Marco Living 2 Ltd and Axis – RE Ltd

1NQ, Tariff Street, Manchester

Flood Risk Assessment and Drainage Strategy Report

143404/02B

November 2022







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1.0 INTRODUCTION

Fairhurst have been appointed by Marco Living 2 Ltd and Axis – RE Ltd to undertake a Flood Risk Assessment and Drainage Strategy Report for a site located on Tariff Street, Manchester, at Grid reference 384800, 398390. The site is understood to comprise of hard standing associated with former built development which is currently in use as car parking.

The development comprises two residential blocks as shown on the architect's plans in **Appendix B**.

Full planning permission for the demolition of an existing building on site and the erection of two residential apartment buildings (Use Class C3) including a part 9, part 10 (with setback amenity level) and a separate stand-alone 12 storey building (comprising of 267 dwellings in total), with ground floor commercial us (Use Class E), associated resident's amenity space, cycle parking, landscaping, access, street loading and other associated works.

This report has been prepared to support the planning application for the construction of residential apartments.

This report has been prepared to provide an assessment of flood risk to the site from the following sources of flooding:

- Fluvial
- Coastal and high tide
- Groundwater
- Overland flow
- Sewers and drains

In addition, this report also provides a drainage strategy for the site to include the following;

- Foul water discharge point
- Surface water discharge point
- SuDs Audit
- Concept drainage layout
- Maintenance Schedule

This report draws on the guidance published in National Planning Policy Framework (NPPF) Flood Risk and Coastal Change Planning Practice Guidance (**Appendix A**), CIRIA C624 'Development and Flood Risk – guidance for the construction industry' (Ref. 1), and local planning policy.

The following information has been reviewed in preparation of this report:

- Existing and proposed site plans
- Envirocheck Flood Screening Report
- BGS 1:50,000 Geology Maps
- Environment Agency Flood Map for Planning
- Liaison with regulators (United Utilities, Lead Local Flood Authority (LLFA), Canal & Rivers Trust (CRT)

2.0 EXISTING CONDITIONS

2.1 Site Description and Topography

The development site is located at land off Tariff Street, Manchester, at Grid reference 384800, 398390.

On Site

The site comprises of hard standing associated with the clearance of former built development which is now in use for car parking.

A small derelict building is located in the extreme northern corner of the site. This abuts and is joined to an adjacent building on third party land known as Sam's Yard. The on-site derelict building, which is to be removed as part of the development, is understood to provide some structural support to the adjacent Sam's Yard building which will be retained by the third party owner. Structural support works will be required to facilitate removal of the on-site derelict building.

The site is located within a wider area of similar development plots and commercial and industrial area.

Adjacent Land

The site is bound by the following land uses:

- North: Bewick Grange with residential dwellings beyond
- East: Bewick Grange with Southlands Care Home (nursing home) beyond
- South: Wider hotel site with Swan Road beyond
- West: Hotel lawn

Topography

The levels shown on the site are generally flat. Available plans show that the development site is at an elevation of between 54m and 56mAOD. The topography survey shows a number of retaining walls within and at the site boundary.

2.2 Ground Conditions

The historical plans show extensive development from the 1890's including built development and an infilled Canal wharf connecting to the adjacent Rochdale canal. As such, made ground associated with the historical development and infilled canal wharf would be expected to be present.

BGS 1:50,000 Maps

BGS 1:50,000 maps (**Appendix C**) indicate the development site is expected to be underlain by the following geology:

Superficial Deposits

- drift deposits of Glacial Till

Bedrock

- Overlying solid geology deposits from the Chester Formation.

Historical Borehole Records

A series of historical borehole records are available from the BGS. The records and location plans are included in **Appendix C**. The nearest records are directly north of the site, and approximately 100m to the South, East and West of the site and they indicate the following:

- Made Ground, consisting of ash, cinders and stone.
- Made Ground recovered as a firm clayey sandy sandstone
- Stiff to very stiff sandy Clay to depths of 15m+
- Sandstone bedrock was identified at depths of around 28m

2.4 Controlled Waters

2.3.1 Groundwater

Information on groundwater (**Appendix C**) has been obtained and is summarised below:

- BGS flood data indicates the site is located in an area shown to be limited potential for ground water flooding to occur.
- GeoSmart information groundwater flood map indicates that there is a negligible risk of groundwater flooding

2.3.2 Surface Water

Information on surface water (**Appendix C**) has been obtained and is summarised below:

- No surface water features or watercourses are located on site;
- The nearest named surface water feature is the River Irwell located 1.60km to the west of the site
- There is a Rochdale Canal located 37m south east adjacent to the site.

2.3.3 Infilled Canal Wharf

The site includes a former canal wharf which connected to the adjacent Rochdale canal. The point of connection of the former wharf with the adjacent canal is still visible. The canal wharf was infilled in the 1940's. The made ground infill may contained perched ground water and be at a level consistent with the current Rochdale canal water level. Land drainage may be present which served the former canal wharf

2.5 Flood Risk

2.5.1 Environment Agency Flood Map for Planning

Information on flood risk has been obtained from the Environment Agency flood map for planning (**Appendix C**) and is summarised below.

- The site is in Flood Zone 1, an area with a low probability of flooding

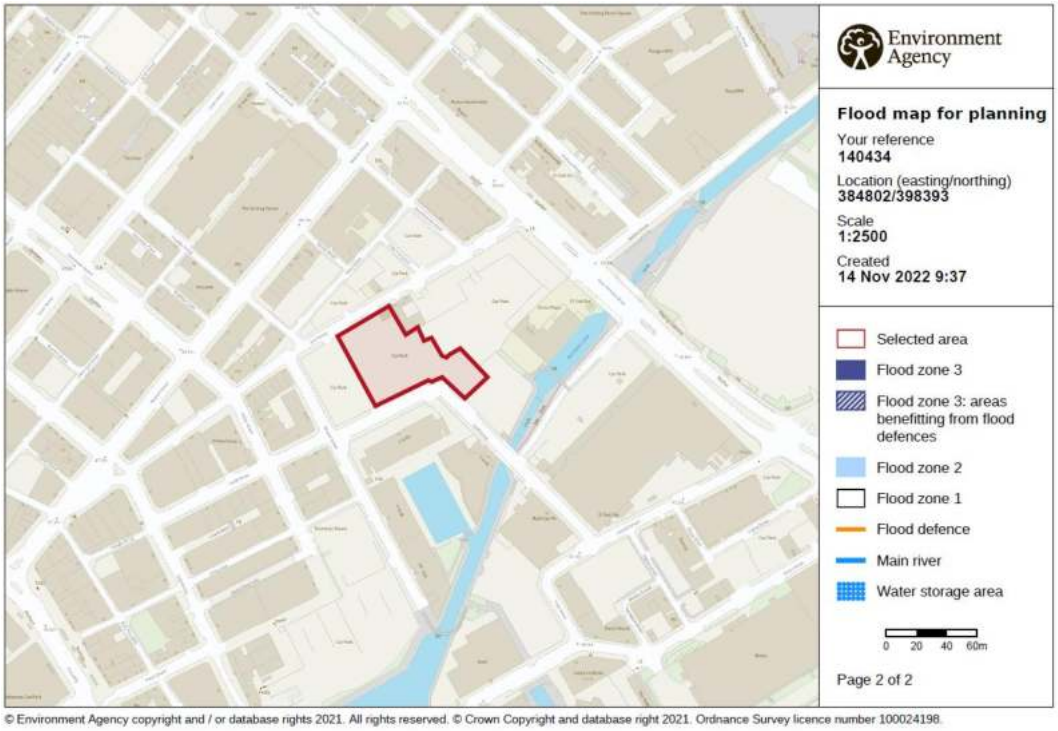


Figure 1- Flood Map for planing (From Environment Agency website)

- The majority of the site is not at risk from surface water flooding. However, the area to the east adjacent of the site is subject to surface water flooding where the lower ground floor apartments are proposed. Therefore, there is a potential for surface water flooding to lower ground floor apartments.

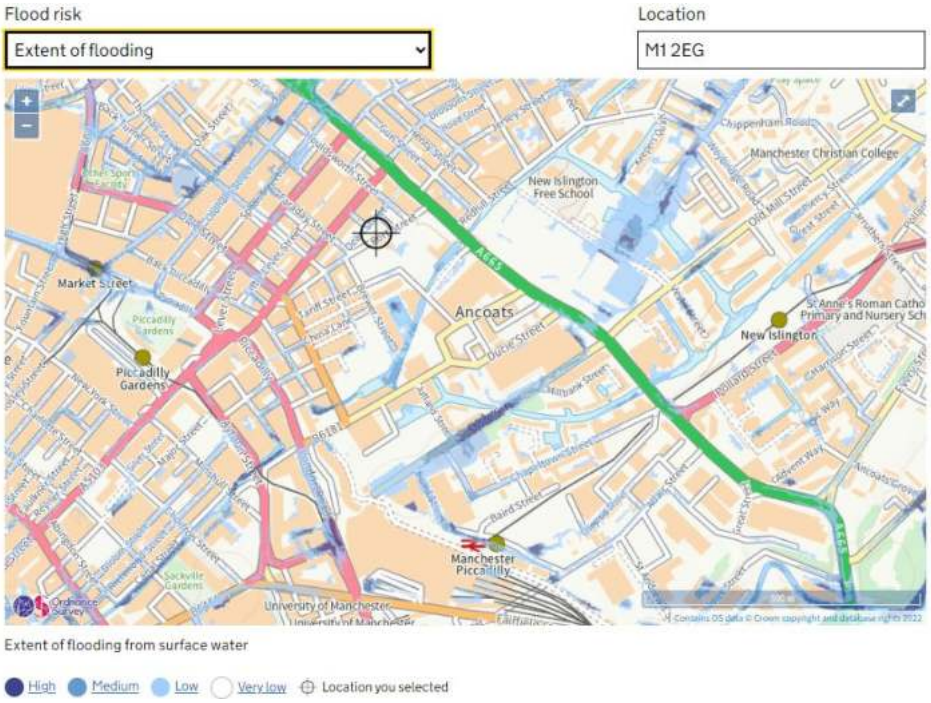


Figure 2- Surface water flooding map (From Environment Agency website)

- The site is not at risk of reservoir flooding



Figure 3- Reservoirs flooding map (From Environment Agency website)

2.5.2 Envirocheck Flood Screening Report

Information on flood risk has been obtained from the Envirocheck Flood Screening Report (**Appendix D**) and is summarised below.

Fluvial

- EA/NRW data indicates the site is not at risk of flooding from rivers and seas
- BGS flood data indicates there are no geological indicators of flooding (coastal, inland and bodies of water) located on site
- There have been no historic flood events recorded on site

Surface Water

- The site is not at risk from surface water flooding during the 1 in 75 and 1 in 100 year flood
- A small area to the central east of the site is subject to surface water flooding at a depth of 0.1m during the 1 in 1000 year flood
- The proposed development includes lower ground floor apartments. There is a surface water flood risk for lower ground apartments due to the surface water flooding shown immediately east adjacent to the site.

Groundwater

- BGS flood data indicates the site has limited potential for groundwater flooding to occur
- The GeoSmart Information Groundwater Flood Map indicates the site is at negligible risk from groundwater flooding
- The site includes a former canal wharf, which was infilled in the 1940`s, connected to the adjacent Rochdale canal.
- The former channel may include perched ground water and be at a level consistent with the current Rochdale canal water level.

2.6 Liaison

Liaison has been undertaken with the following consultees;

- LLFA
- United Utilities
- Canal River Trust

The consultation queries and response are set out in **Appendix E** with a summary included in the following sections

2.6.1 Lead Local Flood Authority (LLFA) – Manchester City Council

A Pre-application enquiry was issued to the LLFA and is recorded in **Appendix E**. The LLFA state that;

- Surface water discharge should follow the drainage hierarchy
- Proposed surface water drainage discharge should be restricted to greenfield rates, or by at least 50% from the existing rates where appropriate.
- SuDS Guidance for Developers has been provided and recommended to review as a guidance of drainage strategy

2.6.2 United Utilities (UU)

The exiting service plans has been obtained from United Utilities as part of pre -development enquiry and are included in **Appendix E**.

Services Plans

The services plans indicate the following public sewers passing through the site;

- There are no recorded public sewers on the site
- There are public combined sewers in Tariff street to the south of the site and in Port Street to the north of the site
- UU indicate that there may be publically adopted sewers present which are not recorded on the adopted sewers plan

Pre - Development Enquiry

A pre-development enquiry has been obtained from United Utilities and is included in **Appendix E**.

United Utilities commented as follows;

Foul Water

- Foul flow from this site will be allowed to drain into the public foul water/combined sewer system
- The preferred point of discharge would be to the 300mm diameter public combined sewer within Tariff Street located to the South of the proposed development
- The rate of discharge is not limited
- **Note**- a subsequent enquiry to United Utilities email dated 26th October 2022 (**Appendix E**) confirmed that United Utilities would also accept foul water flow into their combined sewer in Port Street to the North of the proposed development

Surface Water

- Surface water is not permitted to discharge to the public sewer network
- Surface water should discharge via the H3 hierarchy; infiltration, water course and sewer in that order of priority
- LLFA indicates that options for discharge should be reviewed and need to be restricted to greenfield rates or discounted by at least 50% from the existing rates
- The UU recommend that contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to Rochdale Canal, If infiltration discharge is not feasible
- If the other options are not viable United Utilities will consider a connection to the 300mm diameter public combined sewer within Tariff Street located south of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority.
- United Utilities request that any agreed rate does not exceed 5 l/s. This is based on the peak greenfield flowrate for this development based on impermeable ground.

2.6.2 *Canals & River Trust (CRT)*

The Rochdale Canal is located 37m south of the site and is identified by UU as a potential point for discharge of surface water.

