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10 Deerpark Road,

Whalley Range, Manchester

M16 8FR

Proposed Residential Extension

Flood Risk Assessment & Drainage Strategy

For: Hilltop Realty Ltd

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1.0

INTRODUCTION

- 1.1 This Flood Risk Assessment & Drainage Strategy report has been prepared by Shaw Stephens Consulting on behalf of Hilltop Realty Ltd. This document has been prepared to support the full planning application for the proposed rear extension to the existing site dwelling along with associated external works (refer to Appendix 3 for details).
- 1.2 The objective of the Flood Risk Assessment & Drainage Strategy report is to identify potential flooding issues and proposed surface / foul water drainage strategies for the development site. Any consequent implications on the proposed development site are also discussed. This report has been prepared with reference to the current Manchester LLFA guidelines.
- 1.3 The document has been prepared in accordance with the pro-forma guidance contained in:
 - i) Department for Communities and Local Government document 'National Planning Practice Guidance: Flood Risk and Coastal Change'
 - ii) National Standards for Sustainable Drainage Systems (NSSDS) (2025)
 - iii) Greater Manchester Level 2 Hybrid Strategic Flood Risk Assessment by JBA Consulting dated October 2020.
 - iv) Manchester City Council Developer Design Guidance – Sustainable Drainage Systems
 - v) CIRIA C753 The SuDS Manual
 - vi) DEFRA / Environment Agency publication SC030219 'Rainfall Runoff Management for Developments' dated October 2013.

2.0 NOTES ON LIMITATIONS

- 2.1 Shaw Stephens Consulting has prepared this report solely for the use of Hilltop Realty Ltd.
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- 2.5 It should be noted that some of the elements covered in this report may be subject to change over time. Therefore, if the development is delayed or postponed, it may be necessary to consider reviewing such matters to verify that there have been no changes either at the subject site or in relation to pertinent legislation.
- 2.6 Further consultations with statutory bodies will evidently be required as the project progresses. Where responses have been received from Regulators, it is noted that the nature of these responses could be subject to change in the future.

3.1 Site Location and Description

The site is located in a residential area on Deerpark Road, Whalley Range, Manchester M16 8FR at Ordnance Survey reference 383238, 395271 as shown on the site plans in Appendices 1 and 2.

The plot is surrounded by residential properties to the north, east and west with Deerpark Road forming the southern site boundary.

The site is relatively flat with levels varying between 29.9 metres and 30.7 metres above Ordnance Datum (m AOD) over the entire plot. The existing topographical survey can be found in Appendix 4.

The nearest open watercourse to the site is Platt Brook which is located circa 1.5km to the south of the site through a series of third party land ownerships.

3.2 Hydrology and Flooding

Detailed flood risk assessment data was procured for the plot from the Environment Agency in October 2025 (refer to Appendix 5 for details).

The undefended modelled scenarios with respect to both Chorlton Platt Gore to the south of the site and Corn Brook to the north of the site demonstrate that the site is not at risk from fluvial flooding in the 1 in 100 year plus climate change event. The detailed flood risk information in Appendix 5 shows that the site is 'dry' in the 1 in 100 year plus climate change event and in the 1 in 1000 year event. The detailed flood risk information has been used to assess fluvial flood risk at the site as opposed to the Flood Map for Planning which does not yet reflect the findings of the detailed flood risk assessment data.

The 2025 Flood Map for Planning indicates elevated surface water flooding within the envelope of the proposed rear extension (refer to Appendices 3 and 5 for details). A review of the long-term flood risk mapping indicates that the area of the proposed rear extension lies in an area with a low chance (between 1 in 100 and 1 in 1000) of surface water flooding in a climate change (2040-2060) event – accordingly, no surface water compensatory storage is considered to be required.

A robust masonry wall extends around the rear garden to this property and will evidently arrest any flow of water into this residential plot from the north hence only rainfall falling on the site will be present i.e. there will be no ‘real world harm’ from such a rainfall event as site rainfall will be catered for via the plot drainage system (refer to topographical survey in Appendix 4 for details). The surface water mapping on the Flood Map for Planning (FMfP) therefore appears to be erroneous with the perimeter wall around the rear of the plot preventing surface water, which is shown to originate from the north and north west, from entering the plot. The topographical survey in Appendix 4 indicates that the rear garden of the plot forms a shallow ‘bowl’ adding further evidence to why water from pluvial events will remain on site.

The long-term flood risk mapping indicates reservoir flooding when river levels are ‘normal’. The risk of such an occurrence is however deemed to be very low on the basis of the stringent controls under which large reservoirs operate and the fact that there have been no fatalities from reservoir flooding since 1925.

3.3 Existing Sewer Network

The United Utilities sewer plan in Appendix 6 indicates the following adopted sewer infrastructure within / adjacent to the site:

- 939mm diameter gravity combined water sewer extending from north east to south west beneath Deerpark Road.
- 375mm diameter gravity combined water sewer extending from north east to south west beneath Deerpark Road.

4.1 Nature of Development

A full planning application has been submitted for a proposed rear extension to the existing site dwelling at 10 Deerpark Road along with associated external works (refer to Appendix 3 for details).

4.2 Surface Water Drainage

The issue of surface water drainage to the proposed development has been considered with reference to the hierarchy of surface water disposal as noted in the Building Regulations H3:

- i) Sustainable Urban Drainage Systems (SUDS).
- ii) Discharge of surface water off site direct to watercourse.
- iii) Discharge to adopted sewer.

SUDS are made up of one or more structures built to manage surface water runoff. They are used in conjunction with good management of the site to prevent flooding and pollution. There are four general methods of control:

- Filter strips and swales
- Filter drains and permeable surfaces
- Infiltration devices
- Basins and Ponds

A study of available British Geological Society records indicates the site to be underlain by drift deposits of Devensian Glaciofluvial Sheet deposits which are in turn underlain by solid Wilmslow Sandstone deposits.

On the basis of the above BGS records, a soakaway test was undertaken at the site in line with the requirements of BRE Digest 365. A soil infiltration rate of 6.43 x 10⁻⁷ was achieved which is considered insufficient for post-development surface water infiltration techniques (refer to Appendix 7 for details).

Working in line with the hierarchy of surface water discharge, the nearest open watercourse to the site is Platt Brook which lies circa 150m to the south of the site. The watercourse lies remote from the subject site through multiple third party land ownerships hence discharge to open watercourse is not considered to be a viable post-development surface water drainage option.

On the basis of the above consideration of i) surface water infiltration drainage techniques and ii) discharge to open watercourse, it is therefore proposed to discharge suitably attenuated site surface water to the 939mm diameter adopted gravity combined sewer that extends adjacent to the property beneath Deerpark Road, potentially using the existing connection to this sewer from the property.

In the post-development scenario, it is proposed to discharge post-development surface water to the above noted 939mm diameter combined sewer at 2 litres per second (refer to Appendix 8 and 9 for details). The above proposals are naturally all subject to agreement with Manchester Lead Local Flood Authority.

Based on the residential nature of this proposed site development, a climate change factor of 45% on peak rainfall intensity will be adopted.

The post-development surface water drainage strategy will naturally need to be agreed in principle with Manchester Lead Local Flood Authority. Ultimately, the final design of the drainage system will be subject to the finalised site arrangement, further targeted site investigation and subsequent development of a detailed drainage scheme.

The post-development surface water drainage system will be designed to ensure that:

- There is no surcharge in the 1 in 1 year event:
- Surface water flows remain on site up to a 1 in 100 year + 45% climate change storm event.
- Sufficient surface water storage will be available to ensure there is no risk to property

4.3 National Planning Policy Framework and Technical Guidance

The residential site development proposals are classed as 'more vulnerable' in Table 2 of the Flood Risk and Coastal Change guidance.

'More vulnerable' developments in Flood Zone 1 are classed as appropriate according to Table 3 of the Flood Risk and Coastal Change guidance.

Proposed post development levels will be engineered in order to protect the development and not provide any increased flood risk elsewhere.

Types of flooding that could affect the site are:

River - the site lies in Flood Zone 2 (note that review of detailed flood risk assessment data for the site shows that it remains 'dry' in a 1 in 100 year plus climate change event).

Sea – there is no risk of flooding from the sea.

Surface Water – the surface water mapping on the FMfP appears to be erroneous with the perimeter wall around the rear of the plot preventing surface water, which is shown to originate from the north and north west, from entering the plot.

Groundwater – there are no springs or weep areas on the site and a low associated risk of groundwater flooding.

Sewers – there have been no local reports of sewer surcharge.

4.4 Strategic Flood Risk Assessment and EA Mapping Review

From a review of Greater Manchester Level 2 Hybrid Strategic Flood Risk Assessment by JBA Consulting dated October 2020, the site does not lie in a Critical Drainage Area.

The 2025 Flood Map for Planning indicates elevated surface water flooding within the envelope of the proposed rear extension (refer to Appendices 3 and 5 for details). A review of the long-term flood risk mapping indicates that the area of the proposed extension lies in an area with a low chance (between 1 in 100 and 1 in 1000) of surface water flooding in a climate change event (2040 to 2060) – accordingly, no surface water compensatory storage is considered to be required.

A robust masonry wall extends around the rear garden to this property and will evidently arrest any flow of water into this residential plot from the north hence only rainfall falling on the site will be present i.e. there will be no 'real world harm' from such a rainfall event as site rainfall will be catered for via the plot drainage system (refer to topographical survey in Appendix 4 for details). The surface water mapping on the FMfP therefore appears to be erroneous with the perimeter wall around the rear of the plot preventing surface water, which is shown to originate from the north and north west, from entering the plot. The topographical survey in Appendix 4 indicates that the rear garden of the plot forms a shallow 'bowl' adding further evidence to why water from pluvial events will remain on site.

There are no records of historical flood events at the site and there is minimal residual fluvial risk at the development site.

4.5 Safe Access and Egress

Safe access / egress from the site in extreme conditions will be via the site entrance on Deerpark Road.

4.6 Foul Water Drainage

It is proposed to discharge post-development foul drainage from the proposed development site to the existing adopted 939mm diameter combined sewer adjacent to the site beneath Deerpark Road.

The foul drainage network will naturally comply with Building Regulations 2010 – Approved Document H1 and the calculations for post-development foul water discharge will be based on the Sector Guidance in relation to the adoption of sewerage assets by sewerage companies in England dated June 2022.

5.1 SuDS Requirements

SuDS measures are required on the proposed development to comply with the National Planning Policy Framework (NPPF), DEFRA Non-Statutory Technical Standards for Sustainable Drainage Systems and the Manchester City Council Developer Design Guidance – Sustainable Drainage Systems.

The key conceptual SuDS design criteria for the development are covered in Non-Statutory Technical Standards for Sustainable Drainage under sections S1 to S9.

Peak Flow Control

S2 of the DEFRA Technical Standards notes that for greenfield developments, the peak runoff from the development for the 1 in 1 year and 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same rainfall event.

Volume Control

Requirement S4 stipulates that the runoff volume in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.

Flood Risk within the Development

S7 notes that the drainage system shall be designed such that no flooding shall occur on any part of the site during a 1 in 30 year storm event whilst the S8 requirement stipulates that, during a 1 in 100 year enhanced rainfall event, no flooding of any building shall occur.

S9 also stipulates that site levels shall be designed such that flows which are as a result of rainfall events exceeding the 1 in 100 year enhanced rainfall event, are managed in exceedance routes that minimise the risks to people and property.

Water Quality

In addition to the above measures contained within the DEFRA guidance addressing water quantity issues, designing for water quality is also a requirement of the on-site SUDS measures. Reference is made to CIRIA Report 'C753 – The SUDS Manual', specifically Chapters 4 and 26.

5.2 Proposed SUDS Methodology and Drainage Design Principles

As detailed in section 4.2, discharge of surface water direct to the ground in the form of infiltration measures is deemed infeasible due to the relatively impermeable ground conditions (refer to Appendix 7 for details).

Given the remoteness of the nearest open watercourse through multiple third party land ownerships, it is therefore proposed to discharge post-development surface water, attenuated to 2 litres per second (refer to Appendix 9 for details), to the adjacent adopted combined gravity 939mm diameter sewer beneath Deerpark Road.

Peak Flow Control

Flows from the development site are proposed to be limited to 2 litres per second.

Volume Control

The greenfield runoff rate (2 litres per second / Q_{bar}) will apply for all events (refer to Appendix 8 for details).

Flood Risk within the Development

It is proposed to accommodate the 1 in 100 year (enhanced) event volume below ground. Accordingly, this will ensure that criteria S7 and S8 are met.

The site is to discharge attenuated post-development surface water from the proposed development site through a flow control chamber to limit the discharge from the site development platform to 2 litres per second (refer to Appendix 8 and 9 for details). Downstream of the storage / flow control chamber, the attenuated surface water flow will discharge to the adjacent adopted combined gravity 939mm diameter sewer beneath Deerpark Road.

Water Quality

In assessing the level of treatment required to ensure sufficient water quality improvement prior to discharge to the combined sewer system beneath Deerpark Road, reference is made to Chapter 26 of CIRIA C753 – The SuDS Manual and the Manchester City Council Developer Design Guidance – Sustainable Drainage Systems.

It is recognised that post-development site water will discharge through the adopted combined sewer system and ultimately a wastewater treatment works. However, it is proposed that rainwater downpipes from the proposed rear extension roof are discharged to the adopted combined sewer system via water butts and SuDS planters. This is considered to be a responsible and proportionate SuDS proposal given the nature and scale of this proposed development.

5.3 Management and Maintenance of SuDS Drainage System

The management and maintenance of the above noted SuDS measures to serve the proposed development will be undertaken by the site owner. All parts of the drainage network are to be accessible and are to be constructed from materials that are suitable and robust for the lifetime of the development.

The maintenance activities required for the drainage network are as follows:

5.3.1 SuDS Planter Maintenance

- i) Clean and unblock leaves and debris from the overflow leaf guard. This is usually found on the opposite side of the downpipe, covered in shingle. During heavy rain, the planter will fill up with water and slowly drain out through the perforated pie at the bottom. When the soil is completely saturated, excess water will pool at the top and flow down the overflow pipe. However, if it is blocked, the water will have nowhere to go and may flood over the top of the planter.
- ii) Clean and remove rubbish, leaves and other debris from the top of the planter.

- iii) Top up of shingle layer when required. The shingle helps to keep the soil moist, suppress weeds, spread the rainwater from the downpipe and prevent soil flowing the overflow pipe causing blockages.

5.3.2 Flow Control

The maintenance for the flow control is as follows:

Operation	Frequency
Inspect and identify any areas that are not operating correctly, if required take remedial actions	Monthly for three months then at six monthly intervals
Debris removal from catchment surface (where it may cause risk to performance)	Monthly
Check control chamber for blockage or silt, algae or other matter by jetting	As required, but at least four times a year
Remove sediment from upstream drainage network and sediment from within manhole by jetting	As required, but at least twice a year
Repair / check all inlets and control mechanics	As required
Inspect / check all inlets and control mechanics to ensure that they are operating as designed	Twice a year as a minimum and after severe storm events

5.3.3 Flow Control Chamber Design Criteria

In addition to the above maintenance methods, the flow control chamber will be designed so it works effectively throughout the lifespan of the development and will have precautionary features to ensure maintenance work can be carried out promptly and efficiently to ensure no control failure which may otherwise subsequently lead to flooding.

Details of the flow control chamber are as follows:

- High Water Level Alarm: Alarm installed and directed to site maintenance team.
- Spares: Control spares to be kept on site for efficient maintenance.

5.3.4 Flood Routes

A visual monthly inspection of flood routes should be made in order to check that routes are not blocked by new fences, walls, soil or other rubbish with removal undertaken as necessary.

5.3.5 Spillage – Emergency Action

Most spillages on development sites are of compounds that do not pose a serious risk to the environment as they enter the drainage system in a slow and controlled manner with time available for natural breakdown in a treatment system.

Therefore, small spillages of oil, milk or other known organic substances should be removed where possible using soak mats as recommended by the Environment Agency with residual spillage allowed to bio-remediate in the drainage system.

In the event of a serious spillage, either by volume or of unknown or toxic compounds, then the spillage should be isolated using soil, turf or fabric and outlet pipes from chambers downstream of the spillage blocked with bungs. Bungs for blocking pipes may be made by wrapping soil or turf in a plastic sheet or close woven fabric. United Utilities and the Environment Agency should be contacted immediately.

5.3.6 Maintenance Activities

A log of all maintenance activities is to be kept and made available to the Local Planning Authority (LPA) and / or the Lead Local Flood Authority (LLFA) on request.

6.1 Flooding

The detailed flood risk information shows that the site is 'dry' in the 1 in 100 year plus climate change event and in the 1 in 1000 year event.

There are to be no off site surface water flood routes generated by the development during an enhanced 1 in 100 year storm. All surface water run-off will remain on site in the enhanced 1 in 100 year event.

6.2 Surface Water Drainage

The site is to discharge attenuated post-development surface water limited to 2 litres per second for all storm events.

Downstream of the flow control chamber, the attenuated surface water will discharge by gravity to the adjacent adopted combined sewer that extends beneath Deerpark Road.

6.3 Foul Water Drainage

It is proposed to discharge foul drainage from the proposed development site to the adopted combined sewerage system beneath Deerpark Road.

6.4 Flood Risk Management Measures

There will be a site management Health and Safety document prepared in respect of the site.

6.5 Off Site Impacts

All roofed and paved areas are to be drained into the site surface water drainage system. The design of the site surface water system will ensure that no off site flood flows are generated by the proposed site development platform in the enhanced 1% event.

6.6 Residual Risk

With careful design of the drainage elements as described above, there will be no residual flood related risks remaining after the development has been completed.

The detailed flood risk information shows that the site is 'dry' in the 1 in 100 year plus climate change event and in the 1 in 1000 year event.

A post-development safe emergency access can be maintained at all times during a flood event and emergency access will be from Deerpark Road.

