SPHERE ENGINEERING

Sphere Engineering Job Ref. 2206
44 Garswood Road, Fallowfield
Flood Risk Statement
June 2022

SPHERE ENGINEERING

Table of Contents

Introduction **3**

Commission *3*

Development Proposals *3*

Site Description *3*

Relevant Policy and Guidance **4**

National Planning Policy *4*

Site Specific Information **5**

Levels *5*

Potential Sources of Flooding **6**

Fluvial Flooding *6*

Tidal Flooding *6*

Surface Water Flooding *6*

Groundwater Flooding *7*

Flooding from Reservoirs *7*

Conclusion **9**

Appendix A **10**

Appendix B **11**

Introduction

Commission

Sphere Engineering were appointed by the property owner / owner's representative to prepare a Flood Risk Statement in support of a Planning Application for their proposed rear extension house development at 44 Garswood Road, M14 7LL. OS grid reference SJ 83938 94657.

Development Proposals

The proposal is to construct a single storey rear extension, extending circa 6 m from the existing rear face of the building.

Site Description

The proposed development site is approximately 230 m^2 located in Fallowfield, Manchester circa 3 km from the city centre. The property is a semi-detached house on Garswood Road. It is bound by Garswood road to the south, attached to property number 42 to the east, separated from number 46 to the west, and bounded to the garden of number 103 Clinton Avenue to the north.

The site address is 44 Garswood Road, M14 7LL. The site location is shown in Figure 1 below.

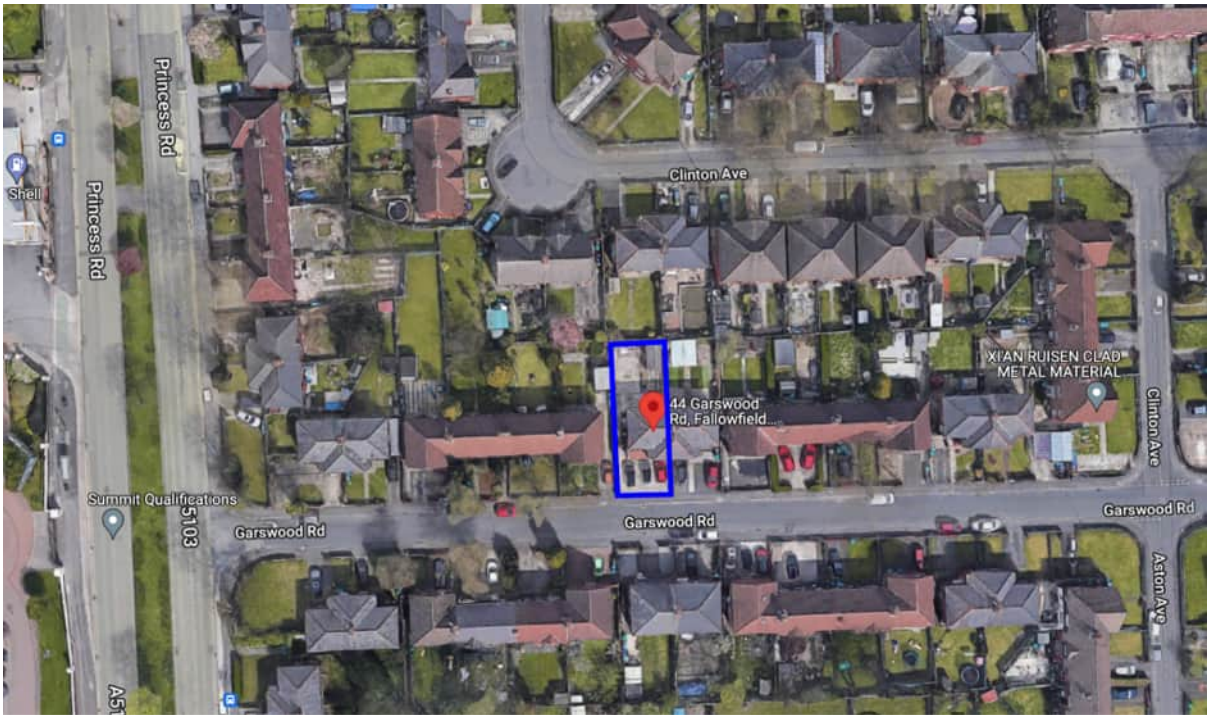

Figure 1 Site location plan and aerial view

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Relevant Policy and Guidance

National Planning Policy

With regard to flood risk, the NPPF requires that

> *'inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.'*

This is undertaken through the use of a Sequential Test that establishes the appropriateness of development at a specific site. The NPPF refers to the Flood Zones which are shown on the Environment Agency Flood Map, and establishes the range of uses which are appropriate, or compatible, land uses for each Flood Zone.

The Flood Zones can be summarised as follows:

Zone 1: Low Probability. This zone comprises land assessed as having less than 1 in 1000 annual probability of river or sea flooding in any one year. (<0.1%).

Zone 2: Medium Probability. This zone comprises land assessed as having between 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1%) in any year.

Zone 3a: High Probability. This zone comprises land assessed as having 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

Zone 3b: Functional Flood Plain. This zone comprises land where water has to flow or to be stored in times of flood. Strategic Flood Risk Assessments should identify this zone.

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Site Specific Information

This section summarises the additional information collected as part of this FRS in addition to the flood risk information shown in the Environment Agency flood zone maps.

Levels

General site levels have been obtained from the OS maps as shown in Figure 2 below.

The site level is 31 m (AOD).

