

ENVIRONMENT

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Northenden, Greater Manchester
Flood Risk Assessment

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EXECUTIVE SUMMARY

This Flood Risk Assessment (FRA) has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance (PPG). It has been produced on behalf of Express Solicitors in respect of a planning application for a residential development off Brett Street, within Northenden, Greater Manchester (approximate grid reference: SJ830902).

This report demonstrates that the proposed development is at an acceptable level of flood risk, subject to the recommended flood mitigation strategies being implemented.

The Environment Agency (EA) Flood Map for Planning shows the site to be located entirely within Flood Zone 2 of the River Mersey.

The Upper Mersey model (JBA, 2018) has been provided by the EA and updated to inform this FRA. The model results show the site is located outside of the extents associated with the 1 in 30-year flood event.

The updating and running of the hydraulic model, most notably to account for climate change, shows the site to be located within the flood extents of the 1 in 100-year, 1 in 100-year +41% and 1 in 1000-year flood events. Within the 1 in 100-year +41% climate change event peak depths within the site are shown to reach up to 0.26m.

Correspondence with the EA has confirmed that as there is no increase in built footprint, compensatory floodplain storage will not be required as the existing building footprint can be 'banked'.

The Level 2 Strategic Flood Risk Assessment (SFRA) recommends that floor levels for habitable uses are raised to an agreed freeboard (which may typically be 600mm) above the maximum water level during a 1 in 100 year flood event plus climate change.

The site is located within the 'Middle River Mersey catchment including areas near Bramhall, Stockport, Sale, Altrincham and Urmston' EA Flood Alert Area and the 'River Mersey at Northenden' EA Flood Warning Area. It is recommended that site owners and users sign up to receive EA alerts and warnings to understand when flooding may occur so the appropriate action can be taken.

The site is considered to be at a medium risk of flooding from groundwater sources. It is considered that the raising of FFLs 600mm above the 1 in 100-year +41% peak flood level will provide a level of mitigation against the groundwater and pluvial risk.

In the event groundwater is encountered during on-site excavations, an appropriate groundwater specialist should be consulted and appropriate dewatering undertaken as necessary.

The site is considered to be at a low risk from other sources of flooding including canals, reservoirs and large waterbodies, and sewers.

The site is proposed to drain surface water utilising existing connections. It is proposed to drain foul water from the development separately to surface water.

In compliance with the requirements of NPPF, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area subject to suitable management of surface water runoff discharging from the site.

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1. INTRODUCTION

- 1.1 This FRA has been prepared in accordance with the requirements set out in the NPPF and the associated PPG. The FRA has been produced on behalf of Express Solicitors in respect of a planning application for residential development on land off Brett Street, Northenden, Greater-Manchester.
- 1.2 This FRA is intended to support an outline planning application, the level of detail included is commensurate and subject to the nature of the proposals at the planning stage. Summary information is included as **Table 1.1**.

Table 1.1: Site Summary

Site Name	Northenden
Location	Manchester
NGR (approx.)	SJ830902
Application Site Area (ha)	0.04 (approx.)
Development Type	Residential
Flood Zone Classification	Flood Zone 2
NPPF Vulnerability	More Vulnerable
Anticipated Development Lifetime	100+ years
Environment Agency Office	Greater Manchester, Merseyside and Cheshire
Lead Local Flood Authority	Manchester City Council
Local Planning Authority	Manchester City Council

Sources of Data

- Topographical Survey undertaken by Chris Partington Land Surveyors in April 2023, drawing reference: 120423JC-01
- EA 2022 2m resolution Light Detection and Ranging (LiDAR) data
- EA Consultation and Upper Mersey Hydraulic Model (JBA, 2018)
- EA Risk of Flooding from Surface Water Mapping (RoFSW) data
- Manchester City, Salford City and Trafford Councils Level 1 SFRA¹
- Manchester City, Salford City and Trafford Councils Level 2 SFRA²

¹ Manchester City, Salford City and Trafford Councils Level 1 Strategic Flood Risk Assessment (JBA Consulting, March 2010)

² Manchester City, Salford City and Trafford Councils Level 2 Strategic Flood Risk Assessment (JBA Consulting, March 2011)

- vii. Manchester City Council Preliminary Flood Risk Assessment (PFRA)³
- viii. Manchester City Council PFRA Addendum⁴
- ix. Manchester City Council Local Flood Risk Management Strategy (LFMRS)⁵
- x. North West River Basin Flood Risk Management Plan (FRMP)⁶
- xi. Manchester's Local Development Framework Core Strategy Development Plan⁷
- xii. United Utilities Sewer Records
- xiii. British Geological Survey (BGS) Drift & Geology Maps

Existing Site

- 1.3 The site is located within the Northenden area of Greater-Manchester, approximately 8km south of Manchester City centre. The site is bound by Brett Street to the south. Residential development binds the western and northern boundaries of the site. The eastern boundary is bound by Allanson Road. The site's location is illustrated within **Figure 1.1**.

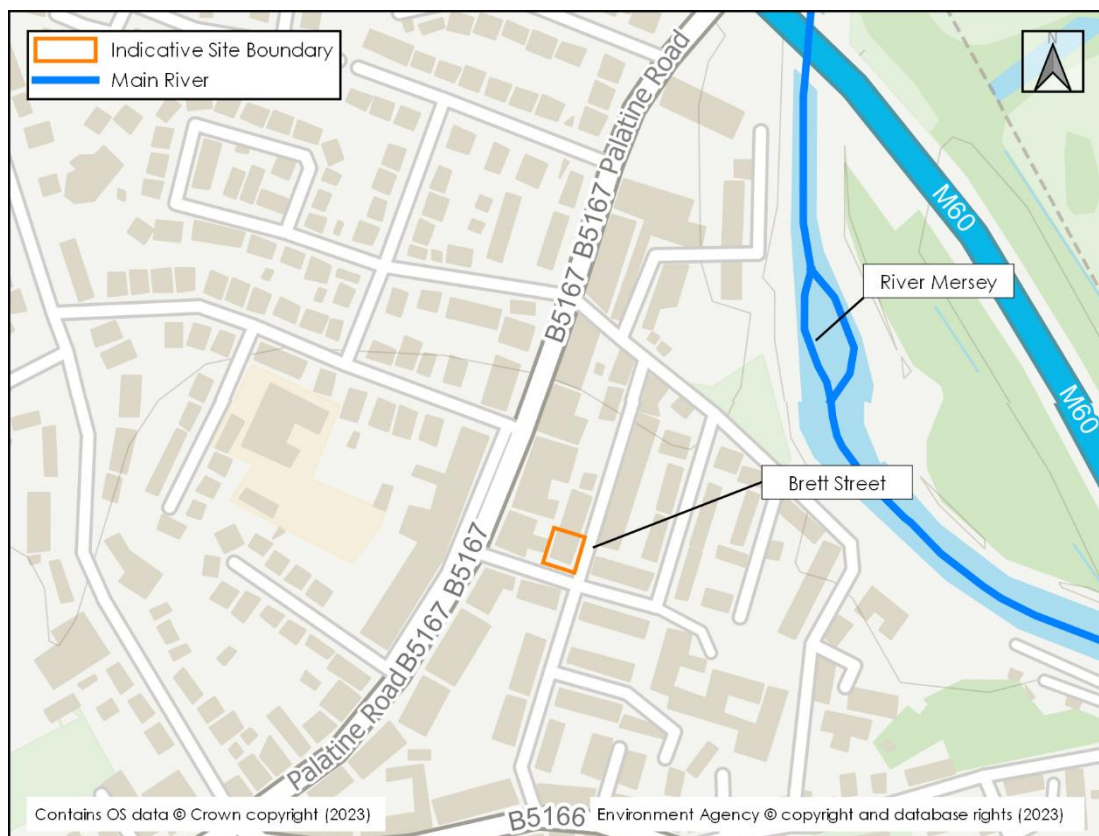


Figure 1.1: Site Location

³ Manchester City Council Preliminary Flood Risk Assessment (JBA Consulting, May 2011)

⁴ Manchester City Council Preliminary Flood Risk Assessment Addendum (Manchester City Council, December 2017)

⁵ Manchester City Council Local Flood Risk Management Strategy (Manchester City Council, March 2014)

⁶ North West River Basin Flood Risk Management Plan (Environment Agency, December 2022)

⁷ Manchester's Local Development Framework Core Strategy Development Plan (Manchester City Council, Adopted July 2012)

- 1.4 A topographical survey of the site has been undertaken and is included as **Appendix 1**. The site demonstrates a generally flat topography, ground levels range between 29.52m AOD and 29.79mAOD.
- 1.5 The existing site brownfield in nature and currently comprises existing commercial development.

Proposed Development

- 1.6 The proposals are for outline planning application for demolition of the existing structure and erection of a new residential development on land off Brett Street. The total proposed building footprint within the site will not increase compared to the existing footprint. Illustrative proposals are included as **Appendix 2**.

2. FLOOD RISK PLANNING POLICY & GUIDANCE

National Planning Policy Framework

- 2.1 The NPPF⁸ sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. The PPG is also available online⁹.
- 2.2 The PPG sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.
- 2.3 The PPG also states that alternative sources of flooding, other than fluvial (river flooding), should be considered when preparing a FRA.
- 2.4 The PPG includes a series of tables that define Flood Zones (Table 1), the flood risk vulnerability classification of development land uses (Table 2) and 'compatibility' of development within the defined Flood Zones (Table 3). Table 2 and Table 3 are recreated within **Appendix 3** of this report for reference.
- 2.5 This FRA is written in accordance with the NPPF and the PPG.

Flood Map for Planning

- 2.6 With particular reference to planning and development, the Flood Map for Planning identifies Flood Zones in accordance with Table 1 of the PPG. Further details on the Flood Zone classifications are outlined in **Table 2.1**.

Table 2.1: Flood Zone Classifications

Flood Zone	Description
Flood Zone 1 (Low Probability)	Land having less than a 1 in 1000 annual probability of river or sea flooding (<0.1% Annual Exceedance Probability). All land outside of Flood Zone 2 and 3.
Flood Zone 2 (Medium Probability)	Land having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1% AEP); or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1% AEP).
Flood Zone 3a (High Probability)	Land having a 1 in 100 or greater annual probability of river flooding (>1% AEP); or land having a 1 in 200 or greater annual probability of flooding from the sea (>0.5% AEP). This is represented by "Flood Zone 3" on the Flood Map for Planning.
Flood Zone 3b (The Functional Floodplain)	Flood Zone 3b (The Functional Floodplain) is defined as land where water must flow or be stored in times of flood. This is not identified or separately distinguished from Zone 3a on the Flood Map for Planning.

⁸ Revised National Planning Policy Framework, Ministry of Housing, Communities & Local Government, amended 2021

⁹ Planning Practice Guidance: <https://www.gov.uk/government/collections/planning-practice-guidance>

- 2.7 The EA Flood Map for Planning (**Figure 2.1**) shows the site to be located entirely within Flood Zone 2.