The canal and associated water infrastructure is owned and operated by the Canals & River Trust and, as such, any surface water discharge would be subject to their approval for the following;

- Rate and volume of surface water discharge
- Construction of outfall structures

A pre-development enquiry has been issued to CRT regarding the potential for surface water discharge into the Rochdale Canal and is included in **Appendix E**

The CRT commented as follows;

- It is confirmed that accept the surface water from the site, this is subject to you obtaining the relevant consents from CRT via our mandatory process

The CRT discharge application process requires the following;

Two-stage process which comprises of and. This is progressed as follows

- Technical Consent

Stage 1: The Technical Consent is required to obtain Technical Consent by signing on to CRT Code of Practice for works affecting Canal & River Trust. This involves the provision of information and completion of forms relating to scheme.

Stage 2: Consists of checking that all the required information is in place.

Stage 3: Upon a satisfactory check of the documentation for completeness, CRT will instruct the Hydrologist to commence and coordinate the internal technical review by Water Management and Environment teams.

Stage 4: Further work may be required (by the Applicant) to enable a more detailed consideration to be completed or the proposal may be accepted in principle at that point

- Commercial / Legal Consent

If there are no issues with the Technical Consent the grant Legal Consent by instructing solicitors to issue an agreement to discharge surface water. The agreement is subject to charges and these costs will depend on the type of development and the proposed drainage.

If the new connection needs to be adopted via the Section 104 process, CRT can grant a tripartite agreement. This would involve an agreement between CRT, the Freeholder/Developer, and the statutory water authority.

3.0 PROPOSED DEVELOPMENT

The development comprises two residential blocks as shown on the architect's plans in **Appendix B**. Full planning permission for the demolition of an existing building on site and the erection of two residential apartment buildings (Use Class C3) including a part 9, part 10 (with setback amenity level) and a separate stand-alone 12 storey building (comprising of 267 dwellings in total), with ground floor commercial us (Use Class E), associated resident's amenity space, cycle parking, landscaping, access, street loading and other associated works.

4.0 FLOOD RISK MECHANISMS

4.1 General

There are a wide range of flood risk mechanisms that have the potential to cause flooding to a given site. This report has been prepared to provide an assessment of flood risk to the site from the following sources:

- Fluvial – Exceedance of the flow capacity of the channel of a river, stream or other natural watercourse, typically associated with heavy rainfall. Excess water spills onto the floodplain.
- Coastal and high tide – High tides, storm surges and wave action, often in combination.
- Groundwater – Raised groundwater levels, typically following heavy rainfall (may be slow to recede). High groundwater levels may result in increased overland flow.
- Overland flow – Water flowing over the ground surface that has not yet reached a natural or artificial drainage channel. This can occur when rainfall exceeds the infiltration capacity of the ground or when the ground is so highly saturated that it cannot accept any more water.
- Drainage systems – Blockage or overloading of drainage pipes, sewers, canals or drainage channels, or failure of pumping stations, typically following heavy rainfall or as a result of high water levels in a receiving surface watercourse. Structural, hydraulic or geotechnical failure of infrastructure that retains, transmits or controls the flow of water may result in increased overland flow.

CIRIA C624 (Ref. 1)

The following sections provide an assessment of flood risk to the site from the above sources.

4.2 Planning Policy

4.2.1 National Planning Policy Framework (NPPF)

Flood Risk and Coastal Change Planning Practice Guidance (**Appendix A**) is an online resource that supports National Planning Policy Framework (NPPF). The document advises local planning authorities on how planning can take account of the risks associated with flooding and coastal change.

Inappropriate development in areas at risk of flooding should be avoided by directing new development away from areas at highest risk. Where development in these areas is necessary, this should be made safe without increasing flood risk elsewhere.

In order to demonstrate compliance with the requirements of national planning policy, the following assessment of flood risk in the context of Flood Risk and Coastal Change Planning Practice Guidance has been made:

The development comprises two residential blocks as shown on the architect's plans in **Appendix B**. The northern part of the scheme (block 1), which covers of the majority of the site, includes a part 9 and part 10 storey building with a setback amenity level. The southern part of the scheme (block 2) includes a stand-alone 12 storey building.

In addition, the scheme will include for basement structures, resident's amenity space, cycle parking, and landscaping. There are a total of 267 dwellings.

- The proposed site plan is included in **Appendix B**.
- The site is in Flood Zone 1, an area with a low probability of flooding
- In accordance with NPPF Table 2 (**Appendix A**), the development proposals are classified as "More Vulnerable"
- In accordance with NPPF Table 3 (**Appendix A**), "More Vulnerable" developments in Flood Zone 1 are considered appropriate

4.3 Fluvial

Information on flood risk has been obtained from the Environment Agency Flood Map for Planning (**Appendix C**) and Envirocheck Flood Screening Report (**Appendix D**) is summarised below:

- The site is entirely in Flood Zone 1, an area with a low probability of flooding
- The site is not in an area that benefits from formal flood defences
- EA/NRW RoFRS data indicates the site is not at risk of flooding from rivers and seas
- BGS flood data indicates there are no geological indicators of flooding (coastal, inland and bodies of water) located on site
- There have been no historic flood events recorded on site

In view of the above, the proposed development is considered to be at very low risk of fluvial flooding.

4.4 Coastal and High Tide

The site is not located near to the coast and is therefore not at risk from coastal and high tide flooding.

4.5 Groundwater

Based on a review of the available desk study information, the following assessment of flood risk from groundwater sources has been made:

- BGS flood data indicates the site has limited potential for groundwater flooding to occur
- The GeoSmart Information Groundwater Flood Map indicates the site is at negligible risk from groundwater flooding
- Site includes a former Canal Wharf which has been infilled
- This may contained perched water which may be at similar level to adjacent Rochdale Canal

In view of the information provided above, the general site is considered to be at very low risk from groundwater flooding.

However, the development includes basement structures i.e. lower ground level apartments - this is built over former Canal Wharf and perched water potentially linked to adjacent Rochdale Canal. There is an area of surface water flooding immediately east of the site adjacent to the area of proposed basement and apartments - this represents an increased risk of groundwater flooding to these structures which will need to be mitigated in the design.

4.6 Overland Flow

4.6.1 General

The site located on an undeveloped land and generally flat. The proposed development is entirely in Flood Zone 1 with a low (less than 1 in 1000) annual probability of flooding and is not at risk of surface water flooding.

4.6.2 Overland Flow from Fluvial Sources

The following comments are made with regard to overland flow

- The site lies within EA Flood Zone 1
- Therefore, the site would not be impacted by a 1 in 1,000 year flood event

In view of the information reviewed the potential for overland flow associated with fluvial flooding to affect the site is considered to be **Low**

4.6.3 Overland Flow from Coastal and High Tide Sources

The site is not located near to the coast and is therefore not at risk from coastal and high ride flooding. Overland flow is unlikely to be generated from this source.

4.6.4 Overland Flow from Uncontrolled Surface Water Runoff Generated on Adjacent Sites

The immediate area is developed as residential and highway infrastructure and, as such, uncontrolled surface water runoff generated on adjacent sites would be expected to be intercepted by the adjacent surface water drainage network.

The proposed development site is not at risk of surface water flooding associated with overland flow.

4.6.5 Overland Flow from Blocked Sewers and Drains

In order to ensure that overland flow from blocked sewers and drains does not impact to the proposed development and end users, the proposed development should be designed for exceedance of the surface water drainage system in accordance with CIRIA C635 'Designing for exceedance in urban drainage – good practice' (Ref 2).

The following measures should be included within the drainage design:

- Maintenance of the existing surface water drainage network
- Installation of new surface water drainage infrastructure, as required

4.6.5 Overland Flow from Canal

- The site includes a former canal wharf which connected to the adjacent Rochdale canal. The point of connection of the former wharf with the adjacent canal is still visible.
- The canal wharf was infilled in the 1940's.
- The made ground infill may contained perched ground water and be at a level consistent with the current Rochdale canal water level.
- There are proposed lower ground level apartment which are in areas of infilled canal and at a lower level than water level in Rochdale Canal
- Therefore there is a potential ground water flood risk to the basement

- The risk of overland flow is considered to be **Low** as canal level in this area is maintained by adjacent locks with canal water level lower on each side of lock. Therefore, preferential flow route for any flooding from canal is to these lower water levels and not towards the site.

4.7 Flood Mitigation

The site is located in Flood Zone 1 with a low (less than 1 in 1000) annual probability of flooding.

The site is not impacted by coastal flooding.

The site includes a former canal wharf which connected to the adjacent Rochdale canal. The made ground infill may contained perched ground water and be at a level consistent with the current Rochdale canal water level.

A small area to the central east of the site is subject to surface water flooding at a depth of 0.1m during the 1 in 1000 year flood.

The proposed development includes basement lower ground floor apartments. There is a surface water flood risk for lower ground apartments due to the surface water flooding shown immediately east adjacent to the site.

There is elevated risk of ground water and surface water flooding to the basement lower ground floor structures.

The following mitigation measures are proposed;

- The retaining walls forming the basement / lower ground floor (LGF) space should be constructed in fully waterproof reinforced concrete designed in accordance with current guidance to withstand water uplift and ingress associated with a shallow ground water, including tanking and water bars at all kickers and construction joints.
- LGF external area to be protected from ground water flooding and surface water runoff to prevent ponding
- Land drainage in LGF external area
- In order to ensure the operation of the drainage system the maintenance schedule set out in section 5.6
- Installation of new surface water drainage infrastructure

5.0 DRAINAGE DESIGN

5.1 General

The following development criteria are applicable to the surface water drainage design:

- To provide Sustainable Drainage Systems (SuDS)
- To provide betterment within the wider surface water drainage network
- To comply with the requirements of the Lead Local Flood Authority (LLFA), Environment Agency, CRT and United Utilities water authority
- To comply with the requirements of national and local planning policy

5.2 Drainage Hierarchy

Pre- development enquiries have been undertaken with UU, LLFA, and CRT. The consultations confirm a requirement to follow the drainage hierarchy for the disposal of surface water. The hierarchy indicates that the preference for the disposal of surface water should be infiltration, water course, and sewer in that order of priority.

The proposed development has been assessed in accordance with the Drainage Hierarchy (Ref. 4) to determine suitable methods of surface water disposal.

A review of the available desk study information has been undertaken to assess the viability of the use of each means of surface water disposal.

Soakaways

British Geological Survey (BGS) 1:50,000 maps (**Appendix C**) indicate the site is expected to be underlain by the following geology:

- Superficial deposits of till, devension, diamiction
- Underlain by bedrock comprising sandstone of the Chester Formation

These materials would be effectively impermeable and, as such, indicate that the site is unlikely to be suitable for the use of soakaways.

A series of historical borehole records are available from the BGS. The records and location plans are included in **Appendix C**. The nearest records are directly north of the site, and approximately 100m to the South, East and West of the site and they indicate the following:

- Made Ground, consisting of ash, cinders and stone.
- Made Ground recovered as a firm clayey sandy sandstone
- Stiff to very stiff sandy Clay to depths of 15m+
- Sandstone bedrock was identified at depths of around 28m

These indicate the site is expected to be underlain by made ground and impermeable clay horizons and, as such, indicate that the site is unlikely to be suitable for the use of soakaways.

The historical plans indicate that the site has been subject to extensive historical built development since the 1890's which includes warehouses, garages and an infilled canal wharf with no recent surface water infiltration, and the potential for made ground and ground and water contaminants. As such, the infiltration of surface water discharge is not recommend due to the risk of increased ground water flooding and contaminant mobilisation.

The use of surface water infiltration drainage is therefore, not expected to be viable within the proposed development.

Watercourse

The desk study information indicates the following

- No surface water features or watercourses are located on site;
- The nearest named surface water feature is the River Irwell located 1.60km to the west of the site
- The Rochdale Canal is located 37m south east adjacent to the site.

The current proposal is that surface water will be discharge into either, new drainage infrastructure which will discharge to the canal or, existing drainage infrastructure which currently discharges to the canal.

This proposed surface water discharge and associated infrastructure would be subject to;

- Canal River Trust approval to receive the proposed water discharge rate and volume
- Canal River Trust approval of the outfall structure
- Highways Authority approval of any new infrastructure to be installed in the public highway possibly under a s104 agreement with United Utilities

Public Sewer

The current proposal is for surface water to discharge to the adjacent canal by either, existing or new drainage infrastructure.

If this surface water discharge is not approved by Canal River Trust or is shown by investigation not to be technically feasible then United Utilities have indicated that they would accept a surface water discharge to the public combined sewer adjacent to the site.

If this is required United Utilities have requested that the discharge rate is restricted to 5 l/s.

5.3 SuDS Audit

LLFA has provided a SuDS Guidance for Developers which is recommended to guide to drainage strategy.

Under the new consultation arrangements Manchester City Council, in its role as Lead Local Flood Authority, is a statutory consultee for all major applications with regards to sustainable drainage.

The whole site is currently under hard cover. The proposed development plan indicates that the majority of the site area is under hard cover.

There is not sufficient room to enable use technique of ponds, rills channels, detention basins, wetlands etc.

A SuDS Audit has been completed for the site (**Table 1)** to identify suitable SuDS treatment for the site. The following SuDS designs are considered suitable on site:

The following would be viable

- Rainwater Harvesting and Water Butts
- Below ground tank Storage
- Flow Control Structure (Hydro Brake)
- Permeable Pavement to external paved areas – but would have to be sealed

Drainage Technique	Discussion	Conclusion
SOURCE CONTROL		
Green Roofs	○ Would greatly increase the proposed load on the structure and require an increased amount of excavation and building materials required by the project – impacting on both viability and sustainability of the project.	Green roofs are not considered feasible within the development.
Rainwater Harvesting	○ Provide a reduction in potable water demand from the development.	Rainwater harvesting is locally suitable within the proposed development.
Permeable Pavement	○ Direct infiltration from permeable paving is not considered viable due to the presence of impermeable clay beds. Infiltration rates are therefore expected to be low. It could be viable sealed system to external paved areas	Permeable pavements are locally feasible within the proposed development with no discharge to the ground.
CONVEYANCE		
Swales	○ Landscaping areas within the development are not of sufficient size to enable feasible use of this technique. ○ Risks of blockages in connecting pipe work	Swales are not considered feasible within the proposed development.
Channels & Rills	○ Canals and rills are open surface water channels with hard edges. They are simply channels that water flows along whereby they can have a variety of cross sections	Channels and Rills are not considered feasible within the proposed development.
FILTRATION		
Bio-retention Cells	○ Landscaping areas within the development are not of sufficient size to enable feasible use of this technique. ○ Requires landscaping and management ○ Susceptible to clogging if surrounding landscape is not managed	Bio-retention Cells are not considered feasible within the proposed development.
French Drains	○ Landscaping areas within the development are not of sufficient size to enable feasible use of this technique. ○ French drains should be lined to ensure no impact to groundwater levels. ○ Require regular maintenance to ensure the filter does not become clogged.	French drains are not considered feasible within the proposed development.
Ditch Drains	○ Landscaping areas within the development are not of sufficient size to enable feasible use of this technique. ○ Ditch drains should be lined to ensure no impact to groundwater levels.	Ditch drains are not considered feasible within the proposed development.
Filter Strips	○ Landscaping areas within the development are not of sufficient size to enable feasible use of this technique. ○ Improved water quality.	Filter Strips are not considered feasible within the proposed development.

