

# Flood Risk Assessment

400 Platt Lane, Manchester M14 7HJ

| Date       | Prepared For                | Reference |
|------------|-----------------------------|-----------|
| March 2023 | Siddig Dafalla B. Elzailaee | 73059     |



**W:** [www.geoson.co.uk](http://www.geoson.co.uk)

**T:** 01174 414993

**A:** GeoSon Limited, Runway East, 1 Victoria St, Redcliffe, Bristol BS1 6AA

## Contract

GeoSon Limited were instructed by Siddig Dafalla B. Elzailaee by an email dated 6<sup>th</sup> March 2023 to undertake a Site Specific Flood Risk Assessment to support a proposed planning application for development at 400 Platt Lane, Manchester.

|                      |                                                                                                |
|----------------------|------------------------------------------------------------------------------------------------|
| <b>Project</b>       | Flood Risk Assessment for Planning                                                             |
| <b>Prepared For</b>  | Siddig Dafalla B. Elzailaee                                                                    |
| <b>Location</b>      | 400 Platt Lane, Manchester M14 7HJ                                                             |
| <b>Application</b>   | Erection of a single storey side and rear extension to provide additional living accommodation |
| <b>Our Reference</b> | 73059                                                                                          |
| <b>Version</b>       | 1.0                                                                                            |
| <b>Issue Date</b>    | 15/03/2023                                                                                     |
| <b>Issued To</b>     | Siddig Dafalla B. Elzailaee                                                                    |
| <b>Prepared By</b>   | Thomas Smith BSc (Hons) PIEMA                                                                  |

## Purpose

This report has been prepared by GeoSon Limited exclusively for the use of the commissioning client for the purpose for which it was commissioned as defined in the quotation. GeoSon Limited accepts no liability for the contents of this report if it is used for purposes other than for which it was originally commissioned and prepared. Information from third parties included in this report has not been verified and is provided "AS IS". This document is valid on the date issued, and as context, regulations, and accepted understanding change the validity of this report for its purpose may too change in future.

This report may not be reproduced or distributed other than to the parties defined in the quotation without prior permission from GeoSon Limited.

## Key Facts

### Flood Risk Posed to the Site

The proposed planning application is for construction of two single storey extensions on the side and rear of the existing dwelling. The proposed extensions will have a total built footprint of less than 22m<sup>2</sup> therefore it is considered that EA standing advice applies.

According to the Environment Agency's Flood Map for Planning, part of the site and surrounding area are located within Flood Zone 2 (Medium Probability), defined as land having between a 1 in 100 and 1 in 1000 annual probability of fluvial flooding.

Given this, a Product 4 enquiry was raised with the Environment Agency to obtain detailed flood model information in the relation to the site. The Environment Agency provided modelled in-channel flood levels and flows as well as 2D floodplain node levels extracted from the Chorlton Platt Gore model, 2012.

Adopting a conservative approach, the 0.1% AEP 2D floodplain level plus nominal +300mm allowance for climate change (31.68mAOD) has been used to base this Flood Risk Assessment on.

Comparison of the 0.1% AEP (+300mm) flood level (31.68mAOD) with EA LiDAR data corresponding to the location of the extension footprints (31.40mAOD) indicates that the areas proposed to be developed may experience depths of up to 0.28m during the design scenario.

The EA's Risk of Flooding from Surface Water data shows that the majority of the site, including the areas proposed to be developed, are modelled at "Very Low" risk of flooding from surface water. However, the northmost boundary of the site has been modelled at "Low" risk.

According to the Level 2 Hybrid SFRA groundwater map the site is not located within an area identified at risk of groundwater flooding or within an area where shallow groundwater is present. No further information has been provided to suggest that the site or surrounding area has historically been subject to groundwater flooding.

Review of the Environment Agency's Risk of Flooding from Reservoirs map indicates that the site is located within the 'maximum extent of flooding from reservoirs when river levels are at a normal level'. As such, whilst unlikely to occur, the development is considered to be susceptible to reservoir failure.

No information has been provided to suggest that the site has historically been subject to sewer surcharge flooding. In addition, no canals or other artificial infrastructure have been identified within the surrounding area which could pose a risk of flooding to the development.

### Flood Mitigation

- It is recommended that the Finished Floor Level of proposed extensions are set at the same level as the existing dwelling (approximately 31.55mAOD).
- Considering that the development has been shown to be at risk of flooding from rivers during the design climate change event flood resistance and resilience measures are recommended to protect the ground floor (refer to page 29).
- Important personal belonging and documents (including insurance policies and photographs) should be stored above the design flood level.
- Any external landscaping should be designed to slope away from the dwelling, where possible, and linear drains should be installed along entry thresholds.
- The site is located within an EA Flood Warning and Alert area. Therefore it is recommended that future owners/occupants of the development sign up to the

Environment Agency's free Targeted Flood Warning Service at <https://www.gov.uk/sign-up-for-flood-warnings>.

- Future owners/occupants should also be advised to monitor weather forecasts by signing up to the Met Office weather warnings.
- Given that the proposals relate to extension of an existing two storey dwelling, it is considered that safe refuge above the 0.1% AEP (+300mm) fluvial flood level (31.68mAOD) can be provided on the first floor.
- Safe access and egress to and from the development can be provided via Princess Road, adjacent west. It is recommended that residents travel south along Princess Road before heading east along Wilbraham Road. This route is located outside of the 0.1% AEP fluvial flood extent and the 1 in 100 year surface water extent from 390m south of the site (along Wilbraham Road) onwards.

## Contents

|                                                |           |
|------------------------------------------------|-----------|
| <b>Introduction .....</b>                      | <b>6</b>  |
| Context .....                                  | 6         |
| National FRA Requirements .....                | 6         |
| Objectives .....                               | 6         |
| <b>Site Details .....</b>                      | <b>7</b>  |
| Site Description .....                         | 7         |
| Topography .....                               | 9         |
| Geology and Hydrogeology .....                 | 11        |
| Nearby Watercourses .....                      | 13        |
| <b>Proposed Development .....</b>              | <b>14</b> |
| Development Proposals .....                    | 14        |
| Development Vulnerability Classification ..... | 15        |
| Sequential and Exception Test .....            | 17        |
| EA Standing Advice .....                       | 18        |
| <b>Assessment of Flood Risk .....</b>          | <b>19</b> |
| Document Review .....                          | 19        |
| Historical Flooding .....                      | 19        |
| Environment Agency Flood Zones .....           | 20        |
| Fluvial (Rivers) .....                         | 22        |
| Environment Agency Product 4 Response .....    | 22        |
| Defences .....                                 | 24        |
| Pluvial (Surface Water) .....                  | 25        |
| Groundwater .....                              | 27        |
| Sewer Surcharge .....                          | 27        |
| Reservoir .....                                | 28        |
| Other Sources .....                            | 28        |
| <b>Flood Risk Management .....</b>             | <b>29</b> |
| Finished Floor Levels .....                    | 29        |
| Flood Risk Mitigation Measures .....           | 29        |
| Surface Water Management .....                 | 30        |
| Flood Warnings and Alerts .....                | 30        |
| Safe Access and Egress .....                   | 30        |
| <b>Conclusions and Recommendations .....</b>   | <b>31</b> |
| Conclusions .....                              | 31        |
| Recommendations .....                          | 32        |
| <b>Appendix .....</b>                          | <b>33</b> |

## List of Figures

|                                                                                    |    |
|------------------------------------------------------------------------------------|----|
| Figure 1: View of the Site from Platt Lane (Source: Google) .....                  | 7  |
| Figure 2: Site Location.....                                                       | 8  |
| Figure 3: Topography of the Site and Surrounding Area.....                         | 10 |
| Figure 4: Bedrock Geology Map (Source: British Geological Survey) .....            | 11 |
| Figure 5: Superficial Deposit Geology Map (Source: British Geological Survey)..... | 11 |
| Figure 6: Watercourses Near the Site.....                                          | 13 |
| Figure 7: Proposed Layout Plan.....                                                | 14 |
| Figure 8: Environment Agency Flood Map for Planning .....                          | 21 |
| Figure 9: Node Points in Relation to the Site (Source: Environment Agency) .....   | 22 |
| Figure 10: Formal Flood Defence Map (Source: Environment Agency).....              | 24 |
| Figure 11: Environment Agency's Risk of Flooding from Surface Water Map.....       | 26 |
| Figure 12: Flood Risk from Reservoirs Map (Source: Environment Agency).....        | 28 |

## List of Tables

|                                                                                       |    |
|---------------------------------------------------------------------------------------|----|
| Table 1: Site Details .....                                                           | 7  |
| Table 2: Flood Risk Vulnerability Classification (Source: NPPF).....                  | 16 |
| Table 3: Flood risk vulnerability and flood zone 'incompatibility' (Source: PPG)..... | 17 |
| Table 4: Flood Zone Definitions (Source: Planning Practice Guidance).....             | 20 |
| Table 5: Modelled 2D Floodplain Levels at the Site (Source: Environment Agency).....  | 22 |
| Table 6: Upper Mersey Management Catchment Peak River Flow Allowances .....           | 23 |
| Table 7: Flood Defence Attributes (Source: Environment Agency) .....                  | 24 |

## Introduction

### Context

GeoSon Limited have been instructed by Siddig Dafalla B. Elzailae to undertake a Site Specific Flood Risk Assessment (FRA) to support a proposed planning application for development at 400 Platt Lane, Manchester.

This FRA has been undertaken in accordance with the revised National Planning Policy Framework (NPPF) July 2021 and the associated Planning Practice Guidance (PPG).

The level of flood risk to and from the site has been determined using third party information including Environment Agency flood data, national government mapping, LiDAR topography data and Local Authority documentation.

### National FRA Requirements

In accordance with the National Planning Policy Framework (NPPF), a Flood Risk Assessment is required to accompany a planning application when a development site is:

- located within flood zones 2 or 3 (including minor development and change of use)
- more than 1 hectare (ha) in size
- less than 1 ha in flood zone 1 however includes a change of use in development type to a more vulnerable class (for example from commercial to residential) which could be affected by sources of flooding other than rivers and the sea
- located within an area which has been identified to have critical drainage problems by the Environment Agency

The site is partially located within Flood Zone 2 on the Environment Agency's Flood Map for Planning. As such, in accordance with NPPF guidance, Manchester City Council have requested that the applicant submit a Flood Risk Assessment to support the development proposals.

The Flood Risk Assessment is required to consider the proposed use of the site and assess the potential flood risk posed to the intended development from multiple sources of flooding including rivers, seas, surface water, groundwater, reservoir failure, sewer surcharge and any other artificial sources.

The Flood Risk Assessment will assess the risk posed from all potential sources of flooding so that site users and third party land will be safe now and for the expected lifetime of the development, taking climate change into account.

### Objectives

The objectives of this document are to determine:

- Whether the site is at significant risk of flooding from any source currently or in the future, taking climate change into account
- Whether the development will increase flood risk elsewhere

If the site is identified to be at risk of flooding from any source this FRA will:

- Outline appropriate mitigation measures, compliant with NPPF and PPG, which would be suitable to incorporate within the proposed development to alleviate flood risk on and off site
- Determine whether safe ingress and egress can be achieved and maintained for the lifetime of the development

## Site Details

### Site Description

The proposed application site is located at 400 Platt Lane, Manchester M14 7HJ. The site is approximately 240m<sup>2</sup> in size and is currently occupied by a semi-detached residential dwelling. The building footprint is located in the centre of the site with gardens to the north, west and south.

The site is accessed via a footpath between Princess Road and Platt Lane which runs along the southern boundary of the site.

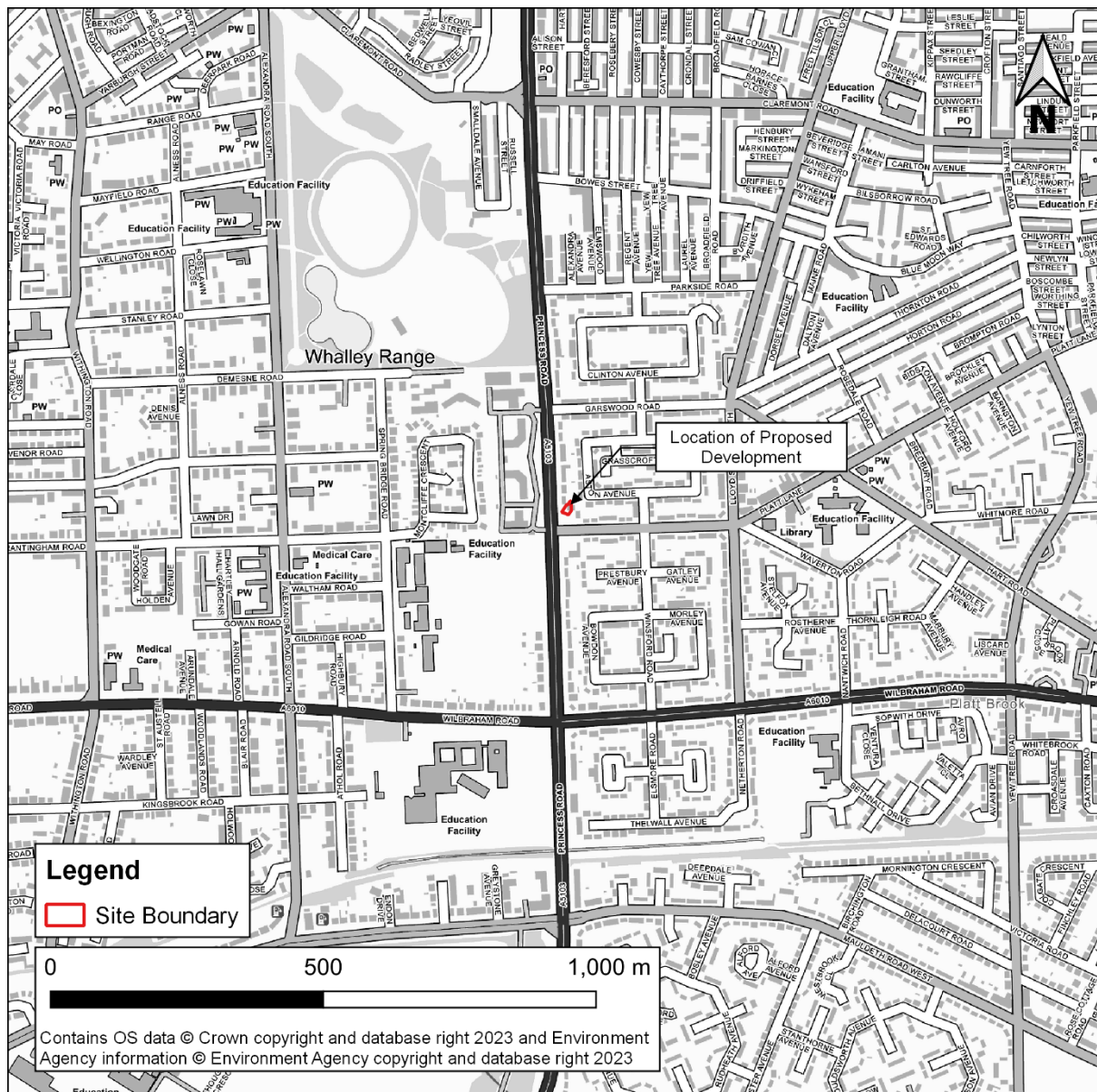
Having reviewed aerial imagery the wider area is primarily characterised by semi-detached residential dwellings similar to that of the site.

|                                   |                                                 |
|-----------------------------------|-------------------------------------------------|
| <b>Site Address</b>               | 400 Platt Lane, Fallowfield, Manchester M14 7HJ |
| <b>Current Use</b>                | Residential Use                                 |
| <b>Proposed Use</b>               | Residential Use                                 |
| <b>OS NGR</b>                     | SJ 83895 94461                                  |
| <b>County</b>                     | Greater Manchester                              |
| <b>Local Planning Authority</b>   | Manchester City Council                         |
| <b>Lead Local Flood Authority</b> | Manchester City Council                         |

**Table 1: Site Details**



**Figure 1: View of the Site from Platt Lane (Source: Google)**



**Figure 2: Site Location**

## Topography

Topographic LiDAR data has been obtained from the Environment Agency to assess the ground elevation profile across the site and within the wider area.