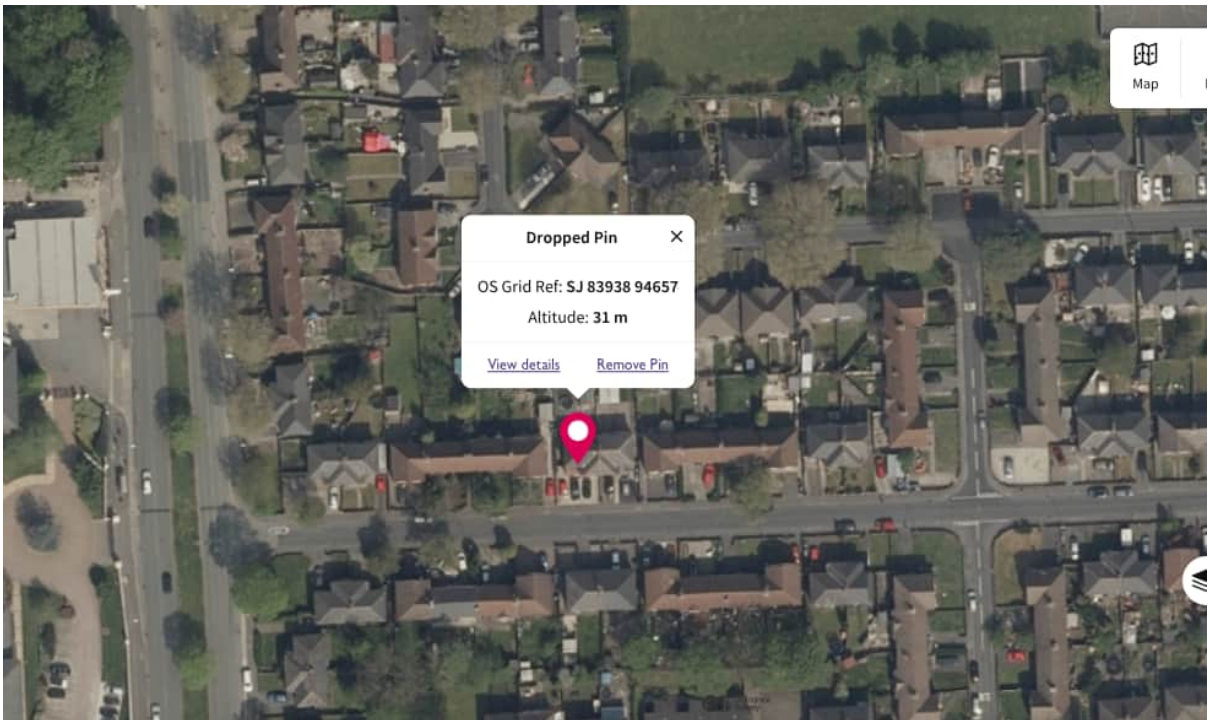

Figure 2 OS map showing site level

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Potential Sources of Flooding

Within this section the main categories of flooding have been assessed. The specific issues relating to each flood cause and its impact to the development are discussed below.

Fluvial Flooding

Environment Agency flood map in Figure 3 below shows the site falls within an area of low risk of flooding due to rivers or seas (assessed as having a chance of flooding of between 0.1% and 1% in a year).

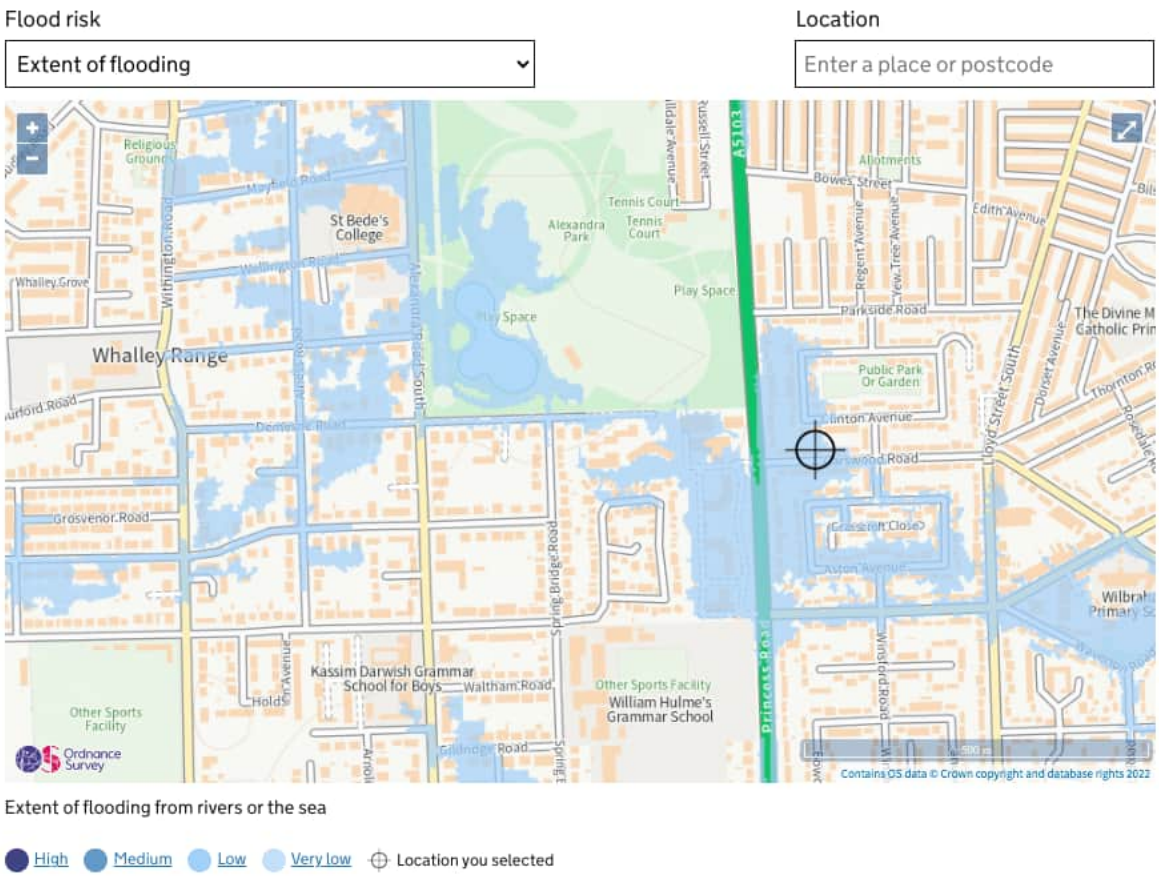

Figure 3 Environment Agency map showing extent of flooding from rivers or the sea

Tidal Flooding

There are no tidally influenced watercourses within close proximity of the site, as such the risk of tidal flooding is considered to be negligible.

Surface Water Flooding

The prediction of flooding from surface water can be difficult, as it is hard to forecast the exact intensity and extent of rainfall during a storm event – in the addition, local features can greatly affect the chance and severity of flooding. Under the Flood Risk Regulations, the Environment Agency has produced and published high-level flood maps for surface water.

As high-level information, the mapping is intended for guidance only, and cannot provide details for individual properties.

Figure 4 below is an extract of the EA's surface water flooding map showing that the site sits in an area at medium risk of flooding due to surface water. This means that each year this area has a chance of flooding of between 1% and 3.3%.

