of the risk posed by each source at the site is shown in Table 4.4.

Table 4.4 - Risk Posed by Flooding Sources

Sources of Flooding	Potential Flood Risk	Potential Source	Probability/Significance
Fluvial (river) Flooding	Yes	River Irk	Low
Tidal (coastal) Flooding	No	None Reported	Not Significant
Groundwater Flooding	No	None Reported	Not Significant
Surface Water (pluvial) Flooding	Yes	Poor Permeability	Low
Sewer Flooding	No	None Reported	Not Significant
Flooding from Artificial Drainage Systems/Infrastructure Failure	No	None Reported	Not Significant

Fluvial flooding from the River Irk, located on the southern boundary of the site, poses the primary but unlikely flood risk to the site. The site is located within Flood Zone 2 and therefore has a 'medium probability' of fluvial flooding. However, no recorded historic flooding has been identified from available datasets, including Environment Agency mapping and published hydrological records.

The existing (i.e. before the storage building burnt down) and proposed development is classified as 'less vulnerable'. The proposed development will not change the vulnerability of the site to flooding and will not introduce a new 'more vulnerable' use in the floodplain. 'Less vulnerable' uses are appropriate within Flood Zone 2 after the completion of a satisfactory FRA.

The application of the Sequential Test is a matter for the LPA; however, in flood risk terms, the site represents land within a medium probability Flood Zone and is therefore sequentially appropriate. The suitability of the site is therefore confirmed through this FRA, which demonstrates that the development will remain safe for its lifetime, taking climate change into account, and will not increase flood risk elsewhere, in accordance with NPPF Paragraphs 170-182.

Based on the Environment Agency modelled undefended data, the site would not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+38%) and 1 in 1000 year events. Notwithstanding the above, the site is identified as being located within Flood Zone 2 therefore, a review of Environment Agency Rivers and Sea mapping has been undertaken to further assess the fluvial flood risk posed to the site. The Environment Agency Rivers and Sea flood map shows that the site has a low chance of fluvial flooding with an annual probability of between a 1 in 1000 (0.1%) and 1 in 100 years (1%). However, the water depths during the 1 in 1000 year event are shown to be considerably less than 0.20m. The effects of climate change are shown to be limited to 2069 and the water depths during the 1 in 1000 year in 2069 event are shown to be less than 0.20m.

On this basis, there is no evidence to suggest that the site is subject to significant fluvial flood risk. 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 poses a low flood risk to the site. The risk of flooding from fluvial flooding is considered be of low significance. A secondary flooding source has been identified which may pose a low significant risk to the site. This is:

- Surface Water Flooding

The risk from these sources will be further managed and mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the site (see Section 5.0).

The proposed development is not expected to result in an increase in flood risk elsewhere or materially alter existing flow paths.



5. Risk Management

5.1 Introduction

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, form of the development and the use of flood mitigation measures. The flooding sources will have to 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. These will be used to 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.

5.2 Finished Floor Level

It is recommended that the proposed building will be located above the internal highways within the site by 150mm to enable the full capacity of any secondary flood conveyance to be utilised. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further, than those stated above. Therefore, in order to mitigate against this, it is recommended that the occupants implement a Flood Plan.

It is also proposed that flood protection measures are employed within the building design to reduce the overall risk to the occupants. This is discussed below.

5.3 Flood Resistance

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

- The proposed development will incorporate robust construction detailing and durable materials.
- 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.



These factors will prevent water entering the proposed development and make the proposed development more resistant to seepage.

5.4 Flood Resilience

The Flood resilience measures are designed in such a way as to reduce the cost and time required to reinstate the building should it be flooded (tiled floors are an example of a flood resilience measure).

The proposed development will be constructed in such a way that although floodwater may enter the building, elements that are damaged by floodwater can be easily repaired or replaced. This is a form of flood resilience. They are suitable as no other measure is practicable. Robust materials and finishes will be used, including:

- all electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor levels.

5.5 Flood Plan

A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may cause will be developed. Sensible precautions would include raising electrical items, moving valuable items off the ground or where possible moving them to a higher floor and turning off utilities. In addition, consider what actions you would take should the site need to be evacuated including access and egress routes and preparing a flood kit in advance.

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

5.6 Access and Egress

Access routes remain outside mapped flood extents for the assessed events, and any localised surface water flooding is shallow in nature and would not prevent safe pedestrian access.

5.7 Surface Water Drainage

The site will be designed to accommodate surface water exceedance flows associated with rainfall events exceeding the design capacity of the drainage system. Proposed site levels ensure that exceedance flows are routed in a controlled manner across external areas, aligned with site topography, and directed away from buildings.

Exceedance routing is accommodated within areas capable of safely conveying shallow flows during extreme events, without increasing flood risk to adjacent land or downstream receptors.

Detailed exceedance routing, hydraulic performance and attenuation design are addressed within a Drainage Strategy, supporting calculations and exceedance plans. This FRA confirms that, in flood risk policy terms, exceedance flows are appropriately managed.



The representative Q_{bar} discharge for the development is 5.3 litres per second; however, on the basis that the site has been previously developed, the existing discharge rate can be calculated to be 109.5 litres per second. Applying a 50% betterment and a 1:100 year plus 50% for climate change would result in an attenuation requirement of 260 metres ahead

5.8 Flooding Consequences

The mitigation measures detailed above show that the flood risk can be effectively managed and therefore the consequences of flooding are acceptable. In conclusion, the flood risk to the site can be considered to be limited.



6. Summary and Conclusion

6.1 Introduction

This report presents an FRA in accordance with the NPPF for the proposed development at Storage World, Middleton, Old Hall Street. This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will need to be managed so that the development remains safe throughout the lifetime, taking climate change into account.

6.2 Flood Risk

Fluvial flooding from the River Irk, located on the southern boundary of the site, poses the primary but unlikely flood risk to the site. The site is located within Flood Zone 2 and therefore has a 'medium probability' of fluvial flooding. However, no recorded historic flooding has been identified from available datasets, including Environment Agency mapping and published hydrological records.

The existing (i.e. before the storage building burnt down) and proposed development is classified as 'less vulnerable'. The proposed development will not change the vulnerability of the site to flooding and will not introduce a new 'more vulnerable' use in the floodplain. 'Less vulnerable' uses are appropriate within Flood Zone 2 after the completion of a satisfactory FRA.

The application of the Sequential Test is a matter for the LPA; however, in flood risk terms, the site represents land within a medium probability Flood Zone and is therefore sequentially appropriate. The suitability of the site is therefore confirmed through this FRA, which demonstrates that the development will remain safe for its lifetime, taking climate change into account, and will not increase flood risk elsewhere, in accordance with NPPF Paragraphs 170-182.

Based on the Environment Agency modelled undefended data, the site would not be inundated with floodwater for all events up to and including the undefended 1 in 100 year (+38%) and 1 in 1000 year events. Notwithstanding the above, the site is identified as being located within Flood Zone 2 therefore, a review of Environment Agency Rivers and Sea mapping has been undertaken to further assess the fluvial flood risk posed to the site. The Environment Agency Rivers and Sea flood map shows that the site has a low chance of fluvial flooding with an annual probability of between a 1 in 1000 (0.1%) and 1 in 100 years (1%). However, the water depths during the 1 in 1000 year event are shown to be considerably less than 0.20m. The effects of climate change are shown to be limited to 2069 (see Figure 4.10) and the water depths during the 1 in 1000 year in 2069 event are shown to be less than 0.20m.