Light Detection and Ranging (LiDAR) is an airborne remote sensing technique, which accurately measures the height of the terrain and surface objects on the ground through the use of a laser, scanner and GPS receiver. The mapping technique measures the distance between the aircraft and the ground to generate precise, three-dimensional information of the terrain and surface objects. Hundreds of thousands of measurements per second are made of the ground, allowing highly detailed surface and terrain models to be generated at different spatial resolutions ranging between 25cm and 2.0 metres.

The LiDAR dataset can be supplied in two forms by the EA:

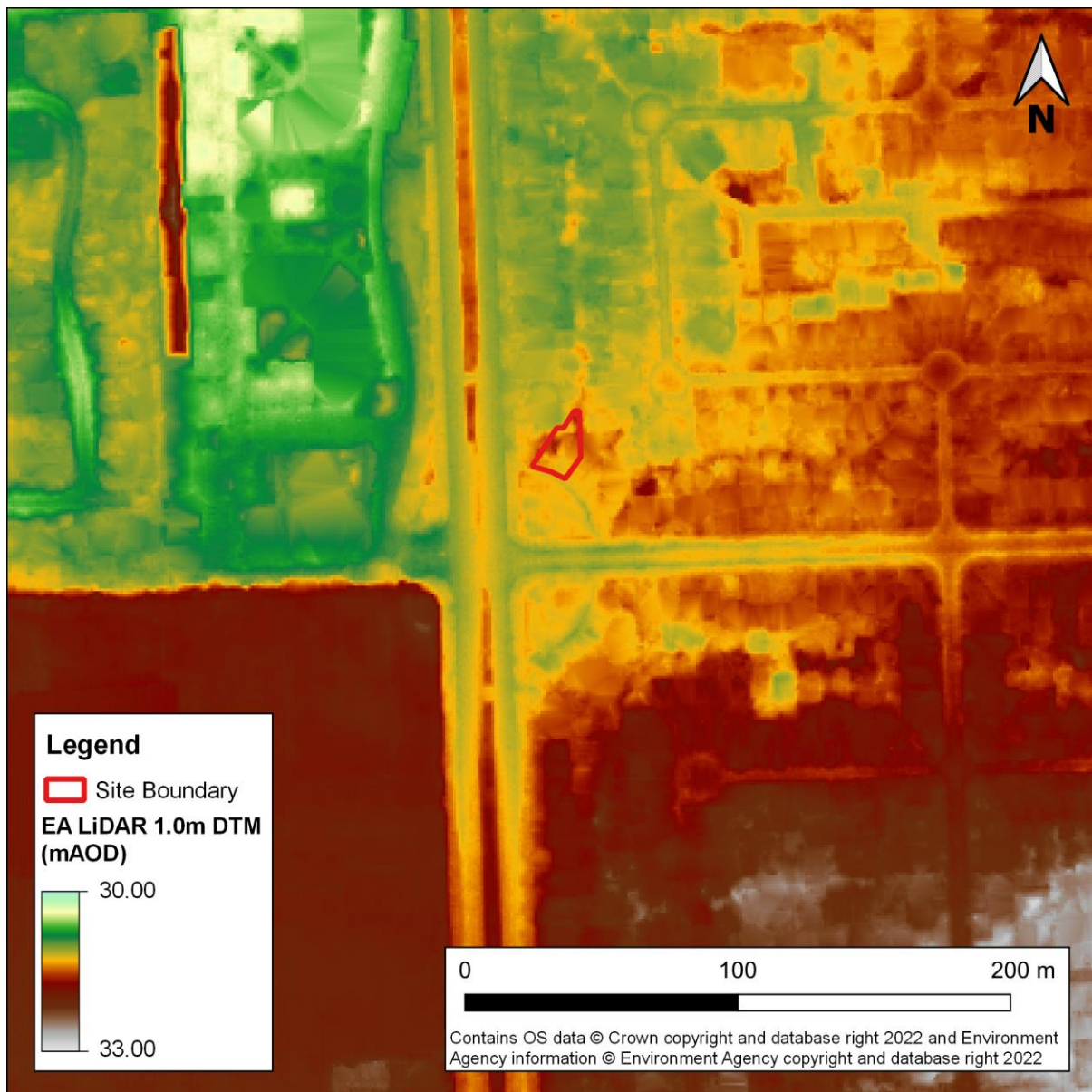
1. As a Digital Surface Model (DSM), which includes surface objects, such as vehicles, buildings and vegetation, as well as the terrain surface. Or;
2. As a Digital Terrain Model (DTM) produced by removing surface objects such as buildings from the Digital Surface Model through application of bespoke algorithms and manual filtering techniques.

For the purposes of this study the 1.0m resolution Digital Terrain Model has been used.

Environment Agency 1.0m LiDAR data indicates that the site and wider area generally slope in a north westerly direction.

The ground topography at the site is reported to range between approximately 31.20mAOD and 31.55mAOD.

According to EA data, the proposed extensions will be developed upon land with an average elevation of 31.40mAOD.

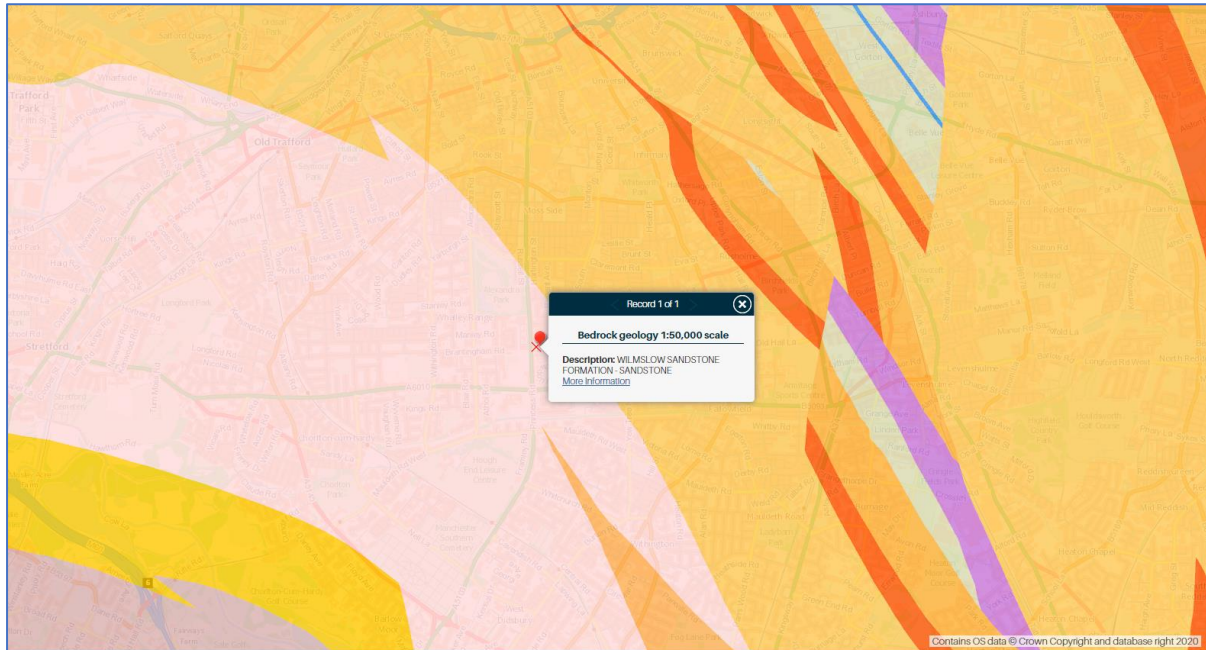


**Figure 3: Topography of the Site and Surrounding Area**

## Geology and Hydrogeology

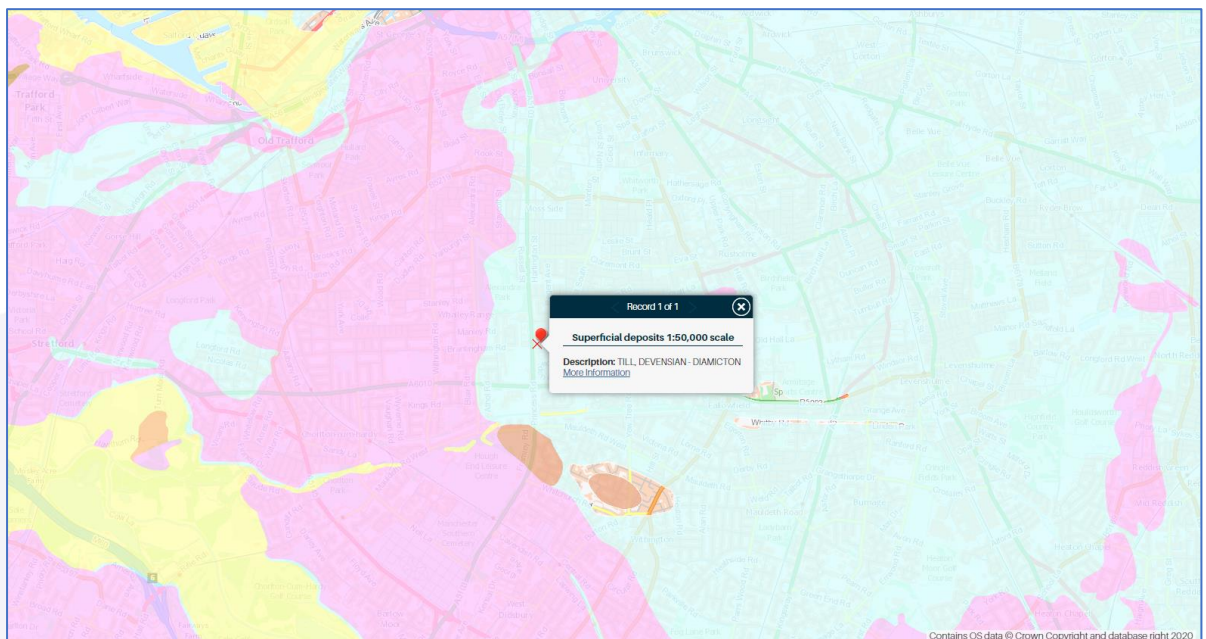
Review of online British Geological Survey (BGS) records indicates that the site is located upon Wilmslow Sandstone Formation bedrock.

This geological strata was formed during the Olenekian Age some 247.1 to 250.0 million years ago.



**Figure 4: Bedrock Geology Map (Source: British Geological Survey)**

According to BGS data the site is also underlain by superficial deposits comprising Till, Devensian - Diamicton.



**Figure 5: Superficial Deposit Geology Map (Source: British Geological Survey)**

Review of Landis Soilscales online viewer suggests that the site is located in area where the soils are classified as 'Slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage'.

DEFRA 'Magic Maps' indicates that the site is not located within a groundwater Source Protection Zone. However, a Source Protection Zone 3 – Total Catchment is reportedly located approximately 475m north east of the site.

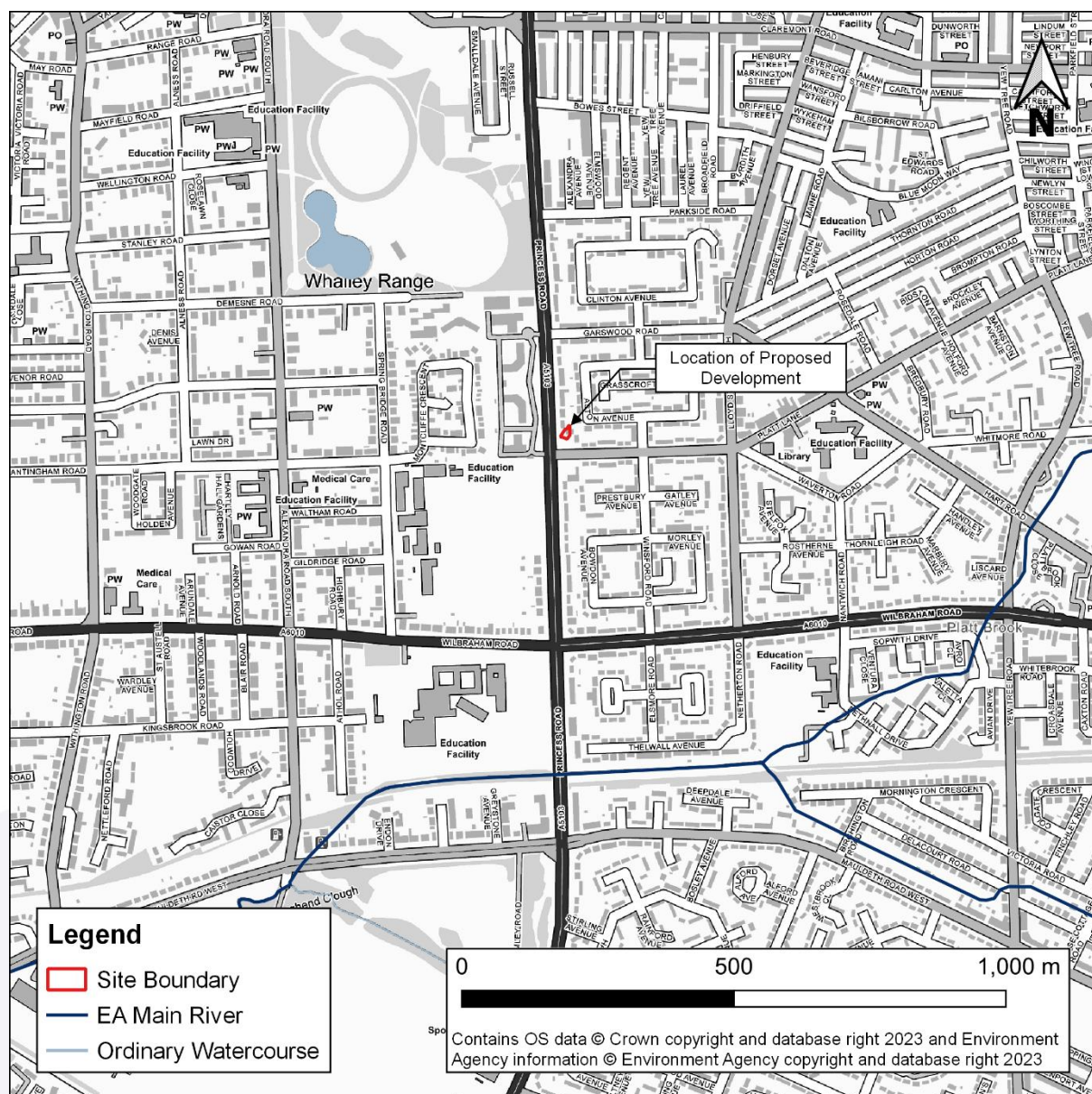
## Nearby Watercourses

Review of aerial imagery indicates that there are no open watercourses at, or along the boundaries of, the site. However, several watercourses have been identified within a 1.0km radius of 400 Platt Lane, including:

- Alexandra Park Lake approximately 470m north west of the site;
- Sections of Platt Brook approximately 630m south and 1.0km west of the site; and,
- Red Lion Brook 970m south west of the site.