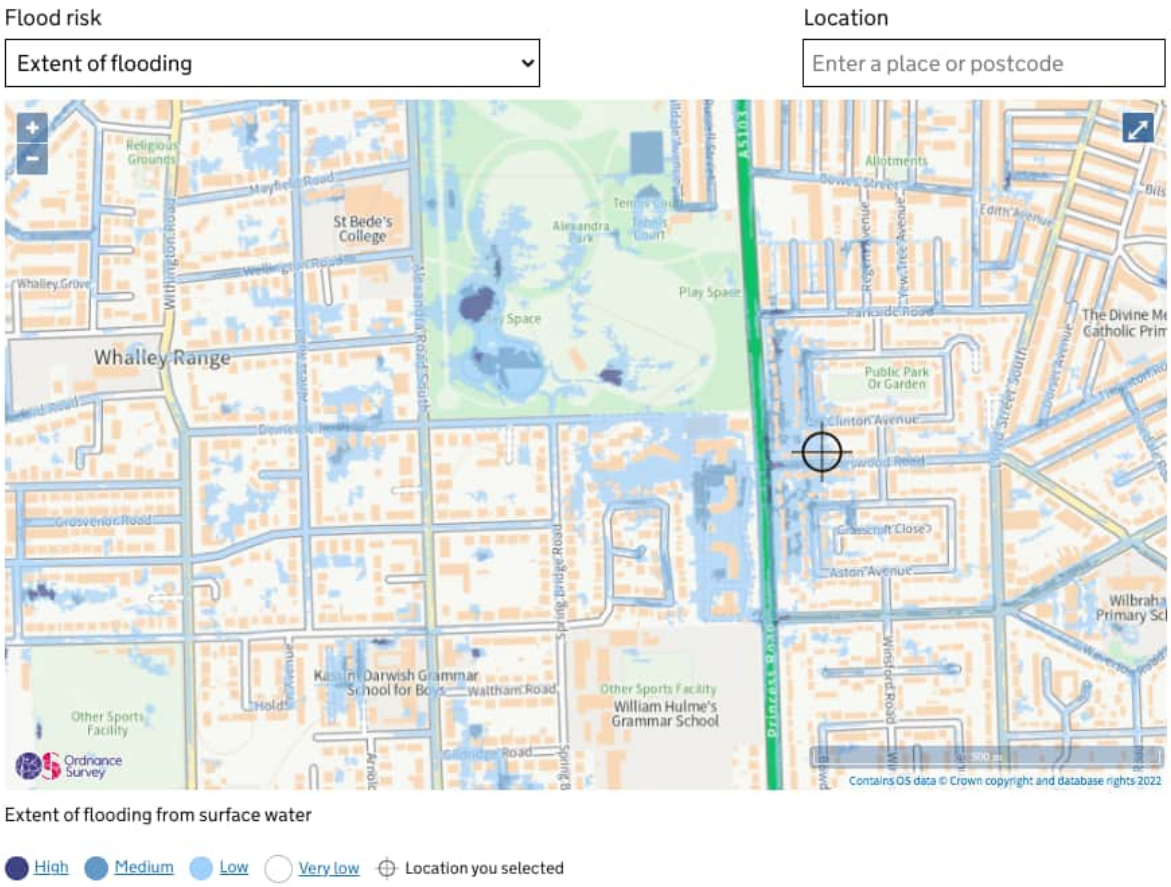

Figure 4 Environment Agency map showing extent of flooding from surface water

Groundwater Flooding

Flooding from Reservoirs

Flooding from reservoirs is extremely unlikely. An area is considered at risk if peoples' lives could be threatened in the event of a dam or reservoir failure.

EA map Figure 5 below indicates that the site is located in an area that is at risk of flooding from reservoirs when river levels are normal.

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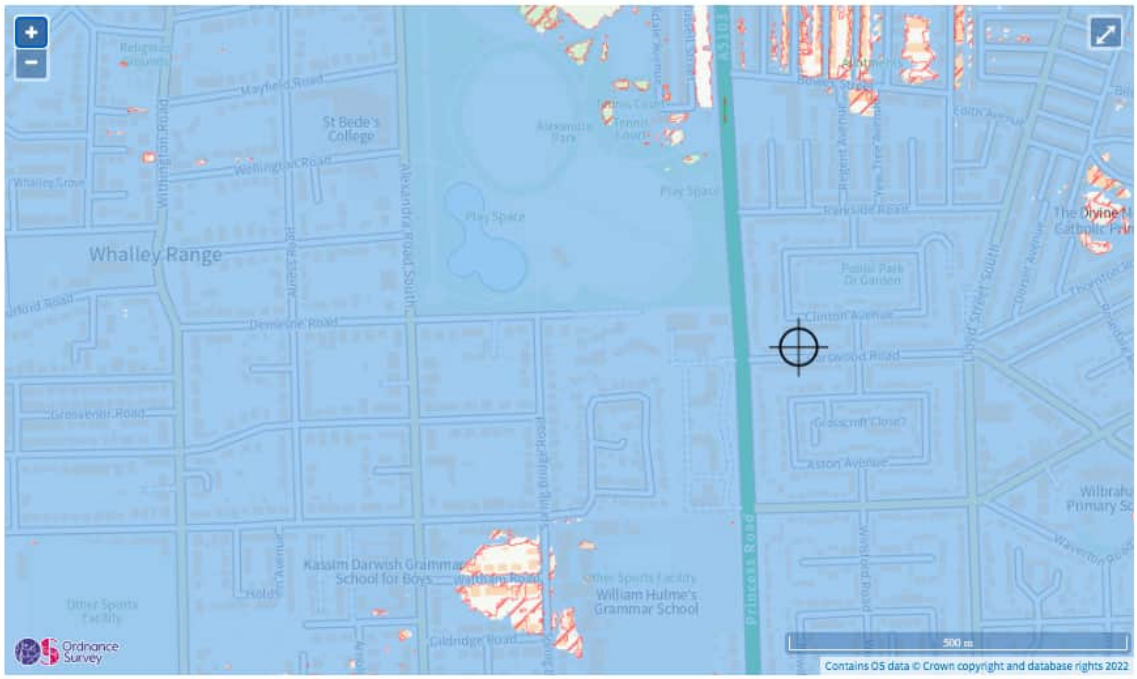
Flood risk

Extent of flooding

Location

Enter a place or postcode



Maximum extent of flooding from reservoirs:

when river levels are normal when there is also flooding from rivers Location you selected

Figure 5 Environment Agency map showing maximum extent of flooding from reserviors

The following reservoirs could affect this area:

- Gorton Upper (grid reference SJ8990096300)
- Gorton Lower (grid reference SJ8941396034)
- Audenshaw No.3 (grid reference SJ9110096700)
- Audenshaw No.1 (grid reference SJ9170096700)
- Audenshaw No.2 (grid reference SJ9140096200)

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Conclusion

- The existing ground immediately adjacent to the rear of the property in the area of the proposed extension comprises paved hardstanding where surface water drains to surface water gullies connected to the surface water mains drainage system. The proposed extension shall have a pitched roof with drainage into the same mains water system. Therefore, the proposal will not be increasing the existing surface water discharge.
- The proposed ground levels are proposed to remain the same as existing and the finished ground floor levels withing the proposed extension would be the same as the finished floor levels with the existing property, as indicated in Appendix B. Therefore, the proposed extension thresholds would be the same as the existing and no increase in flood risk on the site or to adjacent areas is anticipated.
- All forms of flood risk to the site have been assessed and it has been deemed that there is low risk of flooding to the proposed development.

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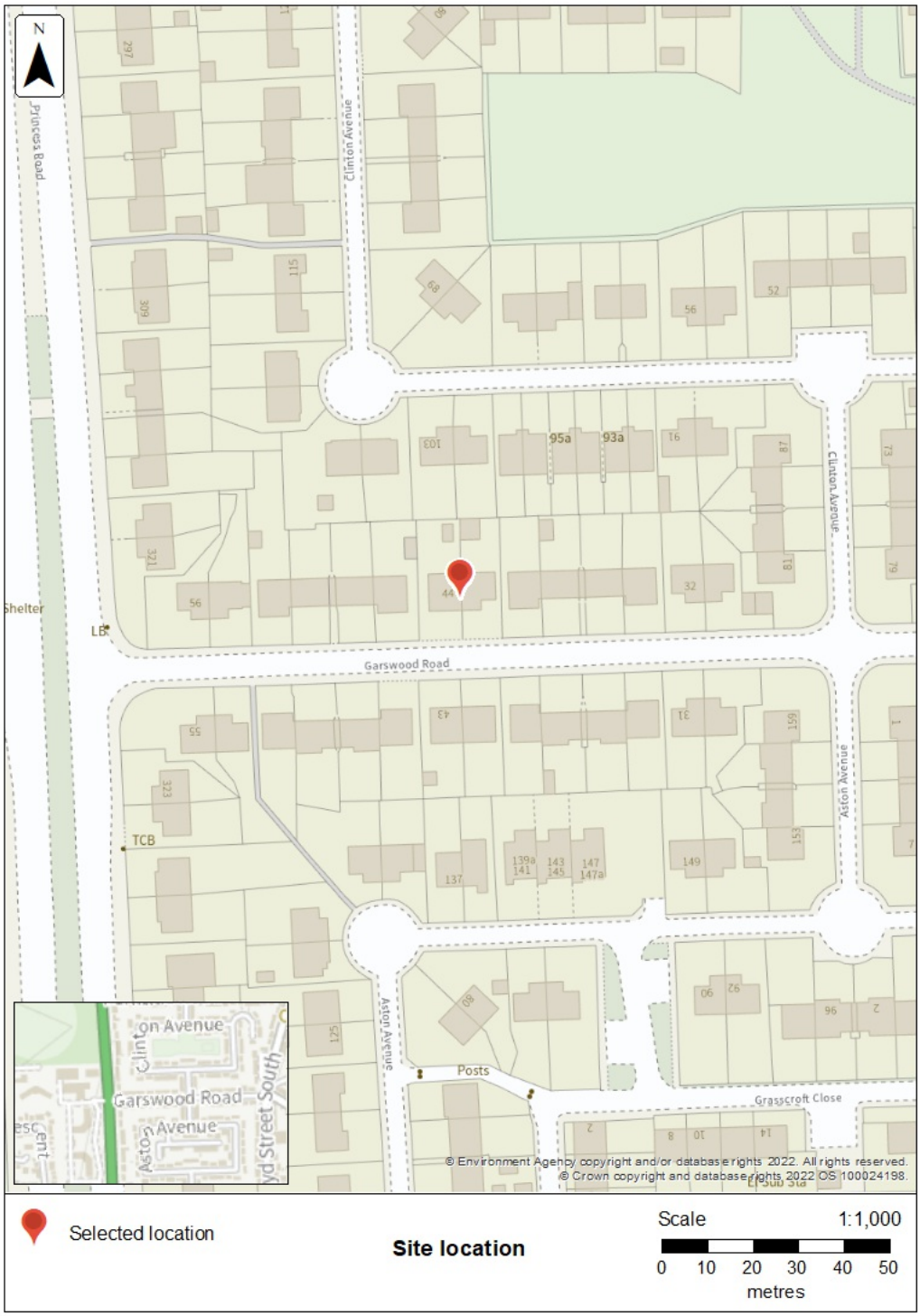
Appendix A

Flood risk assessment data

Location of site: 383942 / 394655 (shown as easting and northing coordinates)
Document created on: 5 May 2022
This information was previously known as a product 4.
Customer reference number: GMMC260958AB/JTDNFPH273RB

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)
- flood defences and attributes
- modelled data
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Information that's unavailable

This document **does not** contain:

- historic flooding

We do not have historic flooding data for this location. 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.

Surface water and other sources of flooding

Use the long term flood risk service to find out about the risk of flooding from:

- surface water
- ordinary watercourses
- reservoirs

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

About the models used

Model name: CHOP_2012_D
Scenario(s): Defended and undefended fluvial
Date: 16 March 2012

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

Terminology used

Annual exceedance probability (AEP)

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

Metres above ordnance datum (mAOD)

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

Flood map for planning (rivers and the sea)

Your development is in flood zone 2.