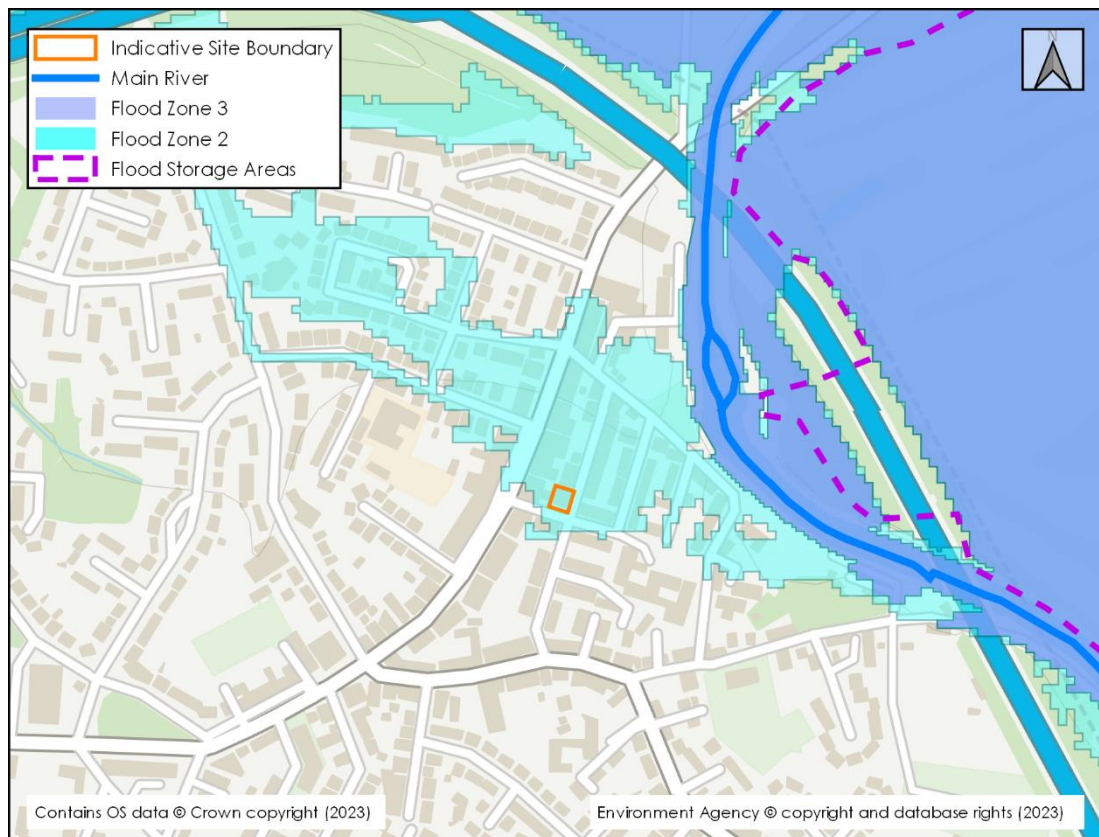


Figure 2.1: Flood Map for Planning

The Design Flood

- 2.8 The PPG identifies that new developments should be designed to provide adequate flood risk management, mitigation, and resilience against the 'design flood' for their lifetime.
- 2.9 This is a flood event of a given annual flood probability, which is generally taken as fluvial (river) and surface water (pluvial) flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), or tidal flooding with a 0.5% annual probability (1 in 200 chance each year), against which the suitability of a proposed development is assessed and mitigation measures, if any, are designed.

Climate Change

- 2.10 Predicted future changes in peak river flows caused by climate change are provided by the EA¹⁰, with a range of projections applied to regionalised 'River Basin Districts', which are further subdivided into Management Catchments.

¹⁰ Environment Agency, Flood risk assessments: climate change allowances: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>. Last Accessed June 2023.

- 2.11 The site falls within the Upper Mersey Management Catchment of the North West River Basin District. **Table 2.2** identifies the relevant peak river flow climate change allowances from this Management Catchment.

Table 2.2: Peak River Flow Climate Change Allowances for the Upper Mersey Management Catchment within the North West River Basin District

Allowance Category	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2125)
Upper End	27%	51%	85%
Higher Central	17%	31%	53%
Central	15%	22%	41%

- 2.12 When determining the appropriate allowance for use in a FRA the Flood Zone classification, flood risk vulnerability and the anticipated lifespan of the development should be considered. **Table 2.3** provides a matrix summarising the EA's guidance on determining the appropriate allowance(s).

Table 2.3: Application of Appropriate Peak River Flow Climate Change Allowances

Flood Zone	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
1	Use the central allowance where a location may fall within Flood Zone 2 or 3 in the future.				
2	Use the higher central allowance	Use the central allowance			
3a	Use the higher central allowance	Development should not be permitted	Use the central allowance		
3b	Use the higher central allowance	Development should not be permitted			Use the central allowance
If development is considered appropriate by the local authority when not in accordance with Flood Zone vulnerability categories, then it would be appropriate to use the higher central allowance.					

- 2.13 The site is located entirely within Flood Zone 2, the proposed development is classified as 'More Vulnerable', and it has an anticipated lifespan of 100+ years. Therefore, the Central allowance for the '2080s' epoch will be considered.
- 2.14 Therefore, to ensure the development is designed adequately for its lifetime an allowance of 41% will be applied to the design flood to identify minimum development levels.

- 2.15 When determining the potential off-site impacts of a proposed development its vulnerability is not critical, instead the land use in the wider floodplain needs to be considered. In their online guidance, the EA advise that generally it is appropriate to use the central allowance. Therefore, the 1 in 100-year+41% will be used to calculate any floodplain compensatory storage if considered necessary.

Strategic Flood Risk Assessment

- 2.16 A SFRA is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future.
- 2.17 The Manchester City, Salford City and Trafford Councils Level 1 SFRA¹ has been reviewed in the production of this FRA. The SFRA provides information specific to the site location in the form of fluvial, surface water and groundwater flood risk mapping, as well as records of historical flooding. It also includes flood risk policy and guidance for the area. Information from the Level 1 SFRA will be referenced within **Section 3**, where applicable.
- 2.18 The Manchester City, Salford City and Trafford Councils Level 2 SFRA² was produced to facilitate the application of Sequential and Exception Tests to screen allocated development sites. The proposed application site is not referenced within the Level 2 SFRA.

Preliminary Flood Risk Assessment

- 2.19 A PFRA is an assessment of floods that have taken place in the past and floods that could take place in the future. It generally considers flooding from surface water runoff, groundwater and ordinary watercourses, and is prepared by the Lead Local Flood Authorities (LLFAs).
- 2.20 The Manchester City Council PFRA³ considers flooding from surface water runoff, groundwater, ordinary watercourses and canals. It also references the historical river flooding which occurred in the local area in 1981, 1991, 2001, 2004 and 2007. Information from the PFRA will be referenced within **Section 3**, where applicable.
- 2.21 An addendum to the PFRA⁴ was produced in December 2017. No changes to the understanding of past and future flood risk are reported within the addendum. There are also no further historical flooding events reported within the addendum.

Local Flood Risk Management Strategy

- 2.22 A LFRMS is prepared by an LLFA to help understand and manage flood risk at a local level.
- 2.23 The LFRMS aims to ensure that the knowledge of local flood risk issues is communicated effectively so that they can be better managed. The LFRMS also aims to promote sustainable development and environmental protection.

- 2.24 The Manchester City Council LFRMS⁵ has been reviewed; however, no applicable information in relation to flood risk at the site or immediate surrounding area, was identified.

River Basin Flood Risk Management Plan

- 2.25 FRMPs explain the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. FRMPs set out how risk management authorities will work with communities to manage flood and coastal risk. Risk management authorities include the EA, Natural Resources Wales, local councils, internal drainage boards, Highways England and LLFAs.
- 2.26 The first FRMPs were published in March 2016 and have since been updated in December 2022. They describe actions to manage flood risk across England between 2021 to 2027.
- 2.27 The site is located within the North West River Basin District, and the North West FRMP⁶ has been reviewed; however no relevant site scale objectives were found within the report.

Surface Water Management Plan

- 2.28 Surface Water Management Plan SWMPs are non-statutory plans which preceded the introduction of the Flood and Water Management Act 2010. They can provide an important evidence base of local flood risk issues which can include surface water drains, groundwater and small watercourses.
- 2.29 Manchester City Council have not produced a SWMP for the area.

Section 19 Flood Investigation Reports

- 2.30 Under their duties of the Flood and Water Management Act 2010, LLFAs have a responsibility to publish reports of investigations of flood incidents. A Section 19 flood investigation report is a public statement of the circumstances of a historical flood event and what parties have a role in managing the risks. The investigation does not always give an in-depth analysis of the flood risk or mechanisms, but it can provide a valuable record of past events.
- 2.31 Greater Manchester Combined Authority have published one Section 19 report on their website¹¹, which document the flooding that occurred in December 2015. The reports have been reviewed in relation to the site's location, but no evidence of flooding at the site was identified.

¹¹ Flood Investigation Report Greater Manchester (Greater Manchester Combined Authority, September 2016)

Local Plan

- 2.32 The Core Strategy⁷ was adopted by Manchester City Council on 11th July 2012, as part of Manchester's Local Development Framework and covers a period of 15 years from 2012 to 2027 and outlines the Council's vision for Manchester in 2027.
- 2.33 Policy *EN14 Flood Risk* has been reviewed and is summarised below:
- i. "Development should be directed away from sites at the greatest risk of flooding, and towards sites with little or no risk of flooding; this should take account of all sources of flooding identified in the SFRA."
 - ii. "In addition to the requirements for site-specific FRAs set out in PPS25, an appropriate FRA will also be required for all development proposals, including changes of use, on sites greater than 0.5ha within Critical Drainage Areas (CDAs) and Canal Hazard Zones identified in the SFRA."
 - iii. "All new development should minimise surface water run-off, including through Sustainable Drainage Systems (SuDS) and the appropriate use of Green Infrastructure. Developers should have regard to the surface water run-off rates in the SFRA User Guide. In CDAs, evidence to justify the surface water run-off approach/rates will be required."
 - iv. "The City of Manchester contains many sections of rivers which are culverted or 'hidden'; where these are indicated in the SFRA beneath the proposed development site, further investigation will be required and the development proposals should take this into account; where feasible and appropriate development should seek to open up culverted/hidden rivers to reduce the associated flood risk and danger of collapse, taking advantage of opportunities to enhance biodiversity and Green Infrastructure."

Other Relevant Policy and Guidance

Flood Risk to People and New Developments

- 2.34 The Flood Risk to People (FD2321/TR1)¹² document was prepared as a research project considering flood hazard and factors that affect it.
- 2.35 Flood Risk Assessment Guidance for New Development (FD2320/TR2)¹³ provides a framework and guidance for assessing and managing flood risks for new developments and sets flood hazard thresholds.
- 2.36 Hazard ratings are derived using the following equation in line with the above:

$$\text{Hazard Rating} = D * (V+0.5) + DF$$

Where:

D = depth

V = velocity

DF = debris factor

¹² Flood Risk to People Methodology (FD2321/TR1), Defra/Environment Agency, 2006

¹³ Flood Risk Assessment Guidance for New Development (FD2320/TR2), Defra/Environment Agency, 2005

- 2.37 A supplementary note¹⁴ provides clarification of the hazard rating thresholds which should be used for development planning and control use. **Table 2.4** identifies the thresholds of the flood hazard categories.

Table 2.4: Hazard to People¹⁵

Threshold for Flood Hazard Rating	Degree of Flood Hazard	Description
< 0.75	Low	Caution "Flood zone with shallow flowing water or deep standing water"
0.75 - 1.25	Moderate	Danger for some (i.e.: children, the elderly and the infirm) "Danger: Flood Zone with deep or fast flowing water"
1.25 - 2.0	Significant	Danger for most (includes the general public) "Danger: Flood Zone with deep fast flowing water"
2.0 >	Extreme	Danger for all (includes the emergency services) "Extreme Danger: Flood Zone with deep fast flowing water"

Improving the Flood Performance of New Buildings; Flood Resilient Construction

- 2.38 The Flood Resilient Construction¹⁶ document is the outcome of a joint research project between Communities and Local Government and the Environment Agency. A Research and Development Technical Report¹⁷ is also available.
- 2.39 The document provides guidance on flood resilient design and construction and possible techniques and building materials. These documents are referred to in this Flood Risk Assessment and have been considered when recommending mitigation and resilience measures.

¹⁴ Supplementary Note on Flood Hazard Ratings and Thresholds for Development Planning and Control Purpose – Clarification of the Table 13.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1. (http://randd.defra.gov.uk/Document.aspx?Document=FD2321_7400_PR.pdf)

¹⁵ 2008, DEFRA, Supplementary Note on Flood Hazard Ratings and Thresholds for Development Planning and Control Purposes.

¹⁶ Improving the Flood Performance of New Buildings; Flood Resilient Construction, CLG, May 2007

¹⁷ Flood Resistance and Resilience Solutions; an R&D Scoping Study, Defra/Environment Agency, 2007

3. POTENTIAL SOURCES OF FLOOD RISK

- 3.1 Flooding can occur from a variety of sources, or combination of sources, which may be natural or artificial. **Table 3.1** below identifies the potential sources of flood risk to the site in its current condition, and the impacts which the development could have in the wider catchment, prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location are discussed within **Section 4**.