INFILTRATION		
Soakaways	○ As the site is expected to be underlain by impermeable clay soils infiltration drainage is not expected to be viable within the proposed development.	Soakaways are not considered viable for the proposed development
RETENTION & DETENTION		
Detention Basins	○ Landscaping within the development is not of insufficient size to enable the use of this feature.	Detention Basins are not considered viable for the proposed development
Retention / Settling Ponds	○ Landscaping within the development is not of insufficient size to enable the use of this feature.	Retention / Settling ponds are not considered viable for the proposed development
Balancing Pond	○ Landscaping within the development is not of insufficient size to enable the use of this feature.	A balancing pond is not considered viable for the proposed development
Storage tank	○ There is only sufficient room in the development to enable the use of this feature within the central courtyard area ○ The design should be robust to allow for construction and future maintenance trafficking and loads	Below ground Storage is feasible within the proposed development subject to detailed design to ensure that future construction and maintenance loads can be accommodated. There is limited external space available for this feature. This is likely to require a pumped discharged as
Oversize Pipework	○ There is insufficient room in the development to enable the use of this feature.	Oversize pipework is not suitable within the proposed development
WETLANDS		
Constructed Wetlands	○ There is no sufficient room in the development to enable the use of this feature	Constructed Wetlands are not feasible within the proposed development
CONTROL STRUCTURES		
Flow Control Structure	○ Are used to control the final discharge from each development site.	Flow Control Structures are feasible within the proposed development

5.4 Surface Water Drainage Strategy

The development comprises two residential blocks as shown on the architect's plans in **Appendix B**. Full planning permission for the demolition of an existing building on site and the erection of two residential apartment buildings (Use Class C3) including a part 9, part 10 (with setback amenity level) and a separate stand-alone 12 storey building (comprising of 267 dwellings in total), with ground floor commercial us (Use Class E), associated resident's amenity space, cycle parking, landscaping, access, street loading and other associated works.

The following existing drainage system is expected to be present on site:

- The site was formerly in use as built development over an infilled canal wharf. The built development has previously been cleared to leave the former floor slab hard standing on the site. The site is currently used for car parking.
- There is no formal drainage system currently on the site with surface water now controlled by surface ponding and ad hoc runoff to the boundary highway.
- There is installed combined public sewer system in Port Road and Tariff Street which form the boundary to the site.
- The former built development would be expected to have discharged surface water to the former canal wharf, to a land drain installed within the infilled canal wharf, directly to the ground surface at the building perimeter to subsequently be picked up by highway drainage gullys), or via rwp connections to the highway drainage or public combined sewer in Port Street/Tarif street.
- None of these historical surface water discharge connections are currently visible and are unlikely to still be present or functional

The proposed surface water drainage strategy for the site is summarised below (**Appendix F**):

- The site covers an area of 0.314 ha and is completely under hard cover
- It is proposed to install a new surface water drainage system which discharges under gravity flow to a central Surface water attenuation tank; one located to the courtyard area on the 1NQ, Block 1 and one located to the undercroft to the 1NQ, Block 2.
- The surface water will then be discharged off site to the Rochdale canal.
- If this is not technically approved then surface water would be discharged to the public combined sewers adjacent to the site as per UU's predevelopment enquiry
- In order to restrict discharge to the Rochdale Canal a surface water network flow control has been included with associated attenuation provided by storage tank
- In order to mitigate flood risk within the wider drainage network surface water runoff from the development has been restricted to a flow rate of 5.0 l/s.
- Ground levels indicate that the use of a gravity discharge from the site to the canal will not be feasible. The scheme will therefore include for a pumped discharge from the site to new gravity sewer infrastructure to discharge to the canal

- The final point of discharge is proposed to be located to the south of the site to the Rochdale Canal

In order to ensure that the surface water drainage system does not contribute to flooding downstream of the site and will provide betterment to the wider surface water network the following design method should be adopted:

- The drainage system should be designed not to flood during an event with a return period of 1 in 30 years in accordance with 'Sewers for Adoption' (Ref. 3);
- The system should be designed not to cause an increase in flooding during an event with a return period of 1 in 100 years. This will require onsite attenuation and storage of surface water discharge for the proposed development.
- Discharge calculations should be provided for both 1:30 and 1:100 year storm events;
- Climate change should be accommodated by a 40% increase to design rainfall intensities;

A concept drainage and associated calculations are given in the **Appendix F**.

5.5 Foul Water

The concept drainage layout of the wider site (**Appendix F**) indicates the following existing foul drainage system on site:

- The site is undeveloped land and there is no foul water drainage system at the site.
- Public sewer map (**Appendix E**) indicates that there is installed combined public sewer located at the vicinity of the site in the Port Road and Tariff Street.
- Unites Utilities confirms that 300mm diameter public combined sewer within Tariff Street is a suitable point of connection located to the south of proposed development at an unrestricted rate
- United Utilities also confirms that 300mm diameter public combined sewer within Port Street is a suitable point of connection to the north of the proposed development at an unrestricted rate.

The proposed foul water drainage strategy for the site is summarised below:

- Foul water from the proposed development will collect by the onsite gravity foul water system.
- The onsite foul water connects to public combined sewer with in Tariff Street and Port Street as confirmed by United Utilities
- A concept design for the foul water system is given in the **Appendix F.**

5.6 Management and Maintenance of Drainage System

5.6.1 Management

The site owner will be responsible for the management and maintenance of all private drainage systems within the site.

5.6.2 Maintenance

Maintenance procedures should be put in place to ensure that the functionality of the surface water and foul drainage systems are not compromised.

Surface water drainage features that require maintenance:

1. Above ground gutters, gullies, downpipes and other rainwater goods
2. Gullies and linear drainage channels
3. Silt traps
4. Oil/petrol interceptor
5. Attenuation storage
6. Manholes, access chambers and below ground drainage pipework
7. Flow control devices

Foul drainage features that require maintenance:

1. Above ground sinks, wc's, gullies, foul pop ups, grease traps and soil stacks
2. Manholes, access chambers and below ground drainage pipework

Carrying out the maintenance plan and schedule will be the responsibility of the owner / occupier.

The following maintenance plan and schedule is proposed.

Maintenance Schedule	Required Action	Recommended frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required take remedial action	Monthly for 3 months, then 6 monthly. Always after a significant storm event
	Debris removal from catchment surface where it may create a risk to performance if it was washed into the system. Check and clear grease traps	Monthly
	Remove sediment from pre-treatment structures, silt traps etc.	Annually, or as required
Monitoring	Inspect/check all inlets, outlets and silt traps to check they are in good condition and operating as designed	Monthly for 3 months and then 6 months thereafter
	Visual inspection survey at every inspection point followed by CCTV if necessary	Every 3 years
Remedial actions	Repair/rehabilitation of inlets, outlets, silt traps oil and grease traps and interceptors	As required

6.0 CONCLUSION AND RECOMMENDATIONS

This report draws on the guidance published in National Planning Policy Framework (NPPF) Flood Risk and Coastal Change Planning Practice Guidance (**Appendix A**), CIRIA C624 'Development and Flood Risk – guidance for the construction industry' (Ref. 1), and local planning policy.

The following assessment of flood risk has been made:

- The development proposals are for the construction of residential buildings including basement, lower ground level apartments and two ground floor retail units
- The site is in Flood Zone 1, an area with a low probability of flooding
- In accordance with NPPF Table 2 (**Appendix A**), the development proposals are classified as More Vulnerable
- In accordance with NPPF Table 3 (**Appendix A**), More Vulnerable developments in Flood Zone 1 are considered appropriate
- The site is not located near to the coast and is therefore not at risk from coastal and high tide flooding
- Site includes a former Canal Wharf which has been infilled
- This may contained perched water which may be at similar level to adjacent Rochdale Canal
- Development includes basement structures/lower ground level apartments - this is built over former Canal Wharf and perched water potentially linked to adjacent Rochdale Canal.
- There is an area of surface water flooding immediately east of the site adjacent to the area of the proposed basement and apartments - this represents an increased risk of groundwater flooding to these structures which will need to be mitigated in the design.

There is elevated risk of ground water and surface water flooding to the basement lower ground floor structures.

The following mitigation measures are proposed;

- The retaining walls forming the basement / lower ground floor (LGF) space should be constructed in fully waterproof reinforced concrete designed in accordance with current guidance to withstand water uplift and ingress associated with a shallow ground water, including tanking and water bars at all kickers and construction joints.
- LGF external area to be protected from ground water flooding and surface water runoff to prevent ponding
- Land drainage in LGF external area
- In order to ensure the operation of the drainage system the maintenance schedule set out in section 5.6
- Installation of new surface water drainage infrastructure

A SuDS Audit has been completed for the site and the following SuDS designs are considered suitable on site:

- Rainwater Harvesting and Water Butts
- Below ground tank Storage
- Flow Control Structure (Hydro Brake)
- Permeable Pavement to external paved areas – but would have to be sealed

The proposed surface water drainage strategy for the site is summarised below (**Appendix F**):

- The site covers an area of 0.314 ha and is completely under hard cover
- It is proposed to install a new surface water drainage system which discharges under gravity flow to a central Surface water attenuation tank; one located to the courtyard area on the 1 NQ, Block 1 and one located to the undercroft to the 1 NQ, Block 2.
- The surface water will then be discharged off site to the Rochdale Canal.
- If this is not technically approved then surface water would be discharged to the public combined sewers adjacent to the site as per UU's predevelopment enquiry

The proposed foul water drainage strategy for the site is summarised below:

- Foul water from the proposed development will collect by the onsite gravity foul water system.
- The onsite foul water connects to public combined sewer with in Tariff Street and Port Street as confirmed by United Utilities
- A concept design for the foul water system is given in the **Appendix F.**

REFERENCES

1. CIRIA C624 Development and Flood Risk – guidance for the construction industry
2. CIRIA C635 Designing for exceedance in urban drainage – good practice
3. Sewers for Adoption – a design and construction guide for developers, 8th Edition (2018)
4. H3 Hierarchy

APPENDIX A

Flood Risk and Coastal Change Planning Practice Guidance

Introduction

1. This document provides additional guidance to local planning authorities to ensure the effective implementation of the planning policy set out in the National Planning Policy Framework on development in areas at risk of flooding and in relation to mineral extraction. This guidance retains key elements of Planning Policy Statement 25 and of the existing minerals policy statements and minerals planning guidance notes which are considered necessary and helpful in relation to these policy areas. The retention of this guidance is an interim measure pending a wider review of guidance to support planning policy.

Flood risk

2. As set out in the National Planning Policy Framework, inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. For these purposes:

   - "areas at risk of flooding" means land within Flood Zones 2 and 3; or land within Flood Zone 1 which has critical drainage problems and which has been notified to the local planning authority by the Environment Agency;

   - "flood risk" means risk from all sources of flooding - including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources.

The Sequential and Exception Tests

3. As set out in the National Planning Policy Framework, the aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The flood zones (see table 1) are the starting point for this sequential approach. Zones 2 and 3 are shown on the flood map[1] with Flood Zone 1 being all the land falling outside Zones 2 and 3. These flood zones refer to the probability of sea and river flooding only, ignoring the presence of existing defences.

4. Strategic Flood Risk Assessments (see paragraphs 7-8) refine information on the probability of flooding, taking other sources of flooding and the impacts of climate change (see paragraphs 11-15) into account. They provide the basis for applying the Sequential Test, on the basis of the flood zones in table 1. Where table 1

[1] To access the flood map, see the Environment Agency's website at: http://www.environment-agency.gov.uk/homeandleisure/floods/default.aspx

indicates the need to apply the Exception Test (as set out in the National Planning Policy Framework), the scope of a Strategic Flood Risk Assessment will be widened to consider the impact of the flood risk management infrastructure on the frequency, impact, speed of onset, depth and velocity of flooding within the flood zones considering a range of flood risk management maintenance scenarios. Where a Strategic Flood Risk Assessment is not available, the Sequential Test will be based on the Environment Agency flood zones.

5. The overall aim should be to steer new development to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, local planning authorities allocating land in local plans or determining planning applications for development at any particular location should take into account the flood risk vulnerability of land uses (see table 2) and consider reasonably available sites in Flood Zone 2, applying the Exception Test if required (see table 3). Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

Table 1: Flood zones

(Note: These flood zones refer to the probability of river and sea flooding, ignoring the presence of defences)

Zone 1 - low probability

Definition
This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).

Appropriate uses
All uses of land are appropriate in this zone.

Flood risk assessment requirements
For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment. This need only be brief unless the factors above or other local considerations require particular attention.

Policy aims
In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems[2].

[2] Sustainable drainage systems cover the whole range of sustainable approaches to surface drainage management. They are designed to control surface water run off close to where it falls and mimic natural drainage as closely as possible.

Zone 2 - medium probability

Definition
This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.

Appropriate uses
Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses, as set out in table 2, are appropriate in this zone. The highly vulnerable uses are *only* appropriate in this zone if the Exception Test is passed.

Flood risk assessment requirements
All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims
In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage systems.