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

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

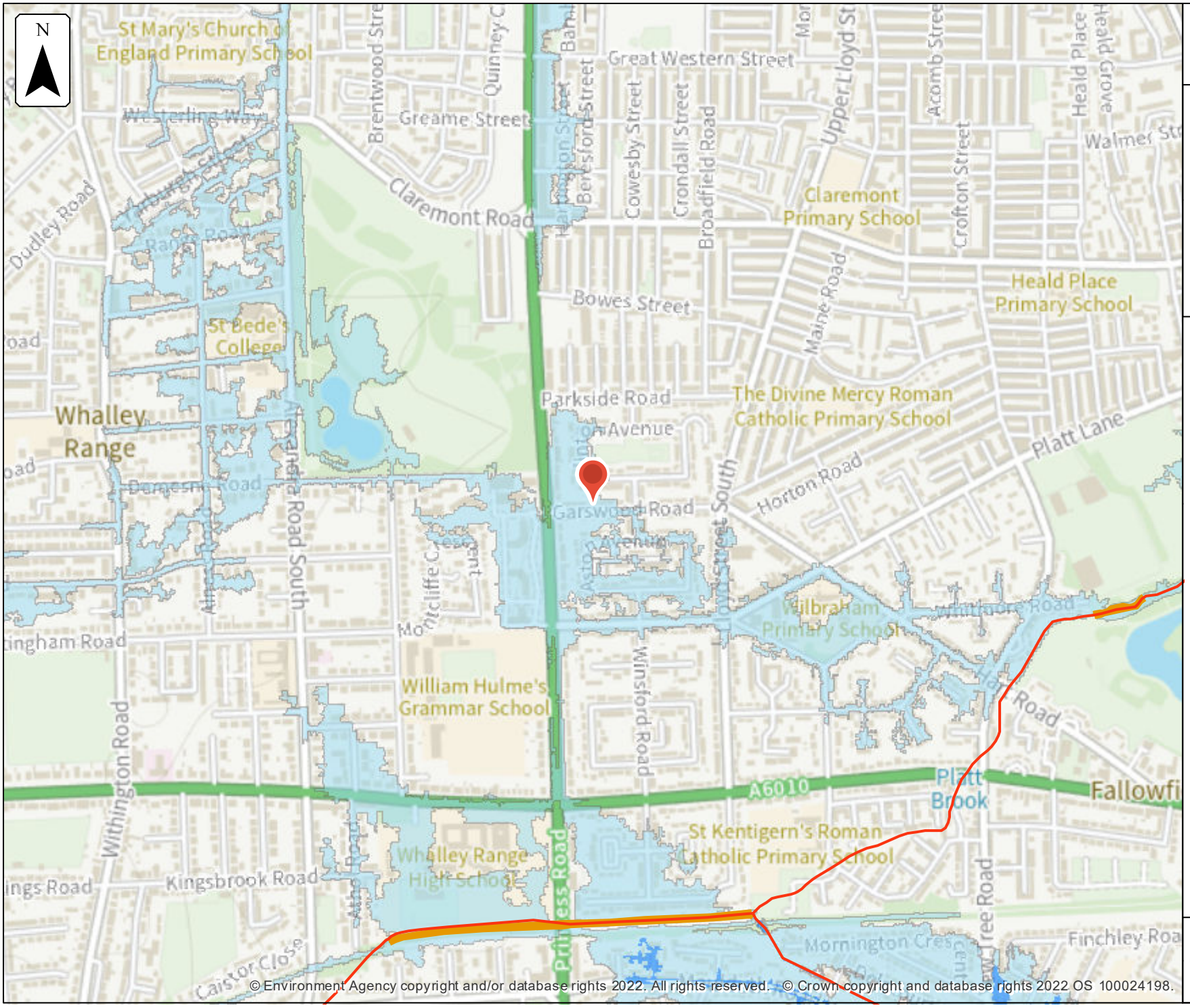
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

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

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

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

This data is updated on a quarterly basis as better data becomes available.



Environment Agency

Flood map for planning

Location (easting/northing)
383942/394655

Scale
1:10,000

Created
5 May 2022

Selected location

Main river

Flood defence

Flood zone 3

Flood zone 2

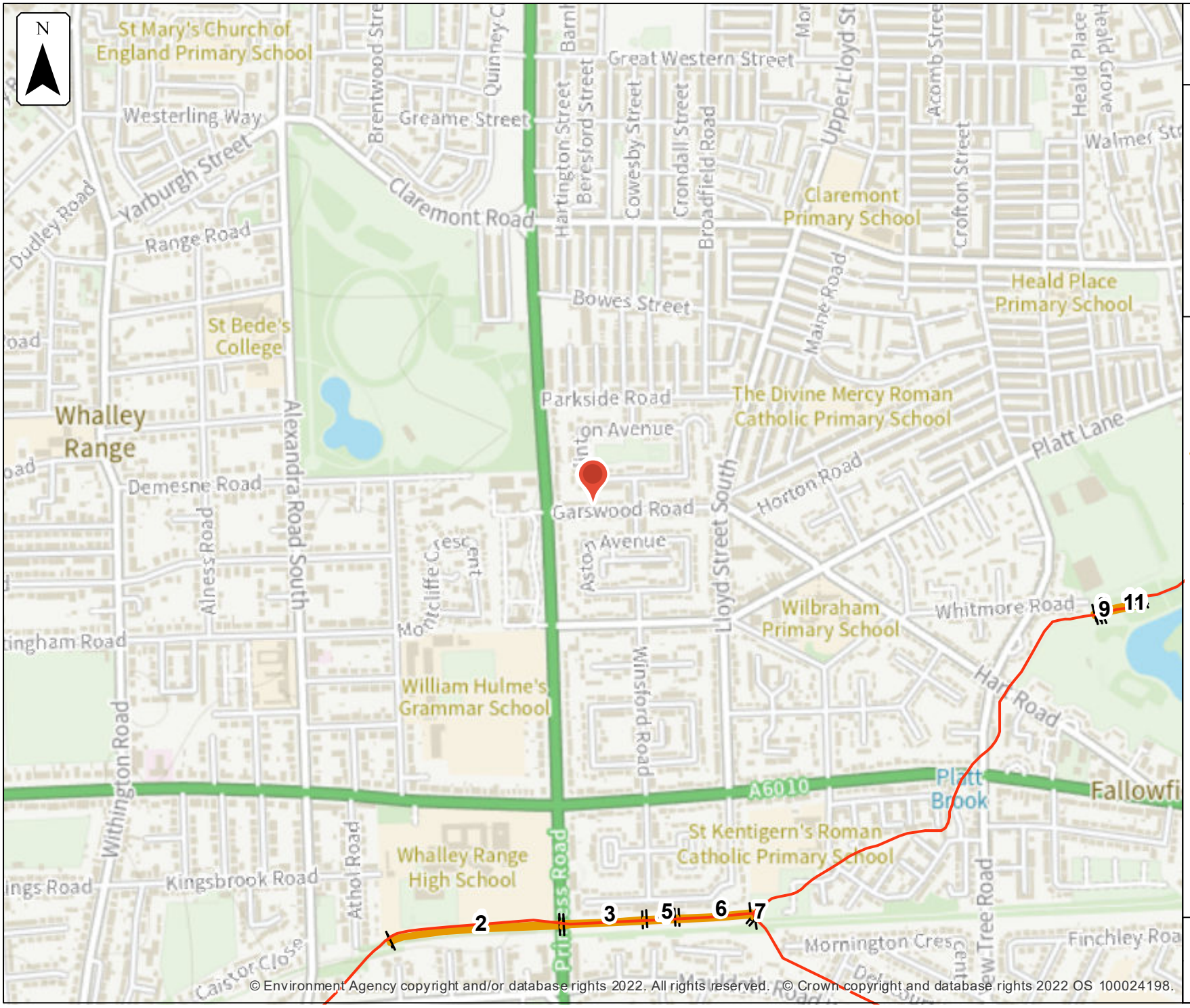
0 100 200 300 400 500
metres

Flood defences and attributes

The flood defences map shows the location of the flood defences present.