Table 3.1: Pre-Mitigation Sources of Flood Risk

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial		X			The EA Flood Map for Planning shows the site to be located entirely within Flood Zone 2. Updates to the Upper Mersey Model (JBA, 2018) shows the site is located within the 1 in 100-year, 1 in 100-year +41% climate change and 1 in 1000-year modelled flood extents.
Coastal				X	The River Mersey is not considered to be tidally influenced adjacent to the site.
Canals				X	The nearest canal is located approximately 7km north of the site. Any exceedance from the canal would be intercepted by intervening topography.
Groundwater		X			The site is considered to be at a medium risk of groundwater flooding, based upon the underlying geology and shallow groundwater shown to have been encountered by nearby BGS borehole logs.
Reservoirs and waterbodies			X		The site is shown to fall within the area at risk of reservoir failure.
Pluvial runoff			X		The site is considered to be at a very low risk of surface water flooding. The access/egress route is at a low to medium risk of surface water flooding.
Sewers			X		There is a public sewer network in the surrounding roads in the event of exceedance flows would be directed away from the site.

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Effect of Development on Wider Catchment		X			The development has the potential to displace the 1 in 100-year +41% fluvial floodplain, unless appropriately mitigated.
			X		There will be no impact on existing run-off rates as a result of development, due to there being no increase in impermeable areas post-development.

Fluvial Flood Risk

3.2 Flooding from watercourses occurs when flows exceed the capacity of the channel, or where a restrictive structure is encountered, which leads to water overtopping the banks into the floodplain. This process can be exacerbated when debris is mobilised by high flows and accumulates at structures.

3.3 The site is located approximately 140m south-west of the River Mersey, an EA Main River, which flows in a north-westerly direction under the M60 and Palatine Road 370m north of the site. There are no ordinary watercourses within the vicinity of the site.

Upper Mersey Model (JBA, 2018)

3.4 The EA Flood Map for Planning shows the site to be located entirely within Flood Zone 2 of the River Mersey. It is not expected that the Flood Map for Planning accounts for site-specific detail and demonstrates a strategic scale representation of fluvial flood risk in the area.

3.5 BWB has acquired the Upper Mersey model (JBA, 2018) from the EA. The model has been reviewed and an exercise undertaken to update the model for use in this site-specific FRA.

3.6 The minor amendments made to the Upper Mersey model are outlined below:

- Latest 2022 2m EA LiDAR added across the 2D model domain.
- The 1 in 100-year inflow hydrographs have been scaled to provide inflows for the 1 in 100-year +41% climate change event.

3.7 Following the minor changes, the model was run for the 1 in 30-year, 1 in 100-year, 1 in 100-year +41% climate change and 1 in 1000-year flood events.

3.8 An extract of the modelled peak flood extents for these return periods is shown in **Figure 3.1**. Peak flood levels for the critical events are reported in **Table 3.2**. The site is located outside of the floodplain of the 1 in 30-year event. However, for completeness a flood level for this event has been extracted from the model results at the closest location to

the site. Peak flood depths for the 1 in 100-year, 1 in 100-year +41% and 1 in 1000-year events are included as **Appendix 5**.

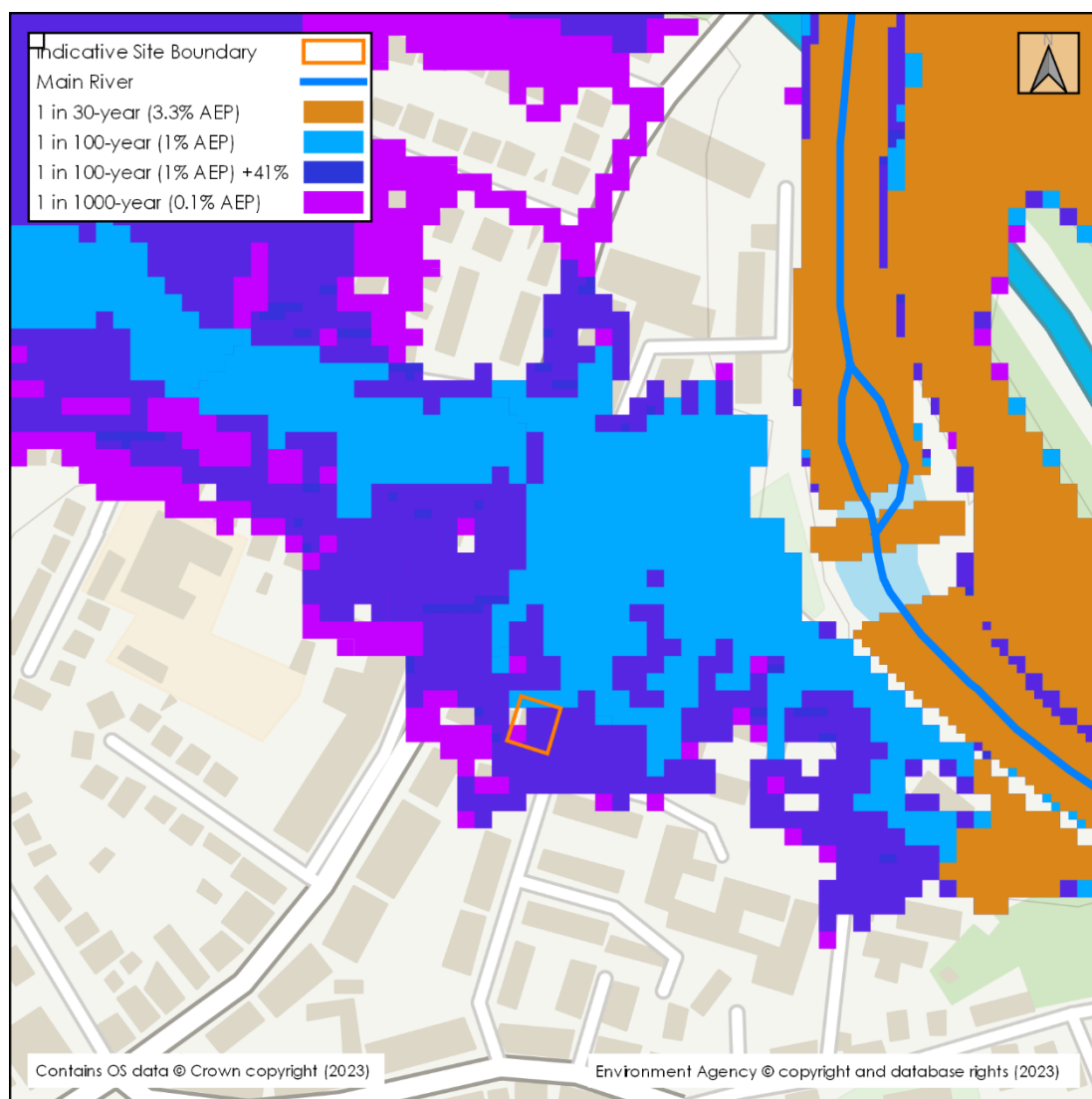


Figure 3.1: Modelled Peak Flood Extents

Table 3.2: Modelled Peak Flood Levels

Existing Site Levels (m AOD)	Modelled Peak Flood Level at Site (m AOD)			
	1 in 30-year	1 in 100-year	1 in 100-year +41%	1 in 1000-year
29.52-29.79	29.32*	28.59	29.78	29.82

*Nearest Peak Flood Level to the Site

- 3.9 The site is shown to be located outside of the 1 in 30-year flood extents. The nearest extents for this event are located approximately 100m north-east of the site. The extents are shown to be predominantly confined to the channel of the watercourse at this point.

- 3.10 The site is shown to be impacted from partial encroachment of the 1 in 100-year extents in the north. The majority of site is located within the extents of the 1 in 100-year +41% and 1 in 1000-year flood extents.
- 3.11 Within the 1 in 100-year +41% climate change event peak depths within the site are shown to reach up to 0.26m. The results in this event indicate a predominantly 'Low' to 'Moderate' hazard rating, as per the classification shown in **Table 2.4**.

Historical Flooding

- 3.12 The PFRA reports historical flooding of the River Mersey in 1872, it is reported that properties within Northenden experienced significant flooding; however, it is unknown if the site specifically was impacted by this event. The Level 1 SFRA references historical flooding in Northenden from the River Mersey in 1998, it is not reported if this event impacted the site. An EA Recorded Flood Outline is shown to have impacted the site refers to an event in 1964. However, the source and cause of flooding is not reported.

EA Pre-Application Consultation

- 3.13 Pre application advice was sought with the EA in July 2023 on the following points:
- i. Whether floodplain compensation would be required
 - ii. If compensation was to be required, would this be only for any increase upon the existing footprint?
 - iii. Whether the EA were happy with the model updates undertaken and whether they would want to review the minor model updates.
- 3.14 The email correspondence with the EA and the subsequent formal response is included as **Appendix 4**. The response is summarised below:
- i. Compensatory flood storage will not be required in the event that the footprint of the new building is identical to that of the existing building.
 - ii. This is correct, compensation is required for any 'additional' building footprint to what's currently there.
 - iii. The EA do not wish to review the model changes.
- 3.15 Overall, the site is considered to be at a medium risk of flooding from fluvial sources. Appropriate mitigation measures are outlined in **Section 4**.

Groundwater Flood Risk

- 3.16 Groundwater flooding occurs when the water table rises above ground elevations, or it rises to depths containing basement level development. It is most likely to happen in low lying areas underlain by permeable geology. This is most common on regional scale chalk aquifers, but there may also be a risk on sandstone and limestone aquifers or on thick deposits of sands and gravels underlain by less permeable strata such as that in a river valley.

- 3.17 BGS Mapping (**Figure 3.2**) shows the site is underlain by a mix of Helsby Sandstone Formation and Tarporley Siltstone Formation – Siltstone, Mudstone and Sandstone.

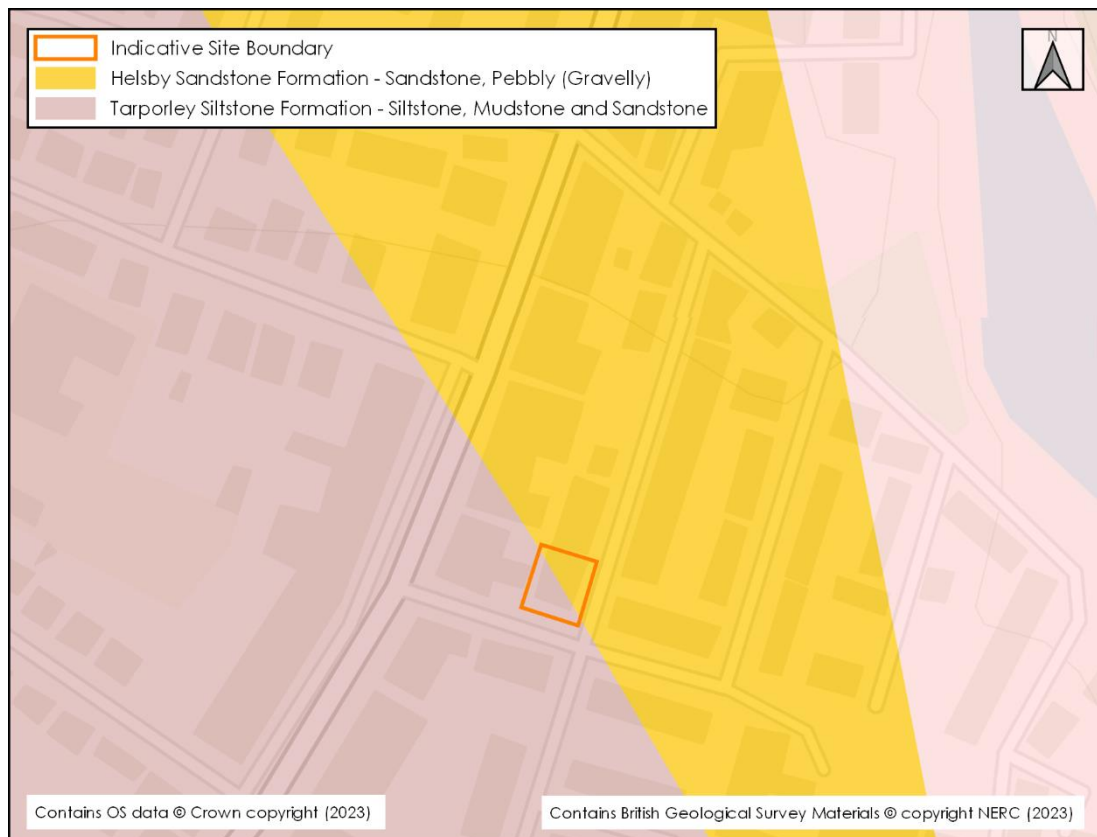


Figure 3.2: BGS Underlying Bedrock Geology

- 3.18 Helsby Sandstone Formation is designated as a Principal Aquifer, defined as layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. Tarporley Siltstone Formation is designated a Secondary B Aquifer, defined as predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.
- 3.19 Superficial deposits of Glaciofluvial Sheet Deposits, Devensian - Sand and Gravel are expected to be present within the site. These deposits are designated Secondary A Aquifers, defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
- 3.20 There are no BGS borehole logs located within the site. Three logs from previous excavations (SJ89SW819, SJ89SW820, SJ89SW818) are located approximately 70m east of the site, they show the same geology as underlays the site. During the previous excavations groundwater was encountered between 1.8 metres below ground level (bgl) and 2.3m bgl.