Zone 3a - high probability

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

Appropriate uses
The water-compatible and less vulnerable uses of land (table 2) are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone.

The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

Flood risk assessment requirements
All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims
In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems;

- relocate existing development to land in zones with a lower probability of flooding; and
- create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

Zone 3b - the functional floodplain

Definition
This zone comprises land where water *has* to flow or be stored in times of flood.

Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But land which would flood with an annual probability of 1 in 20 (5%) or greater in any year, or is designed to flood in an extreme (0.1%) flood, should provide a starting point for consideration and discussions to identify the functional floodplain.

Appropriate uses
Only the water-compatible uses and the essential infrastructure listed in table 2 that has to be there should be permitted in this zone. It 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.

Essential infrastructure in this zone should pass the Exception Test.

Flood risk assessment requirements
All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims
In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems;
- relocate existing development to land with a lower probability of flooding.

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Table 2: Flood risk vulnerability classification

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 electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly vulnerable • Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use[3]. • Installations requiring hazardous substances consent[4]. (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")[5].
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[6]. • Sites used for holiday or short-let caravans and camping, *subject to a specific warning and evacuation plan*.[7]
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,

[3] For any proposal involving a change of use of land to a caravan, camping or chalet site, or to a mobile home site or park home site, the Sequential and Exception Tests should be applied.
[4] See Circular 04/00: *Planning controls for hazardous substances* (paragraph 18) at: www.communities.gov.uk/publications/planningandbuilding/circularplanningcontrols
[5] In considering any development proposal for such an installation, local planning authorities should have regard to planning policy on pollution in the National Planning Policy Framework.
[6] For definition, see *Planning for Sustainable Waste Management: Companion Guide to Planning Policy Statement 10* at www.communities.gov.uk/publications/planningandbuilding/planningsustainable
[7] See footnote 3.

restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non–residential institutions not included in “more vulnerable”, 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).
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 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*.

Notes to table 2:

a. This classification is based partly on Department for Environment, Food and Rural Affairs and Environment Agency research on *Flood Risks to People* (*FD2321/TR2*)[8] and also on the need of some uses to keep functioning during flooding.

b. Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.

c. The impact of a flood on the particular uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

[8] See website for further details.
www.defra.gov.uk/science/Project_Data/DocumentLibrary/FD2320_3364_TRP.pdf

Table 3: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
× Development should not be permitted.

Notes to table 3:
This table does not show:
a. the application of the Sequential Test which guides development to Flood Zone 1 first, then Zone 2, and then Zone 3;
b. flood risk assessment requirements; or
c. the policy aims for each flood zone.

Flood risk assessment

6. Properly prepared assessments of flood risk will inform the decision-making process at all stages of development planning. A Strategic Flood Risk Assessment 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, taking account of the impacts of climate change, and to assess the impact that changes or development in the area will have on flood risk. It may also identify, particularly at more local levels, how to manage those changes to ensure that flood risk is not increased. A site-specific flood risk assessment is carried out by, or on behalf of, a developer to assess the risk to a development site and demonstrate how flood risk from all sources of flooding to the development itself and flood risk to others will be managed now, and taking climate change into account. There should be iteration between the different levels of flood risk assessment.

Strategic Flood Risk Assessment

7. As set out in the National Planning Policy Framework, Local Plans should be supported by Strategic Flood Risk Assessment. The Strategic Flood Risk Assessment should be prepared in consultation with the Environment Agency,

local planning authorities' own functions of emergency response and drainage authority under the Land Drainage Act 1991, and where appropriate, internal drainage boards. Initially the Strategic Flood Risk Assessment will be used to refine information on the areas that may flood, taking into account other sources of flooding and the impacts of climate change, in addition to the information on the flood map. Local planning authorities should use the Strategic Flood Risk Assessment to inform their knowledge of flooding, refine the information on the flood map and determine the variations in flood risk from all sources of flooding across and from their area. These should form the basis for preparing appropriate policies for flood risk management for these areas. The Strategic Flood Risk Assessment should be used to inform the sustainability appraisal (incorporating the Strategic Environmental Assessment Directive) of local development documents, and will provide the basis from which to apply the Sequential Test and Exception Test in the development allocation and development control process.

8. Where local planning authorities have been unable to allocate all proposed development and infrastructure in accordance with the Sequential Test, taking account of the flood vulnerability category of the intended use, it will be necessary to increase the scope of the Strategic Flood Risk Assessment to provide the information necessary for application of the Exception Test. This should, additionally, consider the beneficial effects of flood risk management infrastructure in generally reducing the extent and severity of flooding when compared to the flood zones on the flood map. The increased scope of the Strategic Flood Risk Assessment will enable the production of mapping showing flood outlines for different probabilities, impact, speed of onset, depth and velocity variance of flooding taking account of the presence and likely performance of flood risk management infrastructure.

Site-specific flood risk assessment

9. As set out in the National Planning Policy Framework, local planning authorities should only consider development in flood risk areas appropriate where informed by a site-specific flood risk assessment[9]. This should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account. Those proposing developments should take advice from the emergency services when producing an evacuation plan for the development as part of the flood risk assessment.

[9] The Environment Agency provides 'standing advice' on flood risk – see the Agency's website at: http://www.environment-agency.gov.uk/research/planning/82584.aspx . Applicants for planning permission will find this advice helpful when preparing a site-specific flood risk assessment for, and before designing, a lower risk development (and for ensuring extensions or alterations are designed and constructed to conform to any flood protection already incorporated in the property and include flood resilience measures in the design). The Agency also provides standing advice to enable local planning authorities to clearly identify the type of planning applications on which they should consult the Agency, and to make decisions on low risk applications where flood risk is an issue, without directly consulting the Agency for an individual response.

10. Minor developments[10] are unlikely to raise significant flood risk issues unless they would:

    - have an adverse effect on a watercourse, floodplain or its flood defences;
    - would impede access to flood defence and management facilities; or
    - where the cumulative impact of such developments would have a significant effect on local flood storage capacity or flood flows.

Taking climate change into account

11. Global sea level will continue to rise, depending on greenhouse gas emissions and the sensitivity of the climate system. The relative sea level rise in England also depends on the local vertical movement of the land, which is generally falling in the south-east and rising in the north and west. In preparing a Strategic Flood Risk Assessment or a site-specific flood risk assessment, the allowances for the rates of relative sea level rise shown in table 4 should be used as a starting point for considering flooding from the sea, along with the sensitivity ranges for wave height and wind speed in table 5.

Table 4: Recommended contingency allowances for net sea level rises

	Net sea level rise (mm per year) relative to 1990			
	1990 to 2025	**2025 to 2055**	**2055 to 2085**	**2085 to 2115**
East of England, east midlands, London, south-east England (south of Flamborough Head)	4.0	8.5	12.0	15.0
South-west England	3.5	8.0	11.5	14.5
North-west England, north-east England (north of Flamborough Head)	2.5	7.0	10.0	13.0

Notes to table 4:

a. For deriving sea levels up to 2025, the 4mm per year, 3mm per year and 2.5mm per year rates (covering the three geographical groups respectively), should be applied back to the 1990 base sea level year. From 2026 to 2055, the increase in sea level in this period is derived by adding the number of years on from 2025 (to 2055), multiplied by the respective rate shown in the table. Subsequent time periods 2056 to 2085 and 2086 to 2115 are treated similarly.

[10] Minor development means:
- Minor non-residential extensions: industrial/commercial/leisure etc. extensions with a footprint less than 250sqm.
- Alterations: development that does not increase the size of buildings e.g. alterations to external appearance.
- Householder development: e.g. sheds, garages, games rooms etc. within the curtilage of the existing dwelling in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats.

b. Refer to Department for Environment, Food and Rural Affairs *FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts,* October 2006, for details of the derivation of this table. In particular, Annex A1 of this Note shows examples of how to calculate sea level rise.

c. Vertical movement of the land is incorporated in the table and does not need to be calculated separately.

12. The rise in sea level will change the frequency of occurrence of high water levels relative to today's sea levels, assuming no change in storminess. There may also be secondary impacts such as changes in wave heights due to increased water depths, as well as possible changes in the frequency, duration and severity of storm events. A 10 per cent sensitivity allowance should be added to offshore wind speeds and wave heights by the 2080s.

13. In making an assessment of the impacts of climate change on flooding from the land, rivers and sea as part of a flood risk assessment, the sensitivity ranges in table 5 may provide an appropriate precautionary response to the uncertainty about climate change impacts on rainfall intensities, river flow, wave height and wind speed.

Table 5: Recommended national precautionary sensitivity ranges for peak rainfall intensities, peak river flows, offshore wind speeds and wave heights

Parameter	**1990 to 2025**	**2025 to 2055**	**2055 to 2085**	**2085 to 2115**
Peak rainfall intensity	*+5%*	*+10%*	*+20%*	*+30%*
Peak river flow	*+10%*	*+20%*		
Offshore wind speed	*+5%*		*+10%*	
Extreme wave height	*+5%*		*+10%*	

Notes to table 5:

a. Refer to Department for Environment, Food and Rural Affairs *FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts,* October 2006, for details of the derivation of this table.

b. For deriving peak rainfall, for example, between 2025 and 2055 multiply the rainfall measurement (in mm per hour) by 10 per cent and between 2055 and 2085 multiply the rainfall measurement by 20 per cent. So, if there is a 10mm per hour event, for the 2025 to 2055 period this would equate to 11mm per hour; and for the 2055 to 2085 period, this would equate to 12mm per hour. Other parameters in table 5 are treated similarly.

14. Sensitivity testing of the flood map produced by the Environment Agency, using the 20 per cent from 2025 to 2115 allowance for peak flows, suggests that changes in the extent of inundation are negligible in well-defined floodplains, but can be dramatic in very flat areas. However, changes in the depth of flooding under the same allowance will reduce the return period of a given flood. This

means that a site currently located within a lower risk zone (e.g. Zone 2 in table 1) could in future be re-classified as lying within a higher risk zone (e.g. Zone 3a in table 1). This in turn could have implications for the type of development that is appropriate according to its vulnerability to flooding (see table 2). It will therefore be important that developers, their advisors and local authorities refer to the current flood map and the Strategic Flood Risk Assessment when preparing and considering proposals.

15. Flooding in estuaries may result from the combined effects of high river flows and high sea surges. When taking account of impacts of climate change in flood risk assessments covering tidal estuaries, it will be necessary for the allowances for sea level rise in table 4 and the allowances for peak flow, wave height and wind speed in table 5 to be combined.[11]

Managing residual flood risk

16. Residual risks are those remaining after applying the sequential approach and taking mitigating actions. It is the responsibility of those planning development to fully assess flood risk, propose measures to mitigate it and demonstrate that any residual risks can be safely managed. Flood resistance and resilience measures should not be used to justify development in inappropriate locations.

Flood resilience and resistance

17. The relative benefits of resilient and resistant construction have been assessed both through risk assessment and the real time testing of model forms of construction. Resilient construction is favoured because it can be achieved more consistently and is less likely to encourage occupiers to remain in buildings that could be inundated by rapidly rising water levels.

18. Flood-resilient buildings are designed to reduce the consequences of flooding and facilitate recovery from the effects of flooding sooner than conventional buildings. This may be achieved through the use of water-resistant materials for floors, walls and fixtures and the siting of electrical controls, cables and appliances at a higher than normal level. The lower floors of buildings in areas at medium and high probability of flooding should be reserved for uses consistent with table 1. If the lowest floor level is raised above the predicted flood level, consideration must be given to providing access for those with restricted mobility. In considering appropriate resilience measures, it will be necessary to plan for specific circumstances and have a clear understanding of the mechanisms that lead to flooding and the nature of the flood risk by undertaking a flood risk assessment.

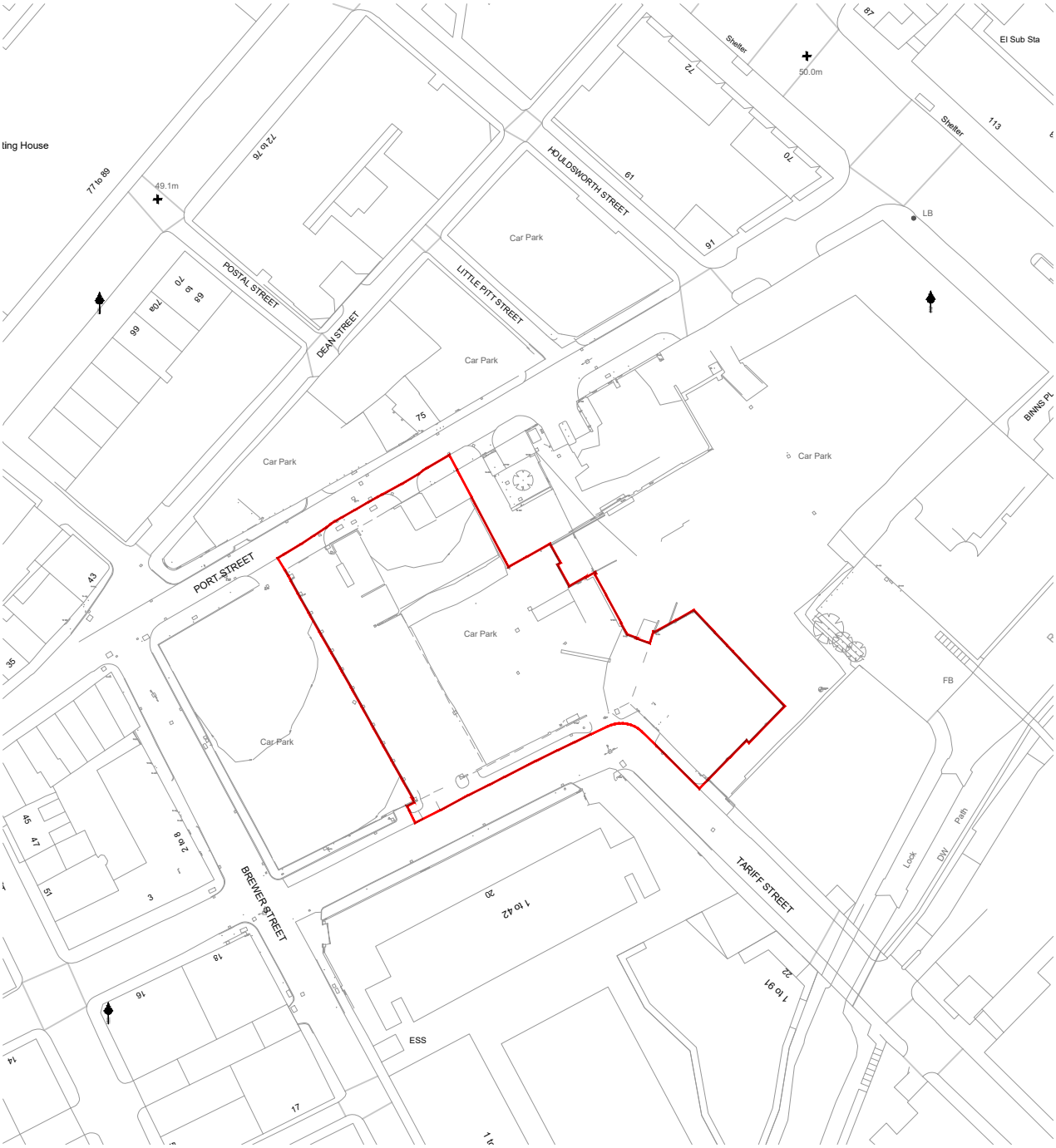
19. Flood-resistant construction can prevent entry of water or minimise the amount of water that may enter a building where there is flooding outside. This form of construction should be used with caution and accompanied by resilience

[11] Refer to Defra *FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts*, October 2006. Annex A2 gives details of joint probability analysis. www.defra.gov.uk/environ/fcd/pubs/pagn/climatechangeupdate.pdf

measures, as effective flood exclusion may depend on occupiers ensuring some elements, such as barriers to doorways, are put in place and maintained in a good state. Buildings may also be damaged by water pressure or debris being transported by flood water. This may breach flood-excluding elements of the building and permit rapid inundation. Temporary and demountable defences are not normally appropriate for new developments.