On this basis, there is no evidence to suggest that the site is subject to significant fluvial flood risk. 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 poses a low flood risk to the site. The risk of flooding from fluvial flooding is considered to be of low significance. A secondary flooding source has been identified which may pose a low significant risk to the site. This is:

- Surface Water Flooding



The risk from these sources will be further managed and mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the site.

The proposed development is not expected to result in an increase in flood risk elsewhere or materially alter existing flow paths.

6.3 Risk Management

The flooding sources will be managed on the site by using a number of mitigation strategies to manage and reduce the overall flood risk at the site and will ensure the development will be safe. Measures used:

Finished Floor Level - It is recommended that the proposed building will be located above the internal highways within the site by 150mm to enable the full capacity of any secondary flood conveyance to be utilised. It is recognised however that owing to limited headroom constraints, massing, planning policy and Building Regulations it is considered impractical to raise the finished floor levels further, than those stated above. Therefore, in order to mitigate against this, it is recommended that the occupants implement a Flood Plan.

It is also proposed that flood protection measures are employed within the building design to reduce the overall risk to the occupants. This is discussed below.

Flood Resistance – Flood resistant measures will be used, including:

- The proposed development will incorporate robust construction detailing and durable materials.
- 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.

These factors will prevent water entering the proposed development and make the proposed development more resistant to seepage.

Flood Resilience - Robust materials and finishes will be used, including:

- all electrics wiring, switches, sockets, socket outlets etc. to be located a minimum of 450mm above the finished floor levels.

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.

Access and Egress - Access routes remain outside mapped flood extents for the assessed events, and any localised surface water flooding is shallow in nature and would not prevent safe pedestrian access.

Surface Water Drainage - The site will be designed to accommodate surface water exceedance flows associated with rainfall events exceeding the design capacity of the drainage system. Proposed site levels ensure that exceedance flows are routed in a controlled manner across external areas, aligned with site topography, and directed away from buildings.



Exceedance routing is accommodated within areas capable of safely conveying shallow flows during extreme events, without increasing flood risk to adjacent land or downstream receptors.

Detailed exceedance routing, hydraulic performance and attenuation design are addressed within a Drainage Strategy, supporting calculations and exceedance plans. This FRA confirms that, in flood risk policy terms, exceedance flows are appropriately managed.

6.4 Conclusion

In conclusion, the proposed development would be expected to remain dry in all but the most 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.



Appendix A – Environment Agency Data

Flood risk assessment data



Location of site: 387198 / 405998 (shown as easting and northing coordinates)

Document created on: 31 March 2026

This information was previously known as a product 4.

Customer reference number: 1PJPW9APHVY1

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



How to use this information

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

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

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- past floods
- flood defences and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- modelled data
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Surface water and other sources of flooding

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 Rochdale District.

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

About the models used

Model name: Irk, Moston and Whit Brook 2007

Scenario(s): Defended fluvial, defences removed fluvial

Date: 30 May 2007

Model name: Wince Brook 2017

Scenario(s): No defences exist fluvial, no defences exist climate change fluvial

Date: 26 October 2018

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 occurring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

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

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

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

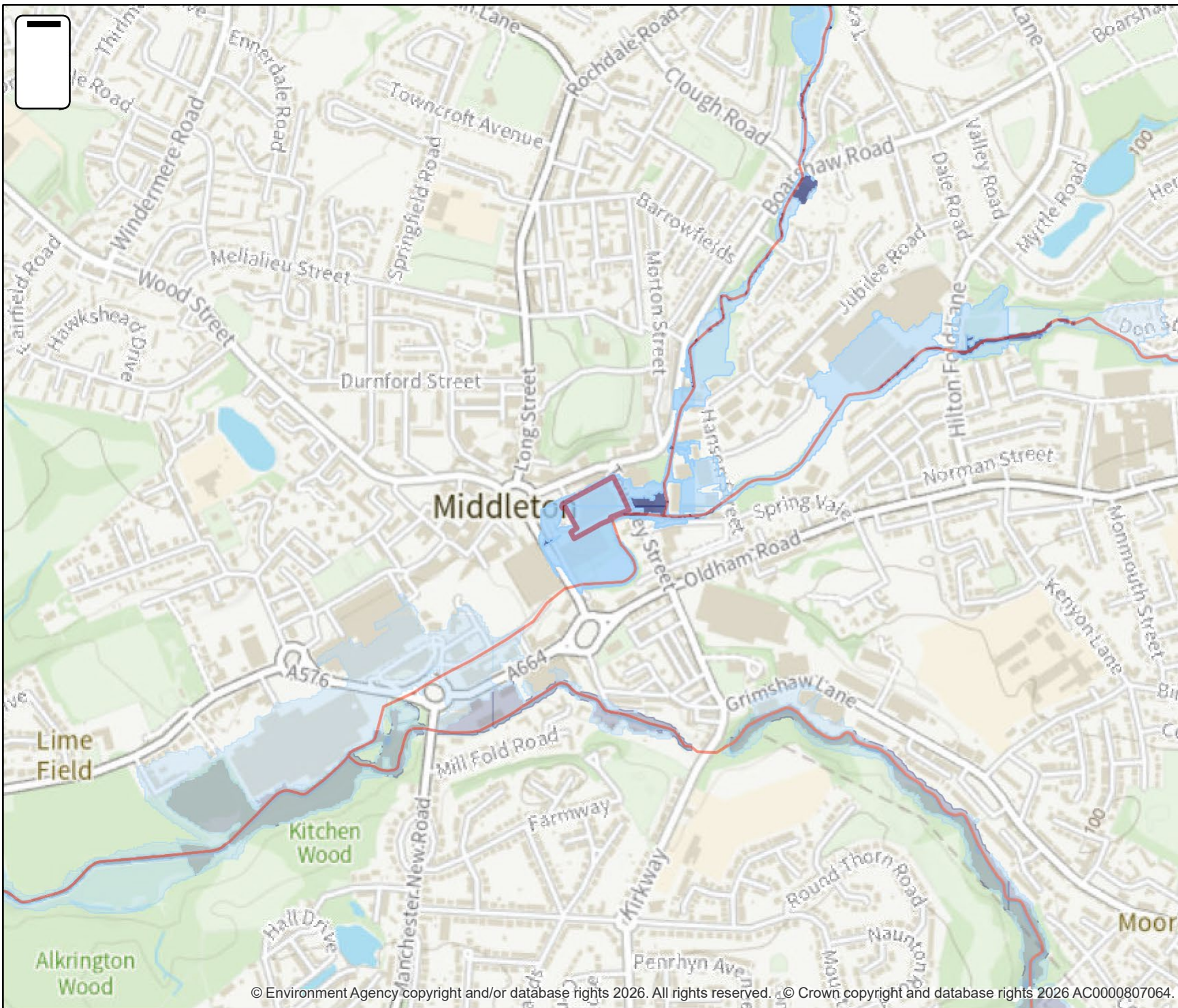
- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

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

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

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

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



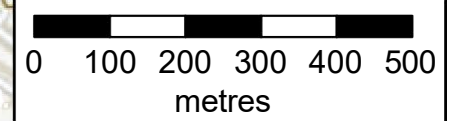
Flood map for planning

Location (easting/northing)
387198/405998

Scale
1:10,000

Created
31 Mar 2026

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



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



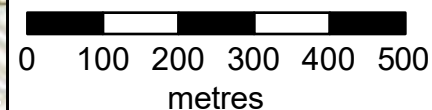
Past floods

Location (easting/northing)
387198/405998

Scale
1:10,000

Created
31 Mar 2026

-  Selected area
-  Main river
- Date of flood event
 -  December, 2015
 -  July, 2002