- 3.21 Mapping within the Level 1 SFRA shows the site to be outside of areas at risk of groundwater flooding. There are no records of historical groundwater flooding within the SFRA
- 3.22 It is expected that as the current site is wholly brownfield that there is limited opportunity for groundwater emergence.
- 3.23 Overall, based on shallow groundwater previously encountered in nearby boreholes, the site is considered to be at a medium risk of flooding from ground water sources. Appropriate mitigation measures are discussed in **Section 4**.

Flood Risk from Reservoirs & Large Waterbodies

- 3.24 Flooding can occur from large waterbodies or reservoirs if they are impounded above the surrounding ground levels or are used to retain water in times of flood. Although unlikely, reservoirs and large waterbodies could overtop or breach leading to rapid inundation of the downstream floodplain.
- 3.25 To help identify this risk, reservoir failure flood risk mapping has been prepared by the EA, this shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The map displays a worst-case scenario and is only intended as a guide. An extract of the mapping is included as **Figure 3.3**.

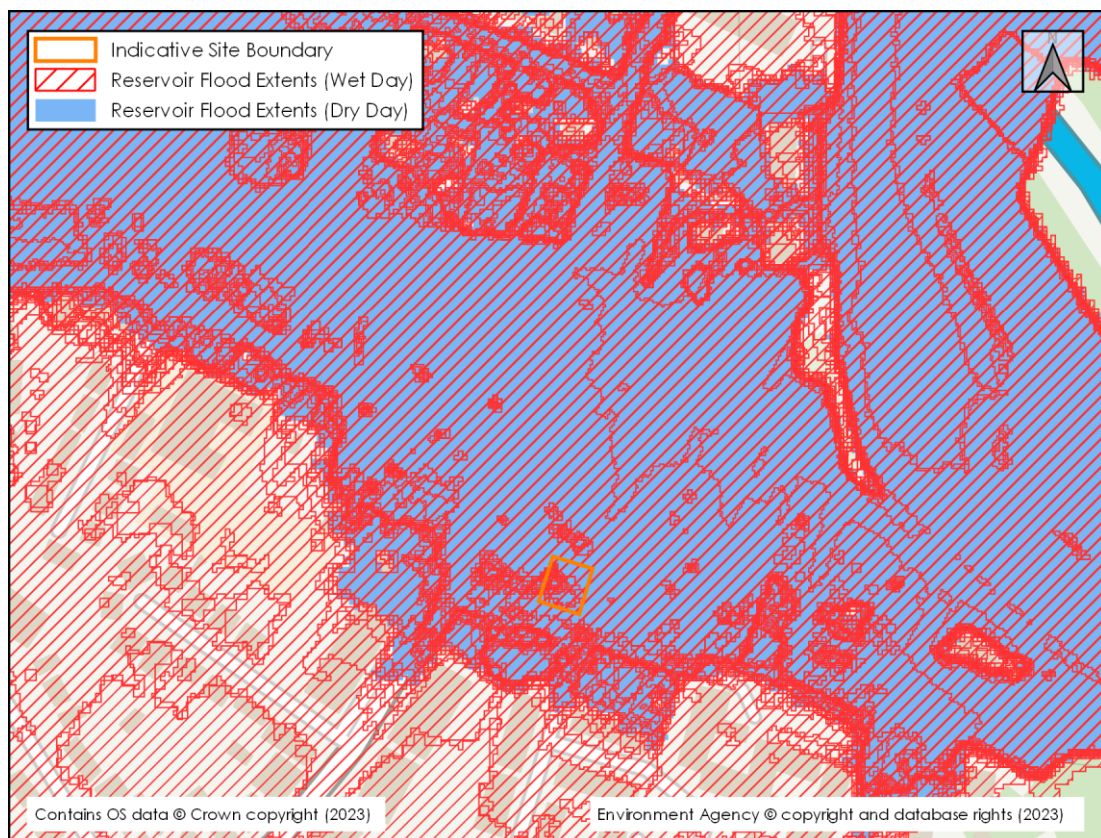


Figure 3.3: EA Reservoir Failure Mapping

- 3.26 There are two flooding scenarios shown on the reservoir flood maps: a 'dry-day' and a 'wet-day'. The 'dry-day' scenario predicts the flooding that would occur if the dam or reservoir failed when rivers are at normal levels. The 'wet-day' scenario predicts how much worse the flooding might be if a river is already experiencing an extreme flood.
- 3.27 The site is located within the 'dry-day' and 'wet day' extents of 30 reservoirs. These reservoirs are operated and maintained by the United Utilities and Canal and Rivers Trust who have ultimate responsibility for the safety of their reservoir assets. Their responsibilities include regular safety inspections, any necessary design or repairs undertaken where required and an annual statement produced on the operation and maintenance regime.
- 3.28 Based on the safety legislation in place and the maintenance and repair responsibilities of United Utilities and Canal and Rivers Trust, the actual probability of a significant failure is considered to be low. Therefore the risk of flooding from this source is considered to be low.

Pluvial Flood Risk

- 3.29 Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.
- 3.30 Risk of Flooding from Surface Water (RoFSW) mapping has been collated and published by the EA, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. An extract from the mapping is included as **Figure 3.4**.

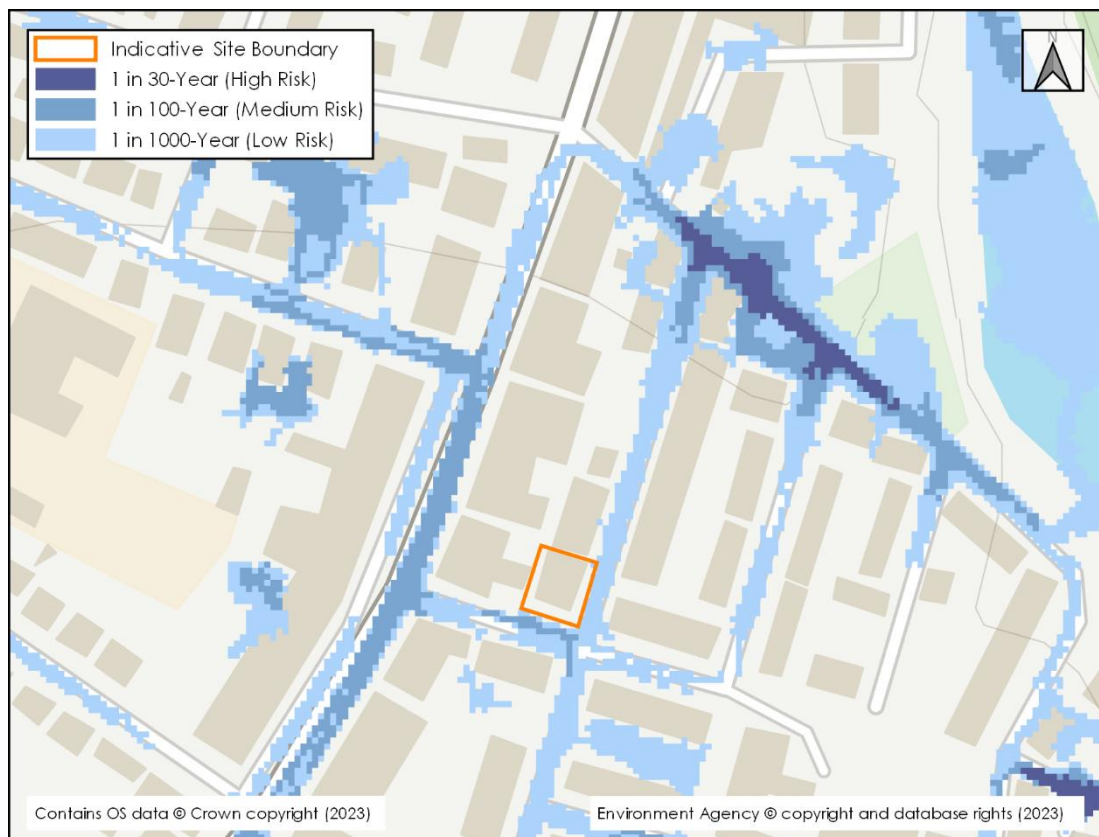


Figure 3.4: EA Risk of Flooding from Surface Water Mapping

- 3.31 The site is shown to be at a very low risk of flooding from surface water. The mapping shows low (1 in 1000-year) to (medium (1 in 100-year) risk within the access road of Brett Street.
- 3.32 The depth of flooding within the 1 in 100-year design event in the road is predominantly less than 150mm, with some areas between 150mm and 300mm. These depths demonstrate a predominantly 'Low' hazard rating, as per the classification in **Table 2.4**.
- 3.33 United Utilities sewer records (**Appendix 6**) shows there to be existing public drainage assets within Brett Street. The EA RoFSW mapping does not take these drainage features into account explicitly. It is therefore anticipated that the risk shown within the site and surrounding areas is over estimated, up to the design standard of the surrounding sewer network.
- 3.34 Overall, the site is considered to be at a low risk of flooding from pluvial sources. Appropriate mitigation for any residual risk is discussed in **Section 4**.

Flood Risk from Sewers

- 3.35 Sewer flooding can occur when the capacity of the infrastructure is exceeded by excessive flows, or as a result of a reduction in capacity due to collapse or blockage, or if the downstream system becomes surcharged. This can lead to the sewers flooding onto the surrounding ground via manholes and gullies, which can generate overland flows.

- 3.36 The United Utilities sewer records for the site are included as **Appendix 6**. The nearest assets to the site is a public 300mm combined sewer in Allanson Road and a public 225mm combined sewer within Brett Street. At the points closest to the site these sewers have depths to invert of 3m and 2.4m respectively.
- 3.37 In the event that these sewers were to exceed capacity flood water would be directed to the north towards Mill Lane.
- 3.38 The Level 1 SFRA notes Northenden as an area with sewer and drainage problems during rainfall events and references historical sewer flooding in Northenden in 1965. However, it is unknown if the site was impacted during this event.
- 3.39 Overall, the site is considered to be at low of flooding from sewer sources. Appropriate mitigation measures are discussed in **Section 4**.

Effect of Development on Wider Catchment

Displacement of Floodplain

- 3.40 The total building footprint within site will not increase compared to the existing. Therefore the development will not lead to an displacement of the floodplain.

Development Land Use/Drainage Considerations

- 3.41 There will be no impact on existing run-off rates as a result of development.

4. FLOOD RISK MITIGATION

- 4.1 **Section 3** has identified the sources of flooding which could potentially pose a risk to the site and the proposed development. This section of the FRA sets out the mitigation measures which are to be incorporated within the proposed development to address and reduce the risk of flooding to within acceptable levels.

Floodplain Compensation

- 4.2 The existing site is brownfield in nature and comprises a commercial building with footprint within the 1 in 100-year +41% climate change design event floodplain.
- 4.3 As discussed in **Section 3**, pre-application consultation with the EA has been undertaken (**Appendix 4**) to clarify their position on the banking of built footprint within the floodplain of the River Mersey. It was stated by the EA that "Compensatory flood storage will not be required in the event that the footprint of the new building is identical to that of the existing building".
- 4.4 An assessment of the existing built footprint within the design event floodplain was undertaken using building outlines included within the topographical survey. This demonstrates that there is an existing built footprint within the 1 in 100-year +41% design event floodplain of 267m² in the site.
- 4.5 The total building footprint area within the site will not increase compared to the existing footprint area within the site. Therefore, floodplain compensation measures are not required to be implemented.

Development Levels

- 4.6 The Level 2 SFRA states that "It is recommended that floor levels for habitable uses (defined as living rooms, dining rooms, kitchens depending on their use within the household and bedrooms) are raised to an agreed freeboard (which may typically be 600mm) above the maximum water level during a 1 in 100 year flood event plus climate change."
- 4.7 Based on this guidance the minimum Finished Floor Levels (FFLs) for the site are summarised in **Table 4.1**.