The flood defences data table shows the type of defences, their condition and the standard of protection. It shows the height above sea level of the top of the flood defence (crest level). The height is In mAOD which is the metres above the mean sea level at Newlyn, Cornwall.

It's important to remember that flood defence data may not be updated on a regular basis. The information here is based on the best available data.



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Environment Agency

Flood defences

Location (easting/northing)
383942/394655

Scale
1:10,000

Created
5 May 2022

Selected location

Main river

Flood defence

0 100 200 300 400 500
metres

Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	120082	Embankment	100	Poor	30.36	31.27	
2	32515	Embankment	100	Poor	30.29	31.52	
3	32518	Wall	100	Poor	31.48	31.84	
4	60038	Embankment	100	Fair	31.39	32.25	
5	59788	Embankment	100	Poor	31.81	32.82	
6	122064	Wall	100	Poor	31.84	31.90	
7	8987	Engineered High Ground	5	Fair	31.60	31.99	
8	32543	Wall	100	Fair	35.74	35.76	
9	32516	Wall	100	Fair	35.75	35.75	
10	120657	Embankment	100	Fair	36.29	36.27	
11	59791	Wall	100	Fair	36.03	36.07	

Any blank cells show where a particular value has not been recorded for an asset.

Modelled data

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

- outline maps showing the area at risk from flooding in different modelled scenarios
- modelled node point map(s) showing the points used to get the data to model the scenarios and table(s) providing details of the flood risk for different return periods
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Climate change

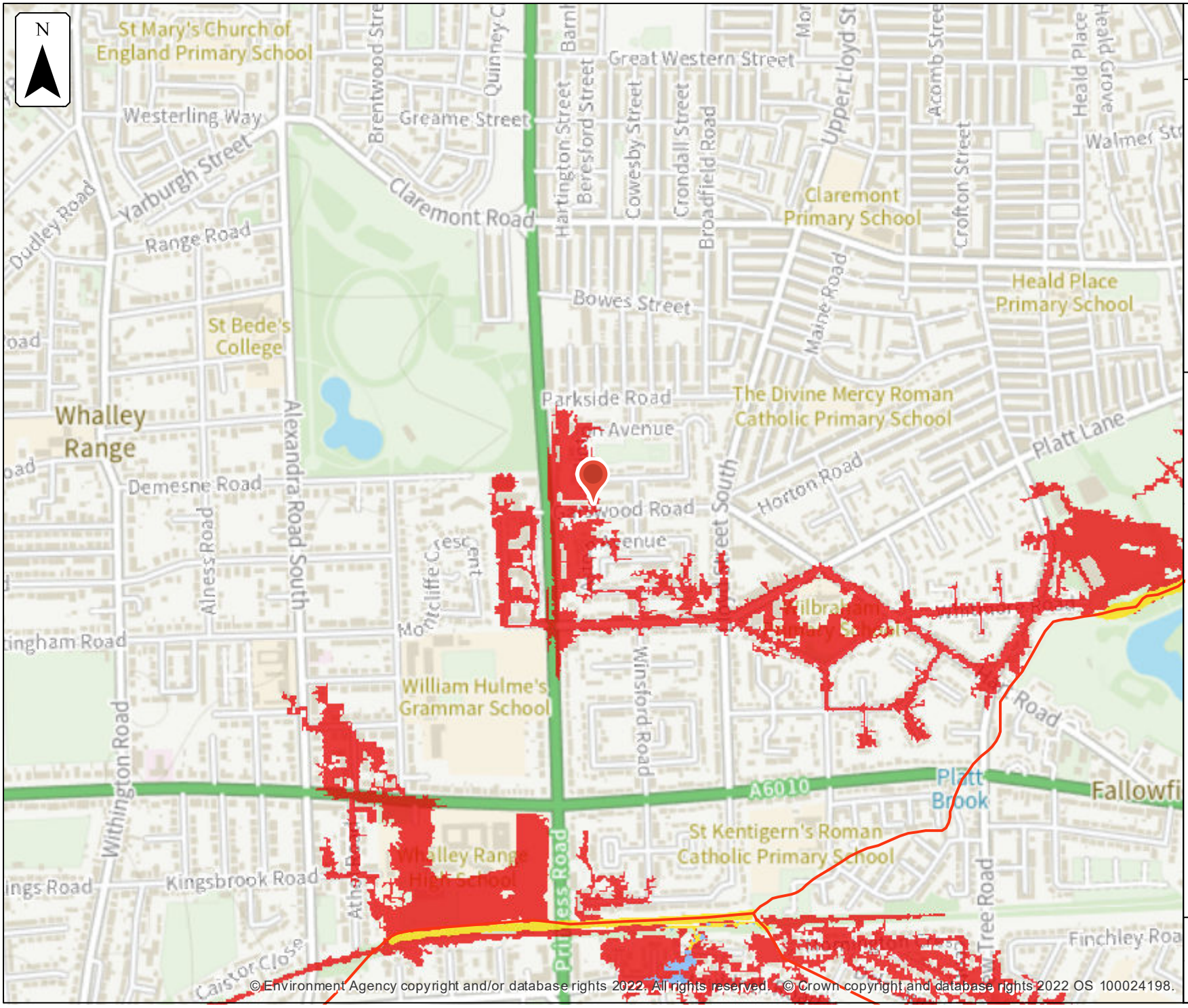
The climate change data included in the models may not include the latest flood risk assessment climate change allowances. Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

Modelled scenarios

The following scenarios are included:

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



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Environment Agency

Defended modelled fluvial extent

Location (easting/northing)
383942/394655

Scale
1:10,000

Created
5 May 2022

Model name
CHOP 2012 D

Selected location

Main river

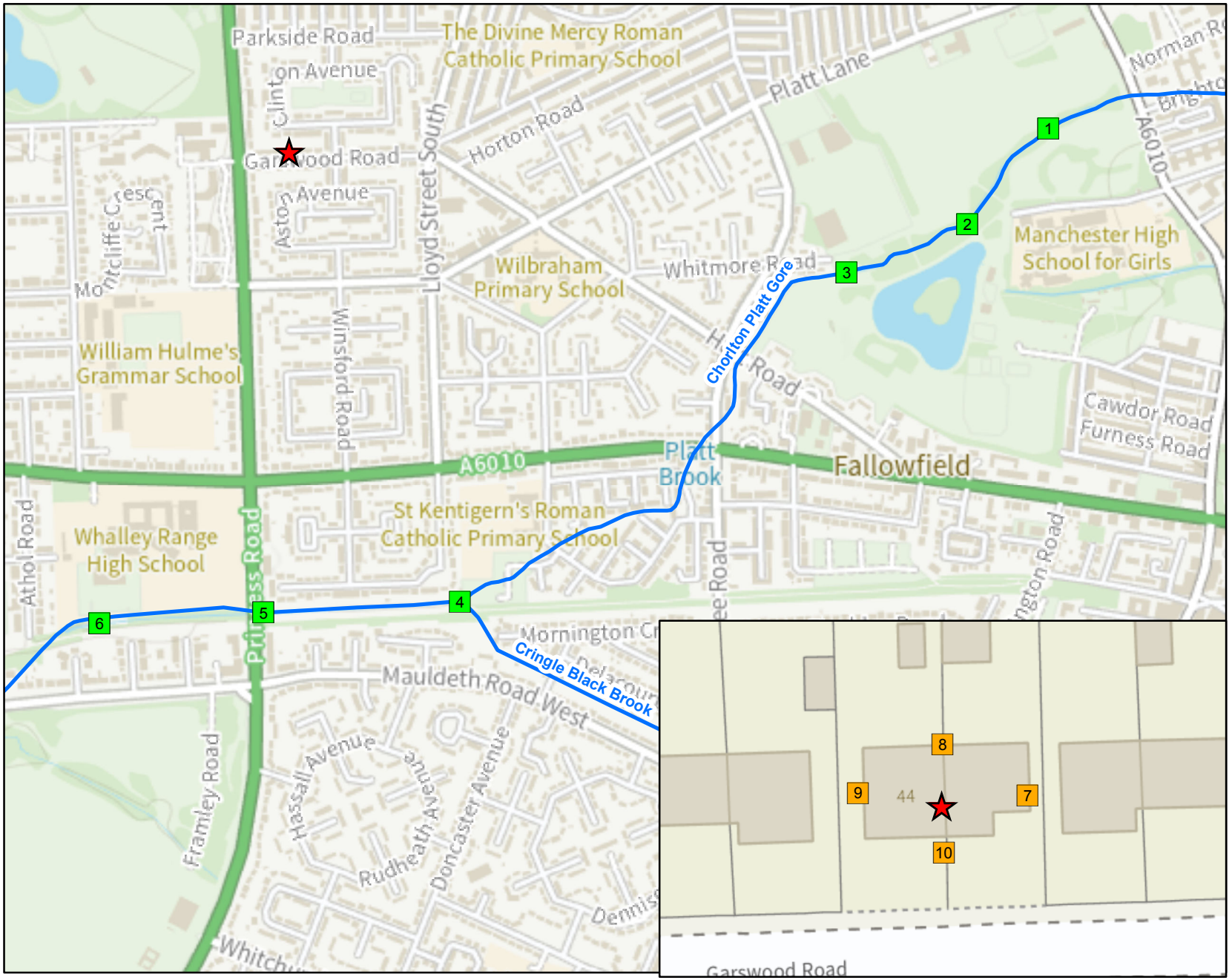
Modelled flood extent

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

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

0 100 200 300 400 500
metres

Model Measurement Map - Chorlton Platt Gore 2012



Environment Agency

1:10,001

N

Legend

- Site Location
- Model Measurements
- 2D Measurements
- Main River

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 08708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

					Defended									Undefended							
Map Reference	Model Node Reference	Easting	Northing	Data	50 % AEP (1 in 2 year)	10 % AEP (1 in 10 year)	4 % AEP (1 in 25 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.1 % AEP (1 in 1000 year)	10 % AEP (1 in 10 year)	4 % AEP (1 in 25 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 30% increase in flow	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.1 % AEP (1 in 1000 year)
1	ea013_Model_CHOP02_0487	385295	394696	Modelled Water Level (m aodN)	34.42	34.69	34.88	35.10	35.14	35.35	35.39	36.51	36.68	34.69	34.88	35.10	35.14	35.35	35.39	36.29	36.52
				Modelled Flow (cumecs)	0.00	5.86	8.12	10.66	11.21	13.91	14.14	17.51	18.78	5.86	8.12	10.66	11.21	13.91	14.14	17.57	18.92
2	ea013_Model_CHOP02_0258	385151	394526	Modelled Water Level (m aodN)	33.65	33.93	34.12	34.33	34.38	34.73	34.96	36.18	36.26	33.93	34.12	34.33	34.38	34.70	34.92	35.96	36.11
				Modelled Flow (cumecs)	0.00	5.86	8.12	10.66	11.20	13.88	14.06	16.77	18.85	5.86	8.12	10.66	11.20	13.88	14.07	17.34	18.74
3	ea013_Model_CHOP02_0021u	384936	394440	Modelled Water Level (m aodN)	32.84	33.18	33.43	33.68	33.73	34.47	34.69	35.92	36.06	33.18	33.43	33.68	33.73	34.41	34.65	35.62	35.73
				Modelled Flow (cumecs)	0.00	5.89	8.16	10.69	11.23	13.76	13.94	16.12	16.43	5.89	8.16	10.69	11.23	13.77	13.96	15.69	15.93
4	ea013_Model_CHOP01_4414u	383896	393833	Modelled Water Level (m aodN)	30.34	30.80	31.02	31.22	31.26	31.44	31.48	31.69	31.70	30.80	31.02	31.22	31.26	31.39	31.41	31.62	31.64
				Modelled Flow (cumecs)	0.00	10.25	13.67	17.03	17.76	21.11	21.54	24.23	24.14	10.25	13.64	17.00	17.71	20.23	20.44	23.09	23.19
5	ea013_Model_CHOP01_4120u	383603	393814	Modelled Water Level (m aodN)	28.14	28.47	28.68	28.97	29.15	30.53	30.63	31.01	31.03	28.47	28.68	28.97	29.15	30.37	30.55	30.91	30.97
				Modelled Flow (cumecs)	0.00	10.25	13.66	17.02	17.74	20.93	21.42	24.44	24.66	10.25	13.64	16.99	17.70	20.10	20.30	22.77	22.93