Data on past flood events

Start date	End date	Source of flood	Cause of flood	Affects location
26 December 2015	26 December 2015	main river	channel capacity exceeded (no raised defences)	No
30 July 2002	31 July 2002	main river	local drainage/surface water	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
- No defences exist climate change modelled fluvial: risk of flooding from rivers where there are no flood defences, including estimated impact of climate change

No data available

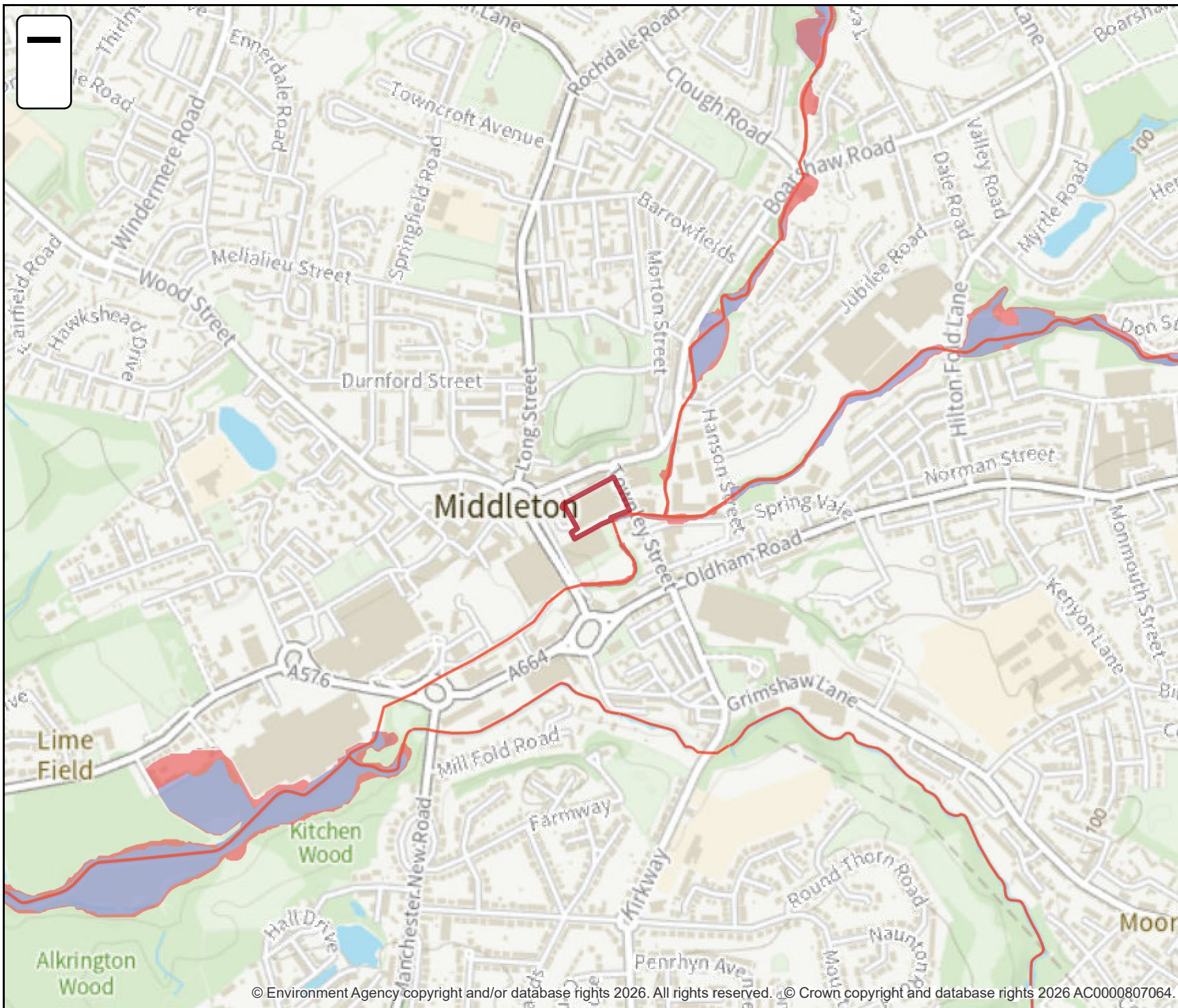
We do not have any height or depth data at this location for the following models:

Model name: Irk, Moston and Whit Brook 2007

Scenario(s): Defended modelled fluvial

Model name: Wince Brook 2017

Scenario(s): No defences exist climate change modelled fluvial, No defences exist modelled fluvial



Defences removed modelled fluvial extent

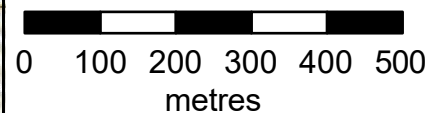
Location (easting/northing)
387198/405998