Table 4.1: Development Levels based on Level 2 SFRA Guidance

Existing Site Level (m AOD)	1 in 100-year +41% Modelled Peak Flood Level (m AOD)	FFL Freeboard (mm)	Minimum FFL (m AOD)
29.52-29.79	29.78	600	30.38

- 4.8 FFLs should therefore be set no lower than 30.38m AOD.

- 4.9 At this outline stage, it is noted that the proposed final use of the development is subject to change, and the FFL may be subject to review in accordance with levels and accessibility requirements.
- 4.10 It is considered that the raising of FFL 600mm above the 1 in 100-year +41% climate change peak flood level will also provide mitigation against groundwater, sewer, and pluvial flood risk.

Flood Contingency Plan and Evacuation Procedures

Flood Warning and Evacuation

- 4.11 The site is located within the 'Middle River Mersey catchment including areas near Bramhall, Stockport, Sale, Altrincham and Urmston' EA Flood Alert Area and the 'River Mersey at Northenden' EA Flood Warning Area. It is recommended that site owners and users sign up to receive EA alerts and warnings to understand when flooding may occur so the appropriate action can be taken.
- 4.12 In the event that flooding is expected it is recommended that the site is evacuated to the nearest area that is located outside of the 1 in 100-year +41% climate change floodplain and is at a low risk of flooding from surface water. This area is considered to be Church Road approximately 160m south of the site.
- 4.13 It is also recommended that site owners and users sign up to receive extreme weather warnings to provide an awareness of heavy rainfall events which could lead to surface water flooding around the access on Brett Street.

Safe Refuge

- 4.14 In the event that safe access/egress cannot be achieved, it is recommended that safe refuge is provided within upper floors of the proposed development until flood water has receded.

Safe Access and Egress

- 4.15 Access/egress from the site via Brett Street is located within the 1 in 100-year +41% climate change floodplain and demonstrates a risk of surface water flooding. Given the risk to the access/egress it is recommended that the Flood Warning and Evacuation procedure/Safe Refuge approach outlined above is adhered to.

Groundwater Considerations

- 4.16 The site is considered to be at a medium risk of groundwater flooding. In the event groundwater is encountered during on-site excavations, an appropriate groundwater specialist should be consulted and appropriate dewatering undertaken as necessary.

Surface Water Drainage

- 4.17 It is considered that due to the brownfield nature of the existing site, the proposed development will not have an impact on the existing runoff rates.
- 4.18 Further information on the drainage approach is provided within the accompanying Sustainable Drainage Statement, reference NDM-BWB-ZZ-XX-RP-CD-0001_SDS.
- 4.19 Due to the size and nature of the proposals a restriction is not required and therefore surface water attenuation measures are also not required. The existing surface water connections are expected to be utilised.

Foul Water Drainage

- 4.20 It is proposed to drain foul water from the development separately to surface water.
- 4.21 Further information on the drainage approach is provided within the accompanying Sustainable Drainage Statement, reference NDM-BWB-ZZ-XX-RP-CD-0001_SDS.

5. CONCLUSIONS AND RECOMMENDATIONS

- 5.1 This FRA has been prepared in accordance with the requirements set out in the NPPF and the associated PPG. The FRA has been produced on behalf of Express Solicitors in respect of a planning application for residential development on land off Brett Street, Northenden, Greater-Manchester.
- 5.2 This FRA is intended to support an outline planning application, the level of detail included is commensurate and subject to the nature of the proposals at the planning stage.
- 5.3 This report demonstrates that the proposed development is at an acceptable level of flood risk, subject to the recommended flood mitigation strategies being implemented. The identified risks and mitigation measures are summarised within **Table 5.1**:

Table 5.1: Summary of Flood Risk Assessment

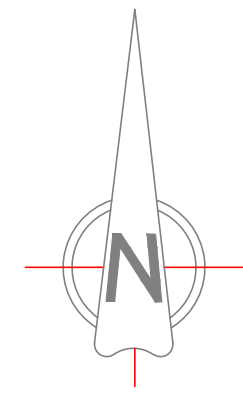
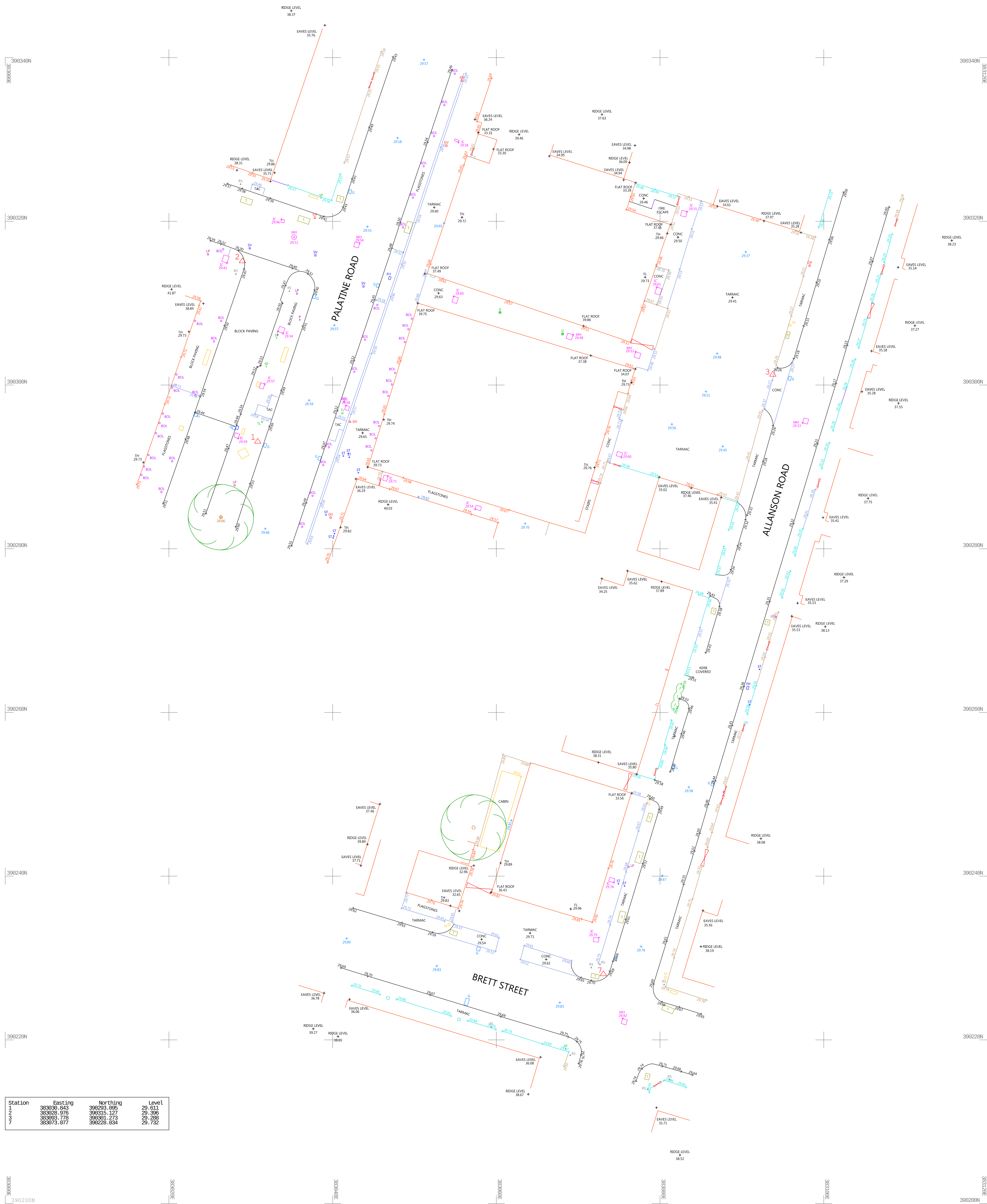
Flood Source	Risk & Proposed Mitigation Measures
Fluvial	Updates to the Upper Mersey model (JBA, 2018) provided by the EA, show the site is removed from the 1 in 30-year flood extents. The site is shown to be located within the extents of the 1 in 100-year, 1 in 100-year +28% climate change and 1 in 1000-year flood events of the River Mersey. The Level 2 SFRA recommends that floor levels for habitable uses (are raised to an agreed freeboard (which may typically be 600mm) above the maximum water level during a 1 in 100 year flood event plus climate change. A minimum FFL of 30.38mAOD is therefore proposed for the site. Access/egress from the site via Brett Street is located within the 1 in 100-year +41% climate change floodplain and demonstrates a residual risk of surface water flooding. It is recommended that site users sign up to receive EA alerts and warnings and extreme weather warnings to understand when flooding may occur and to ensure the appropriate action can be taken. In the event the site cannot be evacuated, it is recommended that safe refuge is sought within upper floors of the proposed development.
Pluvial/Ground water/Sewers	Ground levels should be profiled to encourage pluvial runoff and overland flows away from built development and towards the nearest drainage point. In the event groundwater is encountered during on-site excavations, an appropriate groundwater specialist should be consulted and appropriate dewatering undertaken as necessary.
Other Sources of Flood Risk	The site is considered to be at a low risk from other sources of flooding including canals, reservoirs and large waterbodies.
Impact of the Development	Correspondence with the EA has confirmed that if there is no increase in built footprint, compensatory storage will not be required. Floodplain compensation measures are therefore not required for either development.

	Due to the size and nature of the proposals a restriction is not required and therefore surface water attenuation measures are also not required. The existing surface water connections are expected to be utilised. It is proposed to drain foul water from the development separately to surface water.
This summary should be read in conjunction with BWB's full report. It reflects an assessment of the Site based on information received by BWB at the time of production.	

- 5.4 In compliance with the requirements of NPPF, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area subject to suitable management of surface water runoff discharging from the site.

APPENDICES

Appendix 1: Topographical Survey



Abbreviations/Symbols (Measured Building Surveys):

C:	Window Cill Height
H:	Window Head Height
BH:	Beam Height
DH:	Door Height
COL:	Column
SVP:	Soil Vent Pipe
FL:	Floor Level
TH:	Threshold Level
2.50	Floor to Ceiling Height
	Vaulted Ceiling

Line types

	Hedge Lines
	Drainage Runs
	Overhead Electricity Cables
	Overhead Telephone Cables

Symbols

	Tree/Bush
	Control Station
	Borehole
	Trial Hole
	Glass House
	Oxbm

Abbreviations (Topographic Survey):

AV:	Arch Height
AV:	Air Valve
BB:	Bellina Beacon
BOX:	Electricity Box, Cables Box, Etc.
BT/C:	British Telecom Inspection Chamber
BS:	Bus Stop
BS/UP:	Bus Stop / Lamp Post
CATV:	CATV Inspection Chamber
CCTV:	Closed Circuit Television
CL:	Cellar Light
C.PIT:	Catch Pit
ER:	Earth Rod
EC:	Electricity Inspection Chamber
EP:	Electricity Pole
FH:	Fire Hydrant
FP:	Flag Pole
GV:	Gas Valve
G:	Gully
IC:	Inspection Chamber
KO:	Kerb Outlet
LP:	Lamp Post
LB:	Letter Box
LC:	Lighting Column
MKR:	Marker
MH:	Manhole
MHP:	Manhole Point
MS:	Mile Stone
NYNEX:	Nynex Inspection Chamber
OJH:	Over Hanging Post
P:	Post
PO/IC:	Post Office Inspection Chamber
R/S:	Road Sign
RE:	Rodding Eye
RTW:	Retaining Wall
S/P:	Sign Post
SNP:	Street Name Plate
ST:	Shop Top
SV:	Stop Valve
T:	Telecom Inspection Chamber
TCB:	Telephone Call Box
TH:	Threshold Level
TL:	Traffic Light
TP:	Telegraph Pole
TROUGH:	Trough
WO:	Water Outlet
WM:	Water Meter

Fence Descriptions:

B/W:	Barbed Wire
C/B:	Close Boarded
C/BARRIER:	Crash Barrier
C/L:	Chain Link
C/P:	Chestnut Paving
C/I:	Corrugated Iron
I/R:	Iron Rolling
MBC:	Miscellaneous
P/R:	Post & Rail
P/W:	Post & Wire
P/C:	Post & Chain
S/PAL:	Steel Palisade
W/M:	Wire Mesh

Survey Notes:

Coordinates and Levels related to Ordnance Survey Datum - GPS OSGB36.