Platt Brook is classified as a main river and is therefore managed by the Environment Agency. Alexandra Park Lake and Red Lion Brook are classed as ordinary watercourses and are managed by the Lead Local Flood Authority.

The watercourses within a 500m radius of the site are shown in Figure 6 (below).



**Figure 6: Watercourses Near the Site**

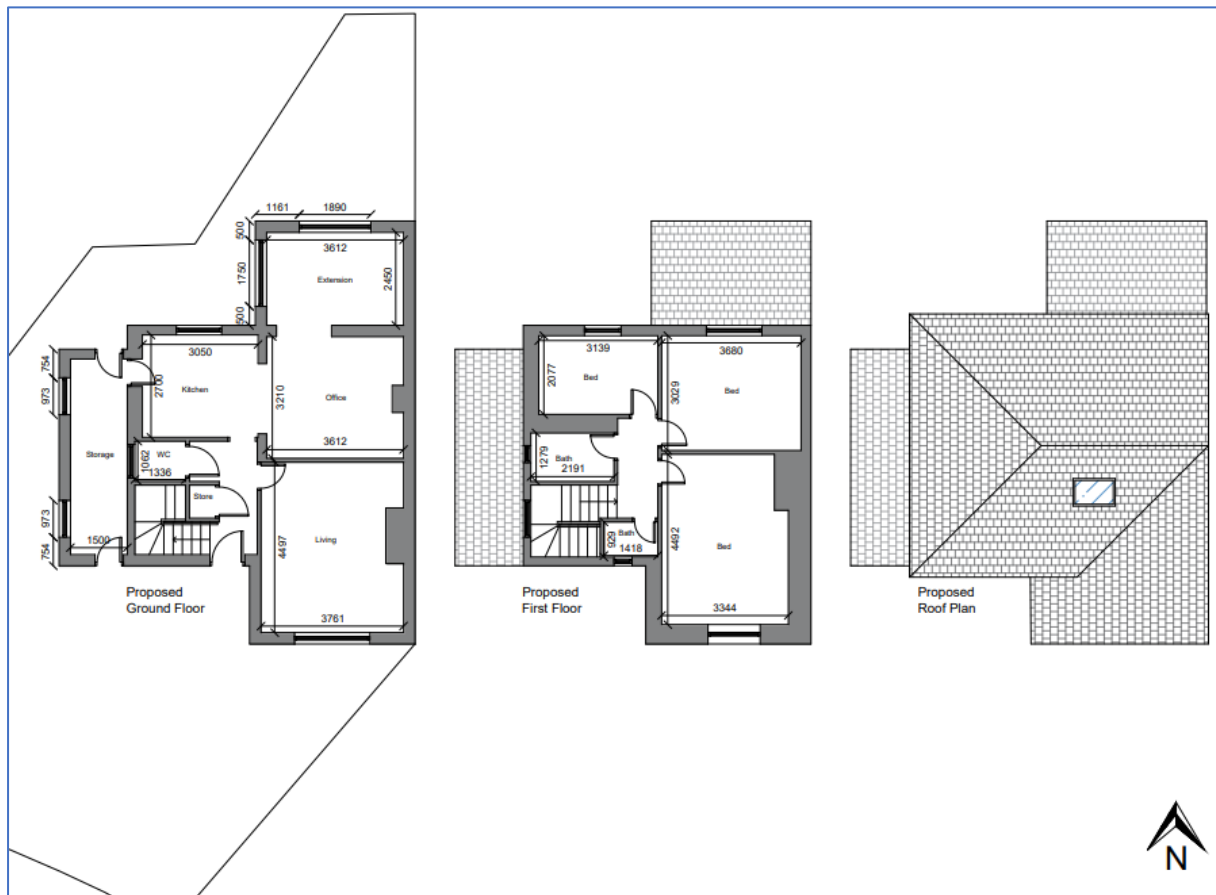
## Proposed Development

### Development Proposals

The proposed planning application is for construction of two single storey extensions on the side and rear of the existing dwelling. According to plans provided by the client the proposed side and rear extensions will increase the built footprint by 10.25m<sup>2</sup> and 11.55m<sup>2</sup>, respectively.

The proposed extensions will provide additional living accommodation for residents of 400 Platt Lane. No new bedrooms or residential units will be created as part of the development.

It has been confirmed that the Finished Floor Level of the proposed extension will match that of the existing ground floor level in 400 Platt Lane to allow a seamless connection between the extensions and the current house.



**Figure 7: Proposed Layout Plan**

## Development Vulnerability Classification

The National Planning Policy Framework classifies land use type in terms of vulnerability to flooding. Annex 3 of the NPPF details the flood risk vulnerability classification for each land use type (refer below).

### Essential infrastructure

- Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.
- Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood.
- Wind turbines.
- Solar farms.

### Highly vulnerable

- Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.
- Emergency dispersal points.
- Basement dwellings.
- Caravans, mobile homes and park homes intended for permanent residential use.
- Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)

### More vulnerable

- Hospitals
- Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
- **Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.**
- Non-residential uses for health services, nurseries and educational establishments.
- Landfill\* and sites used for waste management facilities for hazardous waste.
- Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

### Less vulnerable

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill\* and hazardous waste facilities).

- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
- Car parks.

#### Water-compatible development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

**Table 2: Flood Risk Vulnerability Classification (Source: NPPF)**

The site is currently occupied by a single residential property. Therefore, in terms of flood risk vulnerability it is considered "more vulnerable".

The proposals comprise construction of two single storey extensions. As such, according to NPPF guidance the site as whole will remain "more vulnerable" post development.

In light of this, it is considered that the vulnerability of the site as a whole will not increase as a result of the development.

## Sequential and Exception Test

In accordance with the National Planning Policy Framework, and associated Planning Practice Guidance, the Sequential and Exception Tests should be undertaken to determine the most appropriate location for a development and used to inform the proposed design layout.

The Sequential Test is designed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.

The Exception Test is undertaken when development in a flood risk area cannot be avoided. The Exception Test comprises of two elements which need to be satisfied before a development can be permitted. It needs to be demonstrated that:

1. A development will provide wider sustainability benefits to the community that outweigh flood risk; and
2. A development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

| Flood Zones | Flood Risk Vulnerability Classification |                         |                         |                 |                  |
|-------------|-----------------------------------------|-------------------------|-------------------------|-----------------|------------------|
|             | Essential infrastructure                | Highly vulnerable       | More vulnerable         | Less vulnerable | Water compatible |
| Zone 1      | ✓                                       | ✓                       | ✓                       | ✓               | ✓                |
| Zone 2      | ✓                                       | Exception Test Required | ✓                       | ✓               | ✓                |
| Zone 3a     | Exception Test Required                 | X                       | Exception Test Required | ✓               | ✓                |
| Zone 3b     | Exception Test Required                 | X                       | X                       | X               | ✓                |

**Table 3: Flood risk vulnerability and flood zone 'incompatibility' (Source: PPG)**

Given the nature of the proposals the development is considered 'more vulnerable'.

According to Table 3 (above) 'more vulnerable' development is considered suitable within Flood Zone 1, 2 and 3a (subject to the Exception Test).

However, it should be noted that Sequential and Exception Tests do not apply to Change of Use and Minor Extension applications.

## EA Standing Advice

Environment Agency Standing Advice guidance applies to household or non-domestic extensions where the additional footprint created by the development is no more than 250 square metres.

The proposed extensions will have a total built footprint of less than 22m<sup>2</sup> therefore it is considered that EA standing advice applies.

In accordance with the EA's Standing Advice for Minor Extensions, the following information is required within the Flood Risk Assessment:

- Plans showing the Finished Floor Levels (FFL) and estimated flood levels
- Assurance that the floor levels will be set either no lower than existing floor levels or 300 millimetres above estimated flood levels
- Details of appropriate flood resistance and resilience measures. Resilience measures should be recommended in accordance with Construction Industry Research and Information Association (CIRIA) Property Flood Resilience Code of Practice guidance.
- Confirmation that the development will not be flooded by surface water runoff or groundwater. This could be by diverting water away from the property (but managing the diverted water safely within the wider site) or by raising finished floor levels above the estimated flood depths.

If the minor extension is considered to be at increased flood risk as a result of multiple minor extensions in the area, the FRA will also need to include an assessment of off-site flood risk.

## Assessment of Flood Risk

Flood risk is a combination of:

- the probability (likelihood or chance) of a flood event happening; and
- the potential consequences (impact) if an event were to occur.

In accordance with guidance set out in the Flood Risk and Coastal Change section of the PPG, areas at risk of flooding should be considered as those at risk of flooding from any source, now or in the future.

This study uses publicly available data (including EA flood maps and Local Authority documentation) to assess the potential flood risk posed to the intended development from multiple sources of flooding and the risk of flooding elsewhere, as a result of the proposals. Where flood risks are identified this study outlines appropriate mitigation measures, compliant with NPPF and PPG, which would be suitable to incorporate within the proposed development to manage said flood risk(s).

## Document Review

The following Local Authority documents have been reviewed as part of this study:

- Manchester City, Salford City and Trafford Councils Level 1 Strategic Flood Risk Assessment (2010)
- Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (2011)
- Manchester City Council Local Flood Risk Management Strategy (2014)
- Greater Manchester Strategic Flood Risk Management Framework (2018)
- Greater Manchester Level 2 Hybrid Strategic Flood Risk Assessment (2020)

## Historical Flooding

Historical flood incident information within the area has been assessed based on a review of Manchester City Council documentation, the Environment Agency's Historic Flood Map and an internet search.

Following review of the available data there is no information to suggest that the site itself or surrounding area has ever flooded.

According to the Environment Agency's Recorded Flood Outline and Historic Flood Map datasets the nearest recorded flood incident to the site was recorded 2.6km south of the site and was associated with land adjacent to the River Mersey.

## Environment Agency Flood Zones

The Environment Agency has created a set of Flood Zones which shows the risk of flooding from rivers and sea in England, for several return period events, ignoring the presence of defences. The Flood Zones are shown on the EA's Flood Map for Planning which forms the basis for assessing flood risk and development suitability under the National Planning Policy Framework.

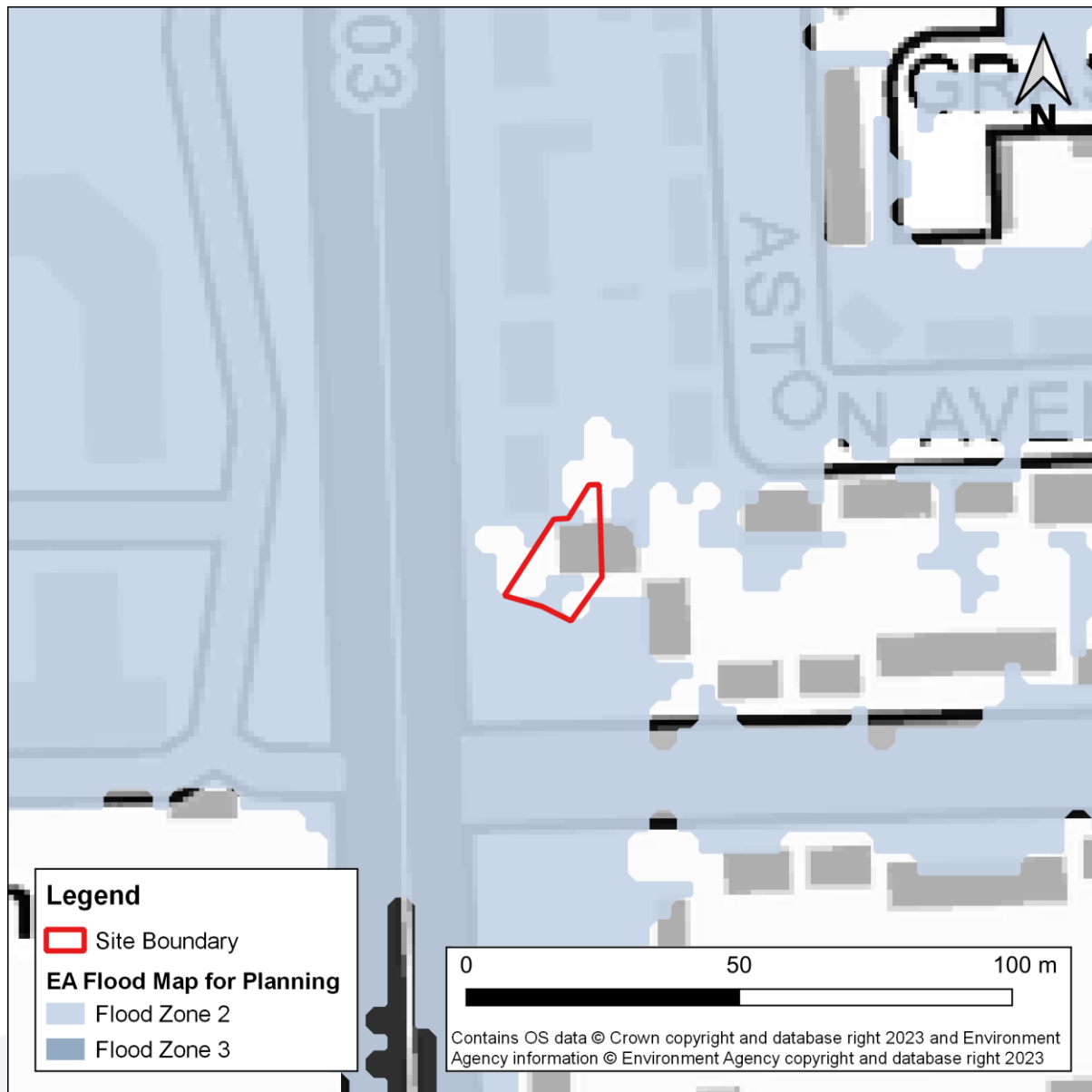
| Flood Zone                               | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Zone 1<br/>Low Probability</b>        | Land having a less than a 1 in 1000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Zone 2<br/>Medium Probability</b>     | Land having between a 1 in 100 and 1 in 1000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1000 annual probability of tidal flooding. (Land shown in light blue on the Flood Map)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Zone 3a<br/>High Probability</b>      | Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of tidal flooding. (Land shown in dark blue on the Flood Map)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Zone 3b<br/>Functional Floodplain</b> | <p>This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. The functional floodplain will normally comprise:</p> <ul style="list-style-type: none"> <li>• land having a 1 in 30 or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or</li> <li>• land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 1 in 1000 annual probability of flooding).</li> </ul> <p>Areas of functional floodplain should be identified by local planning authorities within Strategic Flood Risk Assessments, in agreement with the Environment Agency. (Note, Zone 3b is not separately distinguished from Zone 3a on the Flood Map).</p> |

**Table 4: Flood Zone Definitions (Source: Planning Practice Guidance)**

Note: The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take into account the possible impacts of climate change and consequent changes in the future probability of flooding.