APPENDIX

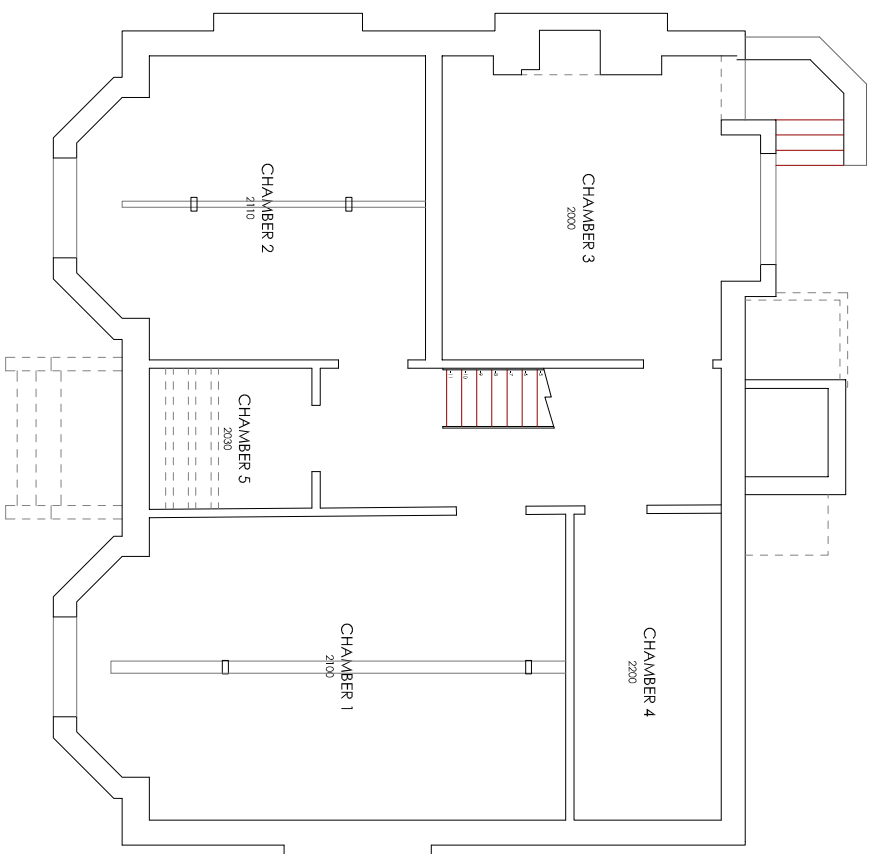
APPENDIX 1

SITE LOCATION PLAN

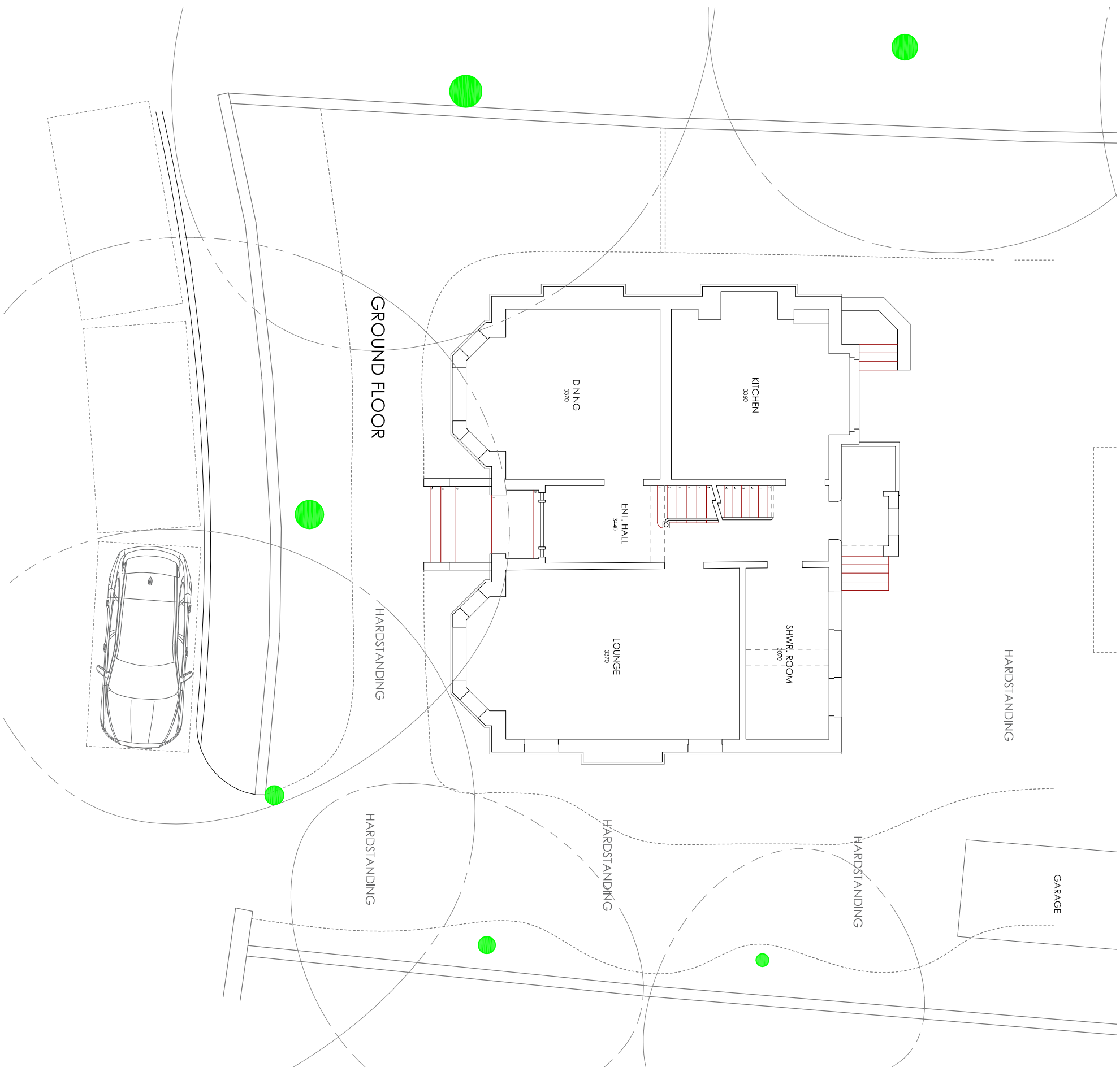


APPENDIX 2

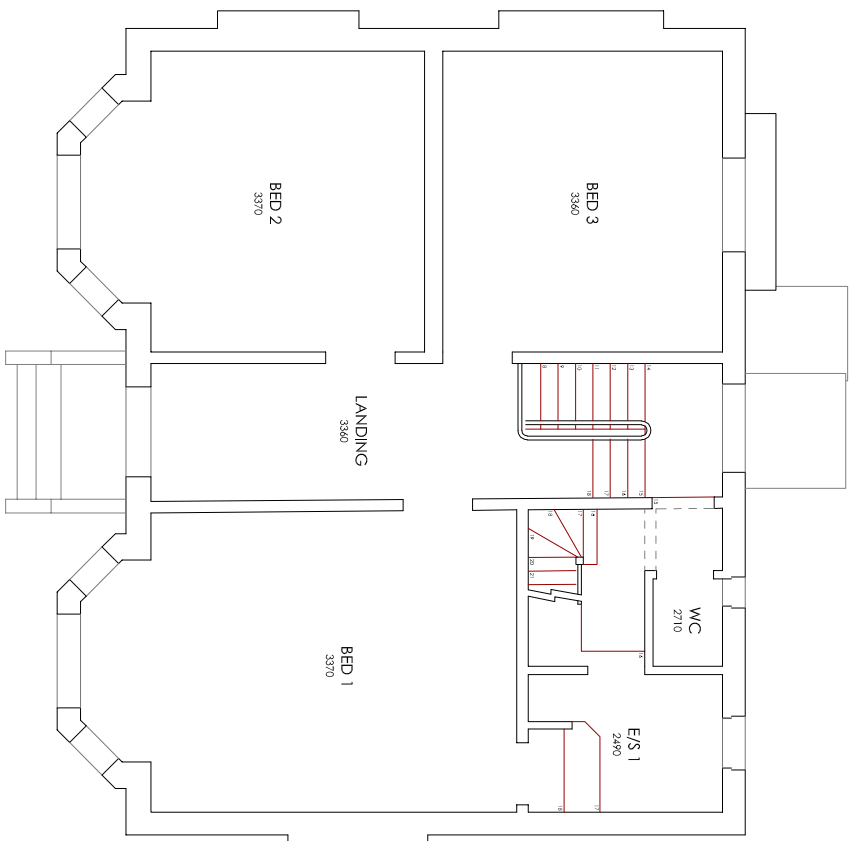
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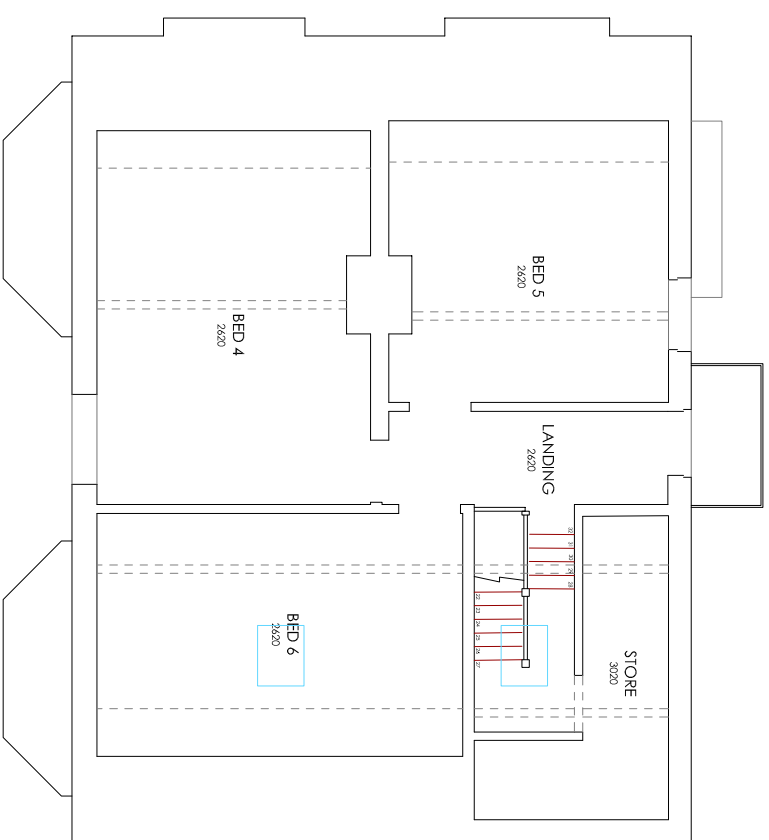
LOWER GROUND FLOOR