					Undefended	Defended
Map Reference	Model Node Reference	Easting	Northing	Data	0.1 % AEP (1 in 1000 year)	0.1 % AEP (1 in 1000 year)
7	2D Measurements	383950	394656	Modelled Water Level (m aodN)	31.28	31.20
8		383942	394661	Modelled Water Level (m aodN)	31.28	31.20
9		383935	394656	Modelled Water Level (m aodN)	31.28	31.20
10		383942	394651	Modelled Water Level (m aodN)	31.28	31.20

Model data taken from Chorlton Platt Gore 2012 Study

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes:

Climate Change Scenario - 30%, 35% and 70% increases in flow calculated for the 2080'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 allowances to consider in any flood risk assessment.

Strategic flood risk assessments

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

This should give you information about:

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

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

Find out more about flood risk activity permits

Help and advice

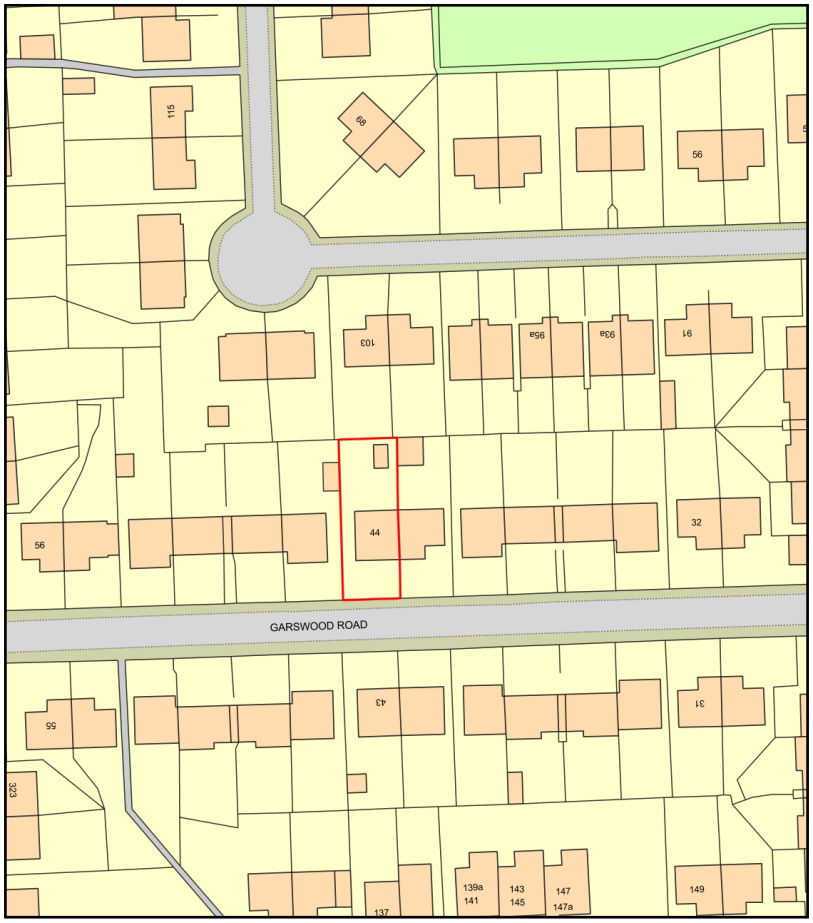
Contact the Greater Manchester Merseyside and Cheshire Environment Agency team at inforequests.gmmc@environment-agency.gov.uk for:

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

SPHERE ENGINEERING

Appendix B

44 M147LL



0 50
Metres

N

ReQuestaPlan

Plan Produced for: 44 M147LL

Date Produced: 20 Apr 2022

Plan Reference Number: TQRQM22110225731242

Scale: 1:1250 @ A4

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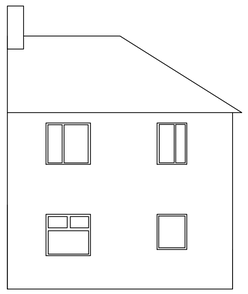
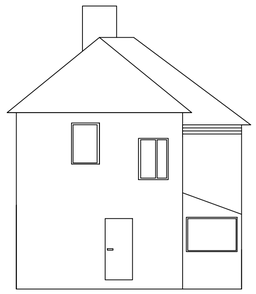
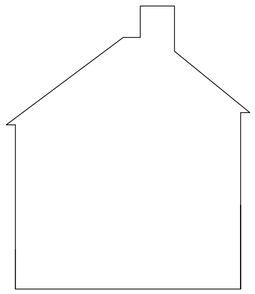


Existing

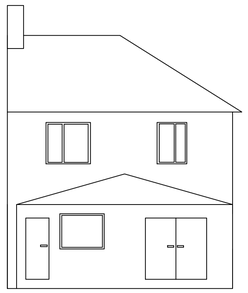
Rear



Side

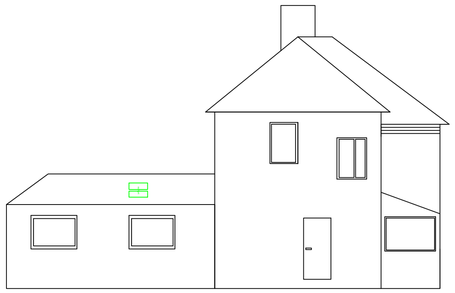


Party Wall Line

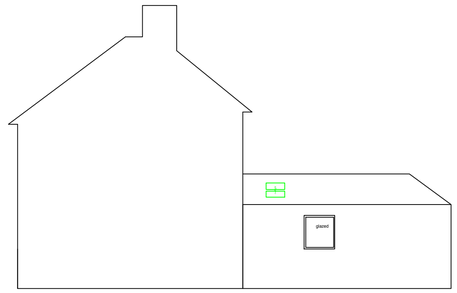


Proposed

Rear



Side



Party Wall Line

SCALE 1:100
PRINT ON A1
FOR DESIGN INTENT ONLY