According to the Environment Agency's Flood Map for Planning (refer to Figure 8) part of the site and surrounding area are located within Flood Zone 2 (Medium Probability), defined as land having between a 1 in 100 and 1 in 1000 annual probability of fluvial flooding.

The primary source of flood risk to the site appears to be sourced from Platt Brook.



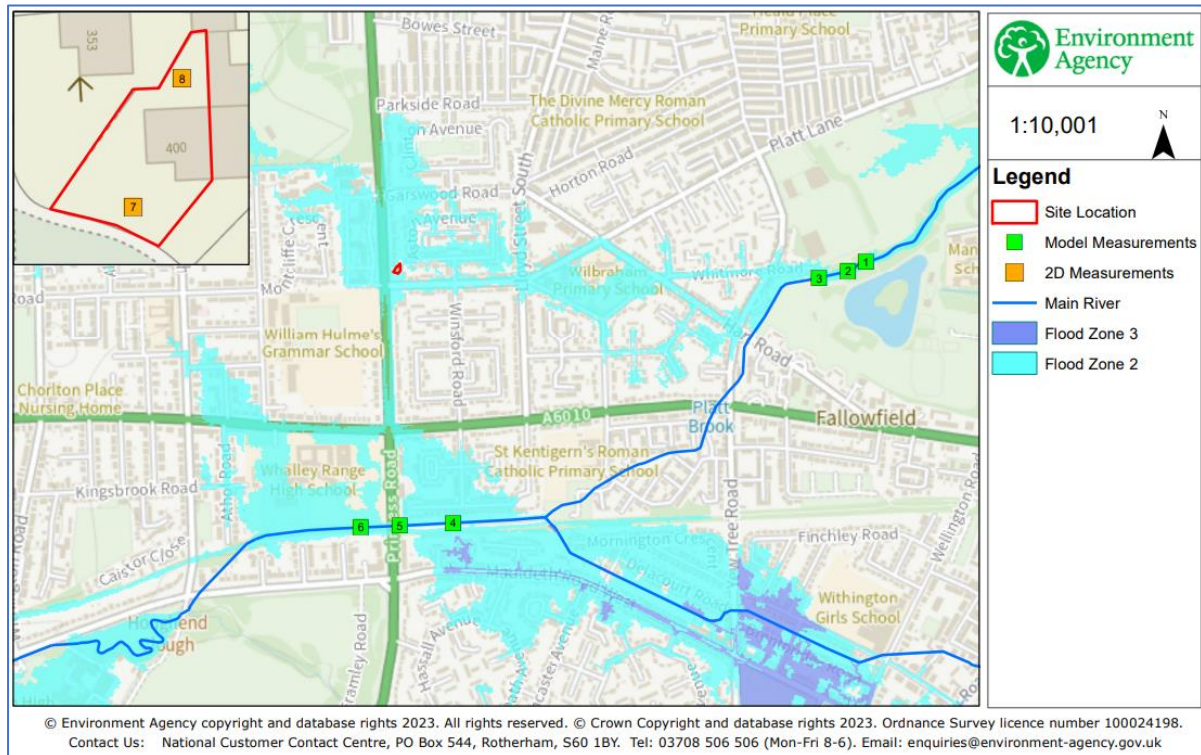
**Figure 8: Environment Agency Flood Map for Planning**

## Fluvial (Rivers)

### Environment Agency Product 4 Response

Considering that the site has been partially modelled within Flood Zone 2 on the EA's Flood Map for Planning, a Product 4 enquiry has been raised with the Environment Agency to obtain detailed flood model information in the relation to the site.

A Product 4 response was received on 1<sup>st</sup> March 2023 (refer to Appendix C). Within which the Environment Agency provided in-channel flood levels and flows as well as 2D floodplain node levels extracted from Chorlton Platt Gore model, 2012. Refer to Figure 9 for node point locations.



**Figure 9: Node Points in Relation to the Site (Source: Environment Agency)**

Defended and undefended flood levels have been provided for two 2D node points at the site for the 0.1% AEP (1 in 1000 year) return period event. See below the modelled 2D flood levels relating to the two node points at the site.

| Node Reference | Undefended 0.1 % AEP Flood Level at the Site (mAOD) | Defended 0.1 % AEP Flood Level at the Site (mAOD) |
|----------------|-----------------------------------------------------|---------------------------------------------------|
| 7              | 31.38                                               | 31.34                                             |
| 8              | 31.28                                               | N/A                                               |

**Table 5: Modelled 2D Floodplain Levels at the Site (Source: Environment Agency)**

Comparison of the 0.1% AEP modelled 2D floodplain levels with EA LiDAR data corresponding to the location of the proposed development footprints (31.40mAOD) indicates that the developable area is elevated entirely above both the defended and undefended 0.1% AEP scenarios.

Since the Chorlton Platt Gore model was produced in 2012, the Environment Agency have issued revised climate change allowances for the study area.

In July 2021 the Environment Agency issued revised peak river flow allowances for management catchments in England. As part of the update the EA published the Peak River Flow Map which shows anticipated changes to peak river flows over time based on management catchment. Management catchments are sub-catchments of river basin districts.

According to the EA's Peak River Flow Map Platt Brook is located within the Upper Mersey Management Catchment. Updated peak river flow allowances for this catchment are as follows:

| Epoch | Central | Higher | Upper |
|-------|---------|--------|-------|
| 2020s | 13%     | 17%    | 27%   |
| 2050s | 22%     | 31%    | 51%   |
| 2080s | 41%     | 53%    | 85%   |

**Table 6: Upper Mersey Management Catchment Peak River Flow Allowances**

The specific Climate Change allowance required to be assessed within the Flood Risk Assessment, to account for future change in peak river flows, is dependent on the development's design lifetime and vulnerability classification.

In accordance with the development lifetime guidance, residential developments should be considered to have a minimum lifetime of 100 years.

Additionally, residential developments are considered 'More Vulnerable' (refer to Table 2). In line with government guidance More Vulnerable developments located in flood zones 2 and 3a should use the Central Allowance to account for future climate change.

As such, considering the nature of the proposals, the development should be assessed against the 1% Annual Exceedance Probability plus 41% Climate Change fluvial event.

Whilst the Chorlton Platt Gore model does not include modelled outputs for the 1% AEP +41% Climate Change scenario, in-channel flood model levels have been undertaken for the undefended 1% AEP (+30%), 1% AEP (+35%) and 1% AEP (+70%) increase in flows. Additionally, undefended 2D floodplain levels have been provided for the 0.1% AEP event at the site.

Given the distance of the development from Platt Brook, it is considered that the use of in-channel levels and flows to perform a stage-discharge relationship to ascertain the 41% climate change flood level could lead to an exaggerated flood depth as the movement of flood water across the floodplain would not be accounted for. Therefore, use of stage-discharge analysis is not considered to be an appropriate method for establishing a representative flood level for this site.

The 2D flood levels provided by the Environment Agency for node points at the site do factor the effect of floodplain displacement. Thus are considered more reflective of the potential situation at the development.

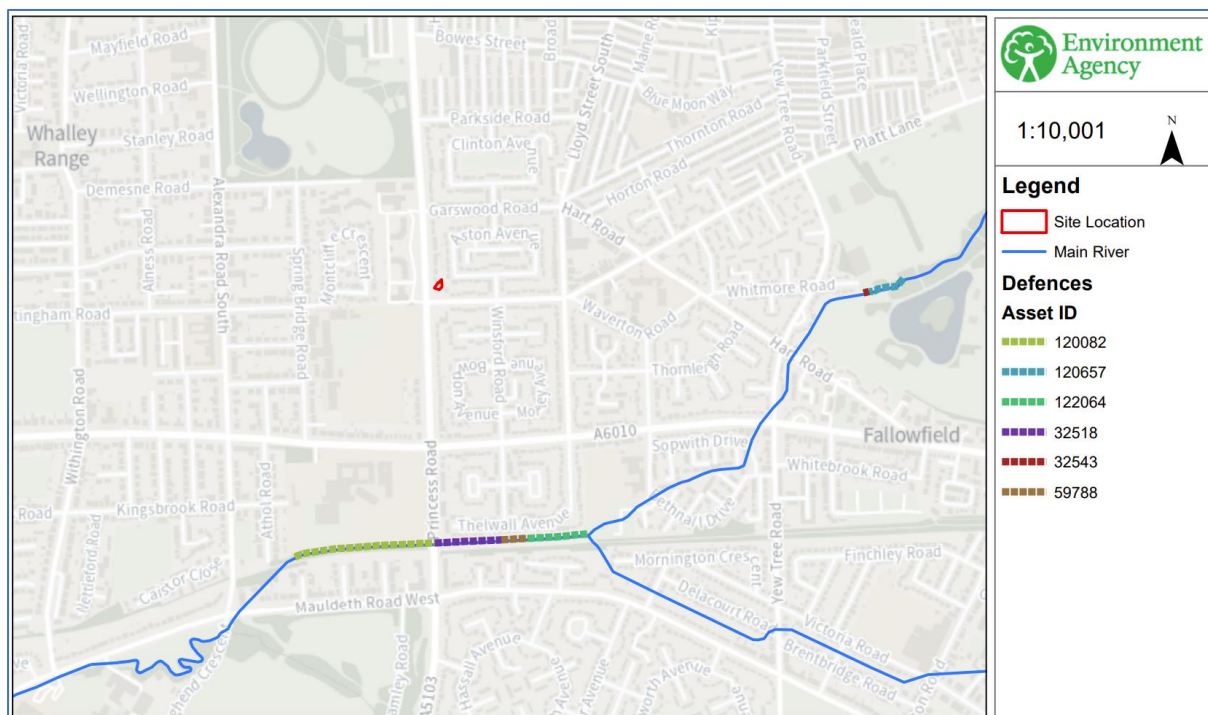
Adopting a conservative approach, a nominal allowance of 300mm has been applied to the undefended 0.1% AEP 2D floodplain level at the site to account for future climate change. As such a design flood level of 31.68mAOD has been used to base this Flood Risk Assessment on.

Comparison of the 0.1% AEP (+300mm) flood level (31.68mAOD) with EA LiDAR data corresponding to the location of the extension footprints (31.40mAOD) indicates that the areas proposed to be developed may experience depths of up to 0.28m during the design scenario.

## Defences

As part of the Product 4 information request the Environment Agency provided details of nearby flood defences which afford the site protection.

According to Environment Agency data, flood defences in the form of embankments and walls are located along sections of Platt Brook to the east and south of the site (refer to Figure 10).



**Figure 10: Formal Flood Defence Map (Source: Environment Agency)**

Table 1Table 7 details the attributes associated with the formal flood defences shown in Figure 10. According to the EA's AIMS Spatial Flood Defences dataset all the flood defence assets within proximity to the site offer a 100 year standard of protection.

| Flood Defences |            |          |                        |                                     |                                       |
|----------------|------------|----------|------------------------|-------------------------------------|---------------------------------------|
| Start Date     | Asset Type | Asset ID | Standard of Protection | Upstream Actual Crest Level (m aod) | Downstream Actual Crest Level (m aod) |
| 01/01/1996     | Embankment | 120082   | 100                    | 31.27                               | 30.36                                 |
| 01/01/1996     | Embankment | 120657   | 100                    | 36.27                               | 36.29                                 |
| 01/01/1996     | Wall       | 122064   | 100                    | 31.90                               | 31.84                                 |
| 01/01/1996     | Wall       | 32518    | 100                    | 31.84                               | 31.48                                 |
| 01/01/1996     | Wall       | 32543    | 100                    | 35.76                               | 35.74                                 |
| 01/01/1996     | Embankment | 59788    | 100                    | 32.82                               | 31.81                                 |

**Table 7: Flood Defence Attributes (Source: Environment Agency)**

## Pluvial (Surface Water)

Pluvial (surface water) flooding occurs as a result of excess overland flow and stormwater ponding. Surface water flooding can happen when water does not have time to soak into the underlying ground or cannot infiltrate at all, for instance because the ground is already fully saturated.

This mechanism of flooding can also arise when the volume of precipitation exceeds the capacity of the drainage system meaning that water is unable to drain away through the sewer network and instead flows overland. Overland flow will follow the local topography and can therefore pose a risk to both the development and surrounding third party land.

The risk posed to the site from surface water flooding has been assessed using the Environment Agency's Risk of Flooding from Surface Water (RoFSW) dataset, refer to Figure 11.