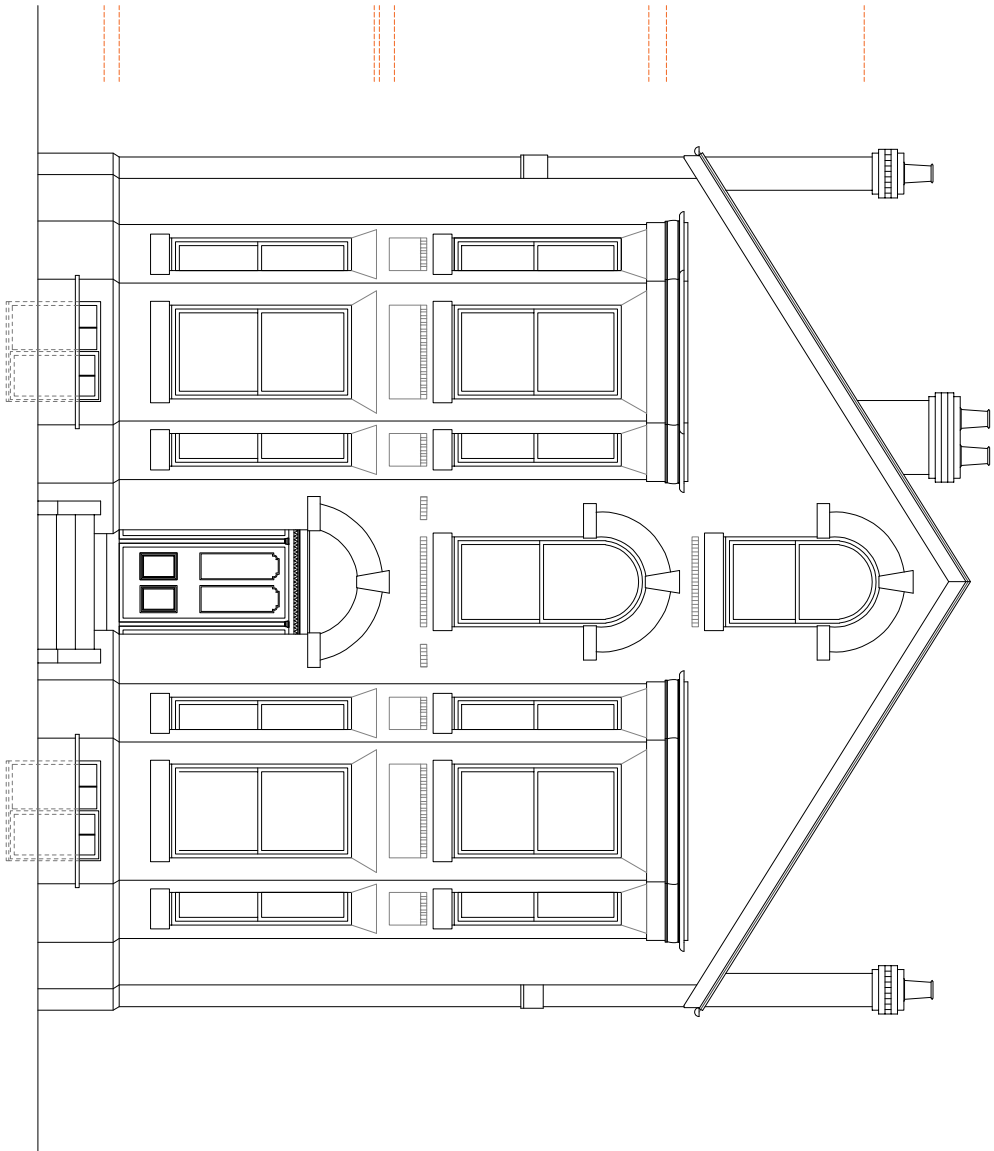
GROUND FLOOR



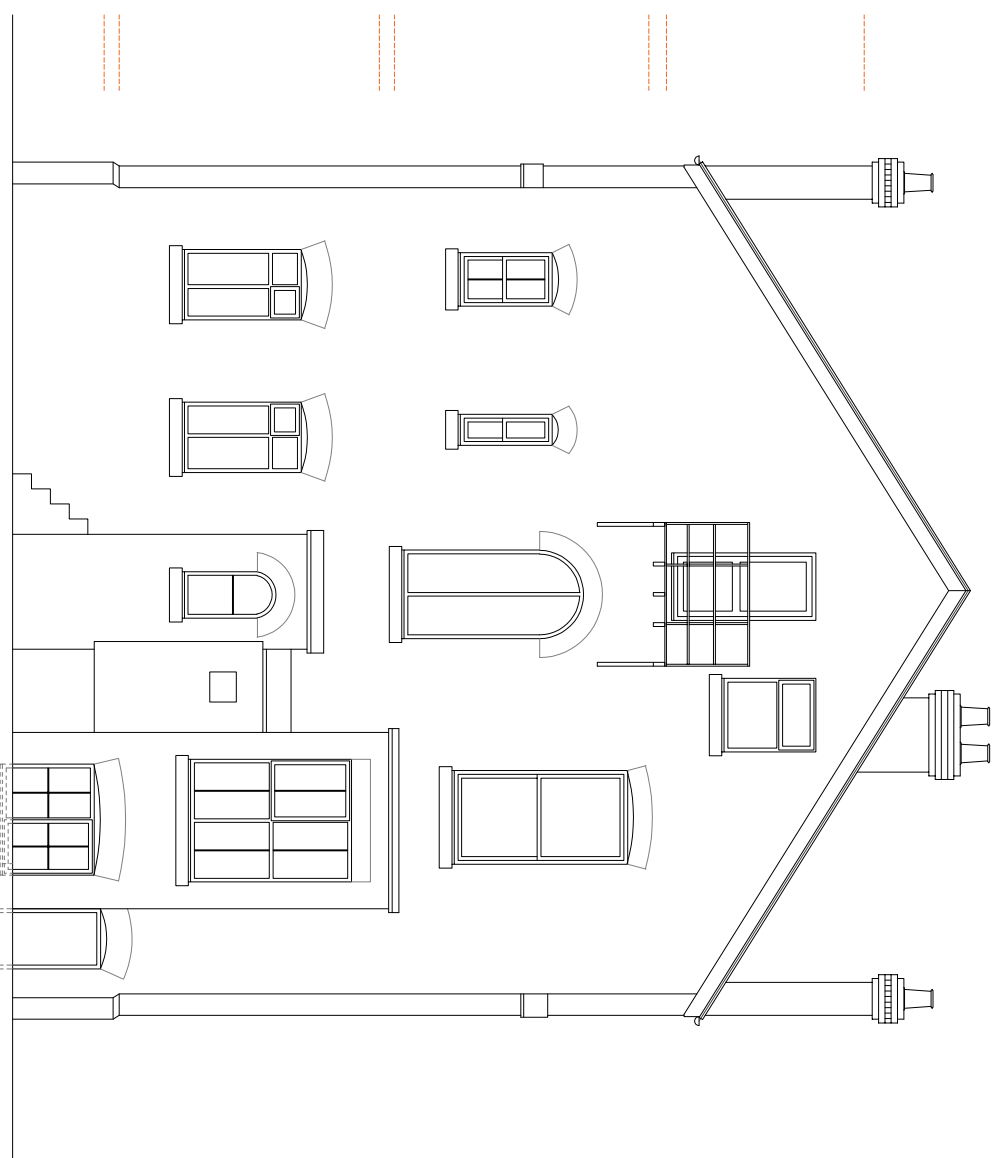
FIRST FLOOR



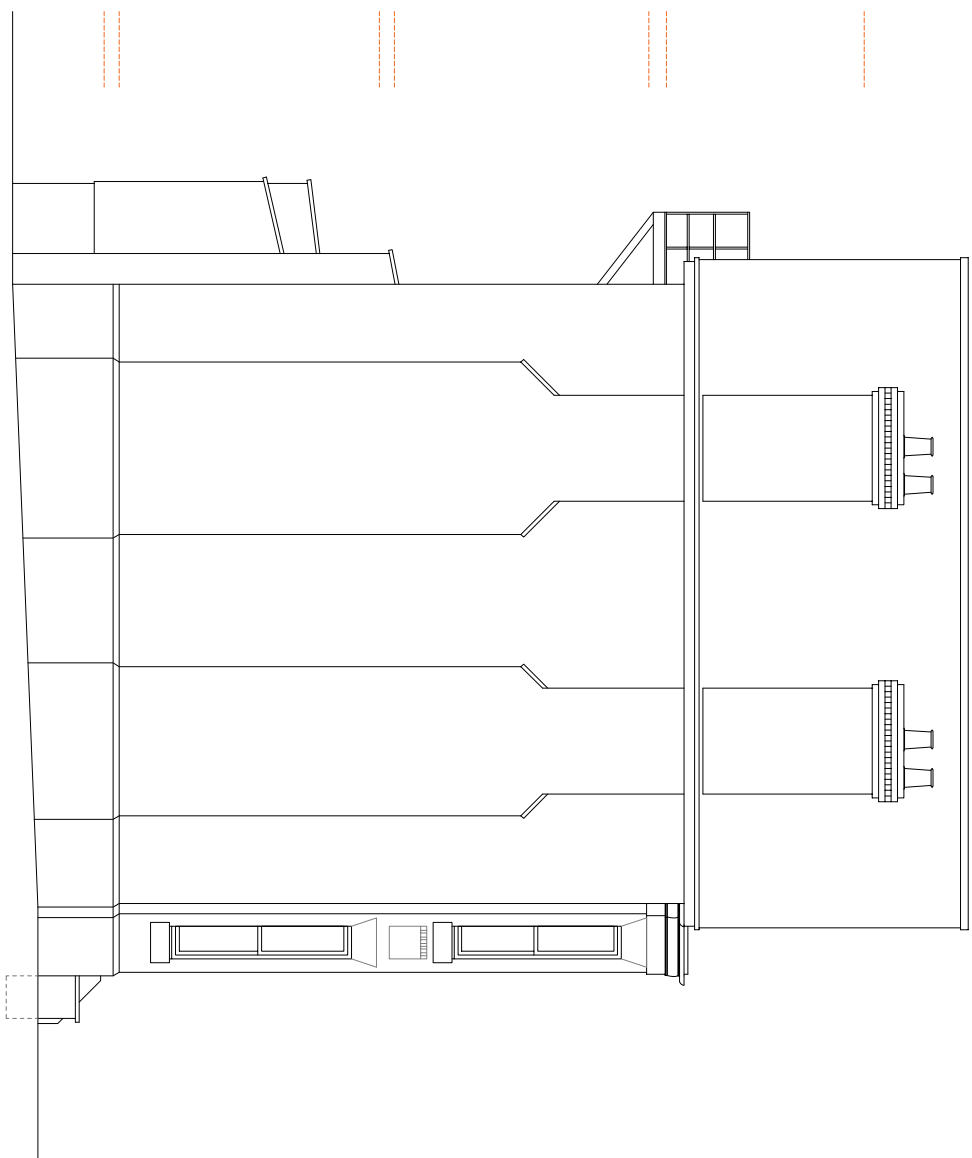
SECOND FLOOR



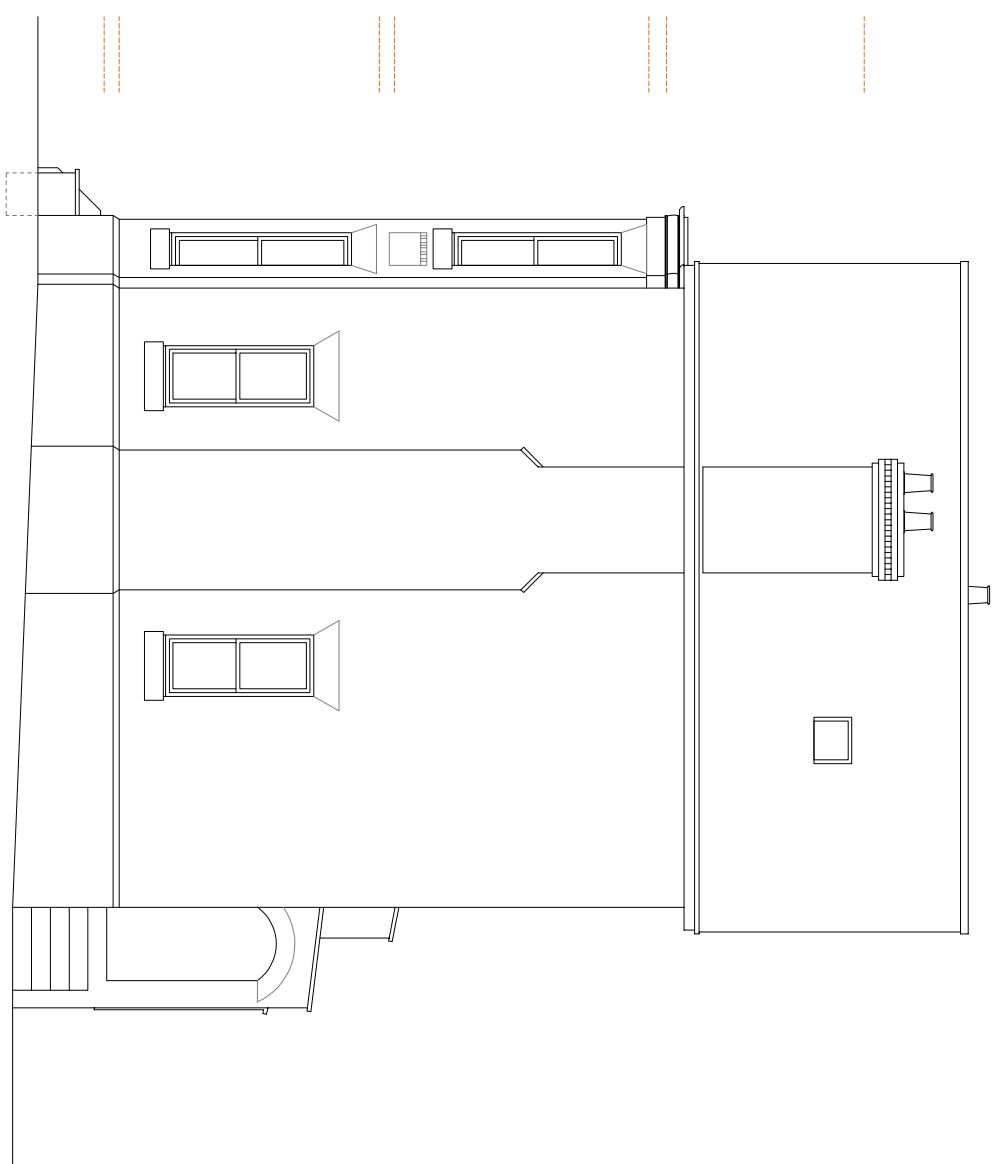
FRONT ELEVATION (SE)



REAR ELEVATION (NW)



SIDE ELEVATION (SW)



SIDE ELEVATION (NE)

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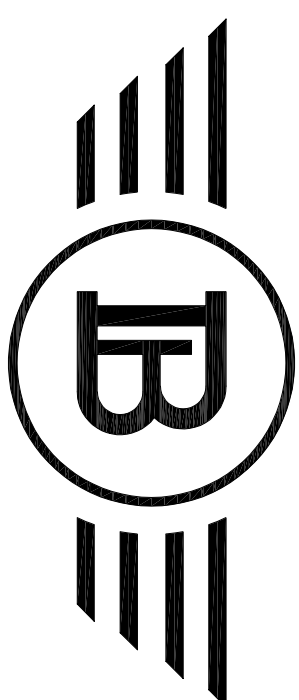
2.5 STOREY REAR EXTENSION
INTERNAL REMODELING
CHANGE OF USE TO FORM
6NO SELF-CONTAINED APARTMENTS

DRAWING TITLE

EXISTING FLOOR PLANS
& ELEVATIONS
PLANNING

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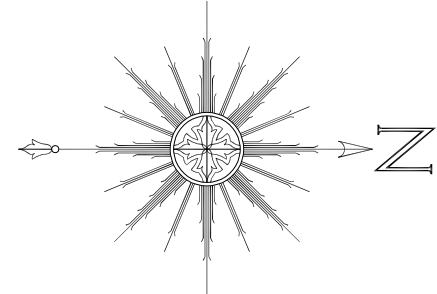
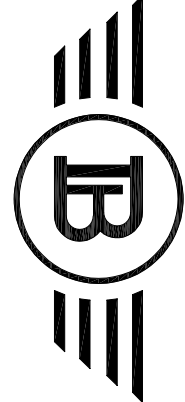


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APPENDIX 3

PROPOSED PLANS - SITE / FLOOR / LANDSCAPE



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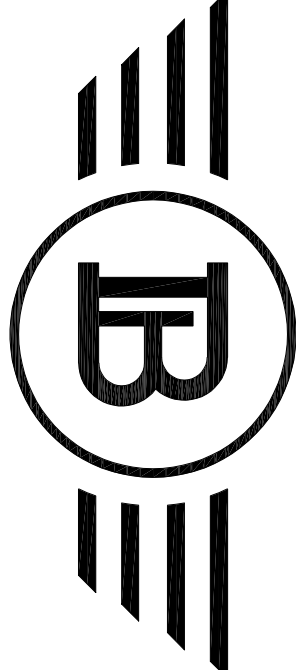
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2.5 STOREY REAR EXTENSION
INTERNAL REMODELING
CHANGE OF USE TO FORM
6NO SELF-CONTAINED APARTMENTS

PROPOSED SITE PLAN

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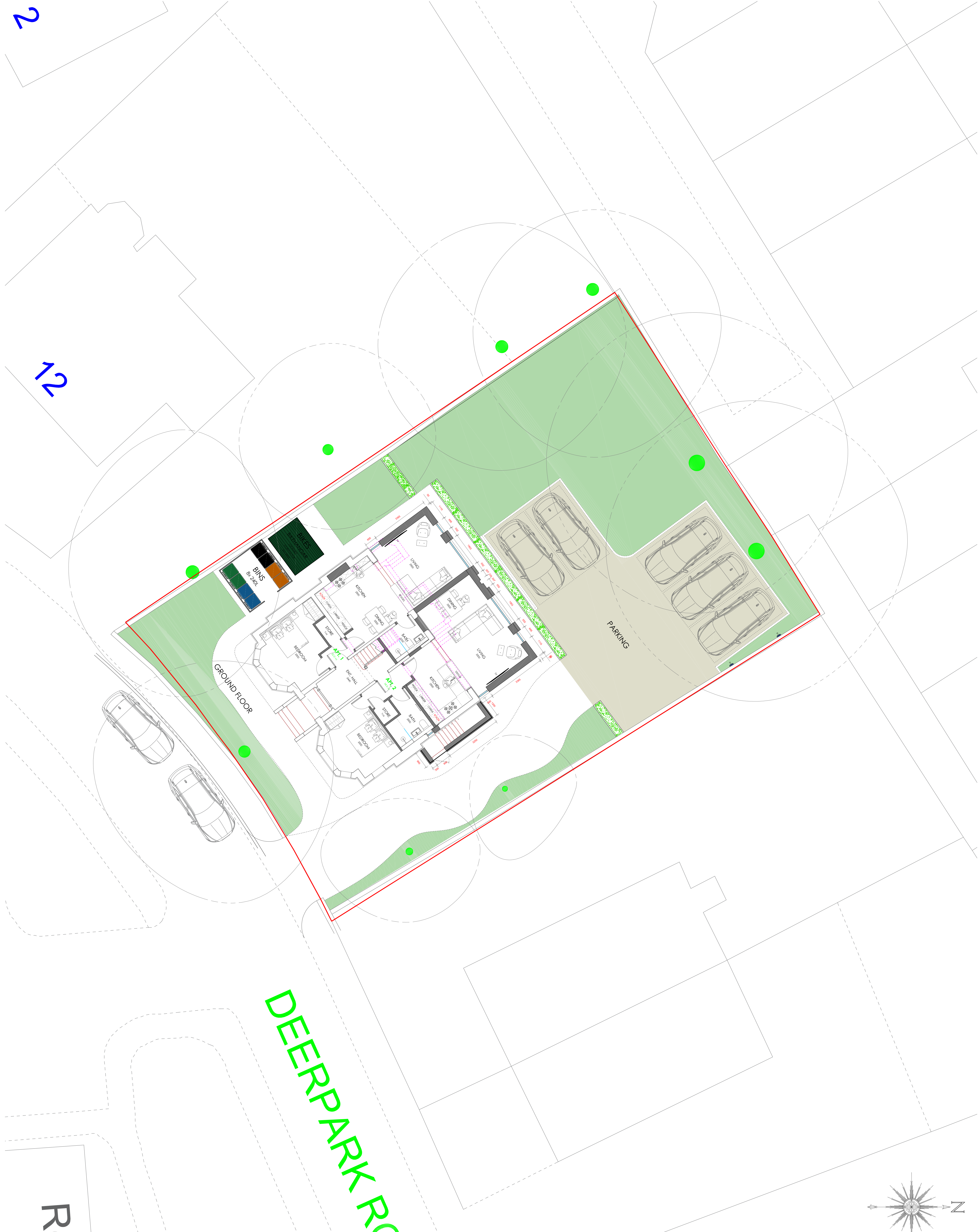
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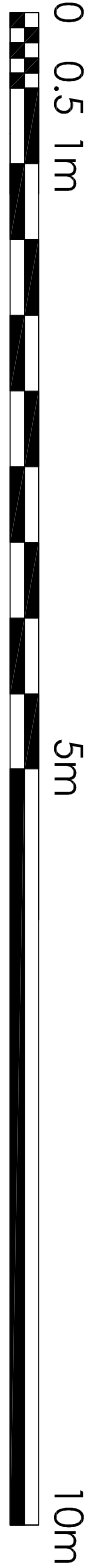
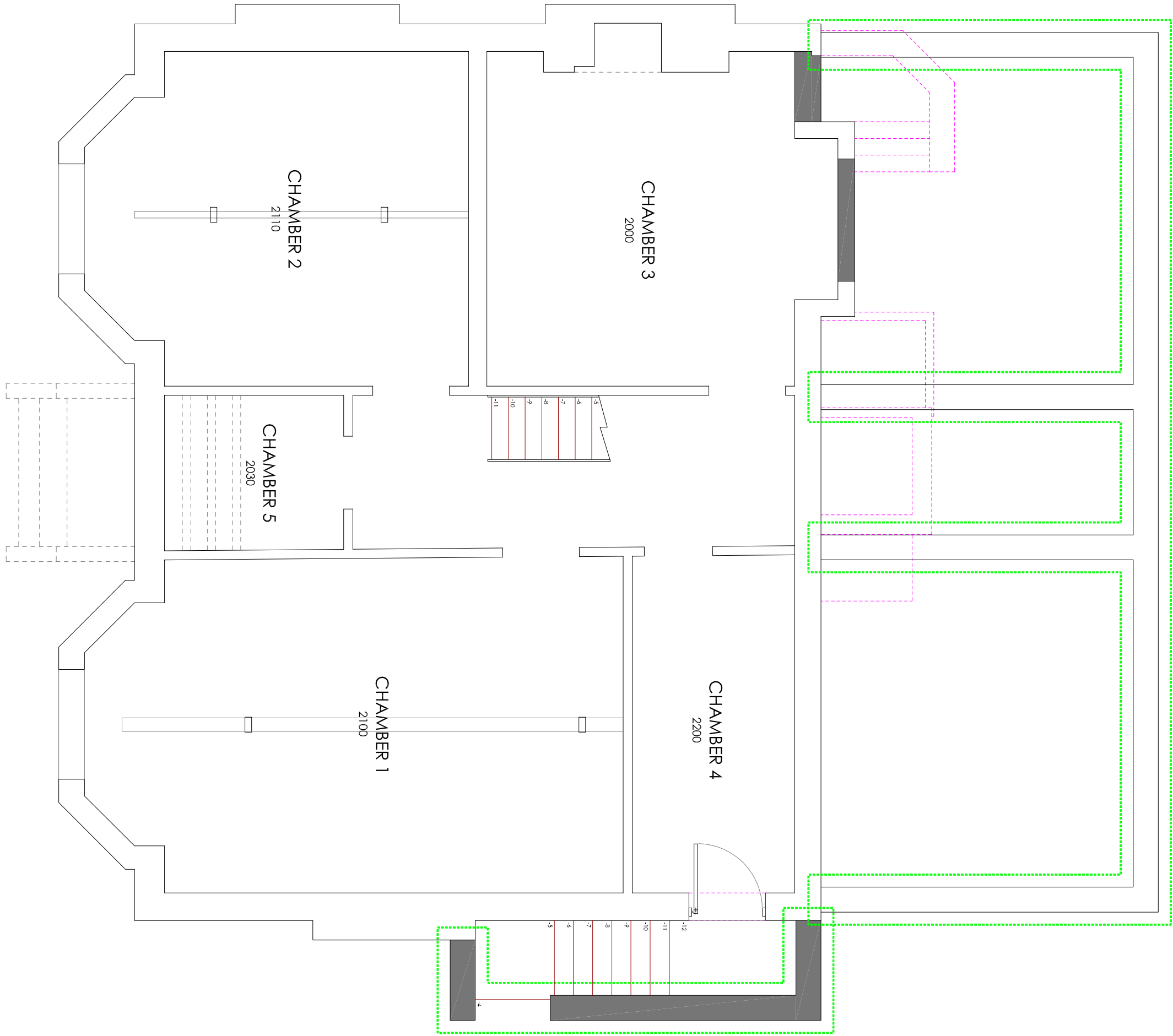
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DEERPARK ROAD

GROUND FLOOR

PARKING





LOWER-GROUND FLOOR



GROUND FLOOR

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PROJECT

2.5 STOREY REAR EXTENSION
INTERNAL REMODELLING
CHANGE OF USE TO FORM
6NO SELF-CONTAINED APARTMENTS

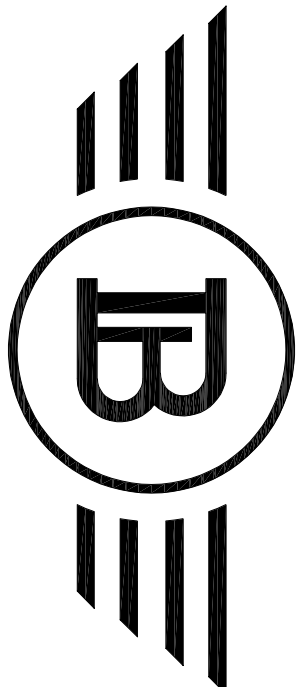
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PROPOSED FLOOR PLANS

PLANNING

ISSUED FOR PLANNING APPROVAL

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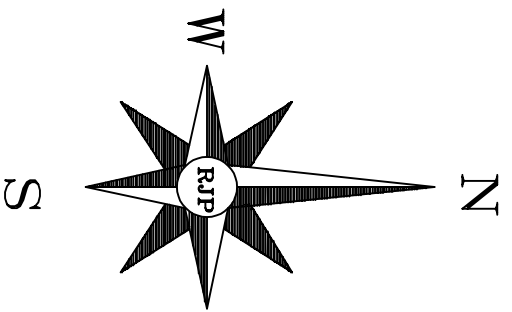


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APPENDIX 4

TOPOGRAPHICAL SURVEY



COORDINATED STATIONS			
STATION	EASTING	NORTHING	LEVEL (m)
A	383234.472	395255.222	30.051
B	383256.679	395269.571	30.106
C	383246.353	395258.365	30.110

ABBREVIATIONS.

AV	AIR VALVE/VENT	IC	INSPECT CHAMBER
BB	BRITISH BEACON	IKW	INSPECT KNOT WELD
BM	BENCH MARK	LH	LAMP HOLE
BS	BUS STOP	NP	NAME PLATE
BT	BRITISH TELECOM	MH	MANHOLE
DL	DOWN LEVEL	PS	POST/SCAN POST
Dis	DISPERSED	RE	RECORDING SERVICE
EL	EAVES LEVEL	RE	RECORDING EYE
EP	ELECTRICITY POLE	ST	STOP SIGN
FH	FIRE HYDRANT	TH	TRIAL HOLE
FL	FLOOR LEVEL	TP	TELEGRAPH POLE
FP	FLAG POLE	TV	CABLE TV BOX
G	GULLY	UN	UNDER WATER
GW	GW WATER		
OV	OVER WALK		

SYMBOLS

⚓	SURVEY STATION	🌳	TREE
—E—	O/H ELEC CABLE	⚓	BENCH MARK
—T—	O/H PHONE LINE	⚓	TRIAL PIT
TT	CANOPY/HEDGE	⚓	BORERHOLE

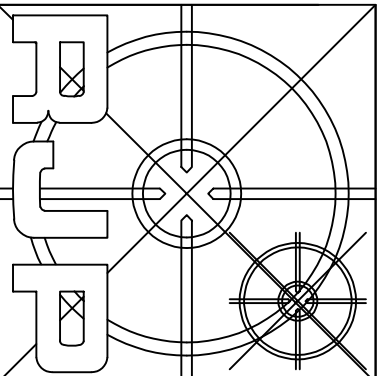
NOTES

- A) ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN
- B) O/S GRID USED AND ORIENTATED TO TRUE NORTH
- C) LEVELS IN METRES RELATED TO G.P.S.
- D) DRAINAGE INFORMATION MUST BE CHECKED PRIOR TO WORK COMMENCING

Rev	Description	Date
A	ISSUED FOR PLANNING	NOV 2025
	PROPOSED DEVELOPMENT AT 10 DEERPARK ROAD, MANCHESTER	

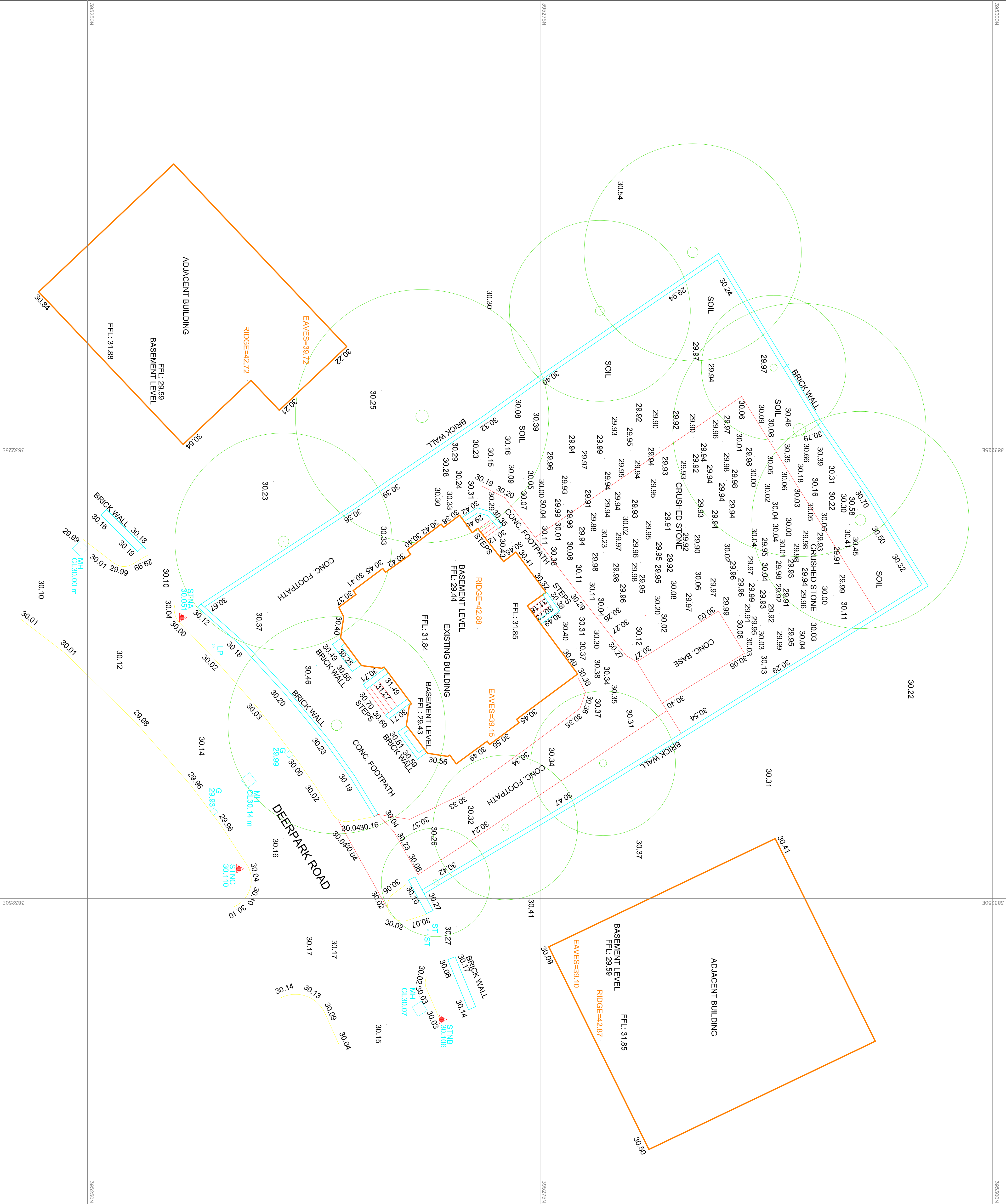
INTEGRA CONSULTING	
TOPOGRAPHICAL SURVEY	

IC050./T00	
B	Drawn
AB/OU	OU
Date	JULY 2025
Scale	1:100 @ A1



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AREFIELD ROAD
UPHOLLAND
LANCASHIRE
M16 0DP

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MOBILE: 077710 308709
E-MAIL: moi@rjsurveyors.co.uk



APPENDIX 5

ENVIRONMENT AGENCY FLOOD MAPPING

Flood risk assessment data



Location of site: 383232 / 395276 (shown as easting and northing coordinates)

Document created on: 27 October 2025

This information was previously known as a product 4.