Revision	Date	Description

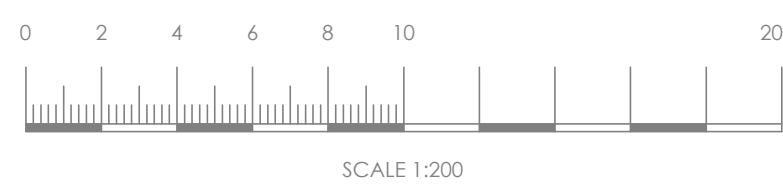


44a Green Lane
Sale
Cheshire
M33 5PP
t: 0161 976 1194
www.cpls.co.uk esurvey@cpls.co.uk

Client
AEW Architects and Designers LTD

Project
Express Solicitors, Palatine Road, Northenden
Site Survey

Scale 1:200	Surveyed By J C	Date 12.04.23
Drawing No. 120423JC-01	Checked By CPLS	Date 13.04.23
	Drawn By J C	Date 13.04.23



Station	Easting	Northing	Level
380030.943	380030.943	380029.695	29.613
380030.976	380030.976	380029.177	29.586
380030.778	380030.778	380029.273	29.598
380030.677	380030.677	380029.034	29.732

Appendix 2: Illustrative Proposals



- NOTES
- All dimensions and levels are to be checked on site.
 - Any discrepancies are to be reported to the architect before any work commences
 - This drawing shall not be scaled to ascertain any dimensions. Work to figured dimensions only.
 - This drawing shall not be reproduced without express written permission from AEW.
 - Title overlay drawings and ownership boundaries are produced using all reasonable endeavors. AEW cannot be responsible for the accuracy or scale discrepancy of base plans supplied to them.
 - All works are to be undertaken in accordance with Building Regulations and the latest British Standards.
 - All proprietary materials and products are to be used strictly in accordance with the manufacturers recommendations.

CDM 2015

Client notified of duties: **TBC**
Principal Designer: **TBC**

Unless noted below, all known hazards have been highlighted on the drawing:

0 5 10 15 20 25m



Scale 1:500 @ A3



Application Boundary
0.2 ha / 0.56 ac

P02	24/07/23	RP	BR
Initial issue			
P01	21/07/23	RP	BR
Initial issue			
REV	Date	Drawn by: -	Checked by: -
Status	Purpose of Issue		
S2	For Comment		
drawing stage	Planning		
client	RPC Planning		
project	Northenden, Palatine Road		
drawing title	Proposed Site Plan		
date	19/07/2023	drawn	RP
scale@A3	1:500	checked	BR

Rev

P02

Job No

12165-AEW-SI-XX-DR-A-0502

aew architects
0161 214 4370
www.aewarchitects.com



AEW Reference Number 12165

Appendix 3: NPPF Flood risk Vulnerability and Flood Zone Compatibility

Flood Risk Vulnerability Classifications (recreated from the NPPF Planning Practise Guidance)

Vulnerability Classification	Description
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.

Flood Zone Compatibility (recreated from the NPPF Planning Practise Guidance)

Flood Zone	Vulnerability Classification				
	Essential infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone 1 (Low Probability)	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate
Flood Zone 2 (Medium Probability)	Development is appropriate	To be deemed appropriate an exception test is required to demonstrate: - The development will be safe for its life time without increasing flood risk elsewhere, and where possible reduce overall flood risk - the sustainability benefits of the development to the community outweigh the flood risk.	Development is appropriate	Development is appropriate	Development is appropriate
Flood Zone 3a (High Probability)	To be deemed appropriate an exception test is required to demonstrate: The development will be safe for its life time without increasing flood risk elsewhere, and where possible reduce overall flood risk the sustainability benefits of the development to the community outweigh the flood risk. Additionally, essential infrastructure should be designed and constructed to remain operational and safe in times of flood.	Development should not be permitted	To be deemed appropriate an exception test is required to demonstrate: - The development will be safe for its life time without increasing flood risk elsewhere, and where possible reduce overall flood risk - the sustainability benefits of the development to the community outweigh the flood risk.	Development is appropriate	Development is appropriate

Flood Zone	Vulnerability Classification				
	Essential infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone 3b (The Functional Floodplain)	To be deemed appropriate an exception test is required to demonstrate: - The development will be safe for its life time without increasing flood risk elsewhere, and where possible reduce overall flood risk - the sustainability benefits of the development to the community outweigh the flood risk. Additionally, development should be designed and constructed to: - remain operational and safe for users in times of flood; - result in no net loss of floodplain storage; - not impede water flows and not increase flood risk elsewhere.	Development should not be permitted	Development should not be permitted	Development should not be permitted	Development is appropriate if designed and constructed to: - remain operational and safe for users in times of flood; - result in no net loss of floodplain storage; - not impede water flows and not increase flood risk elsewhere.

Appendix 4: EA Pre-Application Advice

BWB Consulting Ltd
5th Floor
Waterfront House 35 Station Street
NOTTINGHAM
NG2 3DQ

Project ref: ENVPAC/1/GMC/00515
Our ref: SO/2023/123342/01-L01
Your ref: 2211015
Date: 11 July 2023

Dear Craig Crowe,

1 HOUR MEETING 10/7/23 - RESIDENTIAL DEVELOPMENT ON BROWNFIELD SITE.

PALATINE ROAD, NORTHEENDEN.

Thank you for accepting our offer to provide detailed planning advice. We are providing this advice under Agreement No. ENVPAC/1/GMC/00515.

Environment Agency advice

BWB Consulting are seeking clarification on the following matters in relation to flood risk:

- 1) The position of the EA on banking of the existing building footprints such that floodplain compensation is not required.

EA comment: Compensatory flood storage will not be required in the event that the footprint of the new building is identical to that of the existing building.

- 2) If compensation was to be required, would this be only for any increase upon the existing footprint?

EA comment: This is correct, compensation is required for any 'additional' building footprint to what's currently there.

- 3) Whether the EA would review the model changes.

EA comment: We would not look to review the model changes.

Yours sincerely,

Miss India Blythin
Planning Advisor
India.blythin@environment-agency.gov.uk

Disclaimer

Our opinion is based on the information available to us at the time of the enquiry. When the formal planning application is submitted, our position may change if there have been changes to environmental risk or evidence, and/or planning policy.

Environment Agency
Richard Fairclough House Knutsford Road, Warrington, WA4 1HT.
Customer services line: 03708 506 506
www.gov.uk/environment-agency
End

From:
Sent: 11 July 2023 14:10
To:
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

Follow Up Flag: Follow up
Flag Status: Flagged

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

I have just now sent over a document clarifying the matters. Apologies for the delay in getting back to you.

Many thanks,

Planning Advisor | Sustainable Places | Greater Manchester, Merseyside, Cheshire
Environment Agency | Richard Fairclough House, Knutsford Road, Latchford, Warrington WA4 1HT
Email: _____

From:
Sent: 11 July 2023 13:37
To:
Cc:
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

Would you be able to provide an indication on when we may receive a response on the actions below?

Many thanks,

BSc (Hons) MSc GradCIWEM
Graduate Consultant | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ
W _____

From:
Sent: Monday, July 10, 2023 12:23 PM
To: _____>
Cc: _____>
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

Many thanks for arranging this mornings meeting. I just wanted to confirm the actions we discussed.

to confirm the following:

-The position of the EA on banking of the existing building footprints such that floodplain compensation is not required.

-If compensation was to be required, would this be only for any increase upon the existing footprint?

-Whether the EA would review the model changes.

Kind regards,

BSc (Hons) MSc GradCIWEM
Graduate Consultant | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ

W _____

From: _____ >
Sent: Thursday, July 6, 2023 3:56 PM
To: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Many thanks for confirming.

We look forward to meeting and discussing further on Monday.

Kind regards,

Planning Advisor | Sustainable Places | Greater Manchester, Merseyside, Cheshire
Environment Agency | Richard Fairclough House, Knutsford Road, Latchford, Warrington WA4 1HT
Email: _____

From: _____ >
Sent: 06 July 2023 15:42
To: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

At this stage it is proposed as fully residential, comprised of traditional residential dwellings and an apartment block.

We should be able to share further details on the proposals during the meeting.

Hope this helps.

Kind regards,

BSc (Hons) MSc GradCIWEM
Graduate Consultant | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ

W _____

From: _____ >
Sent: Thursday, July 6, 2023 3:23 PM
To: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Many thanks for sending over this additional information.

Are you able to confirm, please, what the proposed development type is?

Many thanks,

Planning Advisor | Sustainable Places | Greater Manchester, Merseyside, Cheshire
Environment Agency | Richard Fairclough House, Knutsford Road, Latchford, Warrington WA4 1HT
Email: _____

From: _____ >
Sent: 06 July 2023 14:21
To: _____ >
Cc: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

Thank you for sending across the meeting invite.

Prior to the meeting I just want to provide some background information and a summary of the works to date.

The site comprises two parcels of brownfield land located in Northenden, off Palatine Road and Brett Street respectively, Site location plan attached. The site is located entirely within Flood Zone 2 of the River Mersey according to the Flood Map for Planning.

A preliminary Flood Risk Scoping Study was undertaken. During this an exercise was carried out on the Upper Mersey Model, provided by yourselves to scale hydrographs to simulate a 1 in 100-year +41% climate change scenario. The site is shown to be located entirely within the floodplain of this event. As a result, it was decided to consult with yourselves on the scheme prior to producing the necessary Flood Risk Assessment for the proposed development.

I hope this helps provide some context prior to the meeting.

I look forward to meeting with you, in the meantime if you have any further questions please let me know.

Kind regards,

BSc (Hons) MSc GradCIWEM
Graduate Consultant | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ

W _____

From: _____ >
Sent: Thursday, July 6, 2023 11:28 AM
To: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Thank you for sending over the completed pro-forma.

I have sent a teams invite over now. If you have any relevant documents you wish us to have sight of prior to the meeting such as a site plan, please could you send them over?

We look forward to meeting with you on Monday.

Kind regards,

Planning Advisor | Sustainable Places | Greater Manchester, Merseyside, Cheshire
Environment Agency | Richard Fairclough House, Knutsford Road, Latchford, Warrington WA4 1HT
Email: _____

From: _____ >
Sent: 05 July 2023 10:18
To: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

Apologies pro-forma attached

BSc (Hons) MSc GradCIWEM
Graduate Consultant | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ
W _____

From:
Sent: Wednesday, July 5, 2023 10:17 AM
To: _____ >
Cc: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

Please find attached the completed pro-forma.

If the below meeting days remain viable can we please request a meeting on either Monday the 10th or Tuesday the 11th.

Our availability is as follows:

Monday the 10th: Available after 11am
Tuesday the 11th: Available after 11.30am

If these dates are no longer feasible can you please provide some new meeting times.

Many thanks,

BSc (Hons) MSc GradCIWEM
Graduate Consultant | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ

W _____

From: _____ >
Sent: Thursday, June 29, 2023 3:55 PM
To: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Please see below some preliminary dates for a meeting, please note, these may be subject to change and we cannot book the meeting in until we have received the completed pro-forma.

Thursday 6th July: 10:30am - 13:30pm

Monday 10th July: all day

Tuesday 11th July: 10am- 13:00pm

Friday 14th July: 9:30am-12pm

If you have any queries please don't hesitate to contact me.

Kind regards,

Planning Advisor | Sustainable Places | Greater Manchester, Merseyside, Cheshire
Environment Agency | Richard Fairclough House, Knutsford Road, Latchford, Warrington WA4 1HT
Email: _____

From: _____ >
Sent: 27 June 2023 16:55
To: _____ >
Subject: RE: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

Thank you for this we will get the pro-forma across once complete.

In the meantime would you be able to provide some preliminary dates for a meeting?

Kind regards,

BSc (Hons) MSc GradCIWEM
Graduate Consultant | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ

W _____

From: _____ >
Sent: Thursday, June 22, 2023 12:37 PM

To: _____ >

Subject: Cost Recovered Advice: Palatine Road, Northenden : ENVPAC/1/GMC/00515

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

I am pleased to confirm that we can provide you with planning advice for this site as requested. We expect the cost of our advice to be £800 (8 hours) plus VAT charged at 20%.

I have attached a breakdown of our quote estimate and a pro-forma. Our standard terms can be found at (<https://www.gov.uk/government/publications/planning-and-marine-licence-advice-standard-terms-for-our-charges/planning-and-marine-licence-advice-standard-terms-for-our-charges>). Please complete and return the pro-forma by email reply along with confirmation you accept the agreement for us to proceed.