APPENDIX B

Drawings



Application Boundary

N

rev	description	drwn	auth	date
P04	PLANNING	KM	CJG	28.11.22

DO NOT SCALE OFF THIS DRAWING

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info@lrw.co.uk | www.lrw.co.uk
H.Q. 50 Dearmans Place Manchester M3 5LH

Manchester
+44 (0)161 833 0211

London
+44 (0)207 993 1363

CLIENT
AXIS-RE / MARCO LIVING

PROJECT
1NQ
MANCHESTER

DOCUMENT NAME
8198-LRW-ZZ-00-DR-A-00-010

DESCRIPTION
SITE EDGED RED
APPLICATION BOUNDARY

REVISION	SCALE
P04	1:1250@ A4

LRW PROJECT No.	DATE CREATED	CREATED BY	AUTHORISED BY
8198	01.11.22	KM	CJG

PURPOSE OF ISSUE
PLANNING ● BUILDING REGS ○ TENDER ○ PRELIM./COMMENT ● APPROVAL ○ CONSTRUCTION ○



P03	PLANNING	KM	CJG	28.11.22
rev	description	drwn	auth	date

DO NOT SCALE OFF THIS DRAWING
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CLIENT
AXIS-RE / MARCO LIVING

PROJECT
1NQ
MANCHESTER

DOCUMENT NAME
8198-LRW-ZZ-00-DR-A-00-011

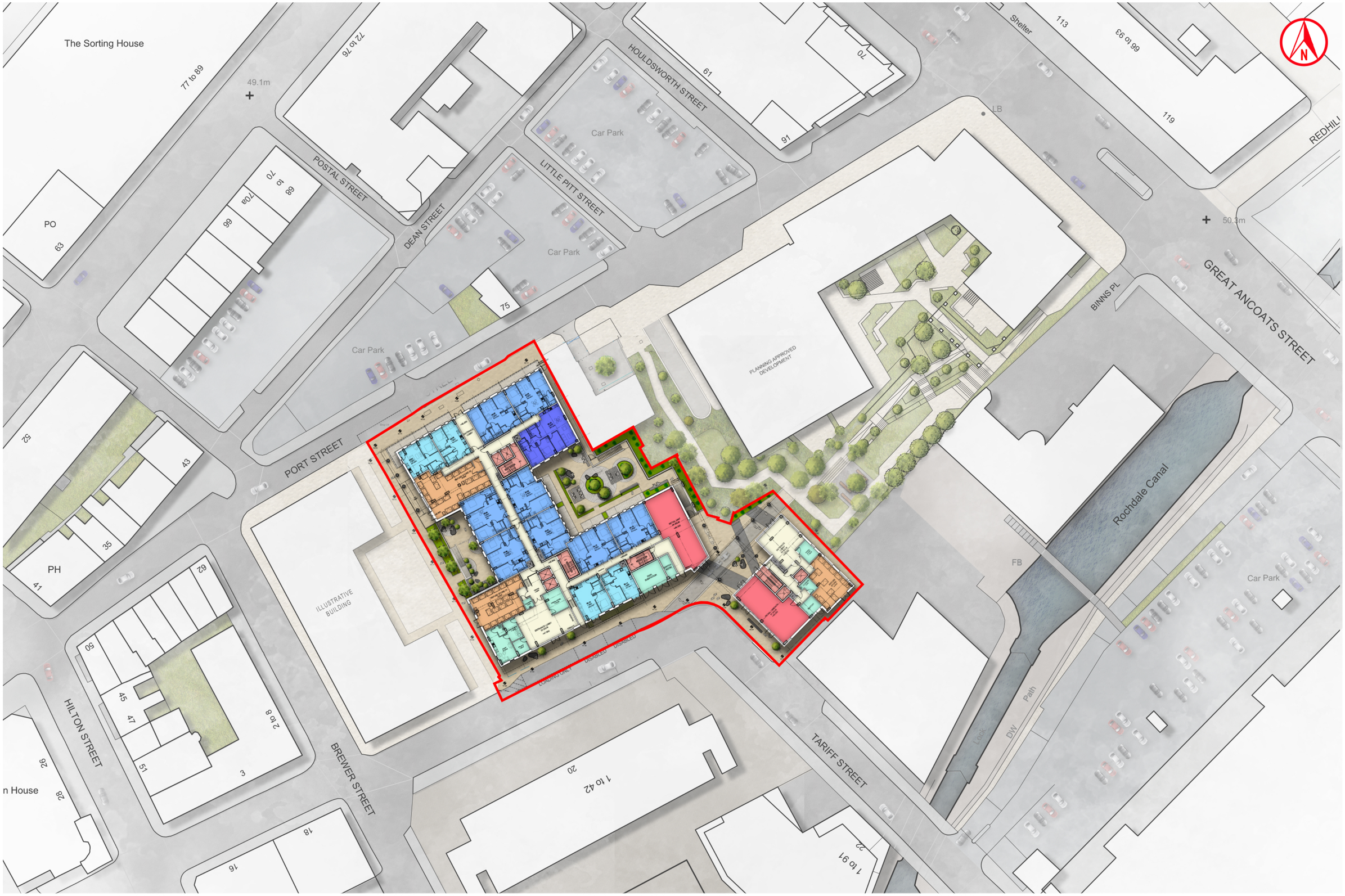
DESCRIPTION
PROPOSED SITE PLAN

REVISION	SCALE
P03	1:500@ A3

LRW PROJECT No.	DATE CREATED	CREATED BY	AUTHORISED BY
8198	03.11.22	KM	CJG

File:L:\8198 Tariff St\Drawings\Revit\DR-Drawing\ZZ-Concept Design Models\Annual\07-08\Act Cloud\8198_ZN1ZZ-DOR-A-00011_P02_ProposedSitePlan.rvt

PURPOSE OF ISSUE
PLANNING ● BUILDING REGS ○ TENDER ○ PRELIM./COMMENT ○ APPROVAL ○ CONSTRUCTION ○



LeachRhodesWalker
Architects
Ground Floor West 50 Dearmans Place Manchester M3 5LH t 0161 833 0211 e info@lrw.co.uk www.lrw.co.uk

8198 1NQ: PROPOSED SITE PLAN (COLOUR)

Scale: **1:500@A2** Auth By: **CJG** Drawn By: **MF** Date: **28.11.22** Dwg No: **8198-LRW-ZZ-ZZ-DR-A-00-121_P04**

APPENDIX C

Desk Study Enquiries

BGS 1:50,000 Maps

Environment Agency Flood Map for Planning

Flood map for planning

Your reference	Location (easting/northing)	Created
140434	**384802/398393**	**14 Nov 2022 9:37**

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger that 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

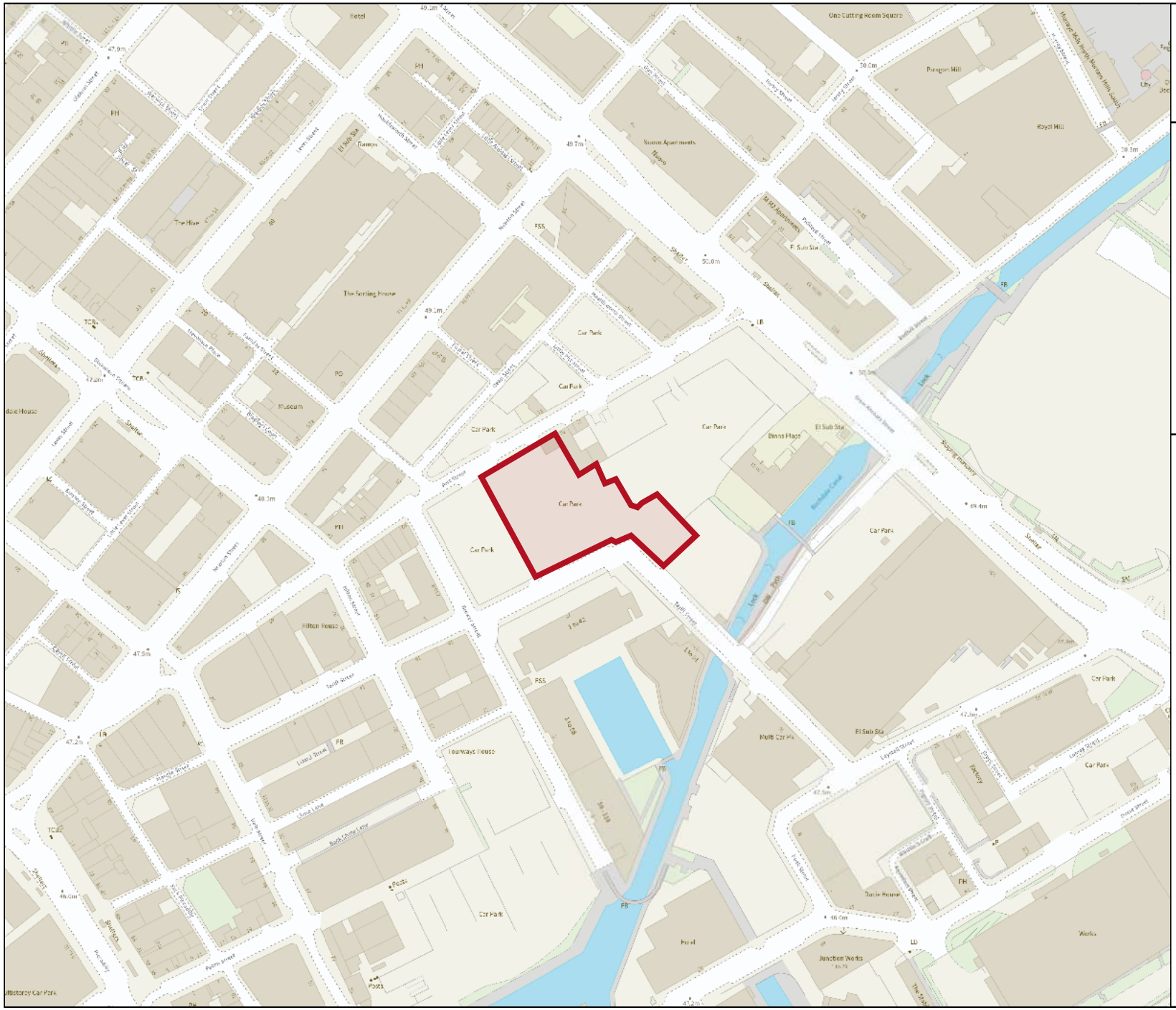
Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. https://flood-map-for-planning.service.gov.uk/os-terms



Environment Agency

Flood map for planning

Your reference
140434

Location (easting/northing)
384802/398393

Scale
1:2500

Created
14 Nov 2022 9:37

- Selected area
- Flood zone 3
- Flood zone 3: areas benefitting from flood defences
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m

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Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian
	GFSDD	Glaciofluvial Sheet Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	RTD1	River Terrace Deposits, 1	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CHES	Chester Formation	Sandstone	Not Supplied - Olenekian
	MM	Manchester Marls Formation	Mudstone	Not Supplied - GUADALUPIAN
	CS	Collyhurst Sandstone Formation	Sandstone	Not Supplied - Cisuralian
	GML	Great Mine Limestone	Limestone	Not Supplied - Westphalian
	HA	Halesowen Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	HTS	Holt Town Sandstone Bed	Sandstone	Not Supplied - Westphalian
	PUCM	Pennine Upper Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	OPS	Openshaw Sandstone	Sandstone	Not Supplied - Westphalian
	WDR	Worsley Delf Rock	Sandstone	Not Supplied - Westphalian
	NHSS	Newton Heath Sandstone	Sandstone	Not Supplied - Westphalian
	PMCM	Pennine Middle Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	ETM	Etruria Formation	Sandstone and Mudstone	Not Supplied - Westphalian
		Faults		
		Rock Segments		