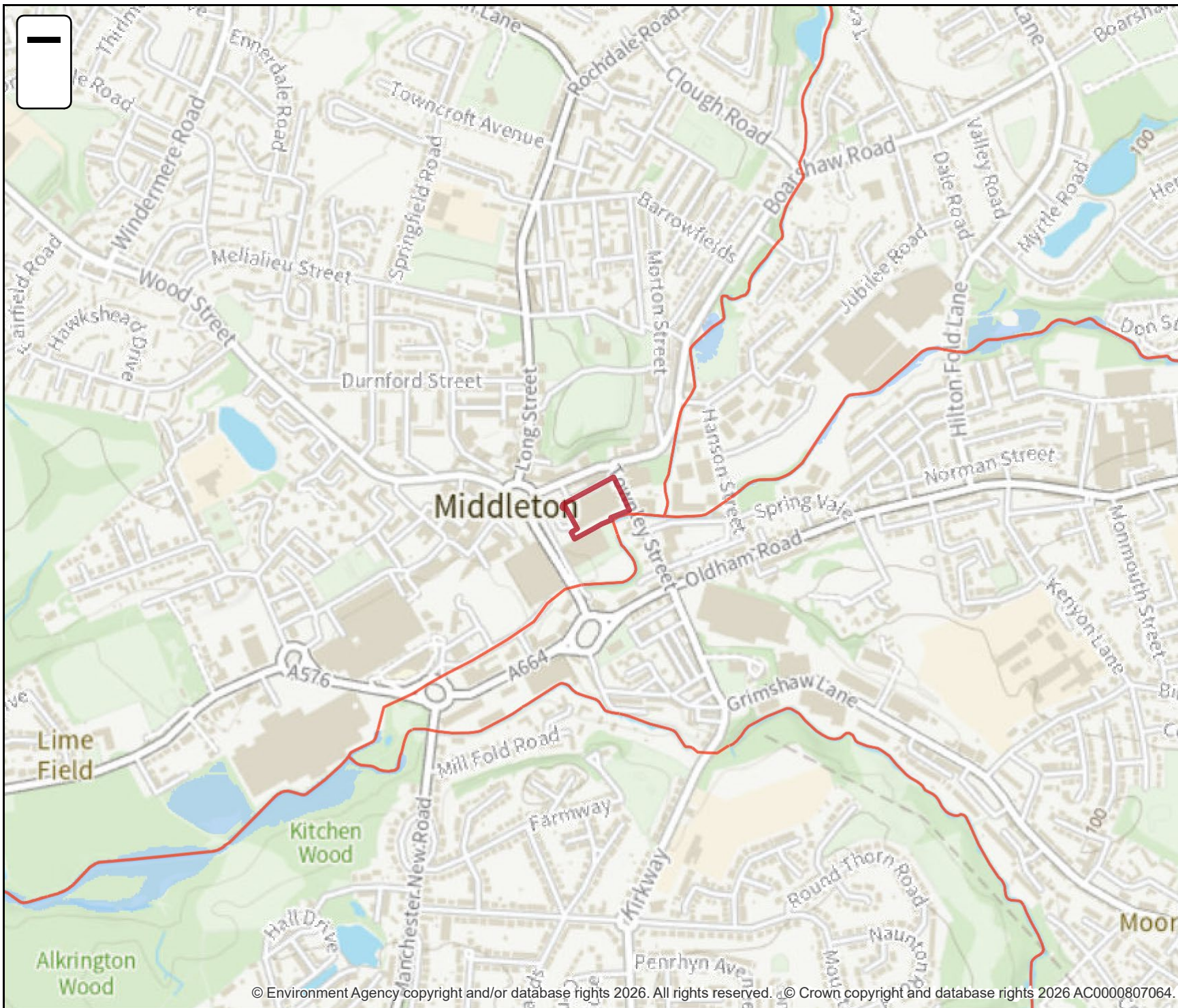
Scale Created
1:10,000 31 Mar 2026

Model name
**Irk, Moston and Whit
Brook 2007**

-  Selected area
-  Main river
- Modelled flood extent
 -  1% AEP
 -  0.1% AEP

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





Defended modelled fluvial extent

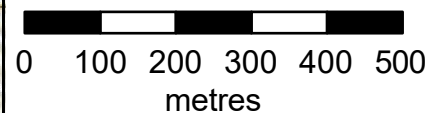
Location (easting/northing)
387198/405998

Scale Created
1:10,000 31 Mar 2026

Model name
Irk, Moston and Whit Brook 2007

-  Selected area
-  Main river
- Modelled flood extent
-  1% AEP

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



No defences exist climate change modelled fluvial extent

Location (easting/northing)
387198/405998

Scale Created
1:10,000 31 Mar 2026

Model name
Wince Brook 2017

-  Selected area
-  Main river
- Modelled flood extent
 -  1% AEP (+30%)
 -  1% AEP (+35%)
 -  1% AEP (+70%)
 -  0.1% AEP (+30%)

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



No defences exist modelled fluvial extent

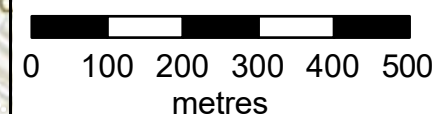
Location (easting/northing)
387198/405998

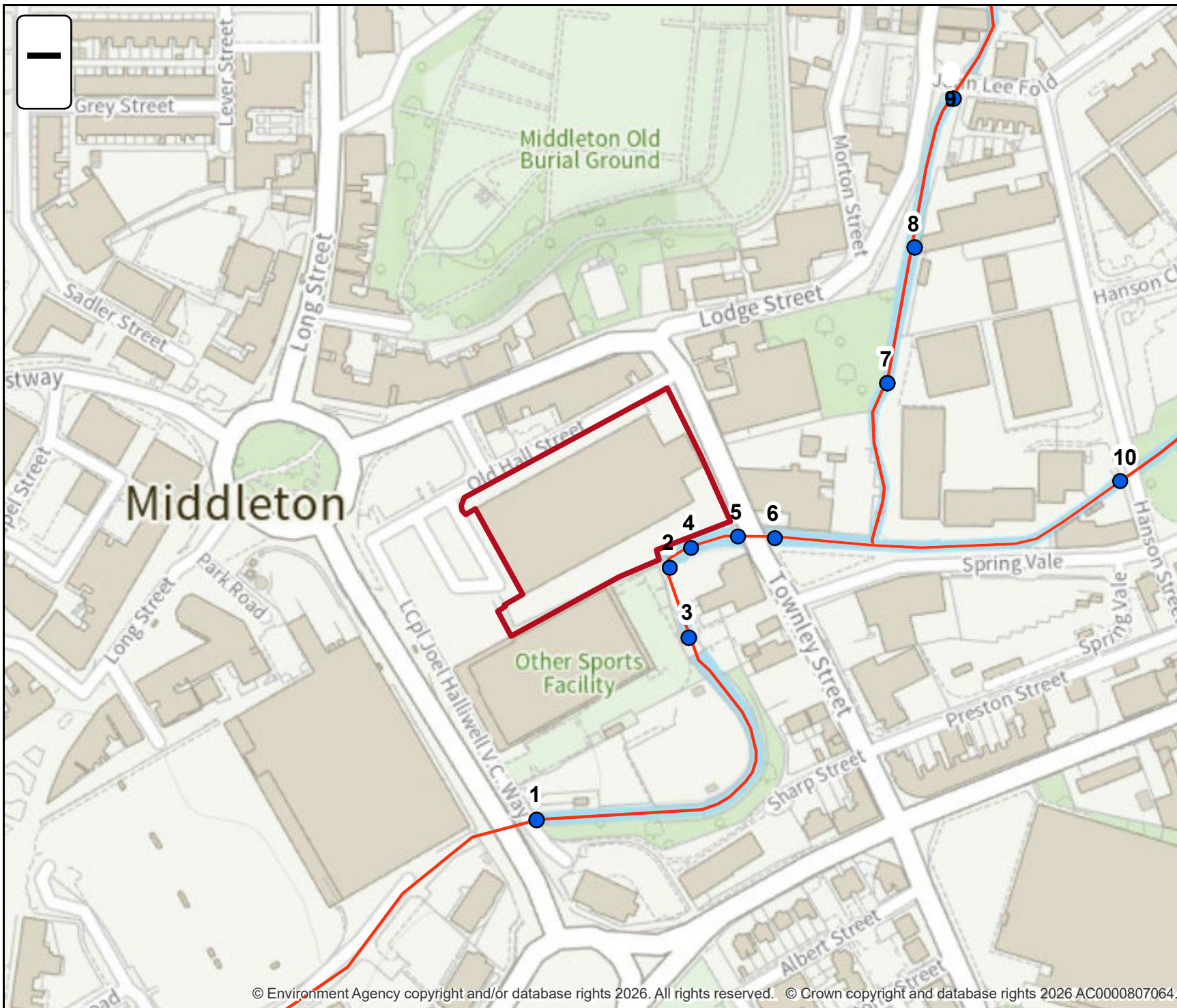
Scale Created
1:10,000 31 Mar 2026

Model name
Wince Brook 2017

-  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





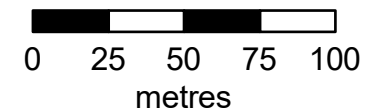
Defended modelled fluvial node locations