Customer reference number: BK288W9NRUCY

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)
- 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:

- past floods
- flood defences and attributes

We do not have past flooding data for this location.

Please note that:

- flooding may have occurred that we do not have records for
- flooding can come from a range of different sources
- we can only supply flood risk data relating to flooding from rivers or the sea

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

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 Manchester District.

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

About the models used

Model name: Chorlton Platt Gore 2024

Scenario(s): Defended fluvial, defences removed fluvial, defended climate change fluvial, defences removed climate change fluvial

Date: 15 April 2024

Model name: Corn Brook 2017

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

Date: 31 December 2017

These models contain the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

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

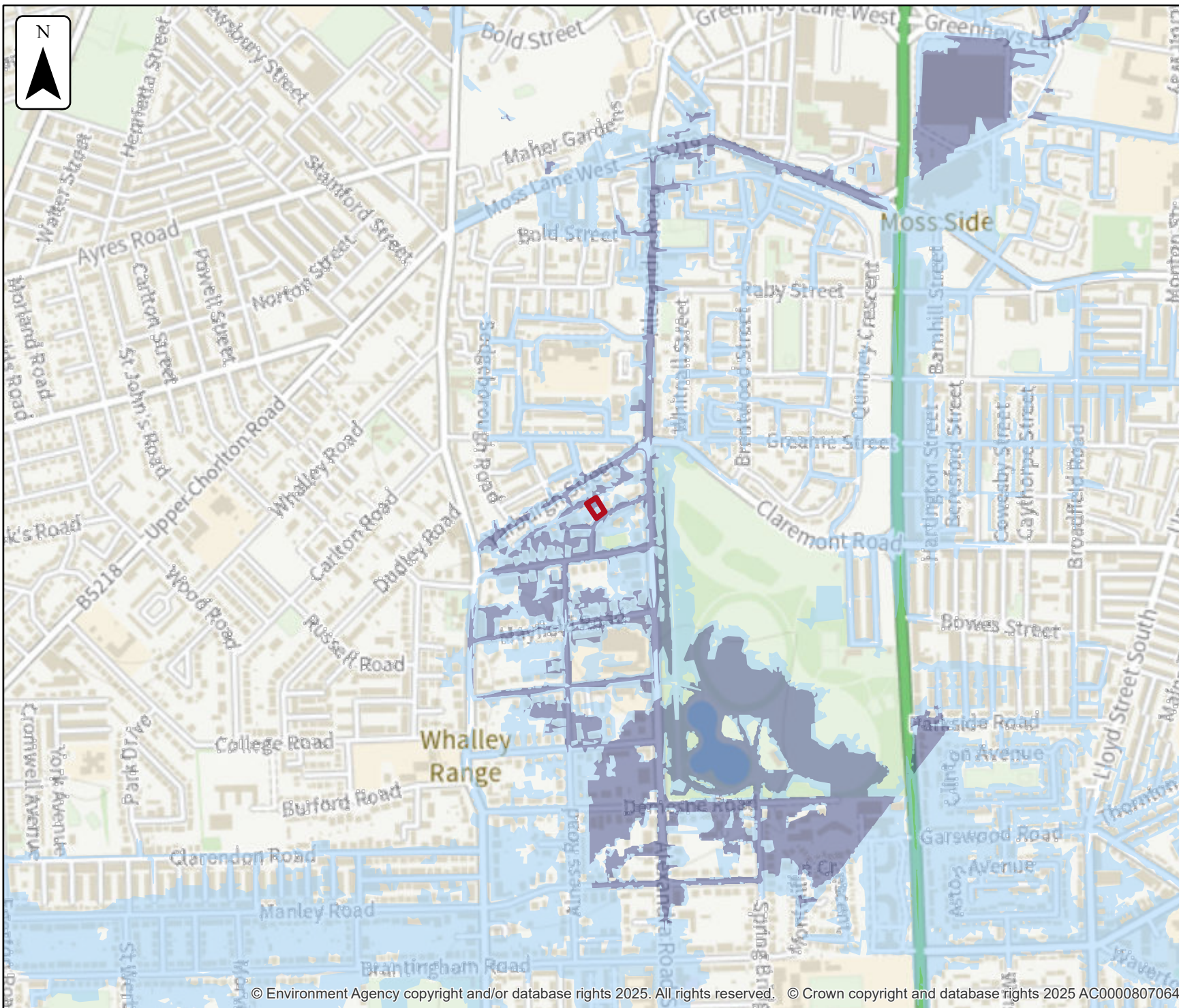
- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

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



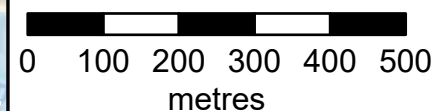
Flood map for planning

Location (easting/northing)
383232/395276

Scale
1:10,000

Created
27 Oct 2025

-  Selected area
-  Flood Zone 3
-  Flood Zone 2



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

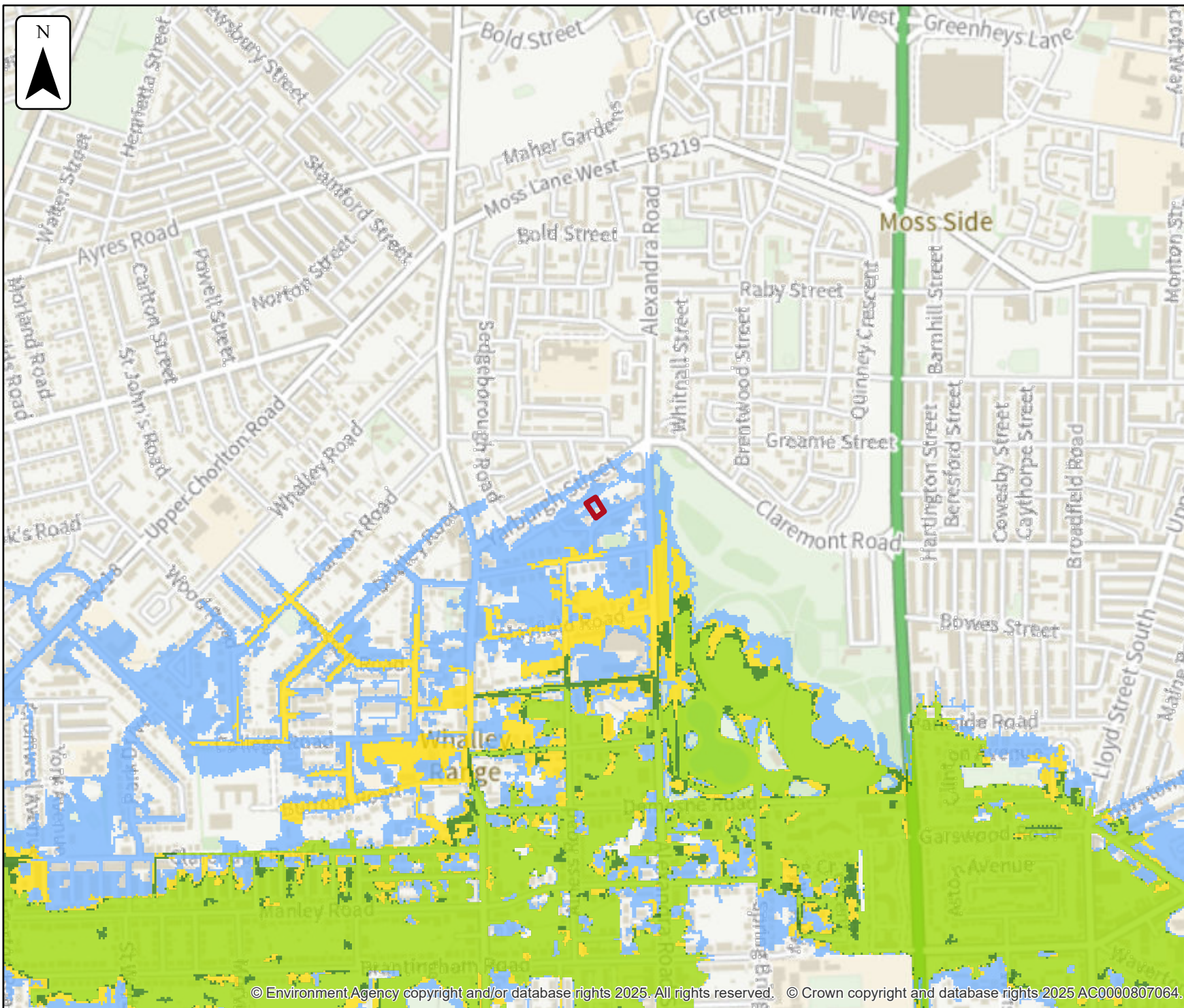
The climate change data included in the models may not include the latest [flood risk assessment climate change allowances](#). Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

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



Defences removed climate change modelled fluvial extent

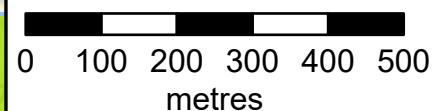
Location (easting/northing)
383232/395276

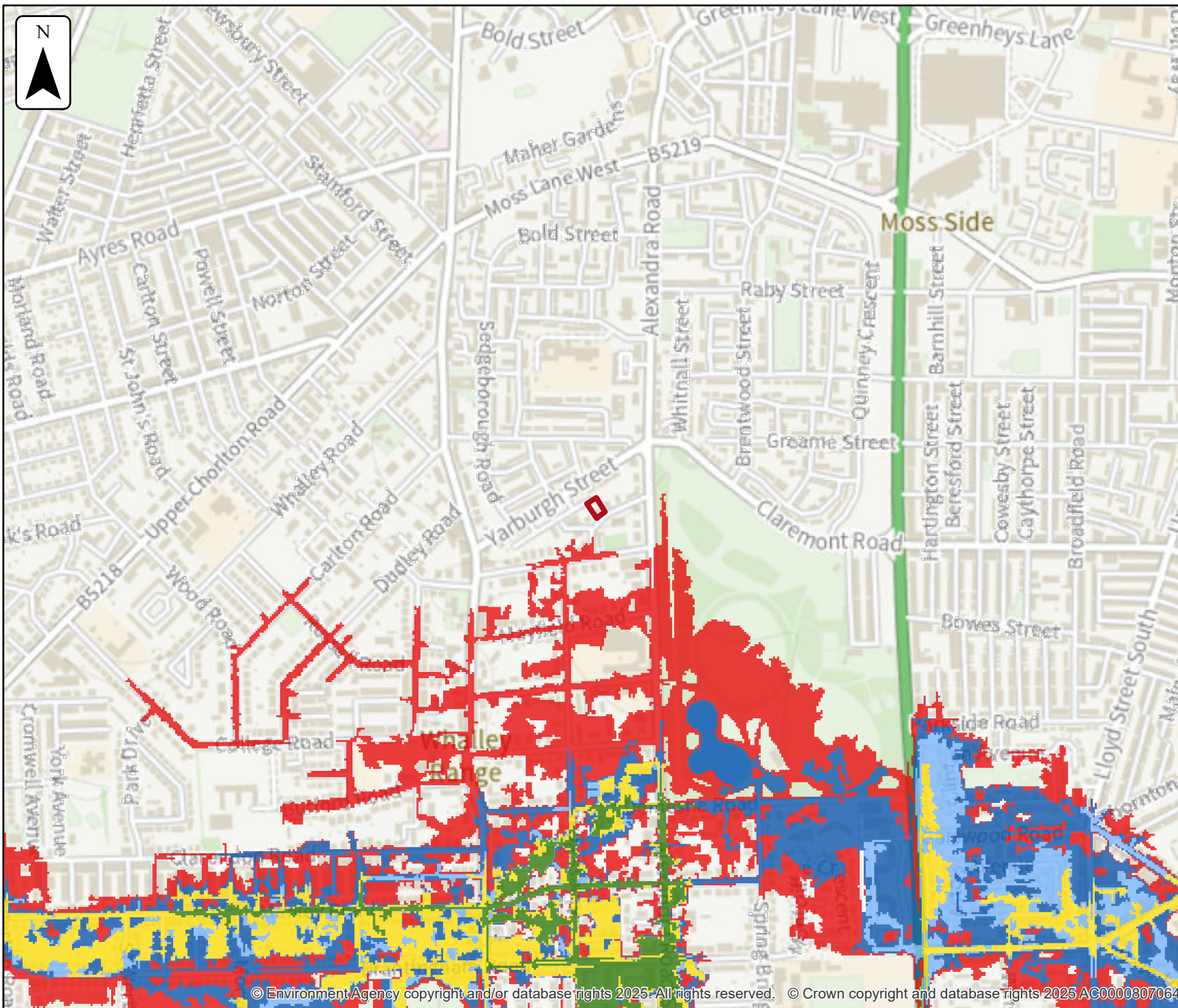
Scale Created
1:10,000 27 Oct 2025

Model name
**Chorlton Platt Gore
2024**

- Selected area
- Main river
- Modelled flood extent
 - 1% AEP (+41%)
 - 1% AEP (+53%)
 - 1% AEP (+85%)
 - 0.1% AEP (+53%)

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





Defences removed modelled fluvial extent

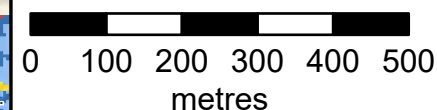
Location (easting/northing)
383232/395276

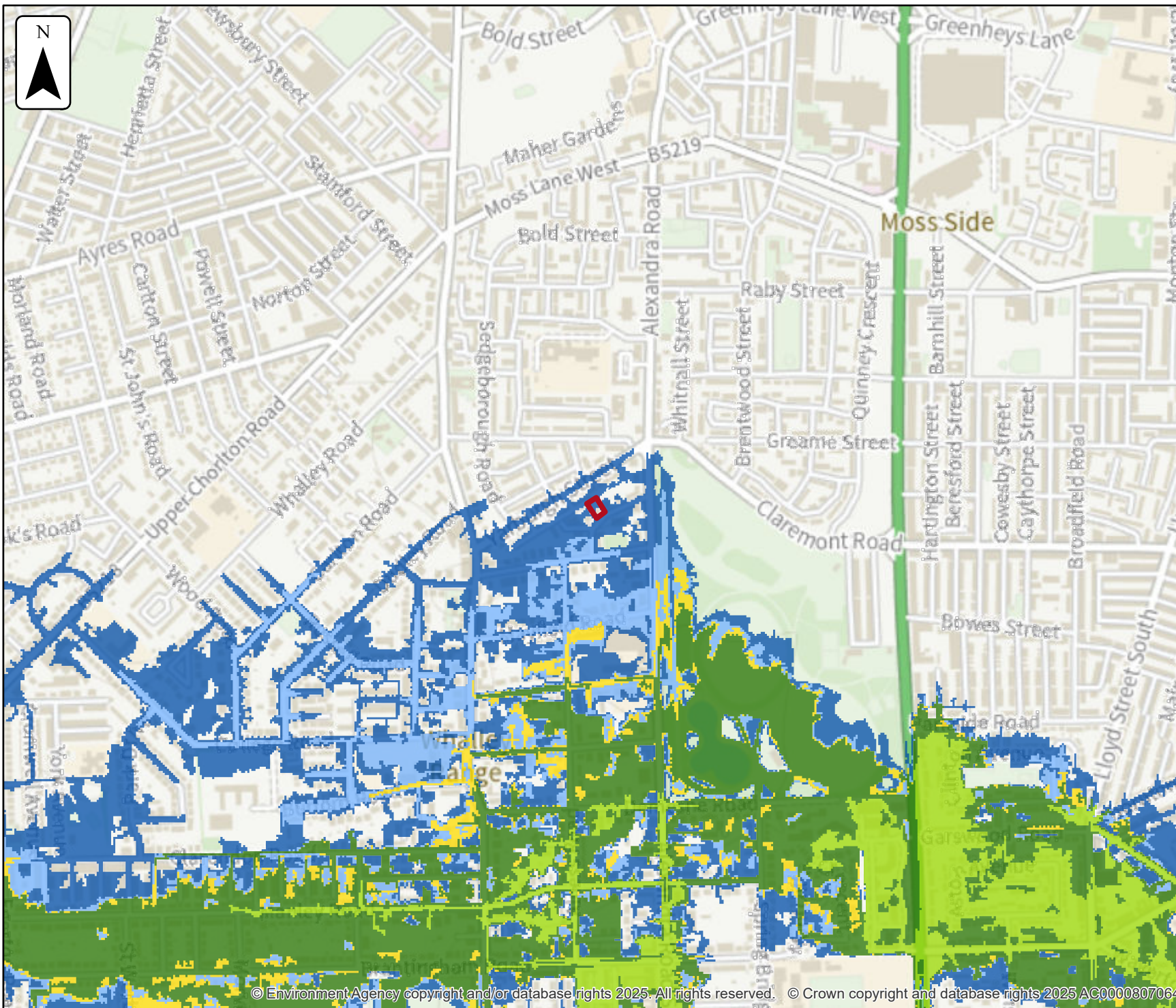
Scale Created
1:10,000 27 Oct 2025

Model name
**Chorlton Platt Gore
2024**

-  Selected area
-  Main river
- Modelled flood extent
 -  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 climate change modelled fluvial extent

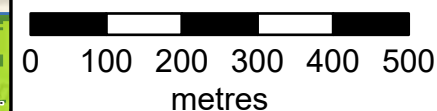
Location (easting/northing)
383232/395276