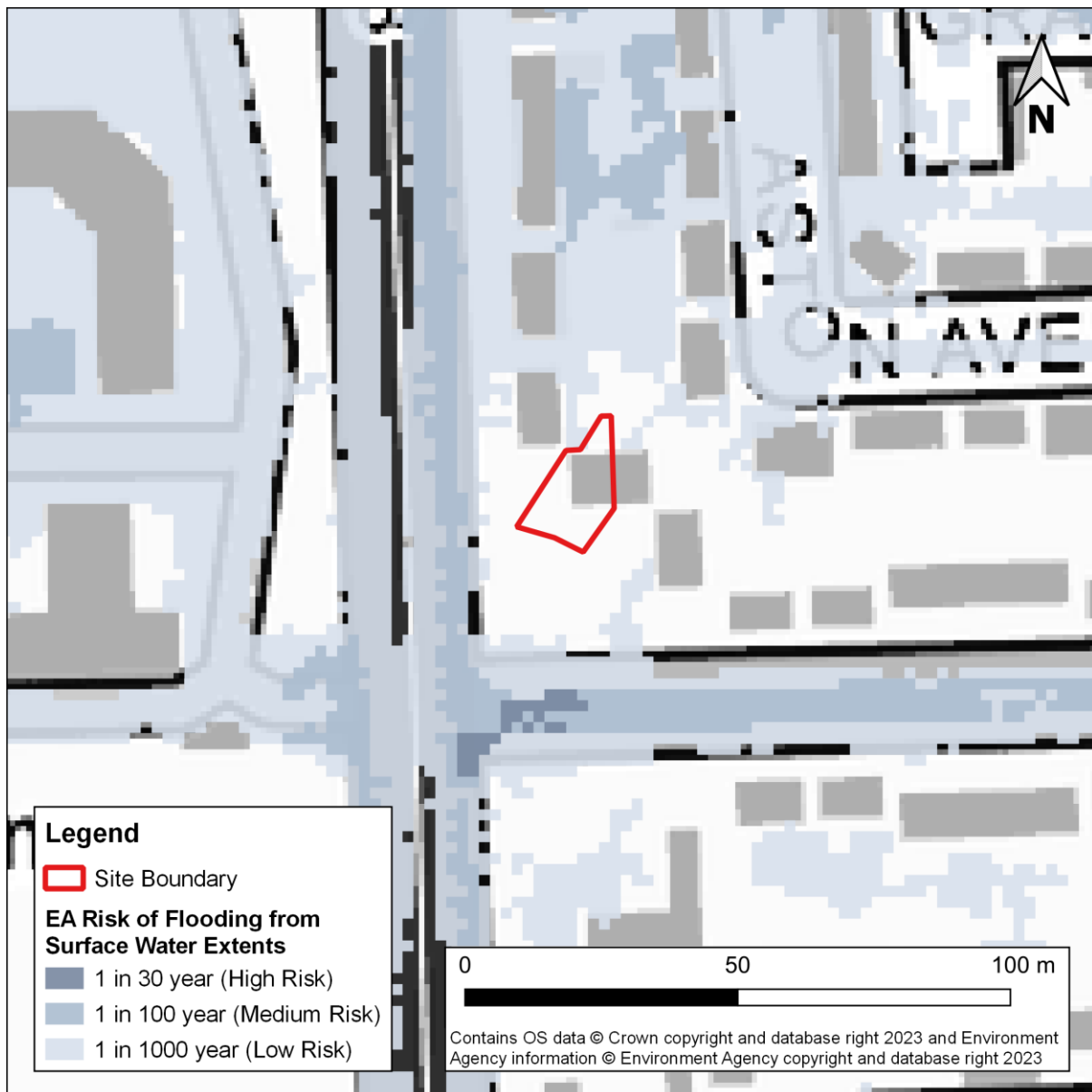
The Risk of Flooding from Surface Water maps were produced in 2013 by the Environment Agency, working with Lead Local Flood Authorities. They are considered to represent a significant improvement on the previous surface water flood maps, both in terms of method and representation of the risk of flooding. Considerable improvements were made to the modelling techniques and data used, including the incorporation of locally produced mapping, where available, to represent features best modelled at a local scale.

The RoFSW information assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year:

- 1 in 30 (3.3%)
- 1 in 100 (1%)
- 1 in 1000 (0.1%)

The modelled return period outputs are then classified into four categories based on the level of surface water flood risk posed to an area. These categories are detailed below:

|                 |                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------|
| <b>High</b>     | An area which has a 1 in 30 (3.3%) or greater annual probability of flooding                  |
| <b>Medium</b>   | An area which has between a 1 in 100 (1%) and 1 in 30 (3.3%) annual probability of flooding   |
| <b>Low</b>      | An area which has between a 1 in 1000 (0.1%) and 1 in 100 (1%) annual probability of flooding |
| <b>Very Low</b> | An area which has less than a 1 in 1000 (0.1%) annual probability of flooding                 |



**Figure 11: Environment Agency's Risk of Flooding from Surface Water Map**

The EA's Risk of Flooding from Surface Water data (Figure 11) shows that the majority of the site, including the areas proposed to be developed, are modelled at "Very Low" risk of flooding from surface water. However, the northmost boundary of the site has been modelled at "Low" risk.

Additionally, according to EA data sections of Princess Road and Platt Lane, some 15m west and 35m south of the extensions respectively, have been modelled at "Medium" and "High" risk of surface water flooding.

Despite the modelled extents shown in the RoFSW dataset, no information has been provided to suggest that the site has historically flooded as a result of surface water flows.

## Groundwater

Groundwater flooding occurs when the water table rises up from the underlying rocks and emerges at the ground surface or within subsurface infrastructure (such as basements). Low lying areas that are underlain by permeable bedrock, superficial geology and aquifers are particularly susceptible to this form of flooding, especially during the winter months and after periods of heavy, sustained precipitation.

Unlike other mechanisms of flooding, groundwater flooding takes longer to dissipate as the water table needs to lower before any emerged flood water can soak back into the ground. As a result of this, whilst groundwater flooding does not pose a significant risk to life, flood waters can last for many months and can cause considerable damage to property.

According to Greater Manchester sub-regional SFRA there are no known reports of groundwater flooding in the Manchester, Trafford and Salford authorities. However, a number of areas within Trafford appear to suffer from a high water table or standing water, including:

- Stamford Brook Development.
- South of Edge Lane, Stretford.
- Areas of Timperley in the vicinity of Heyes Lane and Fairywell Brook.

Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (2011) includes a map which shows areas at risk of groundwater flooding, areas of shallow groundwater and areas at risk of groundwater rebound.

According to the Level 2 Hybrid SFRA groundwater map the site is not located within an area identified at risk of groundwater flooding or within an area where shallow groundwater is present. No further information has been provided to suggest that the site or surrounding area has historically been subject to groundwater flooding.

## Sewer Surcharge

Sewer flooding occurs when the volume of water entering a drainage system is greater than the capacity of the sewer network. It is often experienced during periods of heavy rainfall, when a large amount of precipitation falls within a short period of time, and overloads the sewer system capacity causing a surcharge and localised short-term flooding.

Sewer flooding can also occur when the sewerage system is unable to discharge as intended. This is frequently caused by problems such as high water levels within the receiving watercourse, blockages, siltation and structural defects.

Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (2011) states that *in Manchester, sewer and drainage problems have been identified during rainfall events, with issues in Northenden, Didsbury, Fallowfield and in the city centre.*

Despite this, no information has been provided to suggest that the site itself is susceptible to sewer surcharge flooding.

## Reservoir

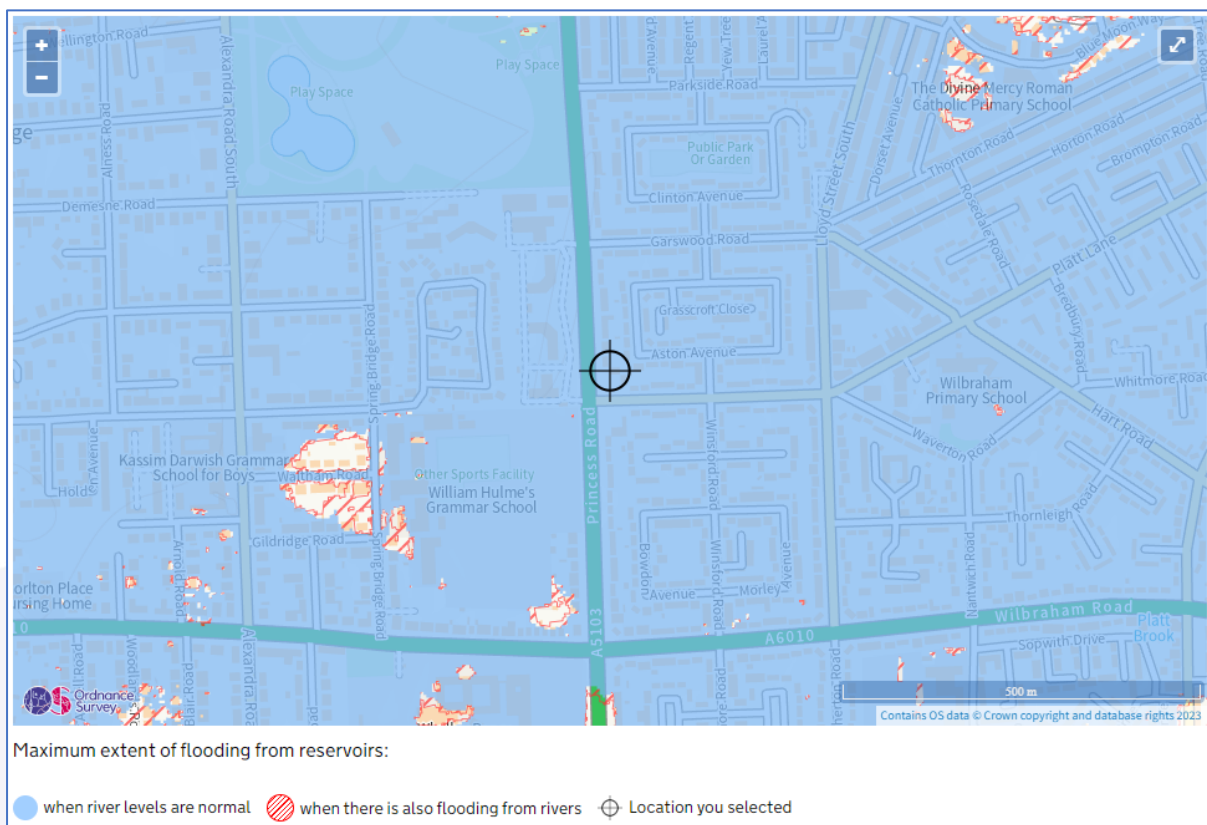
Reservoirs are artificially created lakes, typically formed by building a dam across an existing watercourse to hold water back. Whilst unlikely, flooding from reservoirs can occur as a result of water exceeding the reservoir capacity or structural failure of the dam or bank.

All large reservoirs are regulated under the Reservoirs Act 1975 and undergo regular maintenance to minimise the possibility of reservoir failure. This legislation is enforced by the Environment Agency and requires reservoirs to be routinely inspected and maintained to an appropriate standard. As an enforcement authority the Environment Agency is responsible for some 2,000 reservoirs in England and Wales.

The Environment Agency have produced a flood map which shows where water may go in the unlikely event of a dam or reservoir failure. Two flooding scenarios are shown on the reservoir flood maps:

- A 'dry-day' scenario which shows the predicted flood extents if a dam or reservoir failed when rivers are at normal levels
- A 'wet-day' scenario which shows how much greater the flood extent might be if a downstream river is already experiencing an extreme flood event

Review of the Environment Agency's Risk of Flooding from Reservoirs map indicates that the site is located within the 'maximum extent of flooding from reservoirs when river levels are at a normal level'. As such, whilst unlikely to occur, the development is considered to be susceptible to reservoir failure.



**Figure 12: Flood Risk from Reservoirs Map (Source: Environment Agency)**

## Other Sources

No canals or other artificial infrastructure have been identified within the surrounding area which could pose a risk of flooding to the development.

## Flood Risk Management

### Finished Floor Levels

In accordance with EA Standing Advice for minor extensions, the Finished Floor Level (FFL) of the proposed extensions should be set either:

- no lower than existing floor levels or
- 300 millimetres (mm) above the estimated flood level

The client has confirmed that the Finished Floor Level of the proposed extensions will match the existing FFL of the current dwelling to allow for continuity across the ground floor.

As such, based on EA LiDAR data and the assumption that the current building has been developed with standard building thresholds in place, it is understood that the Finished Floor Level of the extensions will be set at approximately 31.55m AOD, 150mm greater than surrounding external ground levels.

In light of this, the advice for minor extensions has been met.

### Flood Risk Mitigation Measures

According to the drawings provided by the client the Finished Floor Level of the extensions will be set at the same level as the existing FFL of the current dwelling (approximately 31.55m AOD).

Comparison of the proposed extension FFL with the 0.1% AEP (+300mm) fluvial flood level (31.68m AOD) indicates that the proposed development may experience internal flood depths of up to 0.13m during the fluvial design flood event.

In order to offer protection for the development during an extreme flood event it is recommended that the following mitigation measures are considered in consultation with the Local Authority:

- Non-return valves fitted on drains and pipes
- All electrics and sockets within the extensions are raised at least 300mm above the modelled design flood level (installed at 31.98m AOD or above)
- Boilers, gas meters and electrical incomer/meters are raised above the design flood level (if located within the extensions)
- The extension slabs are constructed of solid concrete, with waterproof membrane
- Waterproof screed used on the floor of the extensions with waterproof internal render
- External walls rendered resistant to flooding to 300mm above the design flood level, at least 31.98m AOD
- Any cracks and holes in the external walls, including service and drainage entry points are sealed with mortar/sealant
- Covers for airbricks, pet flaps and appliance vents
- Water resistant materials such as stainless steel, plastic or solid wood used for the extension fitout.

The applicant may also wish to consider installation of demountable flood defence barriers to protect ground floor entry thresholds against flood water ingress up to a maximum depth of 0.6m.

Important personal belonging and documents (including insurance policies and photographs) should be stored above the design flood level.

## Surface Water Management

In line with Building Regulations it is recommended that Finished Floor Levels should be set at least 150mm above the surrounding ground levels to prevent water ingress from storm water flowing or ponding near doorways and other entry points such as low windows, vents and air bricks.

Based on information provided by the client, it is assumed that the FFL of the proposed extensions will be set at approximately 31.55mAOD. Setting the FFL at 31.55mAOD will result in both extensions being elevated approximately 150mm higher than the surrounding external ground levels.

Any external landscaping should be designed to slope away from the dwelling, where possible, and linear drains should be installed along entry thresholds. This will help mitigate against overland flows being directed towards the dwelling during storm events and will reduce the risk of stormwater ponding at threshold entry points and stormwater ingress.

It is envisaged that post development runoff from the proposed extension will be discharged into the surface water drainage system which serves the wider site.

The proposed extensions are likely to increase the overall impermeable surfacing at the site which may increase surface water runoff rates and volumes when compared to the pre-developed situation. It is recommended that Sustainable Urban Drainage System (SuDS) techniques, such as rainwater harvesting or rain gardens, are incorporated within the proposals to mitigate against increased flood risk to third party land and deterioration of the receiving water environment.

## Flood Warnings and Alerts

The site is located within an EA Flood Warning and Alert area. Therefore it is recommended that future owners/occupants of the development sign up to the Environment Agency's free Targeted Flood Warning Service at <https://www.gov.uk/sign-up-for-flood-warnings>.

Future owners/occupants should also be advised to monitor weather forecasts by signing up to the Met Office weather warnings.

## Safe Access and Egress

The NPPF requires all new residential developments in areas at risk of flooding to demonstrate a route of safe escape for residents and site users which can be maintained for the lifetime of the development.

Given that the proposals relate to extension of an existing two storey dwelling, it is considered that safe refuge above the 0.1% AEP (+300mm) fluvial flood level (31.68mAOD) can be provided on the first floor.

Safe access and egress to and from the development can be provided via Princess Road, adjacent west. It is recommended that residents travel south along Princess Road before heading east along Wilbraham Road. This route is located outside of the 0.1% AEP fluvial flood extent and the 1 in 100 year surface water extent from 390m south of the site (along Wilbraham Road) onwards.

## Conclusions and Recommendations

### Conclusions

GeoSon Limited have been instructed by Siddig Dafalla B. Elzailae to undertake a Site Specific Flood Risk Assessment (FRA) to support a proposed planning application for development at 400 Platt Lane, Manchester.

This FRA has been undertaken in accordance with the revised National Planning Policy Framework (NPPF) July 2021 and the associated Planning Practice Guidance (PPG).