We welcome your feedback on our service. Please tell us what you think by completing our survey <https://www.smartsurvey.co.uk/s/PlanningAdviceServiceCustomerSurvey/> .

We look forward to working with you to provide advice on your proposal. If you have any queries, please don't hesitate to contact me.

Kind regards,

Planning Advisor | Sustainable Places | Greater Manchester, Merseyside, Cheshire
Environment Agency | Richard Fairclough House, Knutsford Road, Latchford, Warrington WA4 1HT
Email: _____

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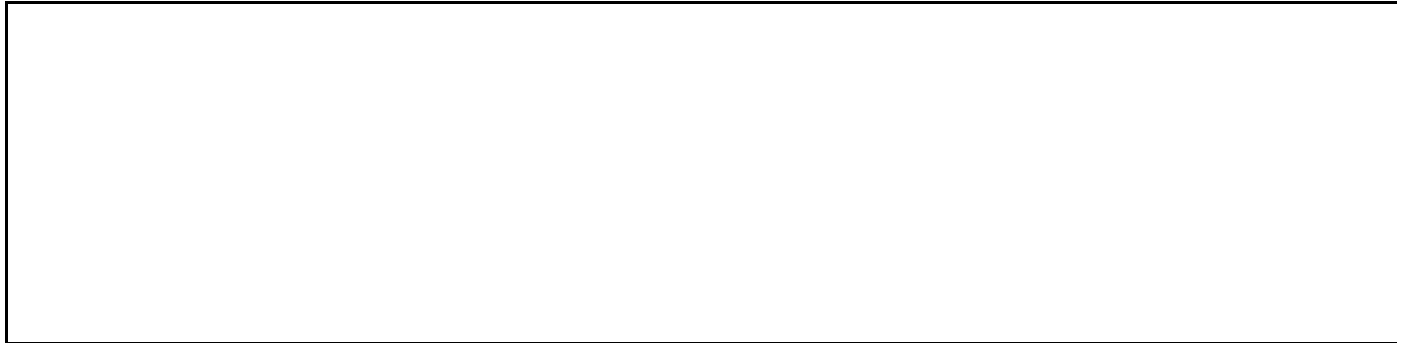
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Company No. 5265863
VAT Reg No. 648 1142 45

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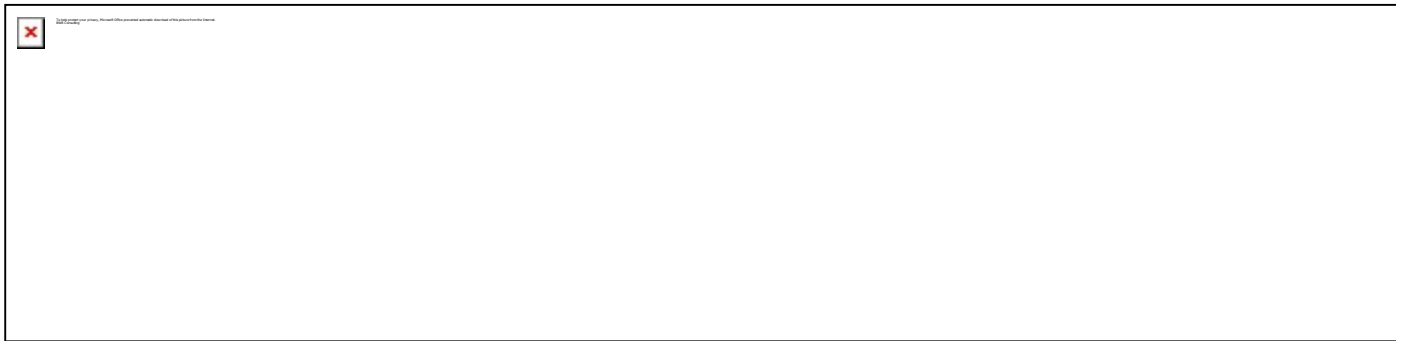
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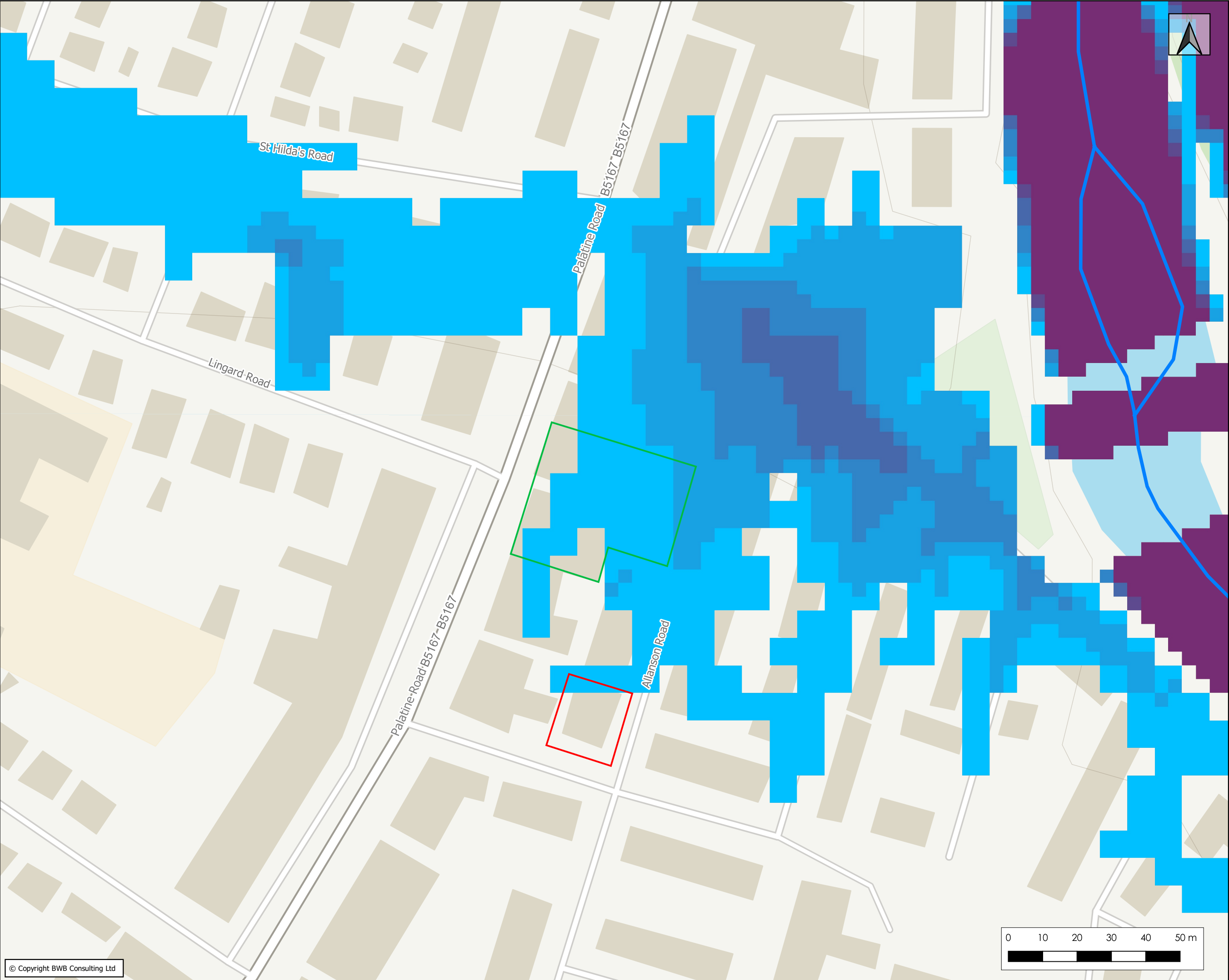
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Appendix 5: Modelled Peak Flood Depth Maps



- Notes
1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.
 5. Contains OS data © Crown copyright (2023)
 6. Floodplain extents and depths based on update to Upper Mersey Modell (2018), © Environment Agency.

Key

- Parcel A
- Parcel B
- River Mersey

Peak Flood Depths (m)

- ≤ 0.25
- 0.25 - 0.50
- 0.50 - 0.75
- 0.75 - 1.00
- 1.00 - 1.25
- > 1.25

P01	31.05.23	PRELIMINARY ISSUE			CC MD
Rev	Date	Details of issues/ revision			Drw Rev

Issues & Revisions

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INFRASTRUCTURE | BUILDINGS

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☐ Leeds | 0113 233 8000
☐ London | 0207 407 2879
☒ Manchester | 0161 233 4260
☐ Nottingham | 0115 924 1100
www.bwbconsulting.com

Client

Express Solicitors

Project Title

Northenden, Manchester

Drawing Title

1 in 100-year Modelled Peak Flood Depths

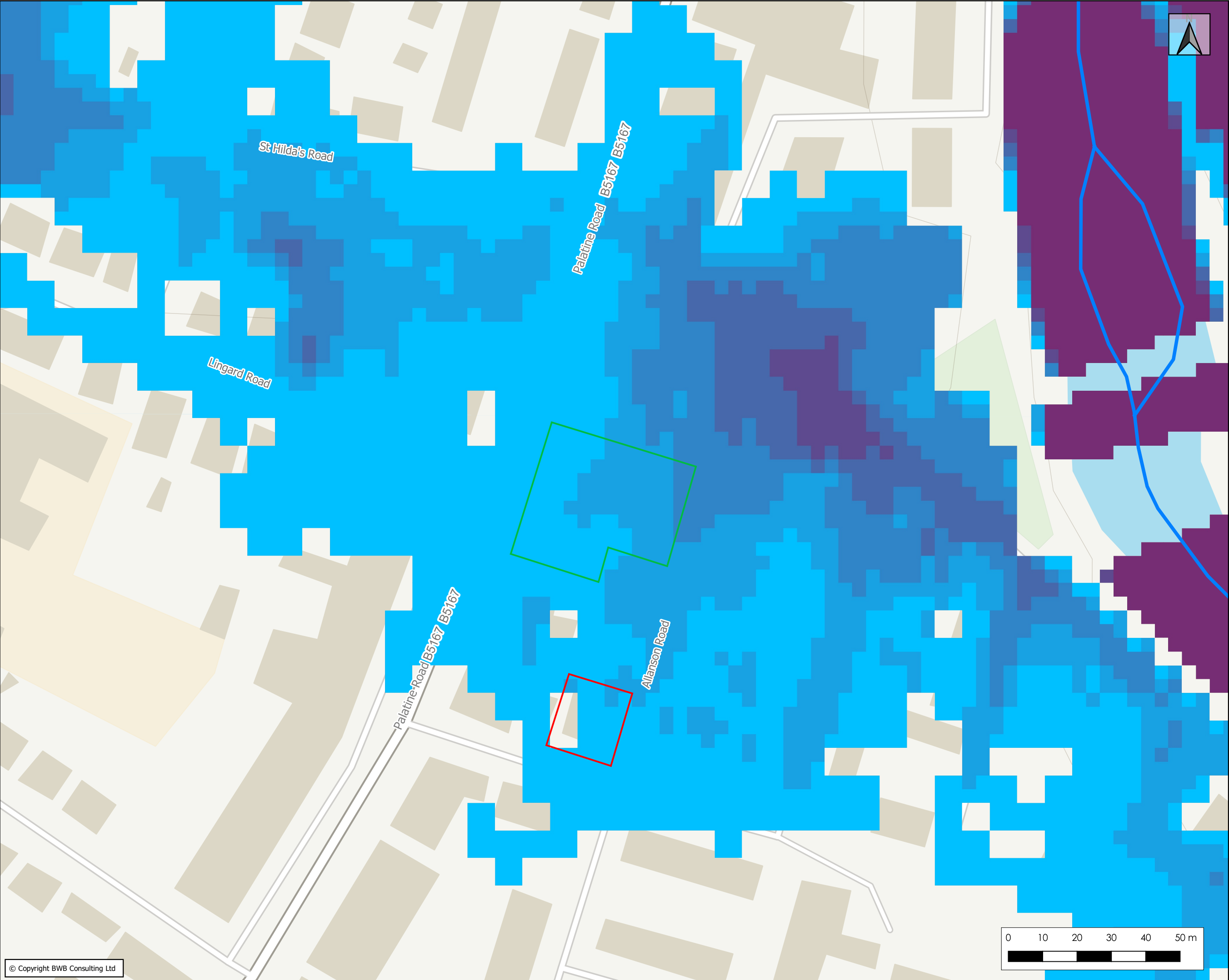
Drawn:	C Crowe	Reviewed:	M Day
BWB Ref:	221105	Date:	31.05.23
		Scale@A3:	1:1,000

Drawing Status

PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
NDM-BWB-ZZ-XX-DR-YE-5001	S2	P01





- Notes
1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.
 5. Contains OS data © Crown copyright (2023)
 6. Floodplain extents and depths based on update to Upper Mersey Modell (2018), © Environment Agency.