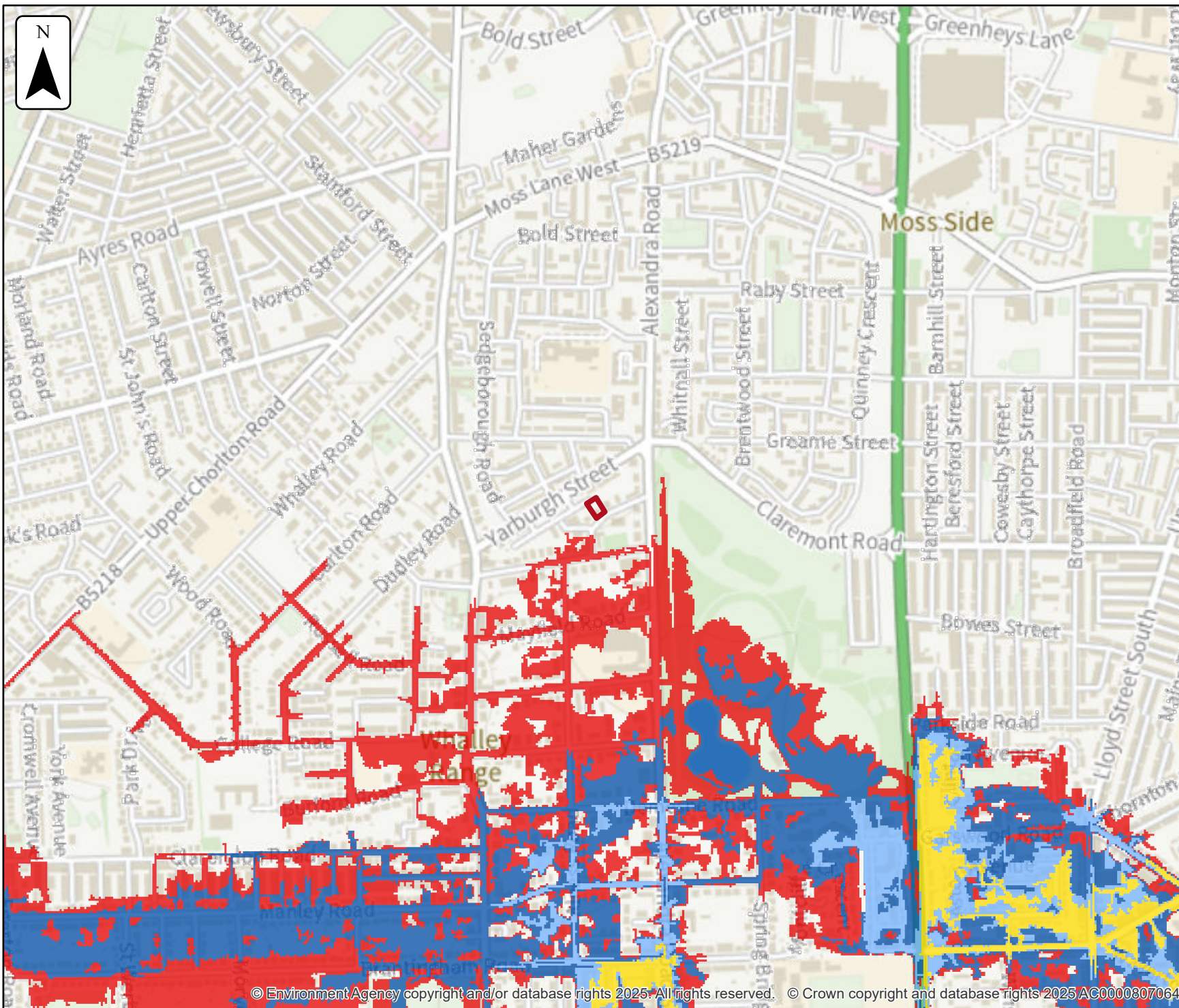
Scale Created
1:10,000 27 Oct 2025

Model name
**Chorlton Platt Gore
2024**

-  Selected area
-  Main river
- Modelled flood extent
 -  5% AEP (+53%)
 -  1% AEP (+41%)
 -  1% AEP (+53%)
 -  1% AEP (+85%)
 -  0.1% AEP (+53%)

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





Defended modelled fluvial extent

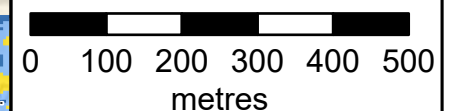
Location (easting/northing)
383232/395276

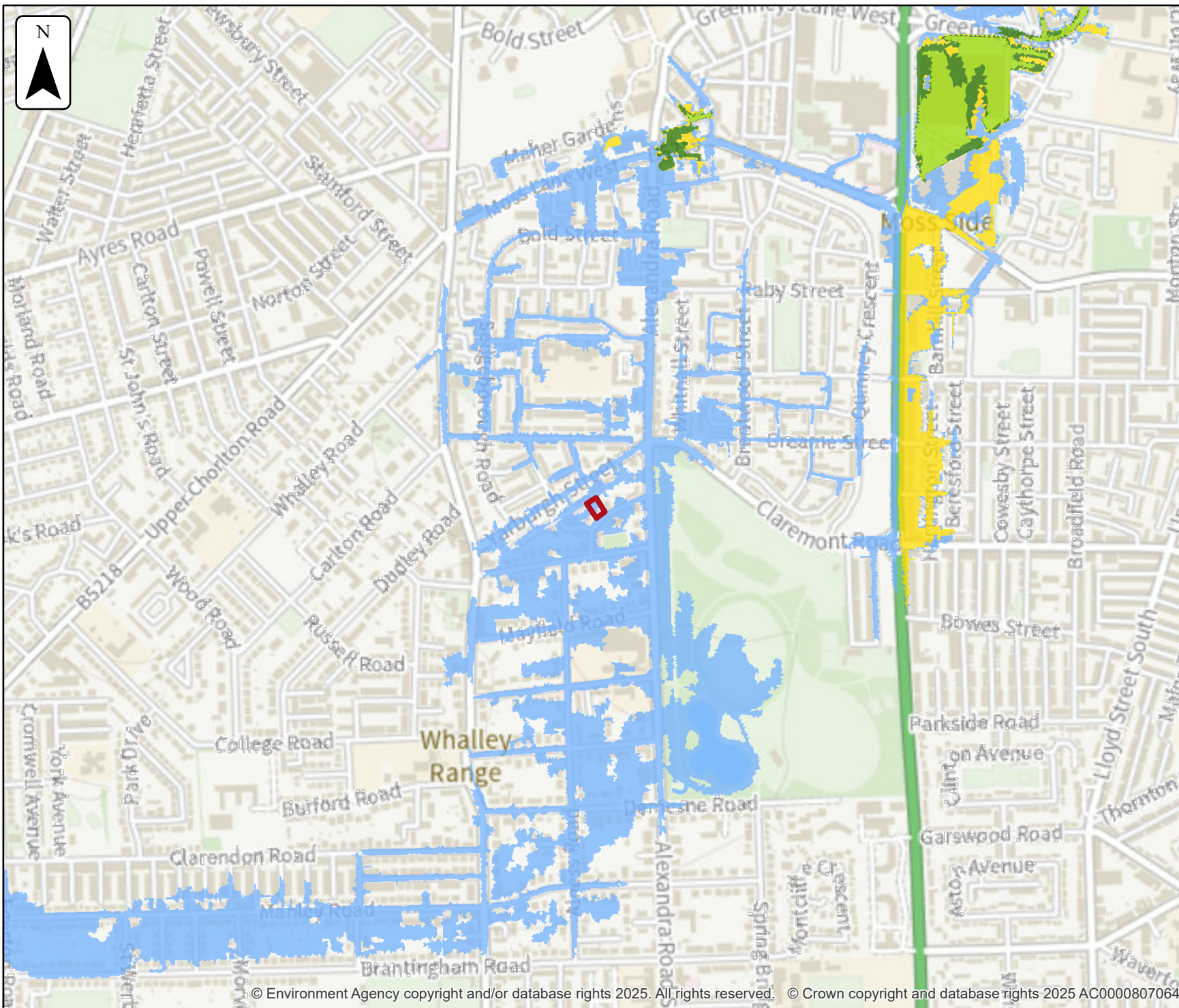
Scale Created
1:10,000 27 Oct 2025

Model name
**Chorlton Platt Gore
2024**

-  Selected area
-  Main river
- Modelled flood extent
 -  1.33% AEP
 -  1% AEP
 -  0.5% AEP
 -  0.1% AEP

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





No defences exist climate change modelled fluvial extent

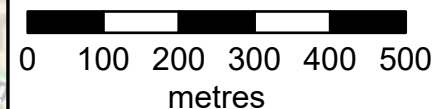
Location (easting/northing)
383232/395276

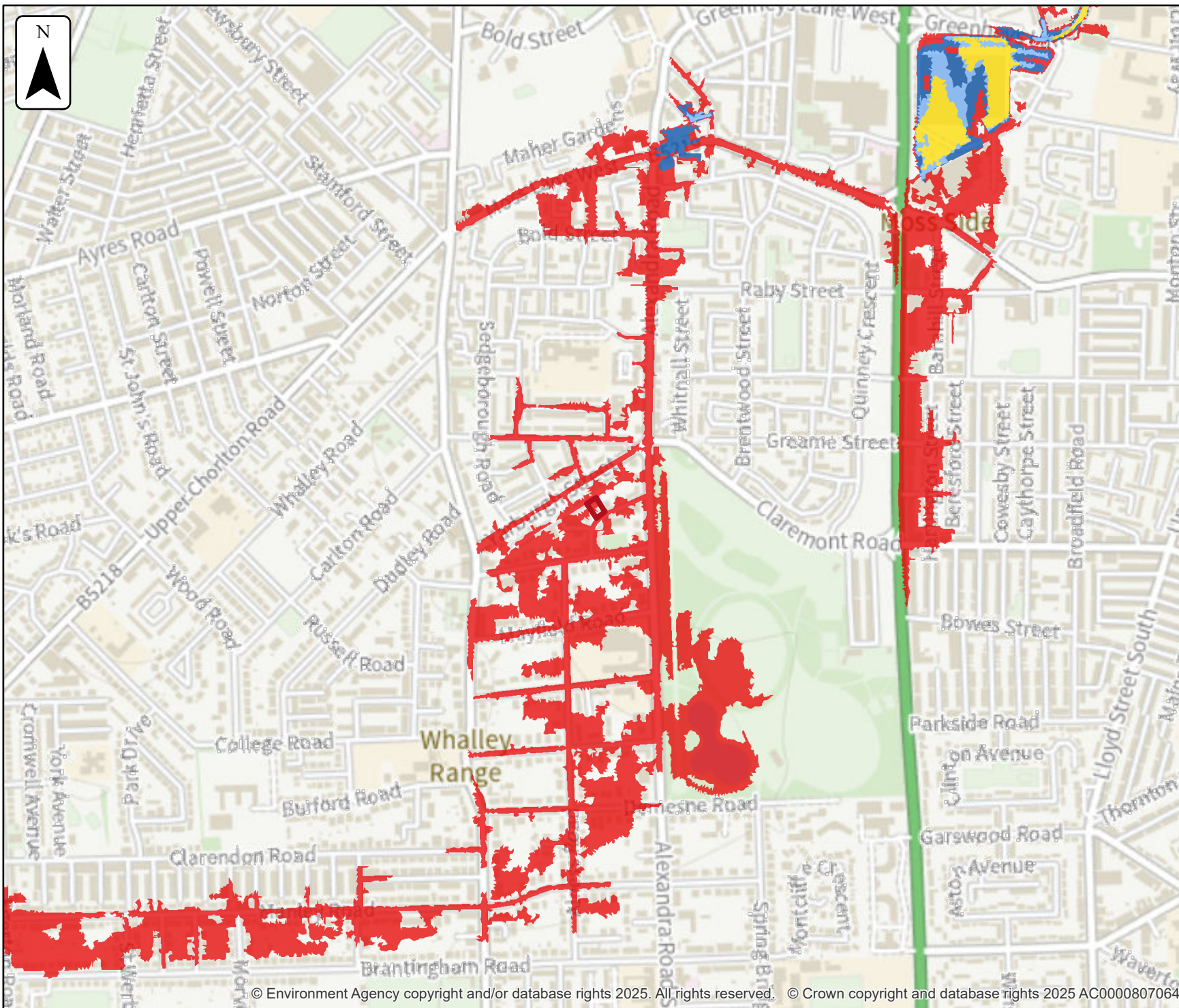
Scale Created
1:10,000 27 Oct 2025

Model name
Corn 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

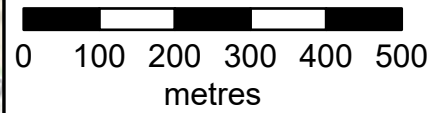
Location (easting/northing)
383232/395276

Scale Created
1:10,000 27 Oct 2025

Model name
Corn Brook 2017

- Selected area
- Main river
- Modelled flood extent
 - 1.33% AEP
 - 1% AEP
 - 0.5% AEP
 - 0.1% AEP

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



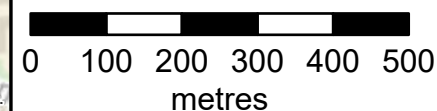


Location (easting/northing)
383232/395276

Scale	Created
1:10.000	27 Oct 2025

Model name
Corn 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	952451	382950	396136	30.34	30.39	30.82	31.99
2	952452	383467	395993	32.78	32.81	32.99	33.39
3	952465	384116	396112	33.75	33.79	34.02	34.46

Data in this table comes from the Corn 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.

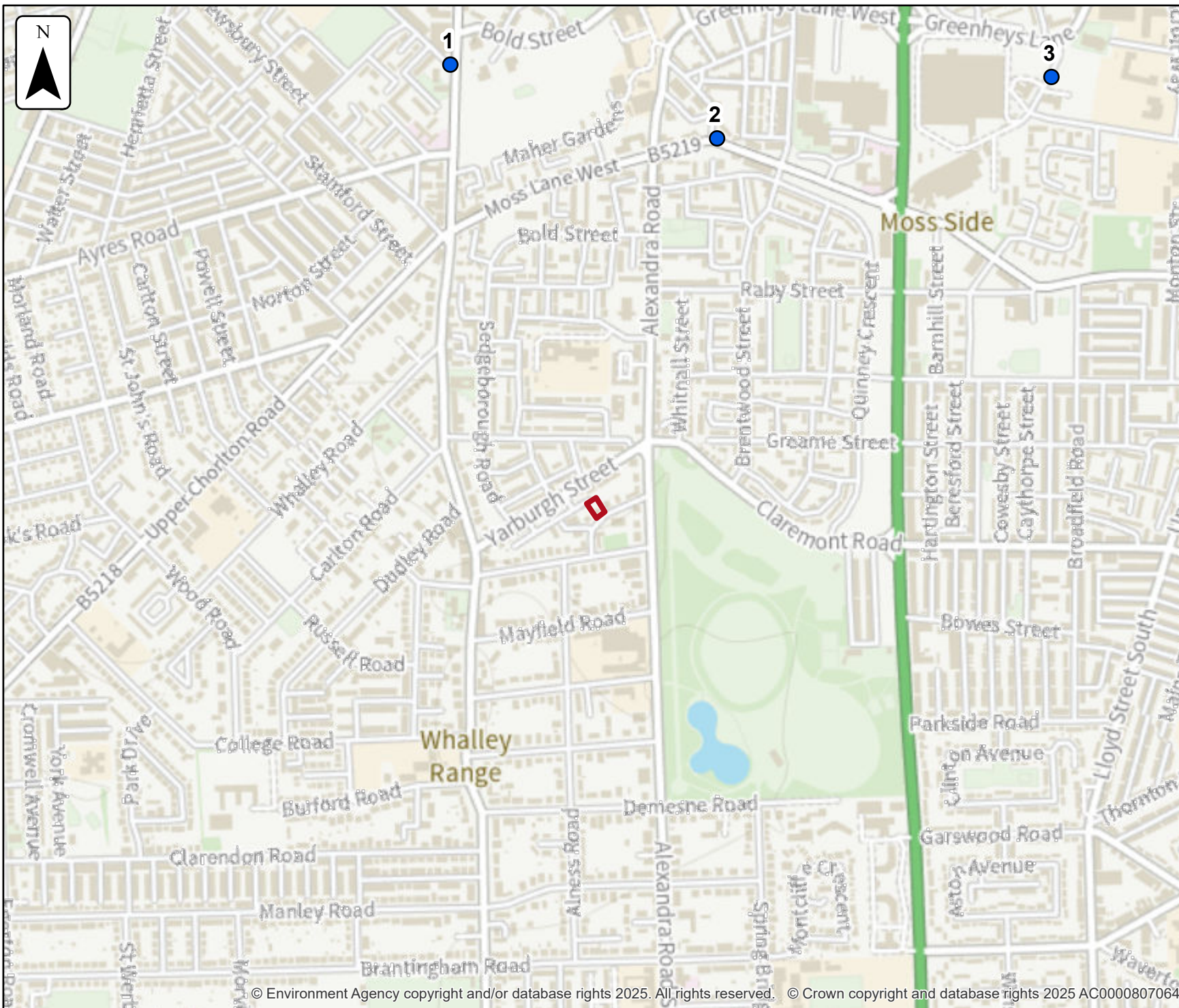
No defences exist climate change

Label	Modelled location ID	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
				Flow	Flow	Flow	Flow
1	952451	382950	396136	2.24	2.33	2.93	6.63
2	952452	383467	395993	2.03	2.11	2.66	5.98
3	952465	384116	396112	1.57	1.63	2.05	4.51

Data in this table comes from the Corn 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.



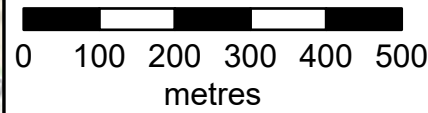
**No defences exist
modelled fluvial
node locations**

Location (easting/northing)
383232/395276

Scale Created
1:10,000 27 Oct 2025

Model name
Corn Brook 2017

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

No defences exist

Label	Modelled location ID	Easting	Northing	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Level	Level	Level	Level
1	952451	382950	396136	30.07	30.16	30.47	31.73
2	952452	383467	395993	32.43	32.58	32.84	33.28
3	952465	384116	396112	33.26	33.47	33.83	34.34

Data in this table comes from the Corn 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

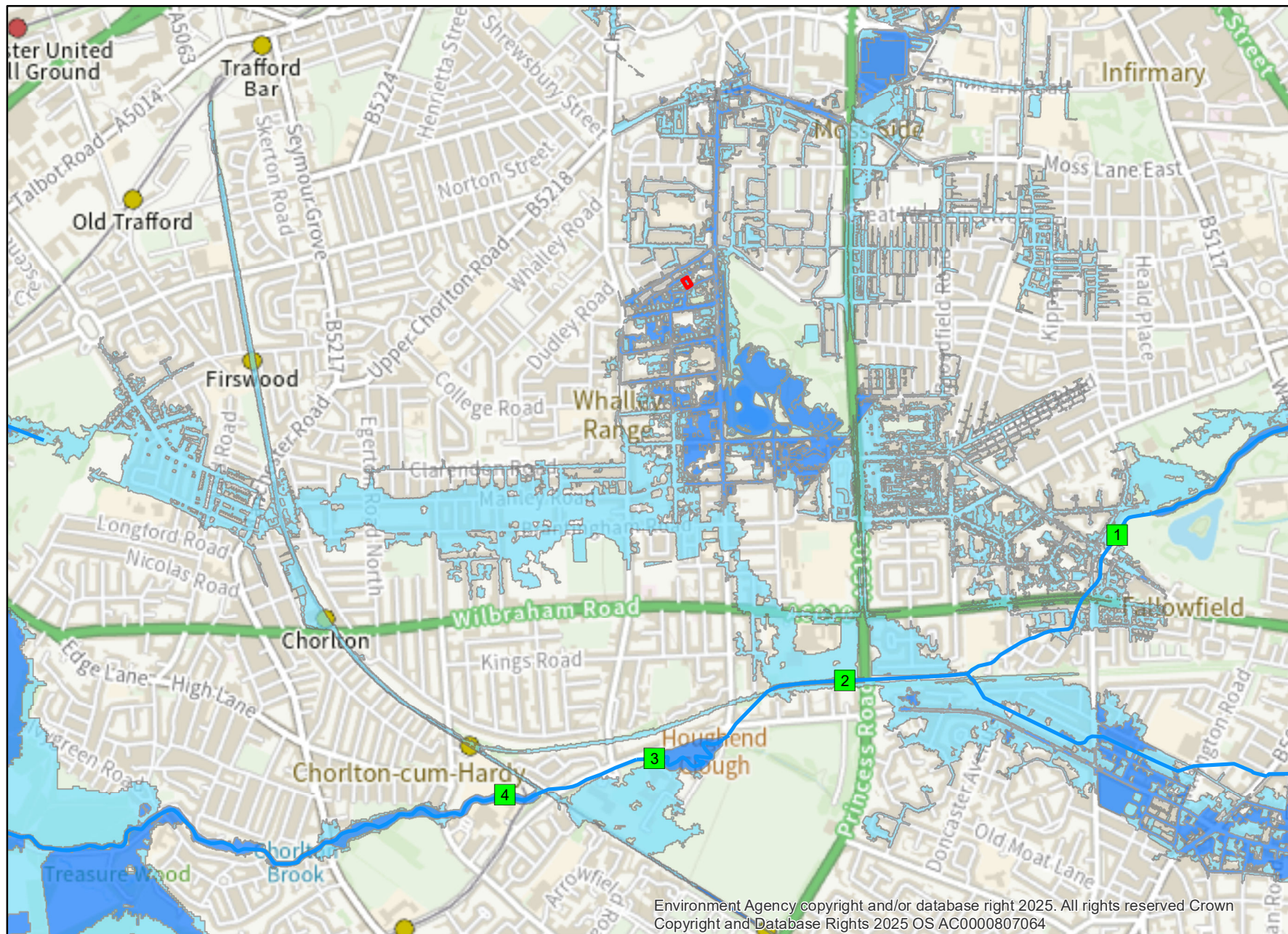
Label	Modelled location ID	Easting	Northing	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
				Flow	Flow	Flow	Flow
1	952451	382950	396136	1.46	1.72	2.47	5.10
2	952452	383467	395993	1.32	1.57	2.24	4.60
3	952465	384116	396112	1.03	1.21	1.70	3.47

Data in this table comes from the Corn 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.