The proposed application site is located at 400 Platt Lane, Manchester M14 7HJ. The site is approximately 240m<sup>2</sup> in size and is currently occupied by a semi-detached residential dwelling. The building footprint is located in the centre of the site with gardens to the north, west and south.

The proposed planning application is for construction of two single storey extensions on the side and rear of the existing dwelling. The proposed extensions will provide additional living accommodation for residents of 400 Platt Lane. No new bedrooms or residential units will be created as part of the development.

The proposed extensions will have a total built footprint of less than 22m<sup>2</sup> therefore it is considered that EA standing advice applies.

According to the Environment Agency's Flood Map for Planning, part of the site and surrounding area are located within Flood Zone 2 (Medium Probability), defined as land having between a 1 in 100 and 1 in 1000 annual probability of fluvial flooding.

Given this, a Product 4 enquiry was raised with the Environment Agency to obtain detailed flood model information in the relation to the site. The Environment Agency provided modelled in-channel flood levels and flows as well as 2D floodplain node levels extracted from the Chorlton Platt Gore model, 2012.

Since the Chorlton Platt Gore model was produced in 2012, the Environment Agency have issued revised climate change allowances for the study area. Based on the latest guidance, the development should be assessed against the 1% Annual Exceedance Probability plus 41% Climate Change fluvial event.

However, given the distance of the site from Platt Brook use of stage-discharge analysis to ascertain the 41% climate change flood level is not considered to be an appropriate method for establishing a representative flood level for the development.

As such, a conservative approach has been adopted and the 0.1% AEP 2D floodplain level plus nominal +300mm allowance for climate change (31.68mAOD) has been used to base this Flood Risk Assessment on.

Comparison of the 0.1% AEP (+300mm) flood level (31.68mAOD) with EA LiDAR data corresponding to the location of the extension footprints (31.40mAOD) indicates that the areas proposed to be developed may experience depths of up to 0.28m during the design scenario.

The EA's Risk of Flooding from Surface Water data shows that the majority of the site, including the areas proposed to be developed, are modelled at "Very Low" risk of flooding from surface water. However, the northmost boundary of the site has been modelled at "Low" risk.

Additionally, according to EA data sections of Princess Road and Platt Lane, some 15m west and 35m south of the extensions respectively, have been modelled at "Medium" and "High" risk of surface water flooding.

According to the Level 2 Hybrid SFRA groundwater map the site is not located within an area identified at risk of groundwater flooding or within an area where shallow groundwater is present. No further information has been provided to suggest that the site or surrounding area has historically been subject to groundwater flooding.

Review of the Environment Agency's Risk of Flooding from Reservoirs map indicates that the site is located within the 'maximum extent of flooding from reservoirs when river levels are at a normal level'. As such, whilst unlikely to occur, the development is considered to be susceptible to reservoir failure.

No information has been provided to suggest that the site has historically been subject to sewer surcharge flooding. In addition, no canals or other artificial infrastructure have been identified within the surrounding area which could pose a risk of flooding to the development.

## Recommendations

- It is recommended that the Finished Floor Level of proposed extensions are set at the same level as the existing dwelling (approximately 31.55mAOD).
- Considering that the development has been shown to be at risk of flooding from rivers during the design climate change event flood resistance and resilience measures are recommended to protect the ground floor (refer to page 29).
- Important personal belonging and documents (including insurance policies and photographs) should be stored above the design flood level.
- Any external landscaping should be designed to slope away from the dwelling, where possible, and linear drains should be installed along entry thresholds.
- The site is located within an EA Flood Warning and Alert area. Therefore it is recommended that future owners/occupants of the development sign up to the Environment Agency's free Targeted Flood Warning Service at <https://www.gov.uk/sign-up-for-flood-warnings>.
- Future owners/occupants should also be advised to monitor weather forecasts by signing up to the Met Office weather warnings.
- Given that the proposals relate to extension of an existing two storey dwelling, it is considered that safe refuge above the 0.1% AEP (+300mm) fluvial flood level (31.68mAOD) can be provided on the first floor.
- Safe access and egress to and from the development can be provided via Princess Road, adjacent west. It is recommended that residents travel south along Princess Road before heading east along Wilbraham Road. This route is located outside of the 0.1% AEP fluvial flood extent and the 1 in 100 year surface water extent from 390m south of the site (along Wilbraham Road) onwards.

## Appendix

- A. Location Plan and Existing Site Layout
- B. Proposed Development Plans
- C. Environment Agency Product 4 Response

## Appendix A



10 0 10 20 30 40 50

SCALE 1:1250



NORTH

SCALE 1:500

0 5 10 15 20 25 30 35 40 45 50m

**Notes:**  
All work is to be carried out to the latest current British Standards Codes of Practice and recognised working practices.  
All work and materials should comply with Health and Safety legislation.  
All dimensions are in millimetres unless where explicitly shown otherwise.  
The contractor should check and certify all dimensions as work proceeds and notify the agent of any discrepancies.  
Do not scale off the drawings, if in doubt ask.  
HAD are not liable for any work undertaken prior to Full Planning Consent and/or Building Regulations Approval.  
Any structural works should be checked and verified by a suitably qualified structural engineer before works commence.  
All drainage is assumed and should be clarified on site by the contractor.

**CDM REGULATIONS 2015**  
The client must abide by the Construction Design and Management Regulations 2015. The client must appoint a contractor, if more than one contractor is to be involved, the client will need to appoint (in writing) a principal designer (to plan, manage and coordinate the planning and design work) and a principal contractor (to plan, manage and coordinate the construction and ensure there are arrangements in place for managing and organising the project).

**Domestic clients**  
The domestic client is to appoint a principal designer and a principal contractor when there is more than one contractor, if not your duties will automatically transferred to the contractor or principal contractor.  
The designer can take on the duties, provided there is a written agreement between you and the designer to do so.

The Health and Safety Executive is to be notified as soon as possible before construction work starts if the works:  
(a) Last longer than 30 working days and has more than 20 workers working simultaneously at any point in the project.  
Or:  
(b) Exceeds 500 person days.

**PARTY WALL ACT**  
The owner, should they need to do so under the requirements of the Party Wall Act 1996, has a duty to serve a Party Structure Notice on any adjoining owner if building work on, to or near an existing Party Wall involves any of the following:  
• Support of beam  
• Insertion of DPC through wall  
• Raising a wall or cutting off projections  
• Demolition and rebuilding  
• Underpinning  
• Insertion of lead flashings  
• Excavations within 3 metres of an existing structure where the new foundations will go deeper than adjoining foundations, or within 6 metres of an existing structure where the new foundations are within a 45 degree line of the adjoining foundations.  
A Party Wall Agreement is to be in place prior to start of works on site.

**THERMAL BRIDGING**  
Care shall be taken to limit the occurrence of thermal bridging in the insulation layers caused by gaps within the thermal element, (i.e. around windows and door openings). Reasonable provision shall also be made to ensure the extension is constructed to minimise unwanted air leakage through the new building fabric.

**MATERIALS AND WORKMANSHIP**  
All works are to be carried out in a workmanlike manner. All materials and workmanship must comply with Regulation 7 of the Building Regulations, all relevant British Standards, European Standards, Agreement Certificates, Product Certification of Schemes (Kite Marks) etc. Products conforming to a European technical standard or harmonised European product should have a CE marking.

**Revisions List:**



**www.hadmanchester.co.uk**  
**0161 327 2529**

**Address:** 400 Platt Ln  
Fallowfield  
Manchester  
M14 7HJ

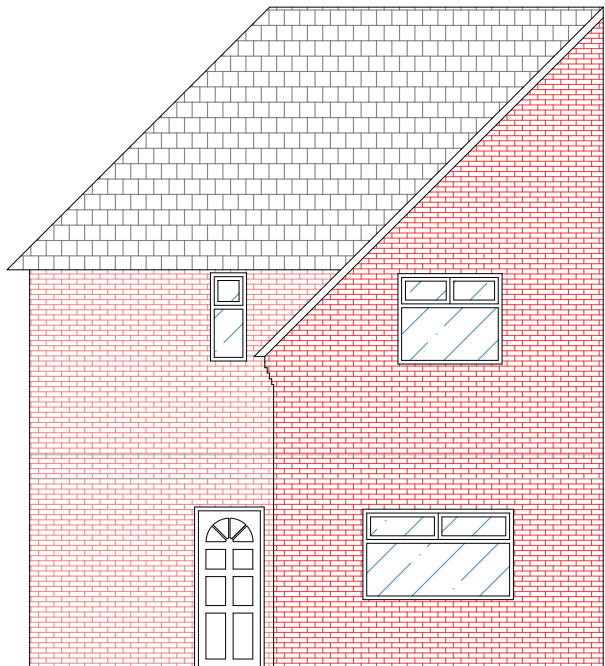
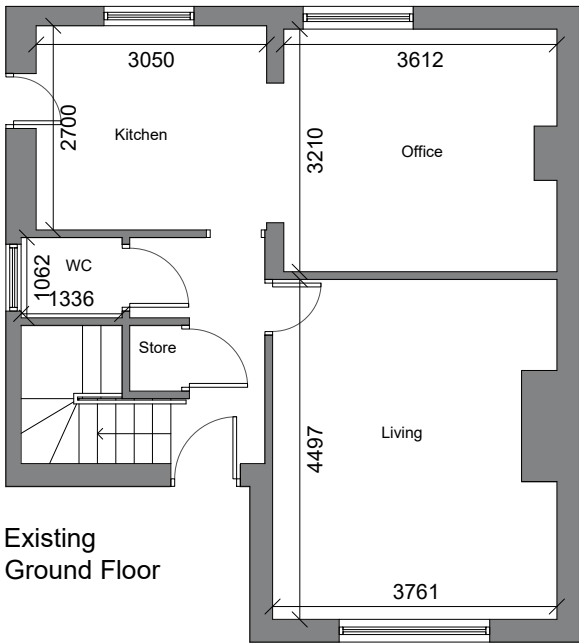
**Title:** Location and Site Plans **Drawn:** HN

**Client:** Siddig Elzailaee **Checked:**

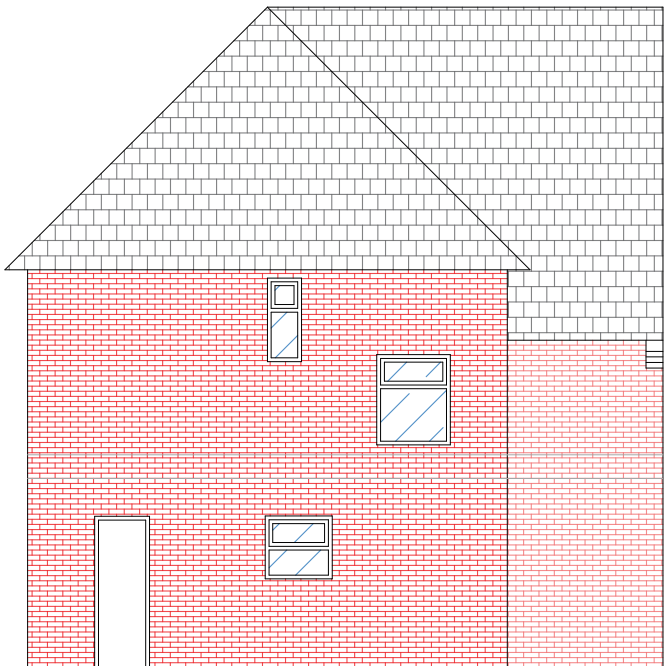
**Date:** 27-10-2022 **Paper:** A3

**Drawing No:** HAD3441-01 **Scale:** 1:1250, 1:500

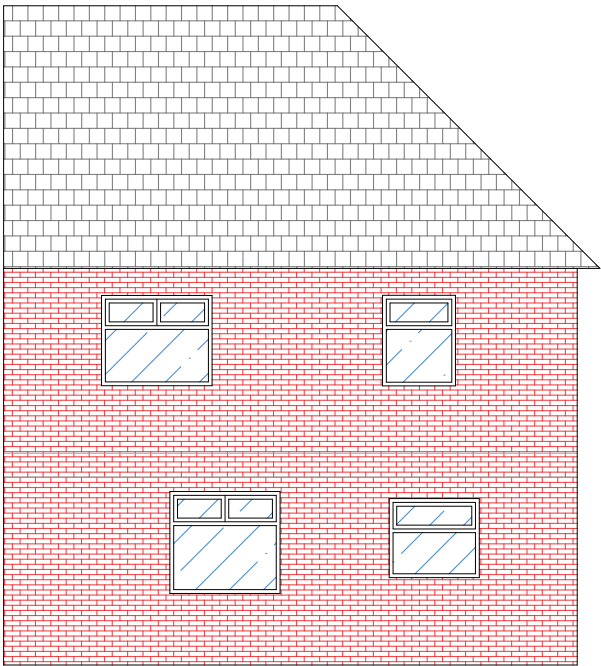
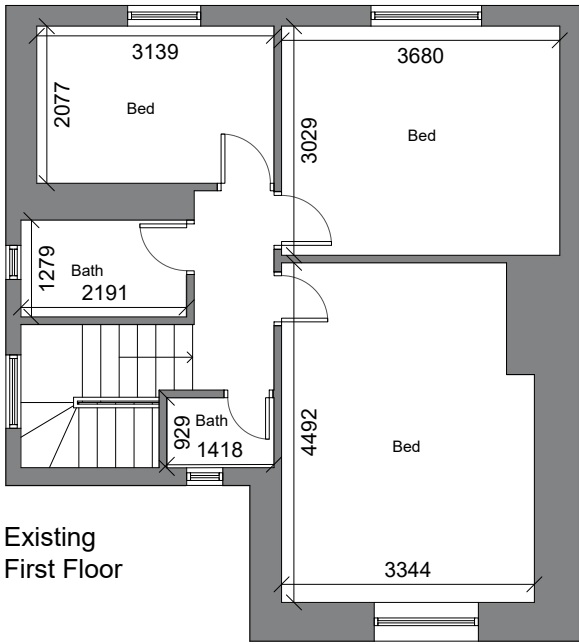
**Revision:**



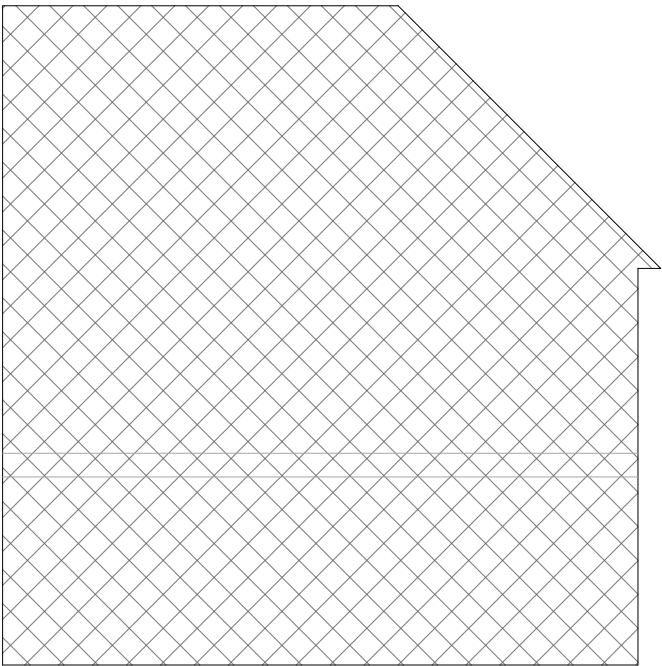
Existing Front Elevation



Existing Side Elevation



Existing Rear Elevation



Existing Side Elevation

**Notes:**  
 All work is to be carried out to the latest current British Standards Codes of Practice and recognised working practices.  
 All work and materials should comply with Health and Safety legislation.  
 All dimensions are in millimetres unless where explicitly shown otherwise.  
 The contractor should check and certify all dimensions as work proceeds and notify the agent of any discrepancies.  
 Do not scale off the drawings, if in doubt ask.  
 HAD are not liable for any work undertaken prior to Full Planning Consent and/or Building Regulations Approval.  
 Any structural works should be checked and verified by a suitably qualified structural engineer before works commence.  
 All drainage is assumed and should be clarified on site by the contractor.