Location (easting/northing)
387198/405998

Scale Created
1:2,500 31 Mar 2026

Model name
**Irk, Moston and Whit
Brook 2007**

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

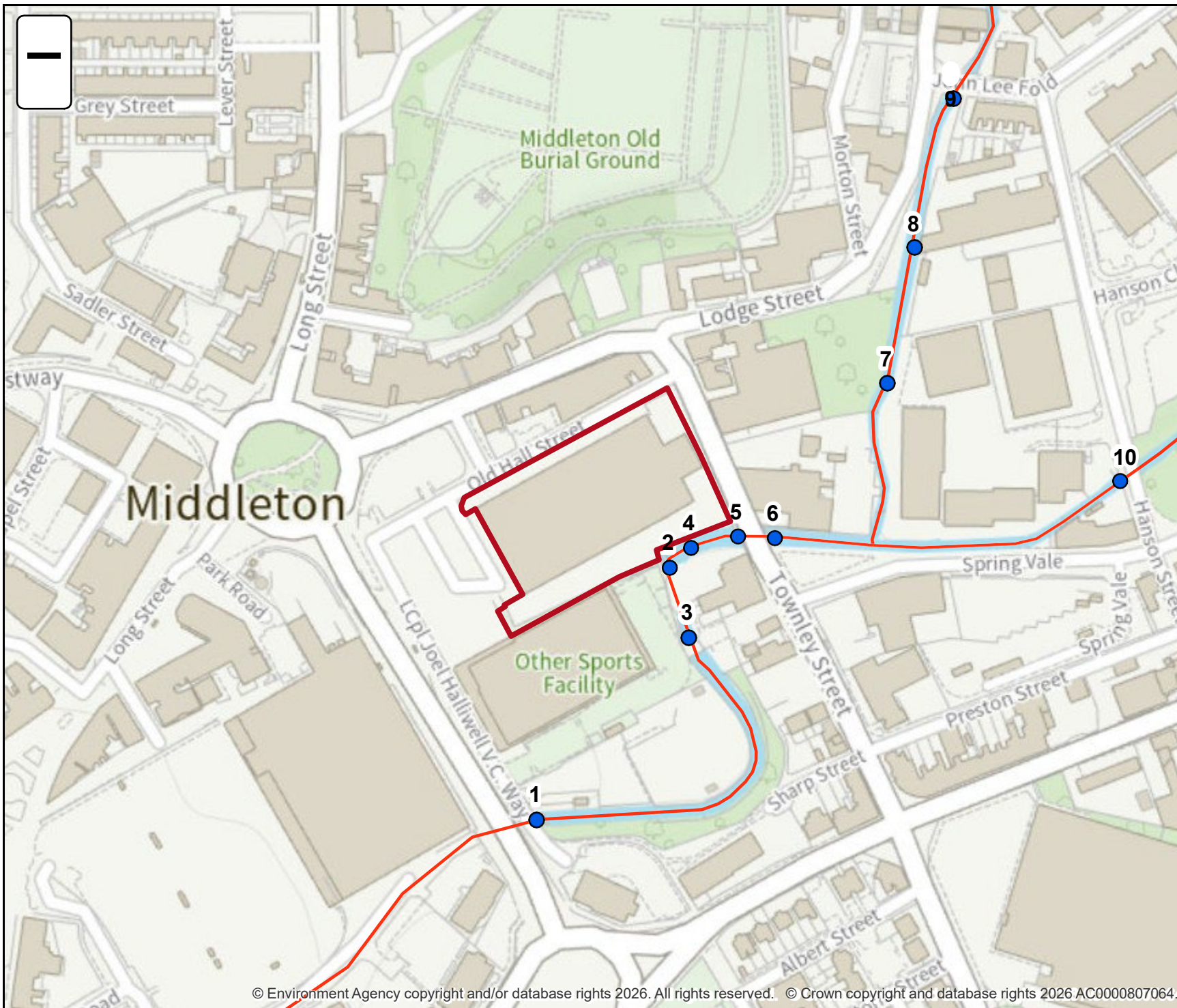
Defended

Label	Modelled location ID	Easting	Northing	1% AEP	1% AEP
				Level	Flow
1	1544383	387169	405847	78.08	21.39
2	1544647	387233	405969	79.44	21.38
3	1544628	387242	405935	79.17	21.38
4	1544616	387244	405979	81.03	21.38
5	1544509	387266	405984	81.10	21.38
6	1544400	387284	405983	81.10	21.38
7	1544381	387338	406058	81.38	5.08
8	1544361	387352	406124	81.87	5.08
9	1544391	387371	406196	82.24	5.08
10	1544625	387451	406011	82.17	17.73

Data in this table comes from the Irk, Moston and Whit Brook 2007 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.



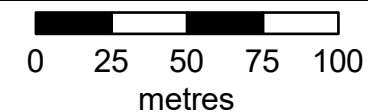
Defences removed modelled fluvial node locations