FAIRHURST

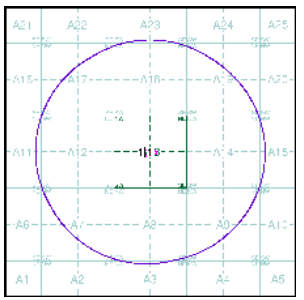
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	**1**
Map Sheet No:	**085**
Map Name:	**Manchester**
Map Date:	**2010**
Bedrock Geology:	**Available**
Superficial Geology:	**Not Available**
Artificial Geology:	**Not Available**
Faults:	**Not Supplied**
Landslip:	**Not Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A



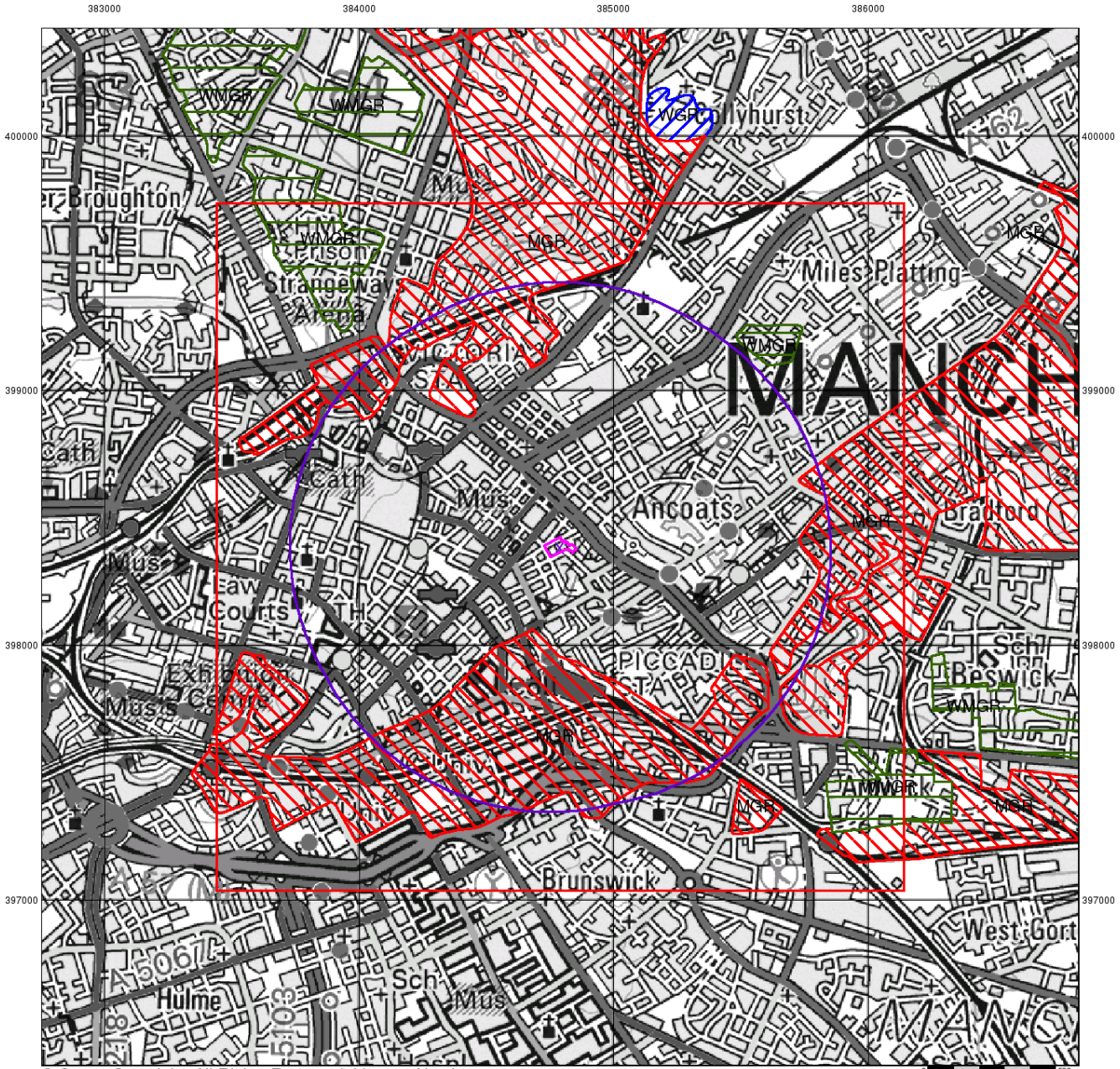
Order Details:

Order Number:	302490219_1_1
Customer Reference:	143404
National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
Search Buffer (m):	1000

Site Details:

Flat 1, Burlington House, 22, Tariff Street, MANCHESTER, M1 2DN

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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FAIRHURST

Artificial Ground and Landslip

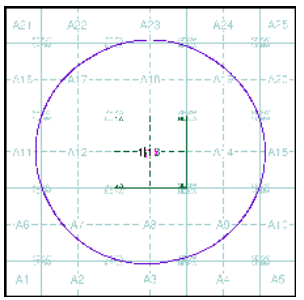
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



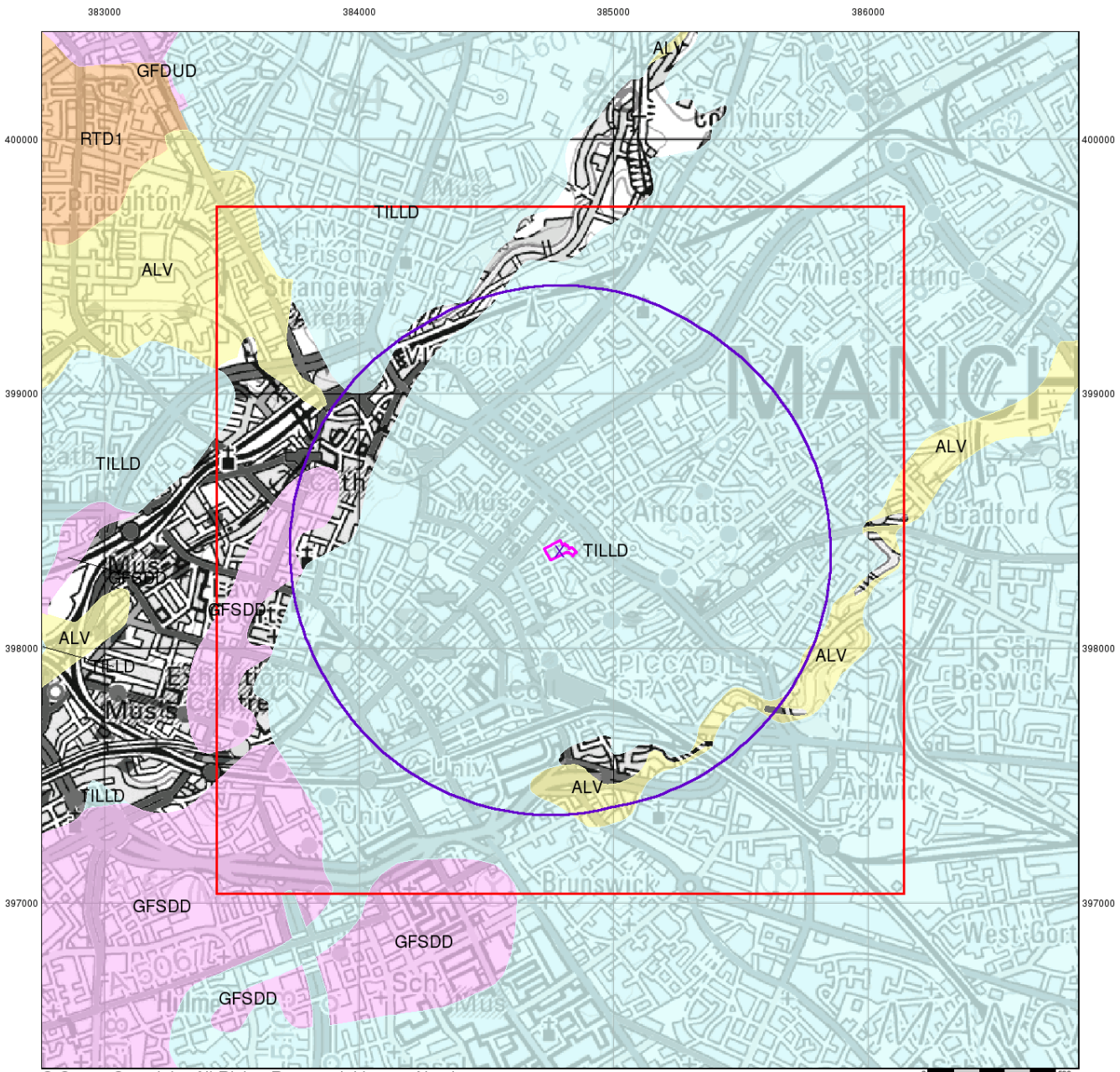
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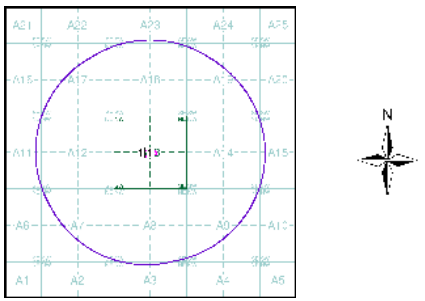
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



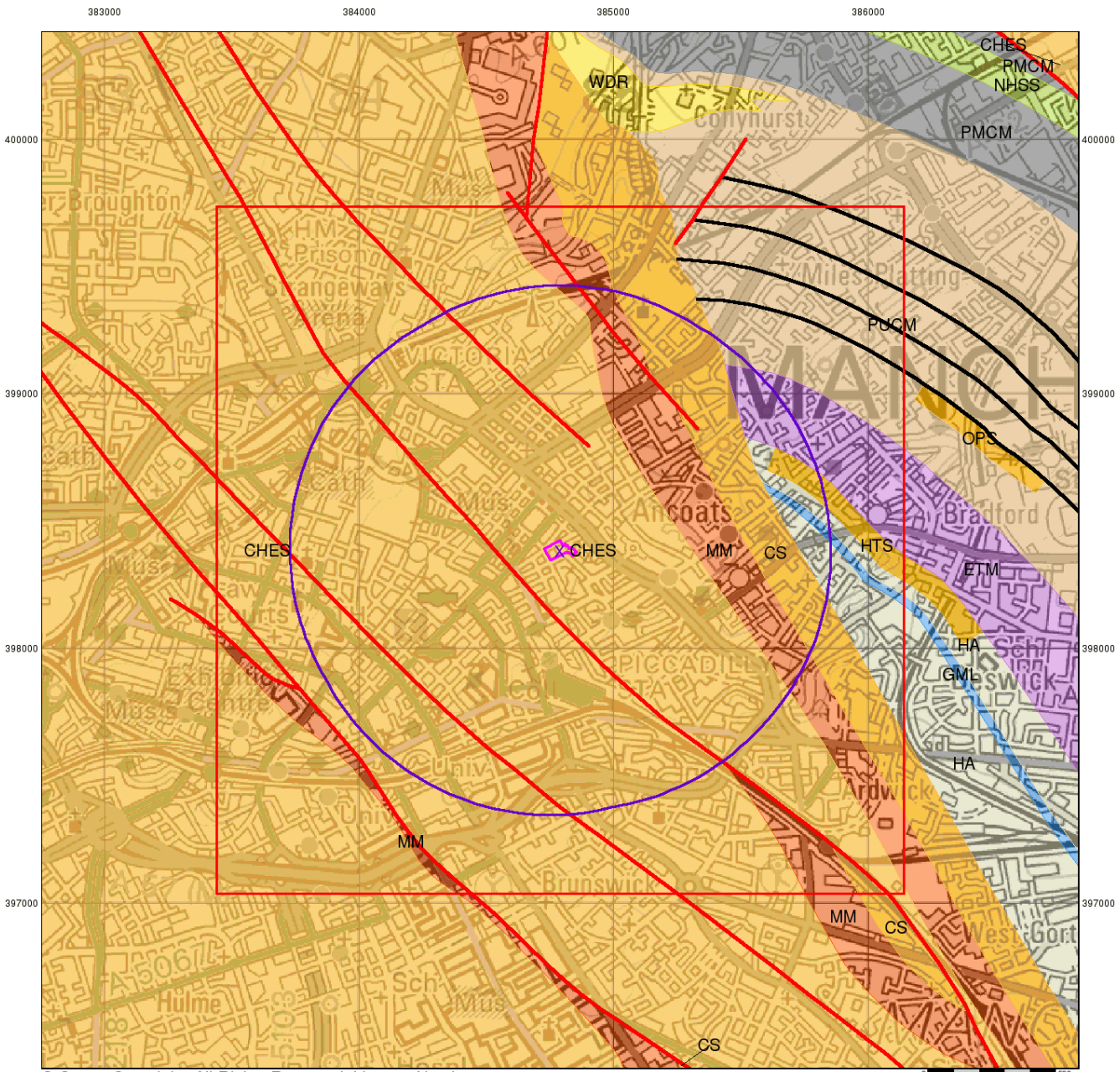
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Slice:	A
Site Area (Ha):	0.47
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Site Details:

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FAIRHURST

Bedrock and Faults

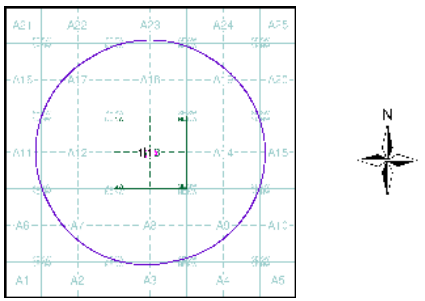
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