Detailed Flood Map Centred on Deepark Road, Manchester, M16 8FR. Created 28/10/2025 [EIR2025/37895]



1:20,001



Legend

- Site Location
- Model Measurements
- Main River
- Flood Zone 2
- Flood Zone 3

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Copyright and Database Rights 2025 OS AC0000807064

		Undisturbed															Disturbed														
Map Reference	Model Name Reference	Existing	Noting	Date	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1% AEP (1 in 100 year) + 41% increase in flow	1% AEP (1 in 100 year) + 53% increase in flow	1% AEP (1 in 100 year) + 85% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1% AEP (1 in 1000 year) + 50% increase in flow	20 % AEP (1 in 5 year)	10 % AEP (1 in 10 year)	5 % AEP (1 in 20 year)	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1% AEP (1 in 100 year) + 41% increase in flow	1% AEP (1 in 100 year) + 53% increase in flow	1% AEP (1 in 100 year) + 85% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	0.1% AEP (1 in 1000 year) + 50% increase in flow			
1	wd012_0317_05735	384775	384364	Modelled Water Level (m aodN)	33.66	33.69		35.01	35.30	35.41	35.66	35.69	35.77	35.55	35.78	35.97	33.66	33.69	34.15	35.11	35.47	35.56	35.76	35.86	35.86	35.91	36.13				
				Modelled Flow (cumecs)	9.07	11.19		15.27	13.85	15.97	15.60	15.87	15.99	15.90	16.05	15.95	9.07	13.50	13.50	25.11	15.17	15.23	15.17	15.40	15.41	15.17	15.18	15.05			
2	wd012_0317_04315	383751	383824	Modelled Water Level (m aodN)	30.73	30.89	31.05	31.13	31.15	31.16	31.20	31.21	31.23	31.18	31.23	31.28	30.73	30.89	31.14	31.33	31.34	31.35	31.39	31.39	31.41	31.37	31.41	31.45			
				Modelled Flow (cumecs)	16.85	19.77	21.25	22.21	22.41	24.76	24.25	24.54	25.65	27.40	25.31	27.40	16.87	23.26	24.59	28.83	25.01	27.36	27.87	29.09	28.16	28.85	31.35				
3	wd012_0317_03314	383114	383549	Modelled Water Level (m aodN)	26.25	26.96	26.51	26.72	26.76	26.76	26.76	26.80	26.83	26.85	26.86	26.26	26.17	26.56	26.76	26.76	26.76	26.80	26.89	26.91	26.96	26.84	26.95	26.17			
				Modelled Flow (cumecs)	19.25	22.47	24.73	25.56	25.76	25.64	26.35	26.35	26.50	26.13	26.50	27.05	19.26	22.48	25.14	25.51	26.05	26.09	26.53	26.59	26.41	26.95	27.22				
4	wd012_0317_03742	382574	382412	Modelled Water Level (m aodN)	27.34	27.75	28.04	28.16	28.19	28.22	28.31	28.35	28.43	28.25	28.53	28.69	27.35	27.73	28.06	28.17	28.21	28.22	28.32	28.36	28.44	28.27	28.51	28.70			
				Modelled Flow (cumecs)	19.12	22.29	24.49	25.23	25.38	25.61	26.35	26.74	26.15	26.33	27.61	32.21	19.12	22.30	24.85	25.53	25.68	26.04	26.57	26.67	26.34	26.46	26.05	32.37			

Model data taken from Chorlton Plot Core 2024
AEP - Annual Exceedance Probability
m aodN - metres above ordnance datum Newlyn
cumecs - cubic metres per second

Notes: *Climate Change Scenario - 41%, 53% and 85% increases in flow calculated for the 2062's (2070 - 2115). Please see <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances> for more information regarding the new climate change guidance. The location of the site and the type/vulnerability of development determine the climate change allowance to consider in any flood risk assessment.



No defences exist modelled fluvial extent and height

Location (easting/northing)
383232/395276

Scale Created
1:500 27 Oct 2025

Model name
Corn Brook 2017

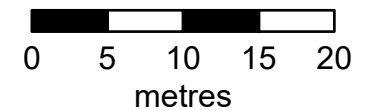
 Selected area

 Main river

Modelled 2D grid
Water level in mAOD

 0 - 8.75
 8.75 - 17.5
 17.5 - 26.25
 26.25 - 35.0
 35.0 - 43.75
 43.75 - 52.5
 52.5 - 61.25
 61.25 - 70.0
 70.0 - 78.75

This map shows the
0.1% AEP height data



Sample point data

No defences exist

Label	Easting	Northing	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height
1	383227	395250	NoData	NoData	NoData	NoData
2	383236	395250	NoData	NoData	NoData	30.36
3	383227	395259	NoData	NoData	NoData	NoData
4	383236	395259	NoData	NoData	NoData	30.37
5	383245	395259	NoData	NoData	NoData	30.37
6	383254	395259	NoData	NoData	NoData	30.37
7	383218	395268	NoData	NoData	NoData	30.40
8	383227	395268	NoData	NoData	NoData	NoData
9	383236	395268	NoData	NoData	NoData	NoData
10	383245	395268	NoData	NoData	NoData	NoData
11	383254	395268	NoData	NoData	NoData	30.37
12	383209	395277	NoData	NoData	NoData	NoData

Label	Easting	Northing	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height
13	383218	395277	NoData	NoData	NoData	NoData
14	383227	395277	NoData	NoData	NoData	30.42
15	383236	395277	NoData	NoData	NoData	NoData
16	383245	395277	NoData	NoData	NoData	NoData
17	383254	395277	NoData	NoData	NoData	NoData
18	383209	395286	NoData	NoData	NoData	30.41
19	383218	395286	NoData	NoData	NoData	30.42
20	383227	395286	NoData	NoData	NoData	30.42
21	383236	395286	NoData	NoData	NoData	30.42
22	383245	395286	NoData	NoData	NoData	NoData
23	383218	395295	NoData	NoData	NoData	30.42
24	383227	395295	NoData	NoData	NoData	30.43

Label	Easting	Northing	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Height	Height	Height	Height
25	383236	395295	NoData	NoData	NoData	30.43
26	383236	395304	NoData	NoData	NoData	30.44
Max value in selected area:			NoData	NoData	NoData	30.43

Data in this table comes from the Corn Brook 2017 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.

No defences exist

Label	Easting	Northing	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth
1	383227	395250	NoData	NoData	NoData	NoData
2	383236	395250	NoData	NoData	NoData	0.30
3	383227	395259	NoData	NoData	NoData	NoData
4	383236	395259	NoData	NoData	NoData	0.13
5	383245	395259	NoData	NoData	NoData	0.30
6	383254	395259	NoData	NoData	NoData	0.21
7	383218	395268	NoData	NoData	NoData	0.16
8	383227	395268	NoData	NoData	NoData	NoData
9	383236	395268	NoData	NoData	NoData	NoData
10	383245	395268	NoData	NoData	NoData	NoData
11	383254	395268	NoData	NoData	NoData	0.27
12	383209	395277	NoData	NoData	NoData	NoData

Label	Easting	Northing	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth
13	383218	395277	NoData	NoData	NoData	NoData
14	383227	395277	NoData	NoData	NoData	0.43
15	383236	395277	NoData	NoData	NoData	NoData
16	383245	395277	NoData	NoData	NoData	NoData
17	383254	395277	NoData	NoData	NoData	NoData
18	383209	395286	NoData	NoData	NoData	0.37
19	383218	395286	NoData	NoData	NoData	0.20
20	383227	395286	NoData	NoData	NoData	0.26
21	383236	395286	NoData	NoData	NoData	0.22
22	383245	395286	NoData	NoData	NoData	NoData
23	383218	395295	NoData	NoData	NoData	0.18
24	383227	395295	NoData	NoData	NoData	0.15

Label	Easting	Northing	1.33% AEP	1% AEP	0.5% AEP	0.1% AEP
			Depth	Depth	Depth	Depth
25	383236	395295	NoData	NoData	NoData	0.19
26	383236	395304	NoData	NoData	NoData	0.13
Max value in selected area:			NoData	NoData	NoData	0.45

Data in this table comes from the Corn Brook 2017 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.



Defended climate change modelled fluvial extent and height

Location (easting/northing)
383232/395276

Scale Created
1:500 27 Oct 2025

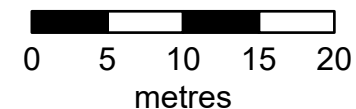
Model name
**Chorlton Platt Gore
2024**

-  Selected area
-  Main river

Modelled 2D grid
Water level in mAOD

-  0 - 3.875
-  3.875 - 7.75
-  7.75 - 11.625
-  11.625 - 15.5
-  15.5 - 19.375
-  19.375 - 23.25
-  23.25 - 27.125
-  27.125 - 31.0
-  31.0 - 34.875

This map shows the
0.1% AEP +53% height data



Sample point data

Defended climate change

Label	Easting	Northing	5% AEP (+53%)	1% AEP (+41%)	1% AEP (+53%)	0.1% AEP (+53%)
			Height	Height	Height	Height
1	383227	395250	NoData	NoData	NoData	NoData
2	383236	395250	NoData	NoData	NoData	30.38
3	383227	395259	NoData	NoData	NoData	30.38
4	383236	395259	NoData	NoData	NoData	30.38
5	383245	395259	NoData	NoData	NoData	30.38
6	383254	395259	NoData	NoData	NoData	30.39
7	383218	395268	NoData	NoData	NoData	30.38
8	383227	395268	NoData	NoData	NoData	30.38
9	383236	395268	NoData	NoData	NoData	NoData
10	383245	395268	NoData	NoData	NoData	30.39
11	383254	395268	NoData	NoData	NoData	30.39
12	383209	395277	NoData	NoData	NoData	NoData

Label	Easting	Northing	5% AEP (+53%)	1% AEP (+41%)	1% AEP (+53%)	0.1% AEP (+53%)
			Height	Height	Height	Height
13	383218	395277	NoData	NoData	NoData	NoData
14	383227	395277	NoData	NoData	NoData	30.38
15	383236	395277	NoData	NoData	NoData	30.38
16	383245	395277	NoData	NoData	NoData	30.38
17	383254	395277	NoData	NoData	NoData	30.39
18	383209	395286	NoData	NoData	NoData	30.38
19	383218	395286	NoData	NoData	NoData	30.38
20	383227	395286	NoData	NoData	NoData	30.38
21	383236	395286	NoData	NoData	NoData	30.38
22	383245	395286	NoData	NoData	NoData	30.38
23	383218	395295	NoData	NoData	NoData	30.38
24	383227	395295	NoData	NoData	NoData	30.38

Label	Easting	Northing	5% AEP (+53%)	1% AEP (+41%)	1% AEP (+53%)	0.1% AEP (+53%)
			Height	Height	Height	Height
25	383236	395295	NoData	NoData	NoData	30.38
26	383236	395304	NoData	NoData	NoData	30.38
Max value in selected area:			NoData	NoData	NoData	30.39

Data in this table comes from the Chorlton Platt Gore 2024 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.

Defended climate change

Label	Easting	Northing	5% AEP (+53%)	1% AEP (+41%)	1% AEP (+53%)	0.1% AEP (+53%)
			Depth	Depth	Depth	Depth
1	383227	395250	NoData	NoData	NoData	NoData
2	383236	395250	NoData	NoData	NoData	0.30
3	383227	395259	NoData	NoData	NoData	0.15
4	383236	395259	NoData	NoData	NoData	0.19
5	383245	395259	NoData	NoData	NoData	0.32
6	383254	395259	NoData	NoData	NoData	0.18
7	383218	395268	NoData	NoData	NoData	0.06
8	383227	395268	NoData	NoData	NoData	0.00
9	383236	395268	NoData	NoData	NoData	NoData
10	383245	395268	NoData	NoData	NoData	0.08
11	383254	395268	NoData	NoData	NoData	0.28
12	383209	395277	NoData	NoData	NoData	NoData

Label	Easting	Northing	5% AEP (+53%)	1% AEP (+41%)	1% AEP (+53%)	0.1% AEP (+53%)
			Depth	Depth	Depth	Depth
13	383218	395277	NoData	NoData	NoData	NoData
14	383227	395277	NoData	NoData	NoData	0.27
15	383236	395277	NoData	NoData	NoData	0.01
16	383245	395277	NoData	NoData	NoData	0.01
17	383254	395277	NoData	NoData	NoData	0.54
18	383209	395286	NoData	NoData	NoData	0.28
19	383218	395286	NoData	NoData	NoData	0.16
20	383227	395286	NoData	NoData	NoData	0.24
21	383236	395286	NoData	NoData	NoData	0.15
22	383245	395286	NoData	NoData	NoData	0.01
23	383218	395295	NoData	NoData	NoData	0.17
24	383227	395295	NoData	NoData	NoData	0.17

Label	Easting	Northing	5% AEP (+53%)	1% AEP (+41%)	1% AEP (+53%)	0.1% AEP (+53%)
			Depth	Depth	Depth	Depth
25	383236	395295	NoData	NoData	NoData	0.16
26	383236	395304	NoData	NoData	NoData	0.01
Max value in selected area:			NoData	NoData	NoData	0.55

Data in this table comes from the Chorlton Platt Gore 2024 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.



Defences removed climate change modelled fluvial extent and height

Location (easting/northing)
383232/395276

Scale Created
1:500 27 Oct 2025

Model name
**Chorlton Platt Gore
2024**

 Selected area

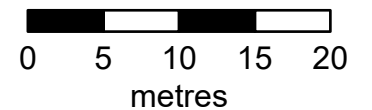
 Main river

Modelled 2D grid

Water level in mAOD

-  0 - 3.875
-  3.875 - 7.75
-  7.75 - 11.625
-  11.625 - 15.5
-  15.5 - 19.375
-  19.375 - 23.25
-  23.25 - 27.125
-  27.125 - 31.0
-  31.0 - 34.875

This map shows the
0.1% AEP +53% height data



Sample point data

Defences removed climate change

Label	Easting	Northing	1% AEP (+41%)	1% AEP (+53%)	1% AEP (+85%)	0.1% AEP (+53%)
			Height	Height	Height	Height
1	383227	395250	NoData	NoData	NoData	NoData
2	383236	395250	NoData	NoData	NoData	30.38
3	383227	395259	NoData	NoData	NoData	30.38
4	383236	395259	NoData	NoData	NoData	30.38
5	383245	395259	NoData	NoData	NoData	30.38
6	383254	395259	NoData	NoData	NoData	30.38
7	383218	395268	NoData	NoData	NoData	30.38
8	383227	395268	NoData	NoData	NoData	30.38
9	383236	395268	NoData	NoData	NoData	NoData
10	383245	395268	NoData	NoData	NoData	30.38
11	383254	395268	NoData	NoData	NoData	30.38
12	383209	395277	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+41%)	1% AEP (+53%)	1% AEP (+85%)	0.1% AEP (+53%)
			Height	Height	Height	Height
13	383218	395277	NoData	NoData	NoData	NoData
14	383227	395277	NoData	NoData	NoData	30.38
15	383236	395277	NoData	NoData	NoData	30.38
16	383245	395277	NoData	NoData	NoData	30.38
17	383254	395277	NoData	NoData	NoData	30.38
18	383209	395286	NoData	NoData	NoData	30.38
19	383218	395286	NoData	NoData	NoData	30.38
20	383227	395286	NoData	NoData	NoData	30.38
21	383236	395286	NoData	NoData	NoData	30.38
22	383245	395286	NoData	NoData	NoData	NoData
23	383218	395295	NoData	NoData	NoData	30.38
24	383227	395295	NoData	NoData	NoData	30.38

Label	Easting	Northing	1% AEP (+41%)	1% AEP (+53%)	1% AEP (+85%)	0.1% AEP (+53%)
			Height	Height	Height	Height
25	383236	395295	NoData	NoData	NoData	30.38
26	383236	395304	NoData	NoData	NoData	30.38
Max value in selected area:			NoData	NoData	NoData	30.38

Data in this table comes from the Chorlton Platt Gore 2024 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.

Defences removed climate change

Label	Easting	Northing	1% AEP (+41%)	1% AEP (+53%)	1% AEP (+85%)	0.1% AEP (+53%)
			Depth	Depth	Depth	Depth
1	383227	395250	NoData	NoData	NoData	NoData
2	383236	395250	NoData	NoData	NoData	0.30
3	383227	395259	NoData	NoData	NoData	0.14
4	383236	395259	NoData	NoData	NoData	0.19
5	383245	395259	NoData	NoData	NoData	0.32
6	383254	395259	NoData	NoData	NoData	0.18
7	383218	395268	NoData	NoData	NoData	0.06
8	383227	395268	NoData	NoData	NoData	0.00
9	383236	395268	NoData	NoData	NoData	NoData
10	383245	395268	NoData	NoData	NoData	0.08
11	383254	395268	NoData	NoData	NoData	0.28
12	383209	395277	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+41%)	1% AEP (+53%)	1% AEP (+85%)	0.1% AEP (+53%)
			Depth	Depth	Depth	Depth
13	383218	395277	NoData	NoData	NoData	NoData
14	383227	395277	NoData	NoData	NoData	0.26
15	383236	395277	NoData	NoData	NoData	0.01
16	383245	395277	NoData	NoData	NoData	0.01
17	383254	395277	NoData	NoData	NoData	0.53
18	383209	395286	NoData	NoData	NoData	0.27
19	383218	395286	NoData	NoData	NoData	0.16
20	383227	395286	NoData	NoData	NoData	0.24
21	383236	395286	NoData	NoData	NoData	0.14
22	383245	395286	NoData	NoData	NoData	NoData
23	383218	395295	NoData	NoData	NoData	0.17
24	383227	395295	NoData	NoData	NoData	0.17

Label	Easting	Northing	1% AEP (+41%)	1% AEP (+53%)	1% AEP (+85%)	0.1% AEP (+53%)
			Depth	Depth	Depth	Depth
25	383236	395295	NoData	NoData	NoData	0.15
26	383236	395304	NoData	NoData	NoData	0.01
Max value in selected area:			NoData	NoData	NoData	0.55

Data in this table comes from the Chorlton Platt Gore 2024 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.