Location (easting/northing)
387198/405998

Scale Created
1:2,500 31 Mar 2026

Model name
**Irk, Moston and Whit
Brook 2007**

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

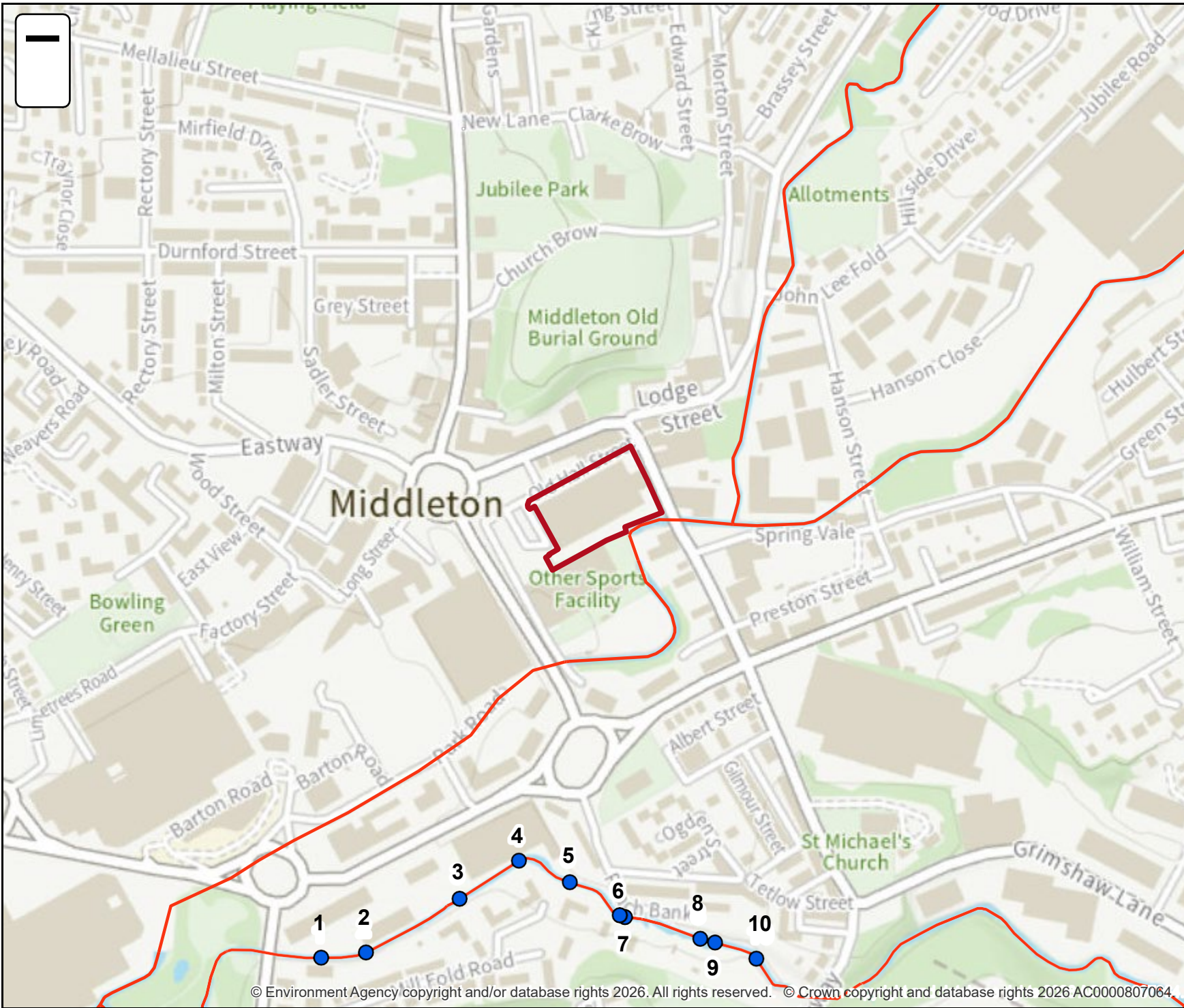
Defences removed

Label	Modelled location ID	Easting	Northing	1% AEP	0.1% AEP	1% AEP	0.1% AEP
				Level	Level	Flow	Flow
1	1544383	387169	405847	78.08	79.03	21.39	39.81
2	1544647	387233	405969	79.44	80.45	21.39	39.89
3	1544628	387242	405935	79.17	80.13	21.39	39.87
4	1544616	387244	405979	81.03	81.69	21.39	39.90
5	1544509	387266	405984	81.10	81.78	21.39	39.92
6	1544400	387284	405983	81.10	81.87	21.39	39.93
7	1544381	387338	406058	81.39	82.25	5.09	13.32
8	1544361	387352	406124	81.87	82.47	5.08	13.28
9	1544391	387371	406196	82.24	82.80	5.08	13.25
10	1544625	387451	406011	82.17	82.94	17.73	36.17

Data in this table comes from the Irk, Moston and Whit Brook 2007 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.



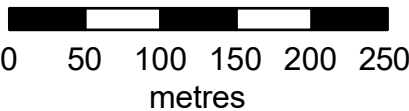
**No defences exist
modelled fluvial
node locations**

Location (easting/northing)
387198/405998

Scale Created
1:5,000 31 Mar 2026

Model name
Wince Brook 2017

-  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	951647	386932	405560	77.07	77.37	77.58	77.68	77.76	77.83	78.06	78.15	78.21	78.76	78.88
2	951609	386976	405565	77.30	77.54	77.72	77.84	77.90	77.97	78.10	78.16	78.22	78.74	78.76
3	951684	387066	405617	78.04	78.22	78.38	78.59	78.66	78.71	78.84	78.90	78.93	79.06	79.19
4	951679	387124	405653	78.44	78.62	78.77	78.96	79.03	79.08	79.23	79.28	79.32	79.58	79.73
5	951613	387173	405632	78.61	78.78	78.92	79.09	79.16	79.22	79.36	79.42	79.46	79.77	79.98
6	951639	387222	405601	78.93	79.08	79.20	79.41	79.47	79.52	79.65	79.71	79.75	80.39	80.67
7	951617	387227	405599	78.93	79.08	79.20	79.69	79.73	79.76	79.83	79.87	79.90	80.48	80.80
8	951692	387300	405578	79.45	79.62	79.75	79.97	80.02	80.06	80.17	80.22	80.24	80.54	80.71
9	951587	387314	405574	79.42	79.58	79.71	79.93	79.98	80.02	80.13	80.18	80.20	80.48	80.66
10	951616	387354	405559	79.54	79.67	79.77	79.95	79.99	80.02	80.11	80.15	80.18	80.49	80.66

Data in this table comes from the Wince Brook 2017 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.

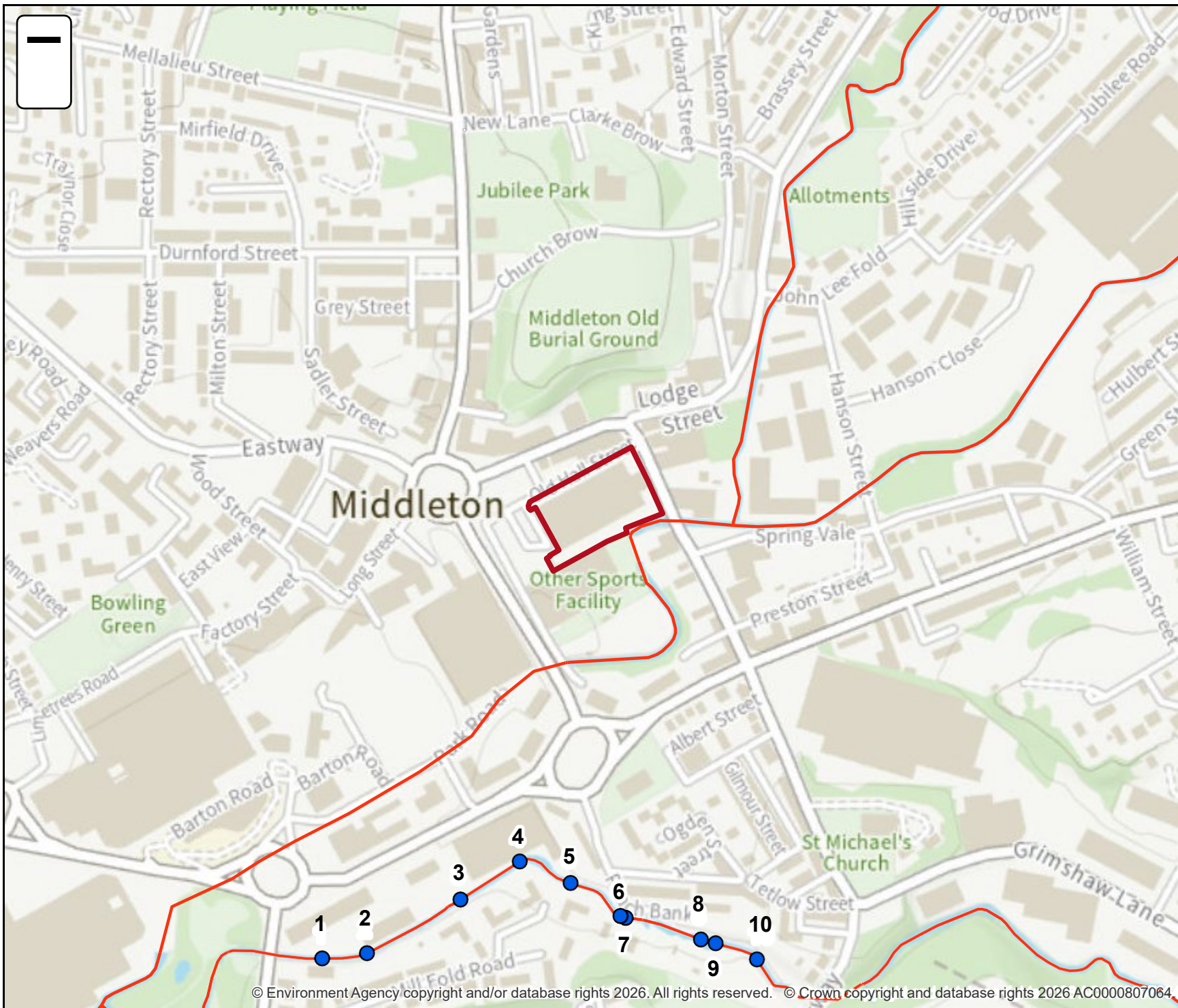
No defences exist

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	951647	386932	405560	11.39	14.33	16.86	20.05	21.14	22.18	24.07	25.0	25.60	32.64	36.87
2	951609	386976	405565	11.39	14.33	16.86	20.11	21.36	22.55	25.42	26.44	26.99	34.51	41.06
3	951684	387066	405617	11.28	14.18	16.66	19.86	21.08	22.29	25.46	26.78	27.63	38.51	45.60
4	951679	387124	405653	11.28	14.18	16.67	19.87	21.09	22.28	25.47	26.79	27.63	38.54	45.62
5	951613	387173	405632	11.18	14.02	16.47	19.62	20.82	22.01	25.13	26.40	27.25	38.04	44.84
6	951639	387222	405601	11.18	14.02	16.48	19.62	20.82	22.01	25.13	26.38	27.17	33.27	32.46
7	951617	387227	405599	11.18	14.02	16.48	19.62	20.82	22.01	25.13	26.38	27.17	33.27	32.46
8	951692	387300	405578	11.18	14.02	16.46	19.64	20.82	21.98	24.96	26.18	26.99	38.39	45.26
9	951587	387314	405574	11.18	14.02	16.46	19.64	20.84	22.03	25.14	26.41	27.26	39.22	46.46
10	951616	387354	405559	11.18	14.03	16.46	19.64	20.85	22.03	25.14	26.41	27.26	39.24	45.02

Data in this table comes from the Wince Brook 2017 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.