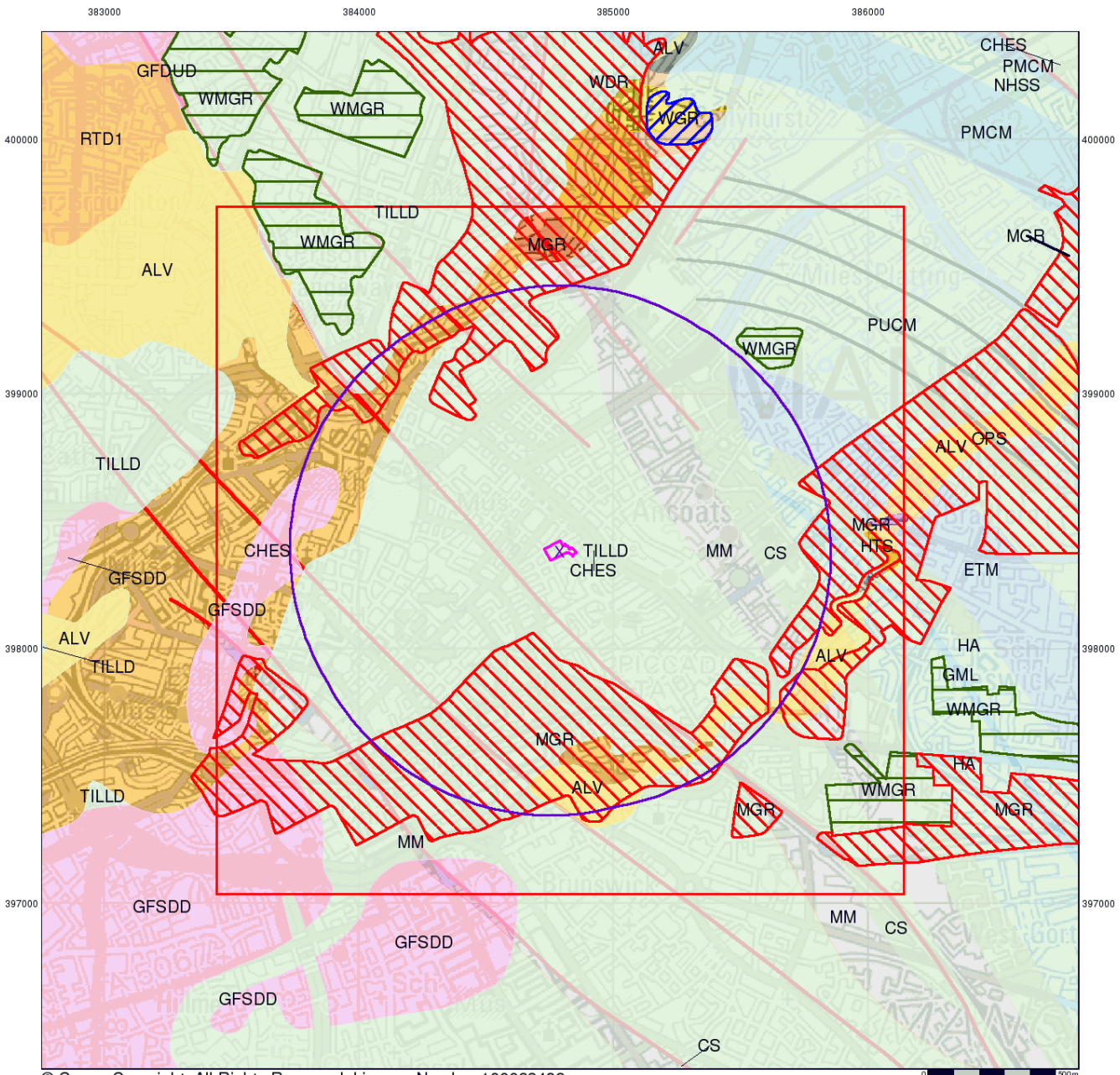
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FAIRHURST

Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

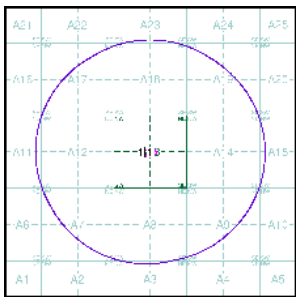
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

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Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

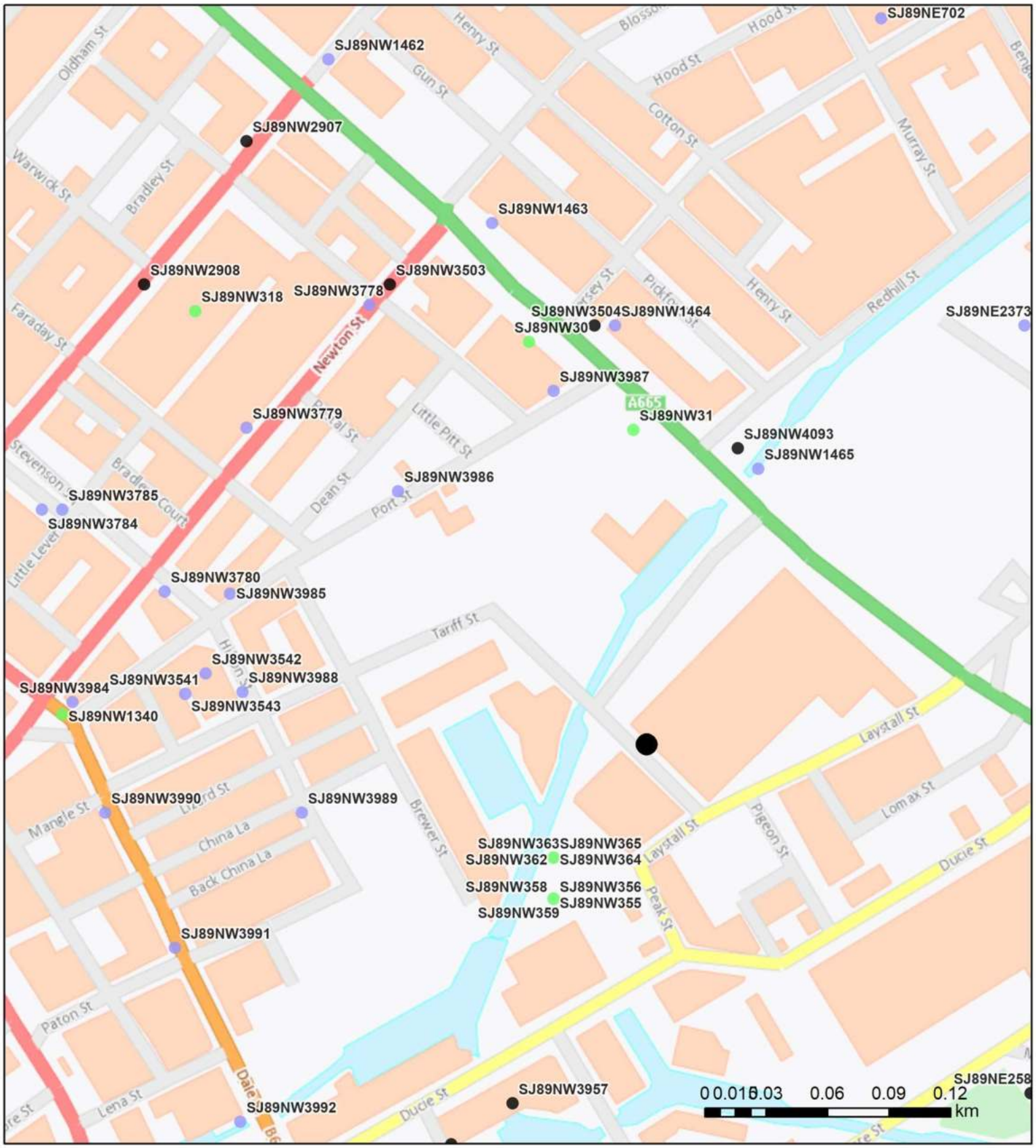
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Customer Reference:	143404
National Grid Reference:	384790, 398380
Slice:	A
Site Area (Ha):	0.47
Search Buffer (m):	1000

Site Details:

Flat 1, Burlington House, 22, Tariff Street, MANCHESTER, M1 2DN

GeoIndex Report

British Geological Survey



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GeoIndex Onshore Data Sources: NERC, Natural England, English Heritage and Ordnance Survey

Map Key

Borehole records

- Unknown Length
- Confidential
- 0 - 10m
- 10 - 30m
- 30m+

SJ89NW 357 8455-9823

BOREHOLE RECORD SHEET

STRATA SURVEYS LTD.,
HOLMES CHAPEL ROAD.
MIDDLEWICH. CHESHIRE.
Telephone: Middlewich (STD 0606 84) 4637

BOREHOLE No. 5
Sheet 1 of 1

Job No.: 3897 Location: CENTRAL RETAIL PARK
Client: PEEL INVESTMENTS LTD
Scale: 1:50
Diam. & Boring Type: 150mm S&A

Description of Strata	Reduced Level	Legend	Thickness (m)	Depth (m)	Samples from	Samples to	Type	N Value	Apparent Cohesion kN/m²	% Recovery	Permeability Details	Daily Progress Water Levels Remarks
Ground Level	44.71											9-9-1987
Brown clay, bricks, soil and concrete FILL			1.20		0.50	0.95	P1	17				
					1.00		D					
Stiff brown CLAY	43.51		0.40	1.20	1.30	1.75	U1		108	0		
Stiff and very stiff, brown-grey BOULDER	43.11			1.60	1.80		D2					
					2.40	2.80	U2		156	0		
					2.90		D3					
					3.50	3.85	U3					
					4.00		D4					
					4.50	4.95	U4					
					5.00		D5					
Band of moist silty clay 5.30-5.60m			(8.40)									
					6.00	6.45	U5					
					6.50		D6					
					7.50	7.95	U6					
					8.00		D7					
					9.00	9.25	U7					
	34.71			10.00	10.00		D8					
Borehole Complete												

SJ89NW 362 8486-9825

BOREHOLE RECORD SHEET

STRATA SURVEYS LTD.,
HOLMES CHAPEL ROAD,
MIDDLEWICH, CHESHIRE.
Telephone: Middlewich (STD 0606 84) 4637

BOREHOLE No. 10

Sheet 1 of 1

Job No.: 3987 Location: CENTRAL RETAIL PARK

Client: PEEL INVESTMENTS LTD

Scale: 1:50

Diam. & Boring Type: 150mm S&A

Description of Strata	Reduced Level	Legend	Thickness (m)	Depth (m)	Samples from	Samples to	Samples Type	N Value	Apparent Cohesion kN/m2	Ø degrees	Permeability Tests	Daily Progress Water Levels Remarks
Ground Level	47.87											10-9-1987
clayey ashes, sandstone, bricks refuse FILL			2.00		0.50	0.95	P1	4				
					1.00		D1					
					1.50	1.95	P2	5				
	45.87			2.00								
Very stiff brown laminated BOULDER CLAY					2.20	2.65	U1		192	0		
					2.70		D2					
					3.20	3.66	U2					
					3.70		D3					
					4.20	4.65	U3					
					4.70		D4					
			(8.00)		5.70	6.15	U4					
					6.20		D5					
					7.20	7.65	U5					
					7.70		D6					
					8.70	9.15	U6					
Thin bands of sand below 9.00m.					9.20		D7					
					9.50	9.95	U7					
Borehole Complete	37.87			10.00								BH dry

Version 2.0.6.6

BGS ID: 1042172 : BGS Reference: SJ89NW30
British National Grid (27700) : 384838,398502
Report an issue with this borehole

<< < Prev Page 1 of 1 Next > >>

38

GEOLOGICAL SURVEY AND MUSEUM. BORE-HOLES AND SHAFTS.

SJ89NW30

BORE or ~~SHAFT~~ in Ancoats
Manchester.

County Lancs.
6-in. Map 104 NE W.
GSM No. 62.

498m

Surface level O.D. 163.34 ft. One-inch Map 85.

Communicated by Manchester Corporation.

Date of sinking Borer

Specimens

Description.	THICKNESS. Feet.	Inches.	DEPTH. Feet.	Inches.
No. 16. 163.34 ft. O.D. Opposite corner of Great Ancoats St. & Jersey St. Ancoats.				
Soil	0.31	1 –	0.31	1 –
Boulder clay	15.24	50 –	15.55	51 –
Gravelly clay.	2.44	8 –	17.98	59 –
Very stiff dk brown tilly clay full of large stones	1.83	6 –	19.81	65 –
Gravelly clay	2.13	7 –	21.95	72 –
Red sandstone.	6.10	20 –	28.04	92 –

104 N.E. W

British Geological Survey British Geological Survey British Geological Survey

(B12268) Wt. 13119—0014 5000 9/27 Gp. 160 O.A.

Version 2.0.6.6

BGS ID: 1042173 : BGS Reference: SJ89NW31
British National Grid (27700) : 384889,398459
Report an issue with this borehole

<< < Prev Page 1 of 1 Next > >>

39

GEOLOGICAL SURVEY AND MUSEUM BOREHOLE ... SHAFTS

SJ89NW31

County Lancs.

BORE or SHAFT Sewer Shaft B

6-in. Map 104-N.E.W.

GSM 62 A

Between Briars Place Path - Great Ancoats St.
Rochdale Road Sewer, Manchester

Surface level O.D. 164·60 ft. 50·2m One-inch Map 85

Communicated Manchester Corporation

Date of sinking 1926 Borer Messrs. Nuttall

Specimens

Description.	THICKNESS. Feet.	Inches.	DEPTH. Feet.	Inches.
	Metres.		Metres	
Made ground.	1·30 4	3	1·30 4	3
Brown silky clay	6·48 21	3	7·77 25	6
Dark brown clay with a few stones	4·72 15	6	12·50 41	—
Sandy clay with boulders.	3·66 12	—	16·15 53	—
Stony loam	0·91 3	—	17·07 56	—
Boulder clay	0·91 3	—	17·98 59	—
Loamy sand & stones.	0·61 2	—	18·59 61	—
Boulder clay	2·74 9	—	21·34 70	—
Loamy sand & stones.	0·46 1	6	21·79 71	6
Boulder clay	0·83 6	—	23·62 77	6
Loamy sand.	2·90 9	6	26·52 87	—
Sand.	2·13 7	—	28·65 94	—
Red sandstone			Proved	

British Geological Survey British Geological Survey British Geological Survey

(B12268) Wt. 18119—0014 5000 9/27 Gp. 160 O.A.