**No defences exist
climate change
modelled fluvial
extent and height**

Location (easting/northing)
383232/395276

Scale Created
1:500 27 Oct 2025

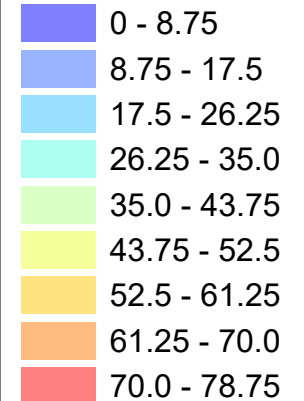
Model name
Corn Brook 2017

 Selected area

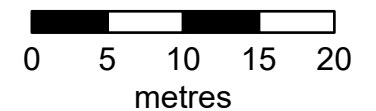
 Main river

Modelled 2D grid

Water level in mAOD



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



Sample point data

No defences exist climate change

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
1	383227	395250	NoData	NoData	NoData	NoData
2	383236	395250	NoData	NoData	NoData	30.42
3	383227	395259	NoData	NoData	NoData	NoData
4	383236	395259	NoData	NoData	NoData	30.42
5	383245	395259	NoData	NoData	NoData	30.42
6	383254	395259	NoData	NoData	NoData	30.42
7	383218	395268	NoData	NoData	NoData	30.43
8	383227	395268	NoData	NoData	NoData	NoData
9	383236	395268	NoData	NoData	NoData	NoData
10	383245	395268	NoData	NoData	NoData	NoData
11	383254	395268	NoData	NoData	NoData	30.42
12	383209	395277	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
13	383218	395277	NoData	NoData	NoData	NoData
14	383227	395277	NoData	NoData	NoData	30.46
15	383236	395277	NoData	NoData	NoData	30.46
16	383245	395277	NoData	NoData	NoData	NoData
17	383254	395277	NoData	NoData	NoData	NoData
18	383209	395286	NoData	NoData	NoData	30.45
19	383218	395286	NoData	NoData	NoData	30.46
20	383227	395286	NoData	NoData	NoData	30.46
21	383236	395286	NoData	NoData	NoData	30.46
22	383245	395286	NoData	NoData	NoData	NoData
23	383218	395295	NoData	NoData	NoData	30.45
24	383227	395295	NoData	NoData	NoData	30.47

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Height	Height	Height	Height
25	383236	395295	NoData	NoData	NoData	30.46
26	383236	395304	NoData	NoData	NoData	30.48
Max value in selected area:			NoData	NoData	NoData	30.46

Data in this table comes from the Corn Brook 2017 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.

No defences exist climate change

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
1	383227	395250	NoData	NoData	NoData	NoData
2	383236	395250	NoData	NoData	NoData	0.35
3	383227	395259	NoData	NoData	NoData	NoData
4	383236	395259	NoData	NoData	NoData	0.18
5	383245	395259	NoData	NoData	NoData	0.35
6	383254	395259	NoData	NoData	NoData	0.26
7	383218	395268	NoData	NoData	NoData	0.20
8	383227	395268	NoData	NoData	NoData	NoData
9	383236	395268	NoData	NoData	NoData	NoData
10	383245	395268	NoData	NoData	NoData	NoData
11	383254	395268	NoData	NoData	NoData	0.32
12	383209	395277	NoData	NoData	NoData	NoData

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
13	383218	395277	NoData	NoData	NoData	NoData
14	383227	395277	NoData	NoData	NoData	0.38
15	383236	395277	NoData	NoData	NoData	0.11
16	383245	395277	NoData	NoData	NoData	NoData
17	383254	395277	NoData	NoData	NoData	NoData
18	383209	395286	NoData	NoData	NoData	0.40
19	383218	395286	NoData	NoData	NoData	0.23
20	383227	395286	NoData	NoData	NoData	0.29
21	383236	395286	NoData	NoData	NoData	0.11
22	383245	395286	NoData	NoData	NoData	NoData
23	383218	395295	NoData	NoData	NoData	0.21
24	383227	395295	NoData	NoData	NoData	0.30

Label	Easting	Northing	1% AEP (+30%)	1% AEP (+35%)	1% AEP (+70%)	0.1% AEP (+30%)
			Depth	Depth	Depth	Depth
25	383236	395295	NoData	NoData	NoData	0.15
26	383236	395304	NoData	NoData	NoData	0.17
Max value in selected area:			NoData	NoData	NoData	0.48

Data in this table comes from the Corn Brook 2017 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 Manchester 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

Flood map for planning

Get a boundary report

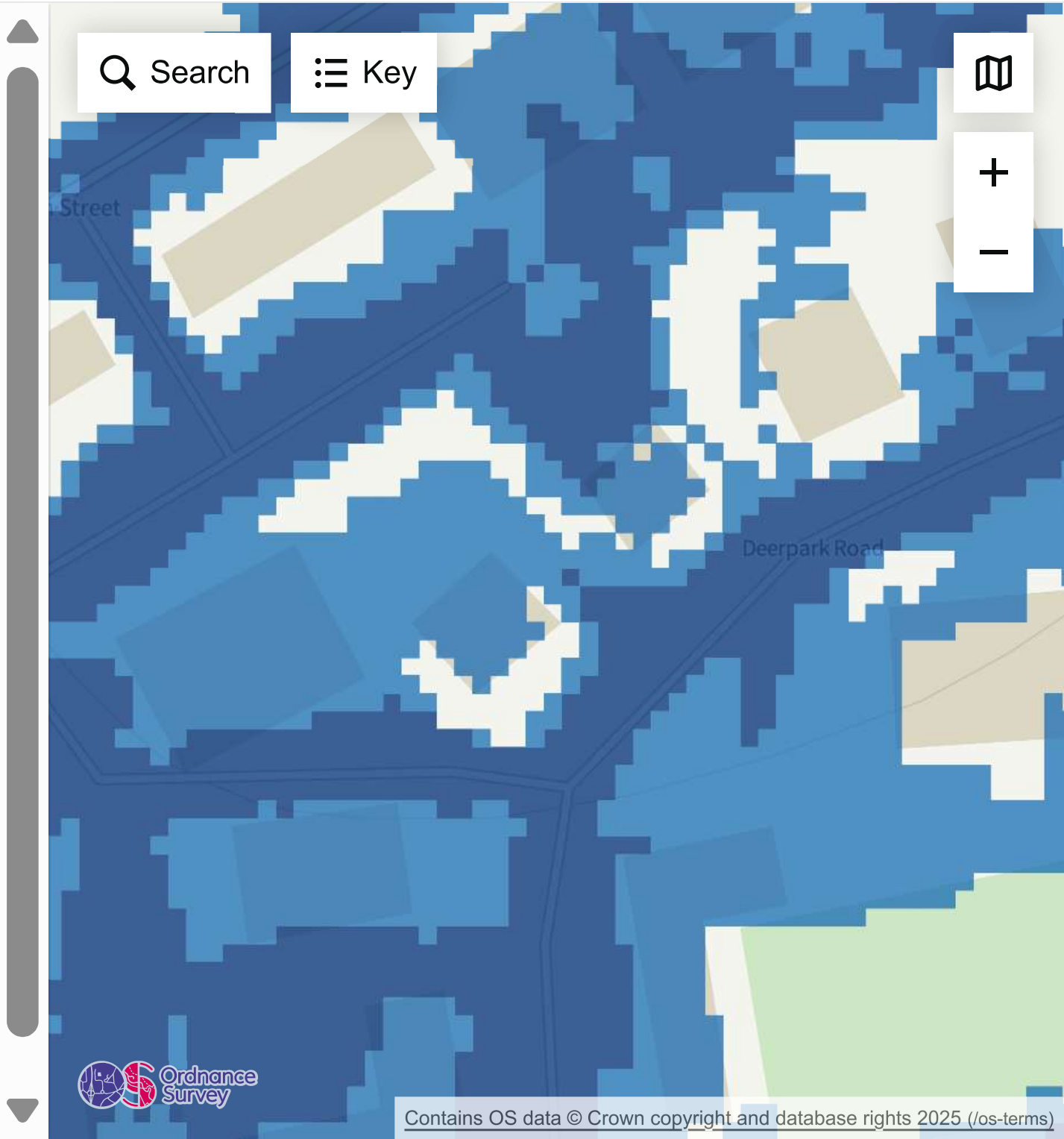
 [Add](#)

Datasets

- ☒ Flood zones 2 and 3
- ☐ River and sea with defences
- ☐ River and sea without defences
- ☐ Surface water
- ☐ None

Map features

- ☐ Water storage
- ☐ Flood defence
- ☐ Main Rivers



Flood map for planning

Get a boundary report

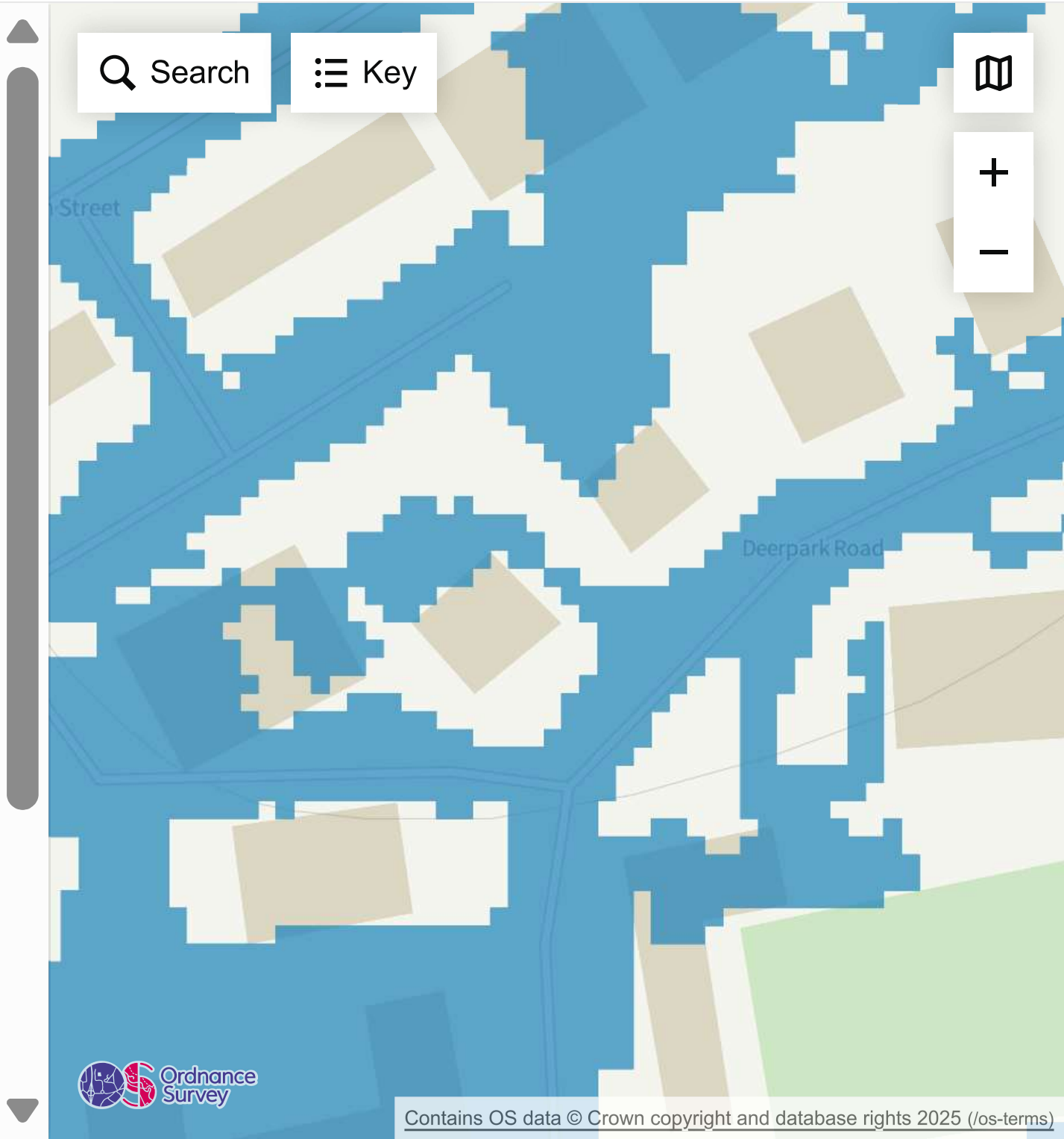
 [Add](#)

Datasets

- ☐ Flood zones 2 and 3
- ☐ River and sea with defences
- ☐ River and sea without defences
- ☒ Surface water
- ☐ None

Annual likelihood of flooding

- ☐ 1 in 30
- ☒ 1 in 100
- ☐ 1 in 1000



APPENDIX 6

UNITED UTILITIES SEWER PLAN

Shaw Stephens Consulting Ltd.

**6
Hewitt Street,
Manchester,
M15 4GB**

FAO:

How to contact us:

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

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: Deer Park Road
Our Ref: UUPS-ORD-686342
Date: 23/10/2025**

Dear Sirs

Location: Deer Park Road

I acknowledge with thanks your request dated 22/10/2025 for information on the location of our services.

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

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

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

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

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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

TERMS AND CONDITIONS:

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



Reho	Cover	Func	Invert	Size x	Size y	Shape	Mat	Length	Grad
9406	29.96	CO	28.99	100			VC	32.4996	1 in 34
2309		FO		100			VC	14.71537	
1101		CO		100			VC	17.7532	
0205	30.2	CO	27.76	100			VC	125.0783	1 in 1137
0104		CO		150			VC	23.83372	
3504	30.78	CO	28.08	640			BR	5.096959	
3411	30.78	CO	28.08	640			BR	13.93271	1 in 348
1102	30.05	CO	27.85	100			VC	1.25925	
3501	30.73	CO	28.52	600			BR	6.98922	1 in 406
0303	30.45	CO	27.35	375			VC	42.2119	1 in 300
3301	30.23	CO	28.43	300			VC	61.25457	1 in 102
3402		CO		1000			BR	65.07376	1 in 407
0101		CO		375			VC	4.062296	
0309		CO		225			VC	18.66833	
3405		CO		150			UN	3.06581	
3403		CO		880			BR	56.24586	
1103		CO		100			VC	24.3522	
4401	30.51	CO	28.82	300			VC	25.2204	
4501	30.94	CO	28.17	300			VC	7.531454	1 in 187
0109		CO		375			VC	6.20137	
2202	30.08	CO		375			VC	30.01666	1 in 187
9402		CO		300			VC	59	
2203	30.04	CO		375			VC	132.3426	
3008	30.18	CO	28.18	375			VC	24.3105	1 in 313
3202		CO		400			VC	12.02777	
2106		CO		375			VC	36.12476	
3201	30.05	CO	28.4	300			VC	4.196922	1 in 986
4404		CO		450			VC	59.15544	
2310		CO		100			VC	85.73115	1 in 1434
9122		CO		225			VC	91.70005	
0001		CO		375			VC	46.01087	
3001	30.07	CO	27.92	300			VC	8.98544	
0501	30.54	CO	27.64	225			VC	3.809902	
0813		CO		150			VC	91.41116	1 in 69
2343		FO		100			VC	18.02778	
2003		CO		150			VC	10.98575	
5301	31.27	CO	28.98	450			VC	21.95271	
1401		CO		880			BR	18.35718	
3409		CO		150			VC	13.71052	
5506	31.28	CO	28.3	650			VC	158.8364	
0103		CO		225			BR	7.21102	1 in 5601
1207		CO		400			VC	6.288167	
1305		UN		100			VC	58.00893	
3406		CO		150			VC	3.835934	
1206		CO		225			VC	7.161039	
9124	29.89	CO	28.31	225			VC	69.6168	
4403		CO		450			VC	26.1969	1 in 139
3006		CO		100			VC	17.7213	
1208		CO		100			VC	51.0098	
0202		CO		100			VC	13.20062	
9203	30	CO	28.16	720			VC	6.759094	
3512	30.18	CO	28.18	150			VC	5.062256	1 in 28
3503	31	CO	28.13	650			VC	BR 44.51829	
9010		CO		150			VC	12.24229	
3505	30.73	CO	28.07	650			BR	5.912025	
1001	30.1	CO	27.75	450			VC	BR 0.05386	
0515		CO		225			VC	10.14694	
3302		CO		225			VC	84.0328	1 in 560
1401	30.16	CO	27.34	150			VC	118.3392	1 in 2558
5306		CO		150			VC	16.04575	
0201		CO		375			VC	31.65238	
3502	30.85	CO	28.14	650			VC	25.644	
2001	29.97	CO		300			VC	93.0021	
9205		CO		225			VC	7.702715	1 in 137
0505		CO		650			VC	43.02048	
2109		CO		150			VC	4.121108	
0305	30.44	CO		150			VC	101.0271	
9402		CO		225			VC	7.646895	
0301		CO		150			VC	11.05191	
0401	30.42	CO	26.25	630			BR	113.1592	
0502	30.48	CO	26.75	590			VC	15.94895	
1402		CO		100			VC	10.59031	
1306		CO		150			VC	39	
0302		CO		225			VC	18.31153	
1303		CO		225			VC	43.32438	1 in 161
0203		CO		450			VC	18.02778	
1502		CO		150			VC	29	
2201	30.1	CO		375			VC	18.35117	
3101	30.17	CO	28.12	450			VC	8.95395	
0212		CO		150			VC	28.23119	
0105		CO		225			VC	44.72136	
1302		CO		225			VC	28.6331	
3102	30.01	CO	28.16	375			VC	9.144062	
2401		CO		880			UN	24.05319	
1304		CO		150			VC	53.00909	
3513	30.02	CO	28.37	300			VC	14.25224	
9904		CO		150			VC	7.399087	
3404		CO		450			VC	61.29437	
9302	30.11	CO	25.97	670			BR	97.46359	1 in 228
9214		CO		225			VC	11.03943	
0308		CO		880			UN	36.49057	
9121		CO		150			VC	38.20094	
0504	30.56	CO	27.45	640			BR	62.65057	
9104	30.16	CO	28.62	225			VC	16	1 in 55
1501		CO		150			VC	12.49382	
2407		CO		225			VC	35.26364	
3511		CO		150			VC	3.661839	
2103		CO		150			VC	11.58892	
9906		CO	28.37	300			VC	14.23066	1 in 1417
3307		UN		100			VC	4.802966	
9102	29.96	CO	27.68	300			VC	28.34313	
4302		CO		100			UN	8.462229	1 in
1205	30.19	CO	28.08	225			VC	2.798456	1 in 129
2001	29.97	CO	27.44	375			VC	11.88977	
0404		CO		150			VC	76.21667	
1202		CO		450			VC	3.89328	
1203	30.19	CO		225			VC	31.54489	1 in 174
3304		CO		150			VC	12.16553	
2402		CO		150			VC	66.96798	
6201	29.92	CO	28.67	375			VC	15.94037	
1213		CO		150			VC	53.33654	
9125		CO		225			VC	170.9397	1 in
4503	31.09	CO	28.27	630			VC	5.773633	
4505		CO		150			VC	4.136215	
1405		CO		100			VC	75.67458	1 in 319
9123		CO		225			VC	6.065455	
9015		CO		100			VC	13.71888	
3308		CO		100			VC	51.0598	
		UN		0			VC	2.316947	
				0			VC	13.52145	
				0			VC	18.54889	
				0			VC	1.11475	1 in
				0			UN	10.44628	

LEGEND

Abandoned

Foul

Surface Water

Combined

Public Sewer

Private Sewer

Section 104

Rising Main

Sludge Main

Overflow

Water Course

Highway Drain

All point assets follow the standard colour convention:
red - combined
blue - surface water
brown - foul
purple - overflow

● Manhole

⬮ Head of System

⬮ Extent of Survey

⬮ Rodding Eye

⬮ Inlet

⬮ Discharge Point

⬮ Non Return Valve

⬮ Air Valve

⬮ Oil Interceptor

⬮ Summit

⬮ Drop Shaft

⬮ Orifice Plate

⬮ Side Entry Manhole

⬮ Outfall

⬮ Screen Chamber

⬮ Inspection Chamber

⬮ Bifurcation Chamber

⬮ Lamp Hole

⬮ T Junction / Saddle

⬮ Catchpit

⬮ Valve Chamber

⬮ Vent Column

⬮ Vortex Chamber

⬮ Penstock Chamber

⬮ Network Storage Tank

⬮ Sewer Overflow

⬮ Ww Treatment Works

⬮ Ww Pumping Station

⬮ Septic Tank

⬮ Control Kiosk

⬮ DNM Network Monitoring Point

⬮ Change of Characteristic

MANHOLE FUNCTION

FO Foul

SW Surface Water

CO Combined

OV Overflow

SEWER SHAPE

CI Circular

EG Egg

OV Oval

FT Flat top

RE Rectangular

SQ Square

TR Trapezoidal

AR Arch

BA Barrel

HO HorseShoe

UN Unspecified

SEWER MATERIAL

AC Asbestos Cement

BR Brick

PE Polyethylene

RP Reinforced Plastic Matrix

CO Concrete

CSB Concrete Segment Bolted

CSU Concrete Segment Unbolted

CC Concrete Box Culverted

PSC Plastic / Steel Composite

GRC Glass Reinforced Plastic

DI Ductile Iron

PVC Polyvinyl Chloride

CI Cast Iron

SI Spun Iron

ST Steel

VC Vitrified Clay

PP Polypropylene

PF Pitch Fibre

MAC Masonry, Coursed

MAR Masonry, Random

U Unspecified

Address or Site Reference:

Deer Park Road,

Scale: 1:1250 Date: 23/10/2025

Sheet: 1 of 1

Printed by: Property Searches

SEWER
RECORDS


Water for the North West

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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APPENDIX 7

CC GEOTECHNICAL SOAKAWAY TEST AND LETTER REPORT

Units 1 & 2
Deltic Place
Deltic Way
Knowsley Industrial Estate
Liverpool
L33 7BU

Telephone: (0151) 545 2750
Fax: (0151) 548 7892
Email: enquiries@ccgeotechnical.com
www.ccgeotechnical.com



SHAW STEPHENS CONSULTING

Eden Point
Three Acres Lane
Cheadle Hulme
Cheadle
SK8 6RL

20th October 2025
FAO: Neville Shaw

Dear Sir,

RE: CCG-C-25-15767: SOAKAWAY TESTING AT 10 DEERPARK ROAD, MANCHESTER

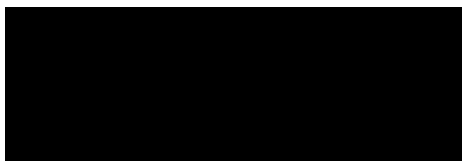
CC GEOTECHNICAL LIMITED (CCG) was instructed by **HILLTOP REALTY LTD** (The Client), to undertake a single soil infiltration determination at the subject site, in accordance with *BRE Digest 365*.