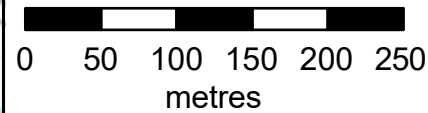
**No defences exist
climate change
modelled fluvial
node locations**

Location (easting/northing)
387198/405998

Scale Created
1:5,000 31 Mar 2026

Model name
Wince Brook 2017

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

No defences exist climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
				Level	Level	Level	Level
1	951647	386932	405560	78.76	78.77	78.82	78.94
2	951609	386976	405565	78.75	78.76	78.77	78.82
3	951684	387066	405617	79.06	79.07	79.16	79.23
4	951679	387124	405653	79.58	79.59	79.69	79.80
5	951613	387173	405632	79.77	79.78	79.89	80.08
6	951639	387222	405601	80.40	80.41	80.58	80.77
7	951617	387227	405599	80.50	80.52	80.70	80.90
8	951692	387300	405578	80.54	80.55	80.65	80.79
9	951587	387314	405574	80.49	80.50	80.60	80.72
10	951616	387354	405559	80.49	80.50	80.59	80.74

Data in this table comes from the Wince Brook 2017 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.

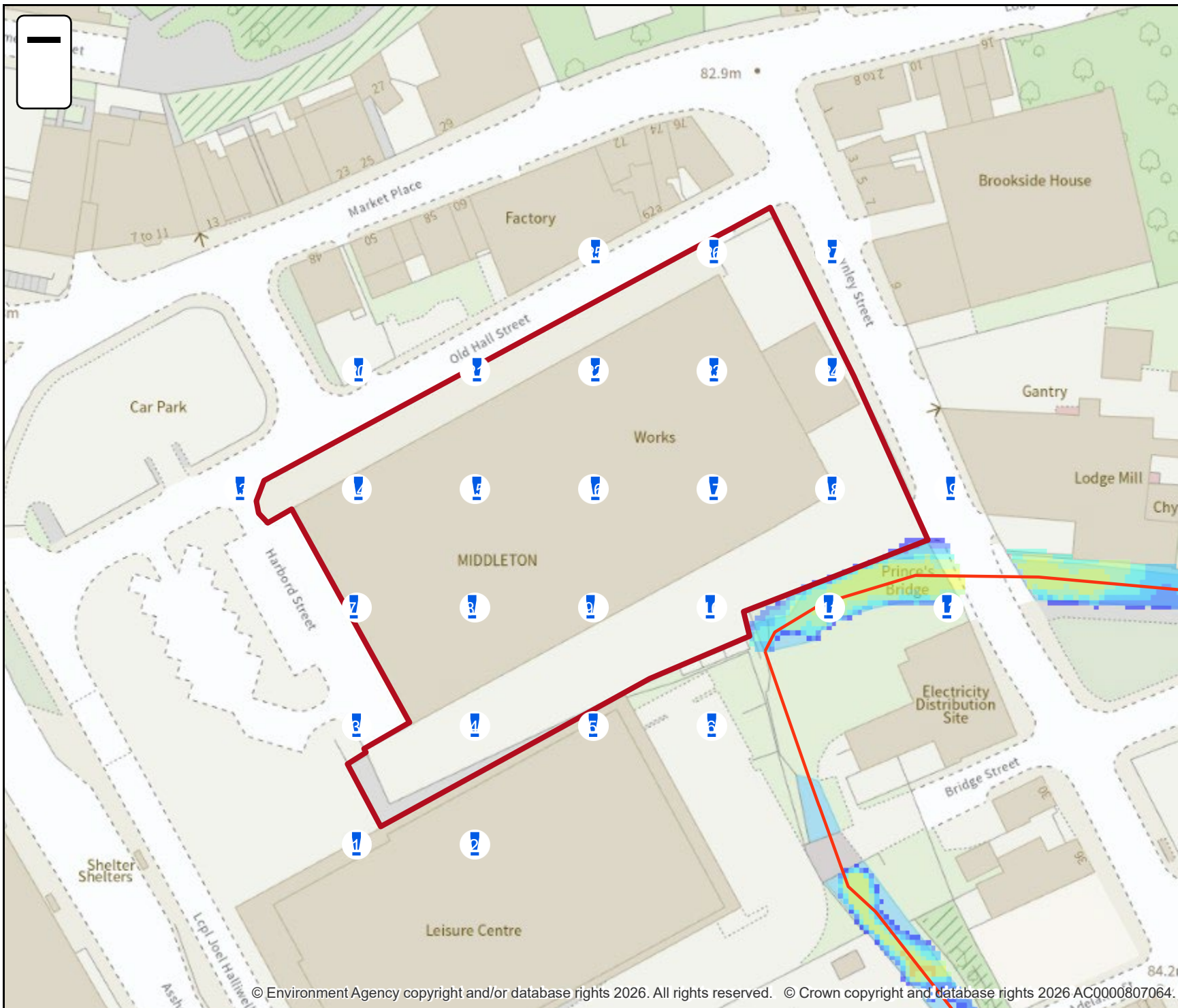
No defences exist climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
				Flow	Flow	Flow	Flow
1	951647	386932	405560	32.50	32.61	35.12	39.03
2	951609	386976	405565	34.25	34.37	38.18	43.35
3	951684	387066	405617	38.68	38.92	42.46	49.12
4	951679	387124	405653	38.69	38.96	42.46	49.12
5	951613	387173	405632	38.15	38.41	41.83	48.24
6	951639	387222	405601	32.82	33.26	33.77	34.07
7	951617	387227	405599	32.82	33.26	33.77	34.07
8	951692	387300	405578	38.54	38.89	41.72	49.36
9	951587	387314	405574	39.40	39.71	42.75	50.84
10	951616	387354	405559	39.70	40.01	41.92	48.59

Data in this table comes from the Wince Brook 2017 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.