**CDM REGULATIONS 2015**  
 The client must abide by the Construction Design and Management Regulations 2015. The client must appoint a contractor, if more than one contractor is to be involved, the client will need to appoint (in writing) a principal designer (to plan, manage and coordinate the planning and design work) and a principal contractor (to plan, manage and coordinate the construction and ensure there are arrangements in place for managing and organising the project).

**Domestic clients**  
 The domestic client is to appoint a principal designer and a principal contractor when there is more than one contractor, if not your duties will automatically transferred to the contractor or principal contractor.  
 The designer can take on the duties, provided there is a written agreement between you and the designer to do so.

The Health and Safety Executive is to be notified as soon as possible before construction work starts if the works:  
 (a) Last longer than 30 working days and has more than 20 workers working simultaneously at any point in the project.  
 Or:  
 (b) Exceeds 500 person days.

**PARTY WALL ACT**  
 The owner, should they need to do so under the requirements of the Party Wall Act 1996, has a duty to serve a Party Structure Notice on any adjoining owner if building work on, to or near an existing Party Wall involves any of the following:  
 • Support of beam  
 • Insertion of DPC through wall  
 • Raising a wall or cutting off projections  
 • Demolition and rebuilding  
 • Underpinning  
 • Insertion of lead flashings  
 • Excavations within 3 metres of an existing structure where the new foundations will go deeper than adjoining foundations, or within 6 metres of an existing structure where the new foundations are within a 45 degree line of the adjoining foundations.  
 A Party Wall Agreement is to be in place prior to start of works on site.

**THERMAL BRIDGING**  
 Care shall be taken to limit the occurrence of thermal bridging in the insulation layers caused by gaps within the thermal element, (i.e. around windows and door openings). Reasonable provision shall also be made to ensure the extension is constructed to minimise unwanted air leakage through the new building fabric.

**MATERIALS AND WORKMANSHIP**  
 All works are to be carried out in a workmanlike manner. All materials and workmanship must comply with Regulation 7 of the Building Regulations, all relevant British Standards, European Standards, Agreement Certificates, Product Certification of Schemes (Kite Marks) etc. Products conforming to a European technical standard or harmonised European product should have a CE marking.

**Revisions List:**

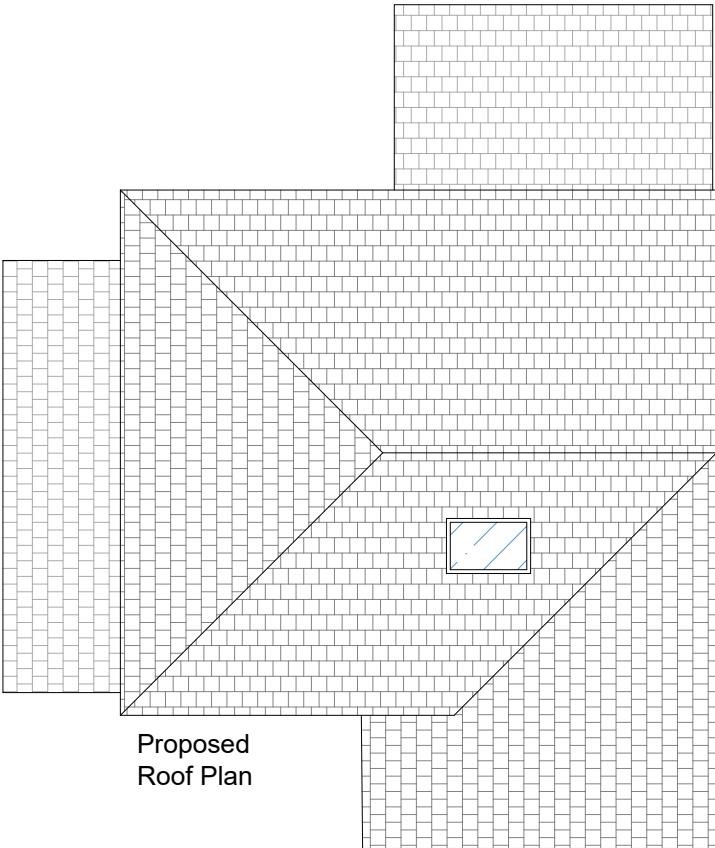
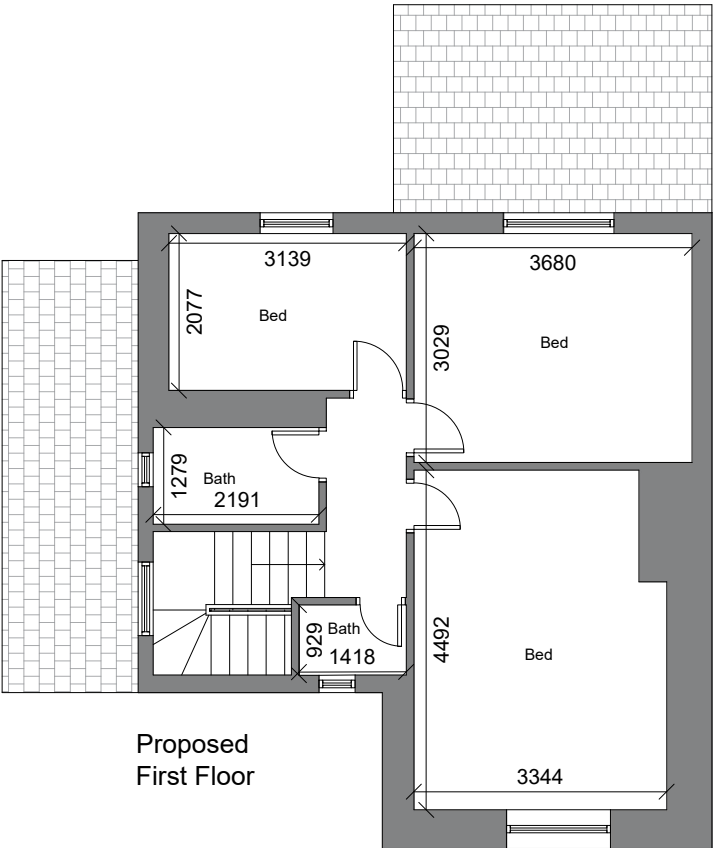
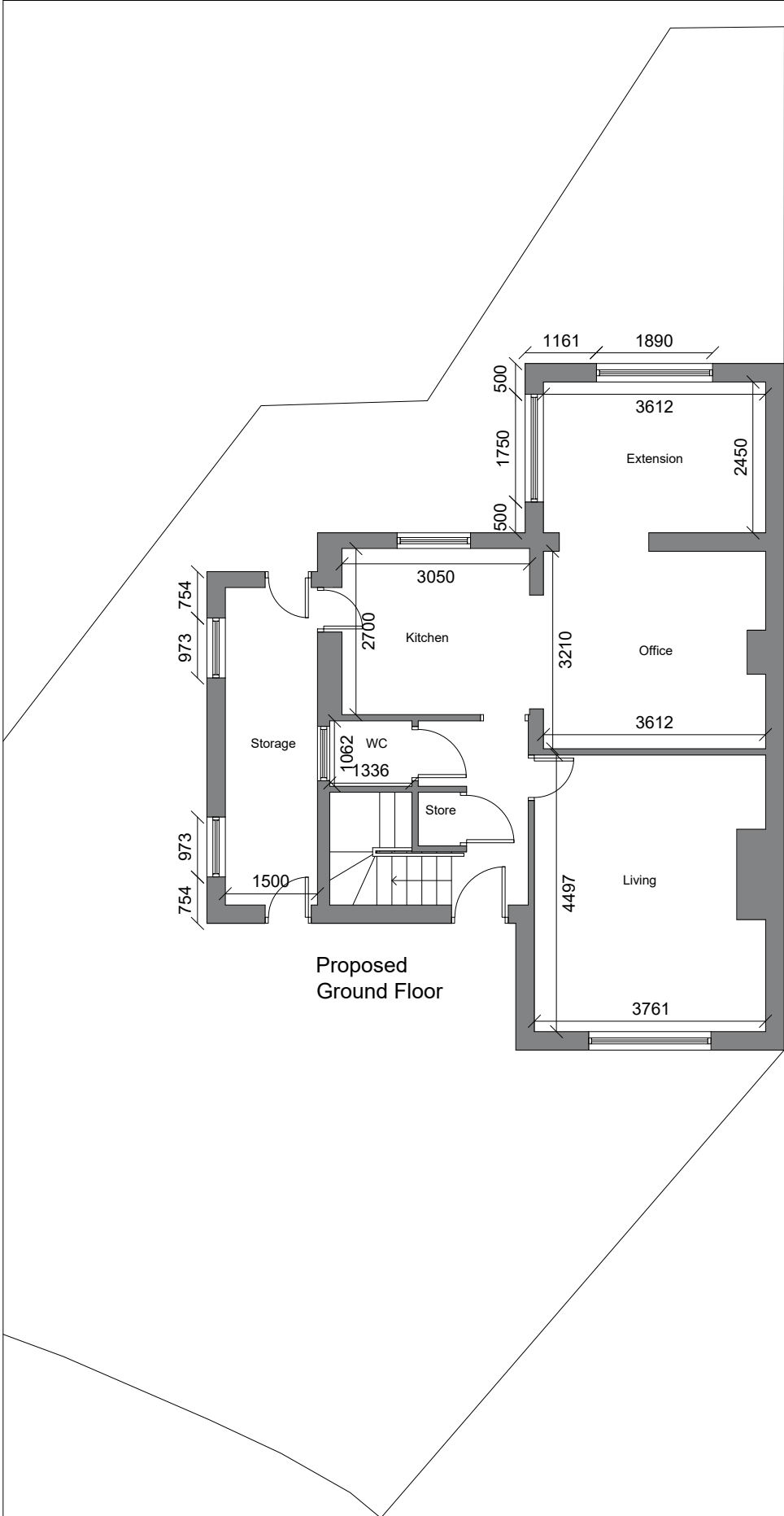


**HAD**  
[www.hadmanchester.co.uk](http://www.hadmanchester.co.uk)  
 0161 327 2529

**Address:** 400 Platt Ln  
 Fallowfield  
 Manchester  
 M14 7HJ

|                                           |                     |
|-------------------------------------------|---------------------|
| <b>Title:</b> Existing Plans & Elevations | <b>Drawn:</b> HN    |
| <b>Client:</b> Siddig Elzailaee           | <b>Checked:</b>     |
| <b>Date:</b> 14-09-2022                   | <b>Paper:</b> A3    |
| <b>Drawing No:</b> HAD3441-02             | <b>Scale:</b> 1:100 |
| <b>Revision:</b>                          |                     |

## Appendix B



**Notes:**

All work is to be carried out to the latest current British Standards Codes of Practice and recognised working practices.

All work and materials should comply with Health and Safety legislation.

All dimensions are in millimetres unless where explicitly shown otherwise.

The contractor should check and certify all dimensions as work proceeds and notify the agent of any discrepancies.

Do not scale off the drawings, if in doubt ask.

HAD are not liable for any work undertaken prior to Full Planning Consent and/or Building Regulations Approval.

Any structural works should be checked and verified by a suitably qualified structural engineer before works commence.

All drainage is assumed and should be clarified on site by the contractor.

**CDM REGULATIONS 2015**

The client must abide by the Construction Design and Management Regulations 2015. The client must appoint a contractor, if more than one contractor is to be involved, the client will need to appoint (in writing) a principal designer (to plan, manage and coordinate the planning and design work) and a principal contractor (to plan, manage and coordinate the construction and ensure there are arrangements in place for managing and organising the project).

**Domestic clients**

The domestic client is to appoint a principal designer and a principal contractor when there is more than one contractor, if not your duties will automatically transferred to the contractor or principal contractor.

The designer can take on the duties, provided there is a written agreement between you and the designer to do so.

The Health and Safety Executive is to be notified as soon as possible before construction work starts if the works:

(a) Last longer than 30 working days and has more than 20 workers working simultaneously at any point in the project.

Or:

(b) Exceeds 500 person days.

**PARTY WALL ACT**

The owner, should they need to do so under the requirements of the Party Wall Act 1996, has a duty to serve a Party Structure Notice on any adjoining owner if building work on, to or near an existing Party Wall involves any of the following:

- Support of beam
- Insertion of DPC through wall
- Raising a wall or cutting off projections
- Demolition and rebuilding
- Underpinning
- Insertion of lead flashings
- Excavations within 3 metres of an existing structure where the new foundations will go deeper than adjoining foundations, or within 6 metres of an existing structure where the new foundations are within a 45 degree line of the adjoining foundations.

A Party Wall Agreement is to be in place prior to start of works on site.

**THERMAL BRIDGING**

Care shall be taken to limit the occurrence of thermal bridging in the insulation layers caused by gaps within the thermal element, (i.e. around windows and door openings). Reasonable provision shall also be made to ensure the extension is constructed to minimise unwanted air leakage through the new building fabric.

**MATERIALS AND WORKMANSHIP**

All works are to be carried out in a workmanlike manner. All materials and workmanship must comply with Regulation 7 of the Building Regulations, all relevant British Standards, European Standards, Agreement Certificates, Product Certification of Schemes (Kite Marks) etc. Products conforming to a European technical standard or harmonised European product should have a CE marking.