Key

- Parcel A
- Parcel B
- River Mersey

Peak Flood Depths (m)

- ≤ 0.25
- 0.25 - 0.50
- 0.50 - 0.75
- 0.75 - 1.00
- 1.00 - 1.25
- > 1.25

P01	31.05.23	PRELIMINARY ISSUE			CC MD
Rev	Date	Details of issues/ revision			Drw Rev

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Client

Express Solicitors

Project Title

Northenden, Manchester

Drawing Title

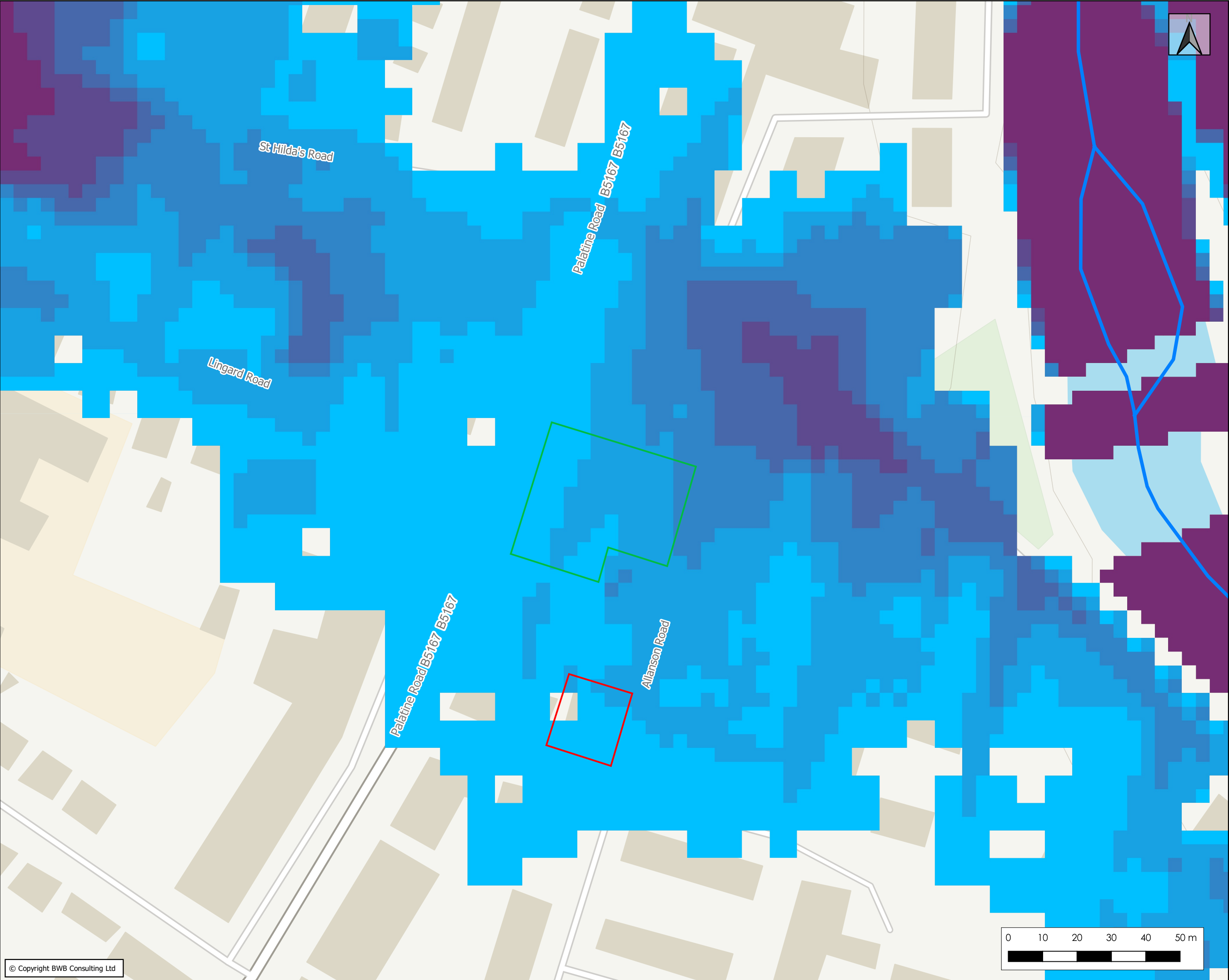
**1 in 100-year +41%
Climate Change Modelled
Peak Flood Depths**

Drawn:	C Crowe	Reviewed:	M Day
BWB Ref:	221105	Date:	31.05.23
		Scale@A3:	1:1,000

Drawing Status

PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
NDM-BWB-ZZ-XX-DR-YE-5002	S2	P01



- Notes
1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.
 5. Contains OS data © Crown copyright (2023)
 6. Floodplain extents and depths based on update to Upper Mersey Modell (2018), © Environment Agency.

Key

- Parcel A
- Parcel B
- River Mersey

Peak Flood Depths (m)

- ≤ 0.25
- 0.25 - 0.50
- 0.50 - 0.75
- 0.75 - 1.00
- 1.00 - 1.25
- > 1.25

P01	31.05.23	PRELIMINARY ISSUE			CC MD
Rev	Date	Details of issues/ revision			Drw Rev

Issues & Revisions

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Client

Express Solicitors

Project Title

Northenden, Manchester

Drawing Title

1 in 1000-year Modelled Peak Flood Depths

Drawn:	C Crowe	Reviewed:	M Day
BWB Ref:	221105	Date:	31.05.23
		Scale@A3:	1:1,000

Drawing Status

PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
NDM-BWB-ZZ-XX-DR-YE-5003	S2	P01



Appendix 6: United Utilities Sewer Records

BWB Consulting Limited

**35
Station Street,
Nottingham, Nottinghamshire
NG2 3DQ**

FAO:

How to contact us:

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

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: 221105 - Northenden
Our Ref: UUPS-ORD-475372
Date: 28/03/2023**

Dear Sirs

Location: 295A PALATINE ROAD, MANCHESTER, M22 4HH

I acknowledge with thanks your request dated 28/03/2023 for information on the location of our services.

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

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

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

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

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

Yours Faithfully,



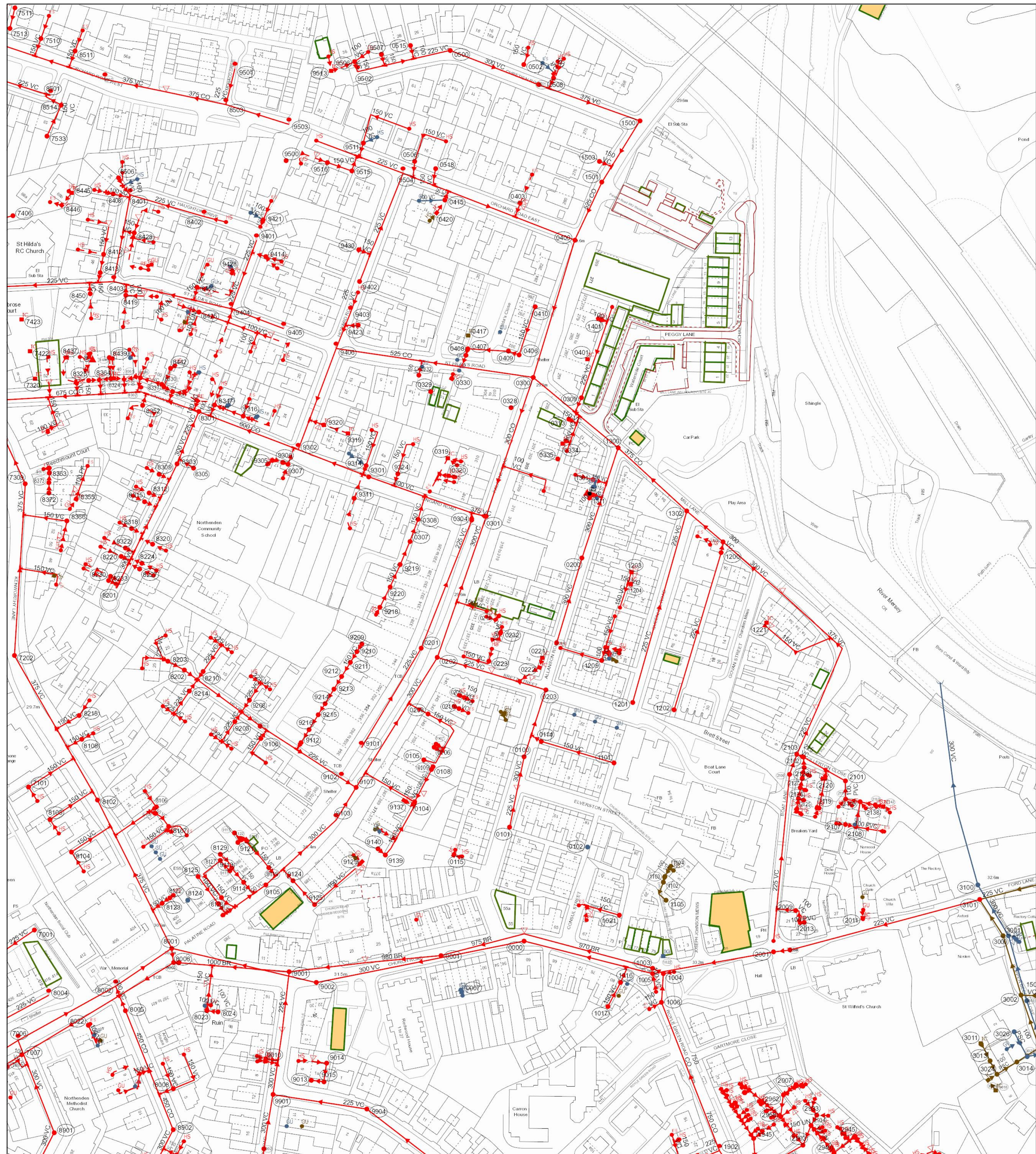
Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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

TERMS AND CONDITIONS:

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



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

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LEGEND

Abandoned

Foul

Surface Water

Combined

Public Sewer

Manhole

Side Entry Manhole

Extent of System

Ridding Eye

Inlet

Discharge Point

Vortex

Penstock

Catchpit

Valve Chamber

Vent Column

Non Return Valve

Soakaway

Gully

Cascade

Flow Meter

Hatch Box

Oil Interceptor

Summit

Drop Shaft

Orifice Plate

Outfall

Screen Chamber

Inspection Chamber

Bifurcation Chamber

Lamp Hole

T Junction / Saddle

Valve Chamber

Vent Column

Penstock Chamber

Network Storage Tank

Sewer Overflow

Ww Treatment Works

Ww Pumping Station

Septic Tank

Control Kiosk

Change of Characteristic

All point assets follow the standard colour convention:

red - combined

blue - surface water

brown - foul

purple - overflow

MANHOLE FUNCTION

FO Foul

SW Surface Water

CO Combined

OV Overflow

SEWER SHAPE

CI Circular

TR Trapezoidal

EG Egg

AR Arch

OV Oval

BA Barrel

FT Flat Top

HO Horse Shoe

RE Rectangular

UN Unspecified

SQ Square

SEWER MATERIAL

AC Asbestos Cement

BR Brick

PE Polyethylene

RP Reinforced Plastic Matrix

CO Concrete

CSB Concrete Segment Bolted

CSU Concrete Segment Unbolted

CC Concrete Box Culverted

PSC Plastic / Steel Composite

GRC Glass Reinforced Plastic

DI Ductile Iron

PVC Polyvinyl Chloride

CI Cast Iron

SI Spun Iron

ST Steel

VC Vitrified Clay

PP Polypropylene

PF Pitch Fibre

MAC Masonry, Coursed

MAR Masonry, Random

U Unspecified

Address or Site Reference:

295A PALATINE ROAD,
MANCHESTER,
M22 4HH

Scale: 1:1250

Date: 28/03/2023

Sheet: 1 of 1

Printed by: Property Searches

SEWER RECORDS

United Utilities

Water for the North West