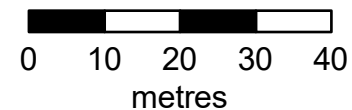
Location (easting/northing)
387198/405998

 Selected area

 Main river

0 - 0.375
0.375 - 0.75
0.75 - 1.125
1.125 - 1.5
1.5 - 1.875
1.875 - 2.25
2.25 - 2.625
2.625 - 3.0
3.0 - 3.375

This map shows the 0.1% AEP depth data



Sample point data

Defences removed

Label	Easting	Northing	0.1% AEP
			Depth
1	387152	405932	NoData
2	387175	405932	NoData
3	387152	405955	NoData
4	387175	405955	NoData
5	387198	405955	NoData
6	387221	405955	NoData
7	387152	405978	NoData
8	387175	405978	NoData
9	387198	405978	NoData
10	387221	405978	NoData
11	387244	405978	1.88
12	387267	405978	NoData

Label	Easting	Northing	0.1% AEP
			Depth
13	387129	406001	NoData
14	387152	406001	NoData
15	387175	406001	NoData
16	387198	406001	NoData
17	387221	406001	NoData
18	387244	406001	NoData
19	387267	406001	NoData
20	387152	406024	NoData
21	387175	406024	NoData
22	387198	406024	NoData
23	387221	406024	NoData
24	387244	406024	NoData

Label	Easting	Northing	0.1% AEP
			Depth
25	387198	406047	NoData
26	387221	406047	NoData
27	387244	406047	NoData
Max value in selected area:			0.62

Data in this table comes from the Irk, Moston and Whit Brook 2007 model. Height values are shown in mAOD, and depth values are shown in metres. Any blank cells show where a particular scenario has not been modelled for this location.

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

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

Strategic flood risk assessments

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

This should give you information about:

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

Your Lead Local Flood Authority is Rochdale 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](#)

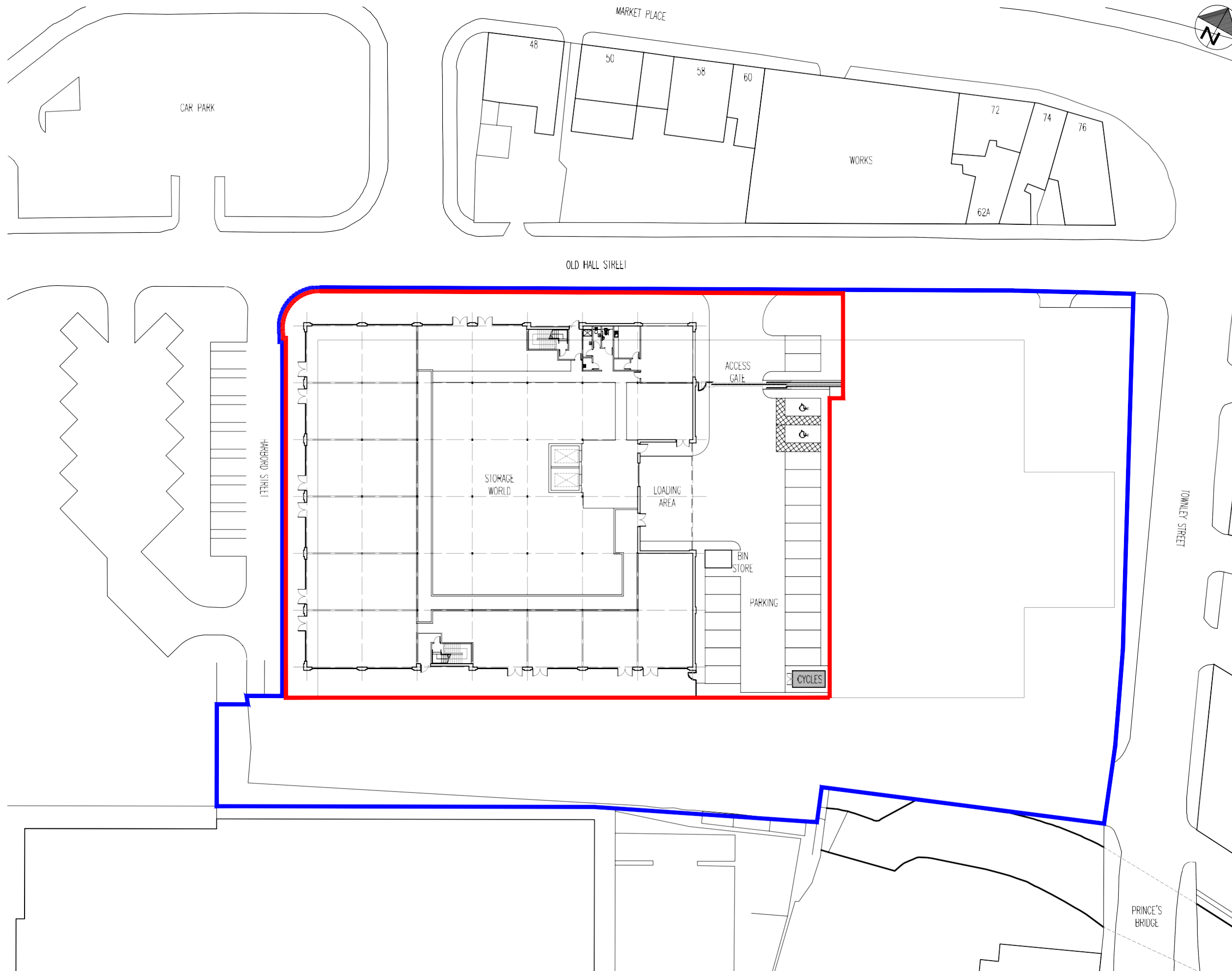
Help and advice

Contact the Greater Manchester Merseyside and Cheshire Environment Agency team at inforequests.gmmc@environment-agency.gov.uk for:

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



Appendix B – Proposed Site Layout



SCHEDULE OF ACCOMMODATION:

- EXISTING OWNERSHIP BOUNDARY
- 1.99 ACRES
- PROPOSED DEVELOPMENT BOUNDARY
- 1.00 ACRES

Rev	Description	Date	By	Chk
-----	-------------	------	----	-----

Status		Purpose for Issue		
Planning	☐	Tender	☐	INFORMATION
Construction	☐	As Built	☐	

Client
STORAGE WORLD

Contract
PROPOSED DEVELOPMENT
STORAGE WORLD
MIDDLETON

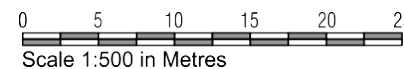
Drawing
PROPOSED SITE PLAN



macintosh house
4a cambridge street
manchester m1 5gg
tel: 0161 236 0999
fax: 0161 236 0404
mail@bate-taylor.co.uk

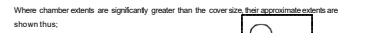
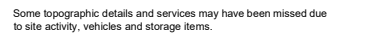
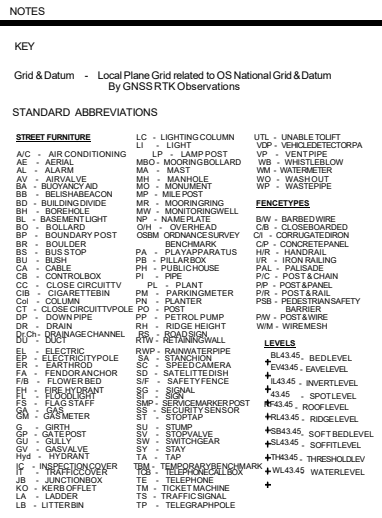
Drawing No. MH1463-SK05 Revision /
Scales 1:500 @ A3 Date MAY '26
Drawn LT Checked GB

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DO NOT scale from this drawing.





Appendix C – Topographical Survey



UTILITY SURVEY NOTES

Rev	Date	Drawn	Description	Chkd	A



Title

STORAGE WORLD
OLD HALL ST, MIDDLETON
MANCHESTER M24 1AG

TOPOGRAPHICAL SURVEY
SHEET 1 OF 1

Surveyed	JP	Drawn	AM	Drawn Date: 27/06/2022
Checked	BW	Approved	NDO	
Scale 1:250 @ A1		Project 11883		Status
		CAD File \\NDO-083\\p\\dwg\\11883\\DRAWING2\\1183_01.DWG		ORI
Drawing No				Rev