Revisions List:



**HAD**

[www.hadmanchester.co.uk](http://www.hadmanchester.co.uk)

0161 327 2529

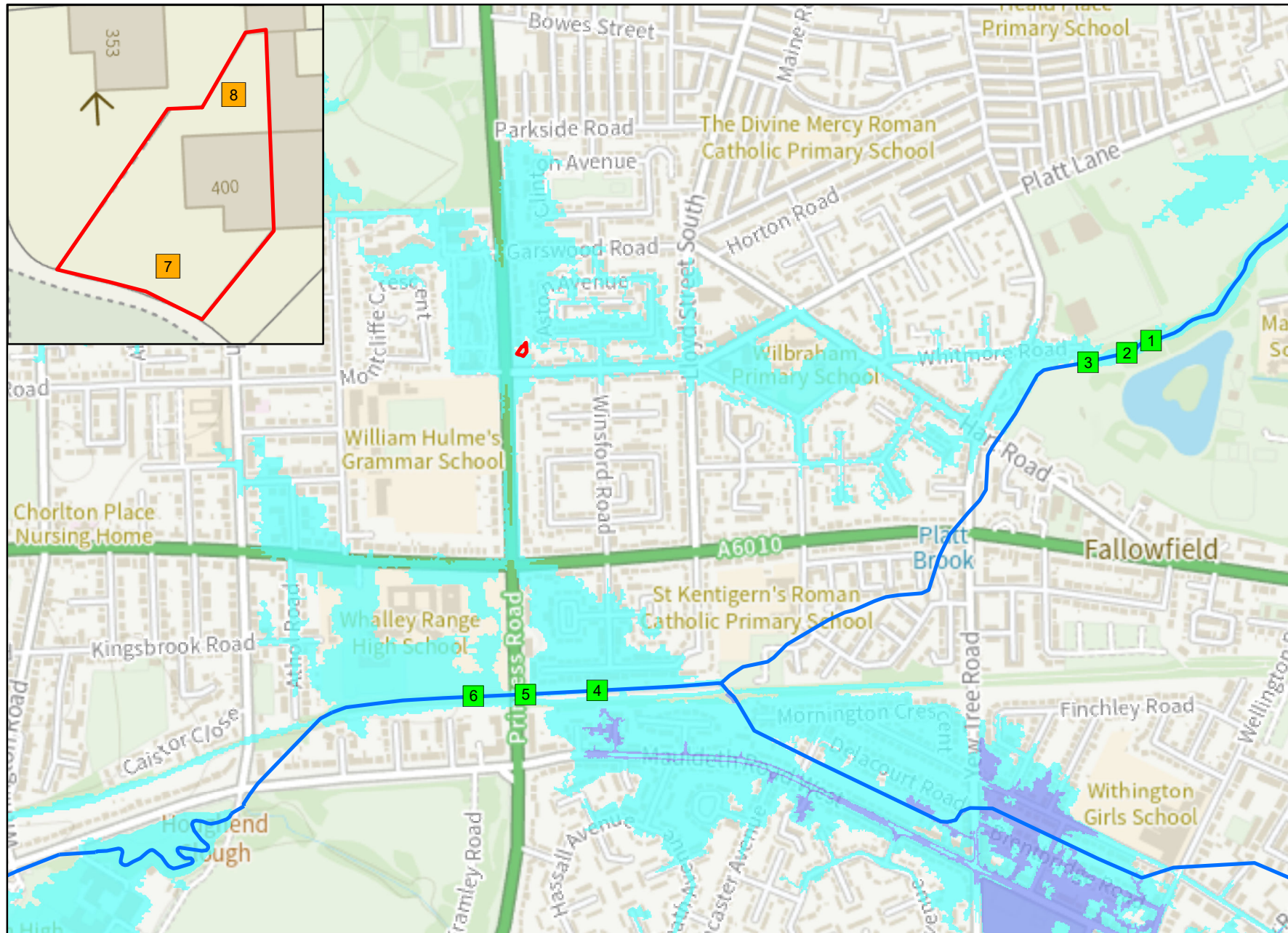
**Address:** 400 Platt Ln  
Fallowfield  
Manchester  
M14 7HJ

|                                     |                     |
|-------------------------------------|---------------------|
| <b>Title:</b> Proposed Plans        | <b>Drawn:</b> HN    |
| <b>Client:</b> Mr & Mrs Whatsisname | <b>Checked:</b>     |
| <b>Date:</b> 09-01-2023             | <b>Paper:</b> A3    |
| <b>Drawing No:</b> HAD1234-01       | <b>Scale:</b> 1:100 |
| <b>Revision:</b>                    |                     |

## Appendix C

# Detailed Flood Map Centred on Platt Lane, Manchester, M14 7HJ.

Created 01/02/2023 [GMMC300322JP]



1:10,001

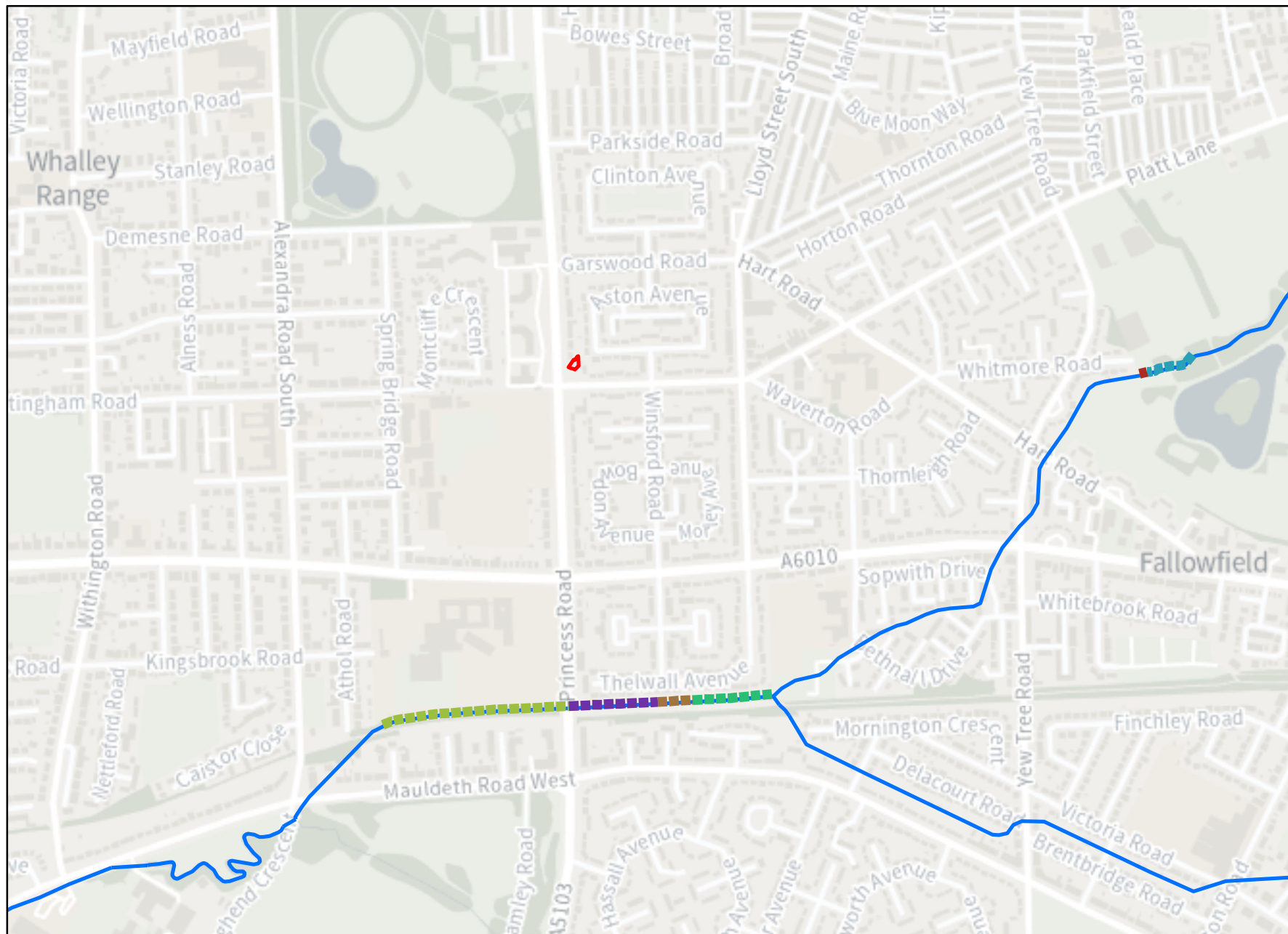


## Legend

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

# Flood Defence Map Centred on Platt Lane, Manchester, M14 7HJ.

Created 01/03/2023 [GMMC300322JP]



1:10,001



## Legend

Site Location

— Main River

## Defences

### Asset ID

- - - - - 120082

- - - - - 120657

- - - - - 122064

- - - - - 32518

- - - - - 32543

- - - - - 59788

| Map Reference | Model Node Reference     | Easting | Northing | Data                          | Undetended              |                        |                           |                         |                                                |                                                |                                                |                            |                        |                         | Defended               |                           |                         |                                                |                                                |                                                |                            |  |  |  |
|---------------|--------------------------|---------|----------|-------------------------------|-------------------------|------------------------|---------------------------|-------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|----------------------------|------------------------|-------------------------|------------------------|---------------------------|-------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|----------------------------|--|--|--|
|               |                          |         |          |                               | 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) | 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) |  |  |  |
| 1             | ea013_Model_CHOP02_0130  | 385034  | 394475   | Modelled Water Level (m aodN) | 33.40                   | 33.62                  | 33.85                     | 33.91                   | 34.55                                          | 34.77                                          | 35.69                                          | 35.80                      | 33.06                  | 33.40                   | 33.62                  | 33.85                     | 33.91                   | 34.59                                          | 34.81                                          | 35.99                                          | 36.12                      |  |  |  |
|               |                          |         |          | Modelled Flow (cumecs)        | 5.86                    | 6.12                   | 10.65                     | 11.20                   | 13.81                                          | 13.97                                          | 17.26                                          | 18.68                      |                        | 5.86                    | 6.12                   | 10.65                     | 11.20                   | 13.79                                          | 13.96                                          | 16.39                                          | 16.82                      |  |  |  |
| 2             | ea013_Model_CHOP02_0077  | 384990  | 394453   | Modelled Water Level (m aodN) | 33.39                   | 33.62                  | 33.85                     | 33.90                   | 34.48                                          | 34.72                                          | 35.68                                          | 35.78                      | 33.07                  | 33.39                   | 33.62                  | 33.85                     | 33.90                   | 34.52                                          | 34.76                                          | 35.99                                          | 36.11                      |  |  |  |
|               |                          |         |          | Modelled Flow (cumecs)        | 5.89                    | 6.15                   | 10.69                     | 11.23                   | 13.80                                          | 13.97                                          | 17.29                                          | 18.75                      |                        | 5.89                    | 6.16                   | 10.69                     | 11.23                   | 13.80                                          | 13.96                                          | 16.16                                          | 16.57                      |  |  |  |
| 3             | ea013_Model_CHOP01_5882u | 384920  | 394436   | Modelled Water Level (m aodN) | 32.98                   | 33.15                  | 33.37                     | 33.42                   | 34.90                                          | 34.56                                          | 35.53                                          | 35.63                      | 32.70                  | 32.98                   | 33.15                  | 33.37                     | 33.42                   | 34.36                                          | 34.60                                          | 35.82                                          | 35.95                      |  |  |  |
|               |                          |         |          | Modelled Flow (cumecs)        | 5.89                    | 6.16                   | 10.69                     | 11.23                   | 13.76                                          | 13.96                                          | 15.68                                          | 15.92                      |                        | 5.89                    | 6.16                   | 10.69                     | 11.23                   | 13.75                                          | 13.94                                          | 16.12                                          | 16.42                      |  |  |  |
| 4             | ea013_Model_CHOP01_4544  | 384027  | 393841   | Modelled Water Level (m aodN) | 31.96                   | 31.29                  | 31.48                     | 31.52                   | 31.66                                          | 31.67                                          | 31.83                                          | 31.84                      | 30.64                  | 31.06                   | 31.29                  | 31.49                     | 31.53                   | 31.71                                          | 31.74                                          | 31.92                                          | 31.92                      |  |  |  |
|               |                          |         |          | Modelled Flow (cumecs)        | 10.25                   | 13.64                  | 17.00                     | 17.72                   | 21.16                                          | 21.60                                          | 23.72                                          | 23.63                      |                        | 10.25                   | 13.67                  | 17.03                     | 17.76                   | 21.12                                          | 21.56                                          | 24.26                                          | 24.61                      |  |  |  |
| 5             | ea013_Model_CHOP01_4414u | 383896  | 393833   | Modelled Water Level (m aodN) | 30.80                   | 31.02                  | 31.22                     | 31.26                   | 31.39                                          | 31.41                                          | 31.62                                          | 31.64                      | 30.34                  | 30.80                   | 31.02                  | 31.22                     | 31.26                   | 31.44                                          | 31.49                                          | 31.69                                          | 31.70                      |  |  |  |
|               |                          |         |          | Modelled Flow (cumecs)        | 10.25                   | 13.64                  | 17.00                     | 17.71                   | 20.23                                          | 20.44                                          | 23.09                                          | 23.19                      |                        | 10.25                   | 13.67                  | 17.03                     | 17.76                   | 21.11                                          | 21.54                                          | 24.23                                          | 24.14                      |  |  |  |
| 6             | ea013_Model_CHOP01_4319  | 383802  | 393829   | Modelled Water Level (m aodN) | 30.59                   | 30.77                  | 30.93                     | 30.96                   | 31.07                                          | 31.10                                          | 31.28                                          | 31.31                      | 30.10                  | 30.59                   | 30.78                  | 30.93                     | 30.96                   | 31.12                                          | 31.15                                          | 31.36                                          | 31.36                      |  |  |  |
|               |                          |         |          | Modelled Flow (cumecs)        | 10.25                   | 13.64                  | 17.00                     | 17.71                   | 20.22                                          | 20.43                                          | 23.43                                          | 23.92                      |                        | 10.25                   | 13.67                  | 17.03                     | 17.76                   | 21.10                                          | 21.52                                          | 24.57                                          | 24.84                      |  |  |  |

| Map Reference | Model Node Reference | Easting | Northing | Data                          | Undetended                 | Defended                   |
|---------------|----------------------|---------|----------|-------------------------------|----------------------------|----------------------------|
|               |                      |         |          |                               | 0.1 % AEP (1 in 1000 year) | 0.1 % AEP (1 in 1000 year) |
| 7             | 2D Levels            | 383890  | 394451   | Modelled Water Level (m aodN) | 31.38                      | 31.34                      |
| 8             |                      | 383895  | 394466   | Modelled Water Level (m aodN) | 31.28                      |                            |

Model data taken from Chorlton Platt Gore 2012

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.

| Flood Defences |            |          |                        |                                     |                                       |
|----------------|------------|----------|------------------------|-------------------------------------|---------------------------------------|
| Start Date     | Asset Type | Asset ID | Standard of Protection | Upstream Actual Crest Level (m aod) | Downstream Actual Crest Level (m aod) |
| 01/01/1996     | Embankment | 120062   | 100                    | 31.27                               | 30.36                                 |
| 01/01/1996     | Embankment | 120657   | 100                    | 36.27                               | 36.29                                 |
| 01/01/1996     | Wall       | 122064   | 100                    | 31.90                               | 31.84                                 |
| 01/01/1996     | Wall       | 32518    | 100                    | 31.84                               | 31.48                                 |
| 01/01/1996     | Wall       | 32543    | 100                    | 35.76                               | 35.74                                 |
| 01/01/1996     | Embankment | 59788    | 100                    | 32.82                               | 31.81                                 |