It is understood that the site is redeveloped with the construction of a single detached property. The purpose of the investigation was to determine if soakaway drainage could be deployed at the site.

The ground conditions encountered comprised of grassed TOPSOIL / crushed stone (0.5m thick), overlying grey / brown silty slightly sandy CLAY to around 0.8mbgl. The sequence continued and terminated in brown very silty slightly clayey gravelly SAND, proven to be 2.10mbgl.

On completion of excavation works, the pit was charged with water with the rate of fall then recorded at regular time intervals in accordance with *BRE Digest 365*. The soil infiltration rate was calculated to be 6.4×10^{-7} m/s. The worksheet is contained herein.

I trust the above is clear. However, if you have any questions, please feel free to contact the undersigned.



Daniel O'Regan BSc (Hons) PIEMA

Att: Soakaway test worksheet

Registered in England & Wales, Company No. 5085241. Head Office: Unit 1, Deltic Place, Deltic Way, Knowsley Industrial Estate, Liverpool, L33 7BU





SOIL INFILTRATION DATA

allowance for infiltration through soakaway base: **100%**
 available on-site infiltration test results: ☒ Yes ☐ No
 use soakage trial pit table below
 internal surface area of trial pit 'a_{p50}' [m²] = 3.89
 storage volume between 75-25% 'V_p' [m³] = 0.59
 time for water to fall from 75-25% 't_p' [min] = 3900.00
 soil infiltration rate 'f' [m/s] = 6.43E-07

SOAKAGE TRIAL PIT DATA

soakage trial pit width 'W_t' [m] = **0.50**
 soakage trial pit length 'L_t' [m] = **1.80**
 total depth from ground level 'D_{tb}' [m] = **2.10**
 depth to pipe invert level 'D_{tp}' [m] = **0.80**
 soakage trial pit effective depth 'D_{teff}' [m] = 1.30
 free volume in infill aggregate [%] = **100**

NOTE: faces of excavation assumed to be vertical

Soil Description

0.00 - 0.50mbgl - TOPSOIL

0.50 - 0.80mbgl - Grey with occasional brown marbling slightly sandy silty CLAY

0.80 - 2.10mbgl - Brown very silty slightly clayey gravelly fine and medium SAND

Single cycle test - drainage rate too slow

* Represents extrapolated data

SOAKAGE TRIAL PIT INFILTRATION TEST RESULTS

water level measurement N ^o :		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18*	19*
Soakage Trial 1	time [min] =	0	1	2	3	4	5	10	15	20	25	30	40	50	60	90	120	180	1680	5580
	depth to water [m] =	0.80	0.81	0.81	0.82	0.82	0.82	0.83	0.83	0.84	0.84	0.85	0.85	0.85	0.86	0.86	0.87	0.88	1.13	1.78
Soakage Trial 2	time [min] =																			
	depth to water [m] =																			
Soakage Trial 3	time [min] =																			
	depth to water [m] =																			

APPENDIX 8

SURFACE WATER NETWORK ANALYSES

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	10	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Adoptable Manhole Type

Max Width (mm)	Diameter (mm)	Max Width (mm)	Diameter (mm)
374	1200	749	1500
499	1350	900	1800

>900 Link+900 mm

Max Depth (m)	Diameter (mm)	Max Depth (m)	Diameter (mm)
1.500	1050	99.999	1200

Circular Link Type

Template	Freeform Carrier	Auto Increment (mm)	75
Shape	Circular	Follow Ground	x
Barrels	1		

Available Diameters (mm)

100 | 150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
RE01	0.004	5.00	30.090	100	0.800
SW01			30.270	450	1.180
SW02			30.300	450	1.410
EX MH			30.300	450	1.510

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	RE01	SW01	13.000	0.600	29.290	29.090	0.200	65.0	100	5.23	50.0
1.001	SW01	SW02	14.000	0.600	29.090	28.890	0.200	70.0	100	5.48	50.0
1.002	SW02	EX MH	7.000	0.600	28.890	28.790	0.100	70.0	100	5.61	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.956	7.5	0.5	0.700	1.080	0.004	0.0	18	0.554
1.001	0.921	7.2	0.5	1.080	1.310	0.004	0.0	18	0.533
1.002	0.921	7.2	0.5	1.310	1.410	0.004	0.0	18	0.533

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	13.000	65.0	100	Circular	30.090	29.290	0.700	30.270	29.090	1.080
1.001	14.000	70.0	100	Circular	30.270	29.090	1.080	30.300	28.890	1.310
1.002	7.000	70.0	100	Circular	30.300	28.890	1.310	30.300	28.790	1.410

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	RE01	100	Manhole	Adoptable	SW01	450	Manhole	Adoptable
1.001	SW01	450	Manhole	Adoptable	SW02	450	Manhole	Adoptable
1.002	SW02	450	Manhole	Adoptable	EX MH	450	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
RE01	-1.345	64.237	30.090	0.800	100				
						0	1.000	29.290	100
SW01	40.520	78.475	30.270	1.180	450		1	1.000	29.090
						0	1.001	29.090	100
SW02	56.113	44.407	30.300	1.410	450		1	1.001	28.890
						0	1.002	28.890	100
EX MH	40.181	15.932	30.300	1.510	450		1	1.002	28.790
									100

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m³/ha)	20.0
Ratio-R	0.400	Starting Level (m)	
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	40	0	0
100	45	0	0

Node SW01 Online Orifice Control

Flap Valve	x	Design Depth (m)	1.000	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	2.0		
Invert Level (m)	29.090	Diameter (m)	0.031		

Approval Settings

Node Size	✓	Minimum Full Bore Velocity (m/s)	
Node Losses	✓	Maximum Full Bore Velocity (m/s)	3.000
Link Size	✓	Proportional Velocity	✓
Minimum Diameter (mm)	150	Return Period (years)	
Link Length	✓	Minimum Proportional Velocity (m/s)	0.750
Maximum Length (m)	100.000	Maximum Proportional Velocity (m/s)	3.000
Coordinates	✓	Surcharged Depth	✓
Accuracy (m)	1.000	Return Period (years)	
Crossings	✓	Maximum Surcharged Depth (m)	0.100
Cover Depth	✓	Flooding	✓
Minimum Cover Depth (m)		Return Period (years)	30
Maximum Cover Depth (m)	3.000	Time to Half Empty	x
Backdrops	✓	Discharge Rates	✓
Minimum Backdrop Height (m)		Discharge Volume	✓
Maximum Backdrop Height (m)	1.500	100 year 360 minute (m ³)	
Full Bore Velocity	✓		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 15 minute summer	109.521	30.991	30 year +40% CC 30 minute winter	171.860	69.298
1 year 15 minute winter	76.857	30.991	30 year +40% CC 60 minute summer	163.225	43.136
1 year 30 minute summer	71.439	20.215	30 year +40% CC 60 minute winter	108.443	43.136
1 year 30 minute winter	50.133	20.215	30 year +40% CC 120 minute summer	98.613	26.061
1 year 60 minute summer	48.435	12.800	30 year +40% CC 120 minute winter	65.516	26.061
1 year 60 minute winter	32.179	12.800	30 year +40% CC 180 minute summer	74.617	19.202
1 year 120 minute summer	30.053	7.942	30 year +40% CC 180 minute winter	48.503	19.202
1 year 120 minute winter	19.966	7.942	30 year +40% CC 240 minute summer	58.245	15.393
1 year 180 minute summer	23.233	5.979	30 year +40% CC 240 minute winter	38.697	15.393
1 year 180 minute winter	15.102	5.979	30 year +40% CC 360 minute summer	43.710	11.248
1 year 240 minute summer	18.475	4.882	30 year +40% CC 360 minute winter	28.413	11.248
1 year 240 minute winter	12.274	4.882	30 year +40% CC 480 minute summer	34.053	8.999
1 year 360 minute summer	14.169	3.646	30 year +40% CC 480 minute winter	22.624	8.999
1 year 360 minute winter	9.210	3.646	30 year +40% CC 600 minute summer	27.658	7.565
1 year 480 minute summer	11.185	2.956	30 year +40% CC 600 minute winter	18.898	7.565
1 year 480 minute winter	7.431	2.956	30 year +40% CC 720 minute summer	24.485	6.562
1 year 600 minute summer	9.182	2.511	30 year +40% CC 720 minute winter	16.456	6.562
1 year 600 minute winter	6.274	2.511	30 year +40% CC 960 minute summer	19.901	5.240
1 year 720 minute summer	8.203	2.199	30 year +40% CC 960 minute winter	13.183	5.240
1 year 720 minute winter	5.513	2.199	30 year +40% CC 1440 minute summer	14.225	3.812
1 year 960 minute summer	6.768	1.782	30 year +40% CC 1440 minute winter	9.560	3.812
1 year 960 minute winter	4.483	1.782	100 year +45% CC 15 minute summer	505.670	143.087
1 year 1440 minute summer	4.949	1.326	100 year +45% CC 15 minute winter	354.856	143.087
1 year 1440 minute winter	3.326	1.326	100 year +45% CC 30 minute summer	332.000	93.944
30 year +40% CC 15 minute summer	376.189	106.449	100 year +45% CC 30 minute winter	232.982	93.944
30 year +40% CC 15 minute winter	263.992	106.449	100 year +45% CC 60 minute summer	222.268	58.739
30 year +40% CC 30 minute summer	244.900	69.298	100 year +45% CC 60 minute winter	147.669	58.739

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
100 year +45% CC 120 minute summer	134.215	35.469	100 year +45% CC 480 minute winter	30.262	12.038
100 year +45% CC 120 minute winter	89.169	35.469	100 year +45% CC 600 minute summer	36.875	10.086
100 year +45% CC 180 minute summer	101.219	26.047	100 year +45% CC 600 minute winter	25.195	10.086
100 year +45% CC 180 minute winter	65.795	26.047	100 year +45% CC 720 minute summer	32.556	8.725
100 year +45% CC 240 minute summer	78.690	20.795	100 year +45% CC 720 minute winter	21.879	8.725
100 year +45% CC 240 minute winter	52.280	20.795	100 year +45% CC 960 minute summer	26.340	6.936
100 year +45% CC 360 minute summer	58.701	15.106	100 year +45% CC 960 minute winter	17.448	6.936
100 year +45% CC 360 minute winter	38.157	15.106	100 year +45% CC 1440 minute summer	18.700	5.012
100 year +45% CC 480 minute summer	45.550	12.038	100 year +45% CC 1440 minute winter	12.567	5.012

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE01	10	29.309	0.019	0.6	0.0020	0.0000	OK
15 minute winter	SW01	12	29.153	0.063	0.6	0.0101	0.0000	OK
15 minute winter	SW02	13	28.907	0.017	0.4	0.0027	0.0000	OK
15 minute winter	EX MH	13	28.807	0.017	0.4	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE01	1.000	SW01	0.6	0.456	0.075	0.0393	
15 minute winter	SW01	1.001	SW02	0.4	0.500	0.060	0.0121	
15 minute winter	SW02	1.002	EX MH	0.4	0.501	0.060	0.0060	0.3

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE01	13	29.379	0.089	1.9	0.0096	0.0000	OK
15 minute winter	SW01	13	29.375	0.285	1.9	0.0454	0.0000	SURCHARGED
15 minute winter	SW02	14	28.916	0.026	1.0	0.0042	0.0000	OK
15 minute winter	EX MH	14	28.815	0.025	1.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE01	1.000	SW01	1.9	0.504	0.247	0.0988	
15 minute winter	SW01	1.001	SW02	1.0	0.635	0.141	0.0225	
15 minute winter	SW02	1.002	EX MH	1.0	0.640	0.141	0.0112	0.9

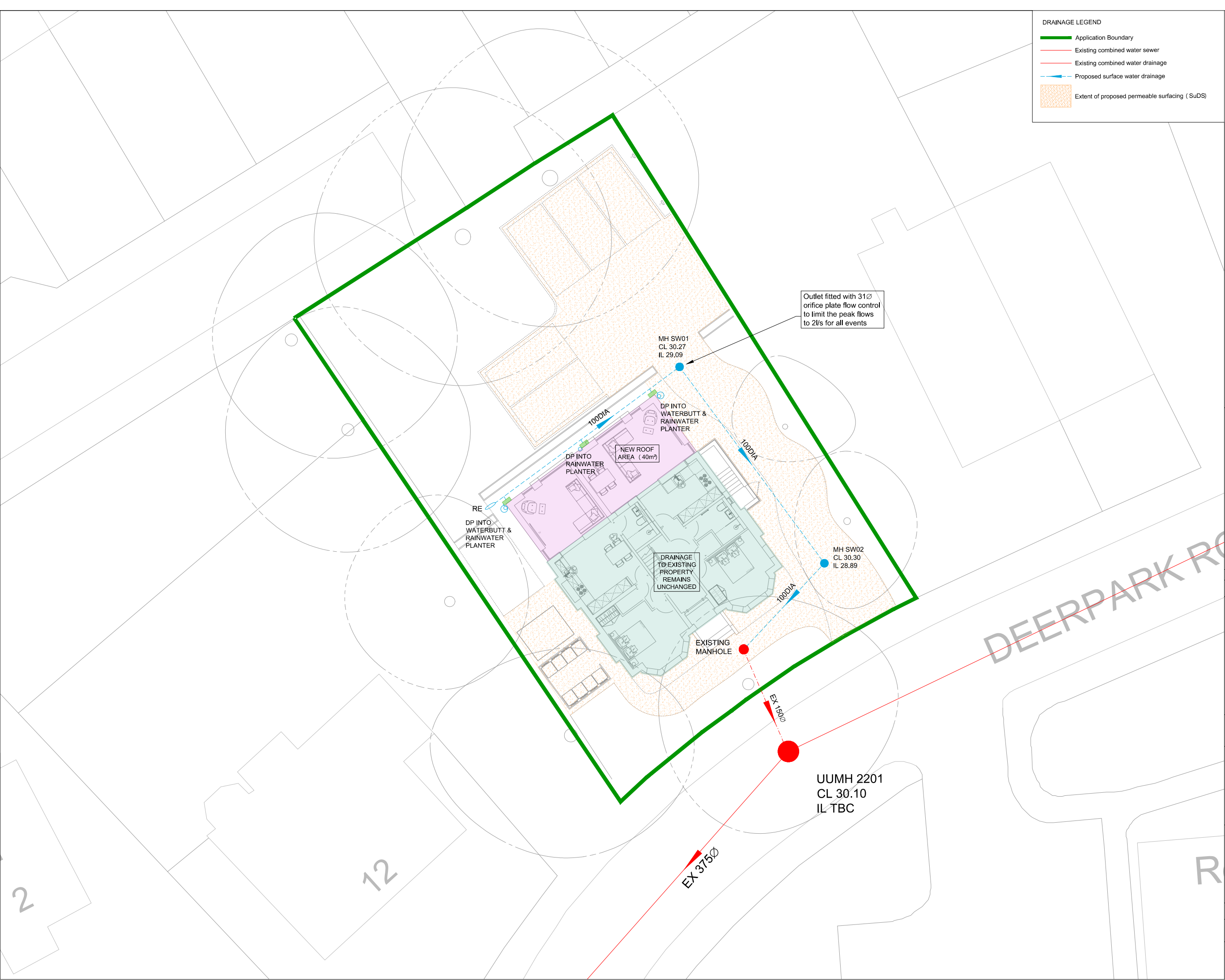
Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE01	14	29.479	0.189	2.6	0.0205	0.0000	SURCHARGED
15 minute winter	SW01	14	29.475	0.385	2.0	0.0612	0.0000	SURCHARGED
15 minute winter	SW02	14	28.918	0.028	1.2	0.0045	0.0000	OK
15 minute winter	EX MH	14	28.818	0.028	1.2	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE01	1.000	SW01	2.0	0.526	0.271	0.1017	
15 minute winter	SW01	1.001	SW02	1.2	0.663	0.166	0.0253	
15 minute winter	SW02	1.002	EX MH	1.2	0.668	0.166	0.0125	1.2

APPENDIX 9

DRAINAGE STRATEGY PLAN



DRAINAGE LEGEND

- Application Boundary
- Existing combined water sewer
- Existing combined water drainage
- Proposed surface water drainage
- Extent of proposed permeable surfacing (SuDS)

- Notes.**
1. All dimensions are in millimetres unless noted otherwise
 2. All levels are in metres unless noted otherwise.
 3. Do not scale from this drawing - use dimensions provided only. if additional dimensions are required, ask the engineer
 4. Rainwater downpipes are indicative only and subject to receipt of further detailed design information.
 5. Drainage design is indicative only for the purpose of demonstrating a viable surface water drainage solution / strategy for planning purposes. This drawing should **not** be used for construction
 6. Surface Water inspection chambers to typically be 450dia and with a min 300mm sump depth to act as a catchpit. SMH01 to be 1200mm diameter.
 7. For the purpose of the design, storage is provided within a combination of pipes, manholes / chambers, SuDS features and the remainder accommodated within crate storage. A CGA subbase layer of min 150mm below permeable surfaces has been assumed in the design.
 8. The scheme opposite is designed for all rainfall events up to the 1 in 100 year + 45% climate change event, with all storage provided below ground. Refer to the accompanying calculations
 9. Drainage proposals shown opposite are subject to review and approval from the LLFA.

P02	11-2025	Site Layout Updated	PG
P01	11-2025	Preliminary Issue	PG
Rev	Date	Description	By

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Status
PRELIMINARY

Project
**10 DEERPARK ROAD
WHALLEY RANGE,
MANCHESTER**

Title
DRAINAGE STRATEGY PLAN

Scale	1:100 @ A1	Date	05.11.25
Project No	0107	By	PG
Drawing No	0001	Apprvd	NS
		Rev	P02