MANCHESTER CITY COUNCIL

CITY ENGINEER AND SURVEYORS DEPARTMENT

384692
398379

SITE INVESTIGATION FOR	Main Drainage	DATE COMMENCED	22.3.85
LOCATION	Port Street REF:	BORING METHOD	Shell and Auger
BOREHOLE No.	2	BORING DIAMETER	150mm
GRID REFERENCE		SCALE:	1 : 50 approx.

DATE	CASING DEPTH (m)	WATER LEVEL MORNING & EVENING	DEPTH OF STRATA BELOW GL	Reduced Level	DESCRIPTION	No. and Type of Sample	SAMPLE DEPTH PENETRATION From	To	No. of Blows	Legend
22.3.85			0.05		Bituminous Surfacing					
			0.25		Setts					
			0.55		Ashes	D1	0.1			
			1.20		Stiff brown CLAY, ashes, brick pieces etc-Made Ground	D2 D3	0.7 1.0			
			4.50		Very stiff brown silty and sandy CLAY with grey fissures stone and coal inclusions (Firm in upper zone)	U1 D4 U2 D5 U3 D6	1.3 2.00 2.3 3.0 3.3 4.0	1.75 2.75 3.75 		
22.3.85	5.50	Dry	6.50		Firm/stiff silty and sandy laminated CLAY with grey fissures, stone and coal inclusions.	U4 D7 U5 D8	4.5 5.2 5.6 6.50	4.95 6.05 		

WATER OBSERVATIONS DURING BORING

DEPTH OF WATER ENTRY (m)	ESTIMATED SEE PAGE	STANDING LEVEL (m)	DEPTH OF CASING WHEN SEALED (m)
None Observed			

WATER LEVEL IN CASED/UNCASED BOREHOLE ON COMPLETION

DATE	WATER LEVEL	DEPTH OF CASING

REMARKS:–

SAMPLE TEST KEY: D – DISTURBED SAMPLE; B – BULK SAMPLE; U – UNDISTURBED SAMPLE; P – SPT SAMPLE; W – WATER SAMPLE

NOTE: WHERE FULL 0.3 PENETRATION HAS NOT BEEN ACHIEVED, THE NUMBER OF BLOWS FOR THE QUOTED PENETRATION IS GIVEN (NOT N – VALUE)

ALL DEPTHS AND REDUCED LEVELS IN (m) UNLESS OTHERWISE STATED

REMARKS

Trial hole excavated to 1.20m below ground level
Borehole backfilled with concrete on completion

M/c 5931

MANCHESTER CITY COUNCIL

CITY ENGINEER AND SURVEYORS DEPARTMENT

384774

SITE INVESTIGATION FOR Main Drainage		DATE COMMENCED	21.3.85 398429
LOCATION Port Street	REF:	BORING METHOD	Shell and Auger
BOREHOLE No. 3		BORING DIAMETER	150mm
GRID REFERENCE		SCALE:	1 : 50 approx

DATE	CASING DEPTH (m)	WATER LEVEL MORNING & EVENING	DEPTH OF STRATA BELOW GL	Reduced Level	DESCRIPTION	No. and Type of Sample	SAMPLE DEPTH PENETRATION From	To	No. of Blows	Legend
21.3.85			0.05		Bituminous Surfacing					
			0.25		Setts					
			0.35		Ashes, cinders and stones	D1	0.25			
			1.70		Clayey ashes, cinders, brick pieces etc. - Made Ground.	D2 D3	0.5 1.20			
					Stiff brown silty and sandy CLAY with grey fissures, stone and coal inclusions, with very stiff zones.	U1 D4 U2 D5 U3 D6 U4	1.80 2.50 2.8 3.5 3.8 4.5 4.8	2.25 3.25 4.25 5.25		
21.3.85	4.50	Dry	5.30							

WATER OBSERVATIONS DURING BORING			
DEPTH OF WATER ENTRY (m)	ESTIMATED SEE PAGE	STANDING LEVEL (m)	DEPTH OF CASING WHEN SEALED (m)
None			
Observed			

WATER LEVEL IN CASED/UNCASED BOREHOLE ON COMPLETION		
DATE	WATER LEVEL	DEPTH OF CASING

REMARKS:-

SAMPLE TEST KEY: D – DISTURBED SAMPLE; B – BULK SAMPLE; U – UNDISTURBED SAMPLE; P – SPT SAMPLE; W – WATER SAMPLE

NOTE: WHERE FULL 0.3 PENETRATION HAS NOT BEEN ACHIEVED, THE NUMBER OF BLOWS FOR THE QUOTED PENETRATION IS GIVEN (NOT N – VALUE)

ALL DEPTHS AND REDUCED LEVELS IN (m) UNLESS OTHERWISE STATED

REMARKS

Trial hole excavated to 1.40m below ground level
Borehole backfilled with concrete on completion

M/c 5931

MANCHESTER CITY COUNCIL

CITY ENGINEER AND SURVEYORS DEPARTMENT

384850

SITE INVESTIGATION FOR	Main Drainage	DATE COMMENCED	21.3.85 398478
LOCATION	Port Street REF:	BORING METHOD	Shell and Auger
BOREHOLE No.	4	BORING DIAMETER	150mm
GRID REFERENCE		SCALE:	1 : 50 approx.

DATE	CASING DEPTH (m)	WATER LEVEL MORNING & EVENING	DEPTH OF STRATA BELOW GL	Reduced Level	DESCRIPTION	No. and Type of Sample	SAMPLE DEPTH PENETRATION From	SAMPLE DEPTH PENETRATION To	No. of Blows	Legend
21.3.85			0.05		Bituminous Surfacing					
			0.25		Setts					
			0.80		Ashes, cinders, soil, stones etc. - Made Ground	D1	0.5			
					Soft/firm brown/black CLAY, ashes, stones, brick pieces etc. - Made Ground.	D2	1.0			
						D3	1.50			
						U1	1.8	2.25		
						D4	2.60			
						U2	2.8	3.25		
			3.05							
					Stiff to very stiff brown silty and sandy CLAY with grey fissures and stone inclusions.	D5	3.40			
						U3	3.5	3.95		
21.3.85	3.50	Dry	4.20							

British Geological Survey

WATER OBSERVATIONS DURING BORING				WATER LEVEL IN CASED/UNCASED BOREHOLE ON COMPLETION		
DEPTH OF WATER ENTRY (m)	ESTIMATED SEE PAGE	STANDING LEVEL (m)	DEPTH OF CASING WHEN SEALED (m)	DATE	WATER LEVEL	DEPTH OF CASING
None						
Observed						
				REMARKS:-		

SAMPLE TEST KEY: D – DISTURBED SAMPLE; B – BULK SAMPLE; U – UNDISTURBED SAMPLE; P – SPT SAMPLE; W – WATER SAMPLE

NOTE: WHERE FULL 0.3 PENETRATION HAS NOT BEEN ACHIEVED, THE NUMBER OF BLOWS FOR THE QUOTED PENETRATION IS GIVEN (NOT N – VALUE)

ALL DEPTHS AND REDUCED LEVELS IN (m) UNLESS OTHERWISE STATED

REMARKS

Trial hole excavated to 1.40m below ground level

Borehole backfilled with concrete on completion

M/c 5931

MANCHESTER CITY COUNCIL

CITY ENGINEER AND SURVEYORS DEPARTMENT

384727

SITE INVESTIGATION FOR	Main Drainage	DATE COMMENCED	25.3.85 398272
LOCATION	Hilton Street REF:	BORING METHOD	Shell and Auger
BOREHOLE No.	7	BORING DIAMETER	150mm
GRID REFERENCE		SCALE:	1 : 50 approx.

DATE	CASING DEPTH (m)	WATER LEVEL MORNING & EVENING	DEPTH OF STRATA BELOW GL	Reduced Level	DESCRIPTION	No. and Type of Sample	SAMPLE DEPTH PENETRATION From	To	No. of Blows	Legend
25.3.85			0.05		Bituminous Surfacing					
			0.25		Setts					
			0.40		Ashes, stones, topsoil and brick pieces.	D1	0.3			
					Firm brown silty and sandy CLAY with ashes, cinders, stones etc - Made Ground	D2 D3	0.5 1.0			
					Stiff to very stiff brown silty and sandy CLAY with stone and coal inclusions and lenses of sand. (Possibly Disturbed)	U1 D4 U2 D5	1.5 2.2 2.5 3.2	1.95 2.95 		
			3.30							
					Stiff to very stiff brown silty and sandy CLAY with grey fissures, stone inclusions and sand lenses. (Slightly laminated in parts)	U3 D6 U4 D7	3.5 4.20 4.5 5.2	3.95 4.95 		
25.3.85	4.50	Dry	5.20							

WATER OBSERVATIONS DURING BORING				WATER LEVEL IN CASED/UNCASED BOREHOLE ON COMPLETION		
DEPTH OF WATER ENTRY (m)	ESTIMATED SEE PAGE	STANDING LEVEL (m)	DEPTH OF CASING WHEN SEALED (m)	DATE	WATER LEVEL	DEPTH OF CASING
None						
Observed						
				REMARKS:-		

SAMPLE TEST KEY: D – DISTURBED SAMPLE; B – BULK SAMPLE; U – UNDISTURBED SAMPLE; P – SPT SAMPLE; W – WATER SAMPLE

NOTE: WHERE FULL 0.3 PENETRATION HAS NOT BEEN ACHIEVED, THE NUMBER OF BLOWS FOR THE QUOTED PENETRATION IS GIVEN (NOT N – VALUE)

ALL DEPTHS AND REDUCED LEVELS IN (m) UNLESS OTHERWISE STATED

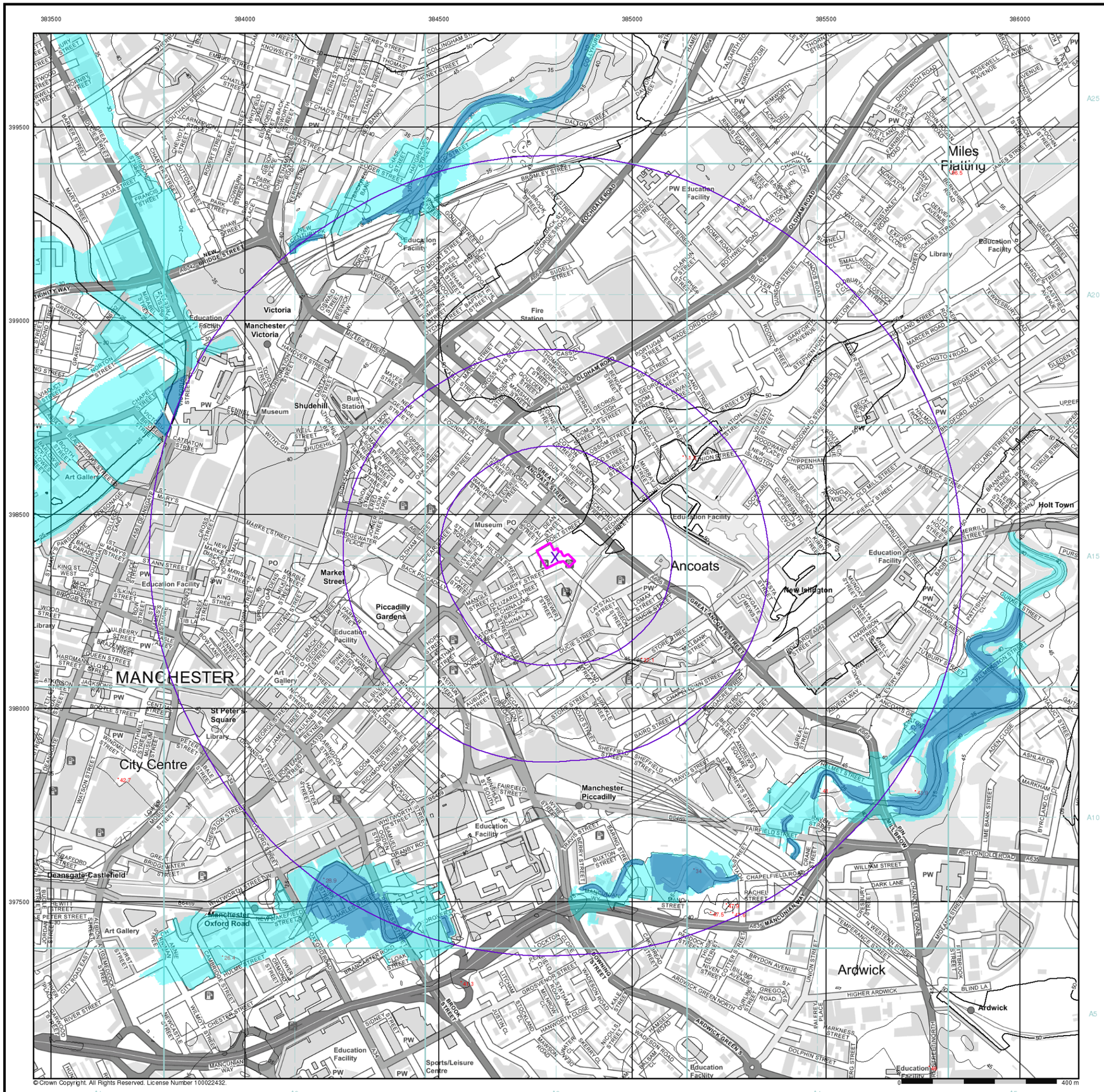
REMARKS

Trial hole excavated to 1.2m below ground level
Borehole backfilled with concrete on completion

M/c 5931

APPENDIX D

Flood Screening Report



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FAIRHURST

EA/NRW Flood Data Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Flood Data

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Contours (height in metres)

Standard Contour 105 100 95

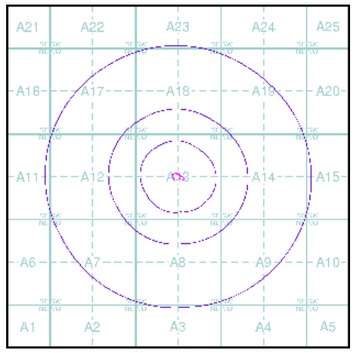
Master Contour

Spot Height *167.8

MLW Mean Low Water

MHW Mean High Water

EA/NRW Flood Data Map - Slice A



Order Details

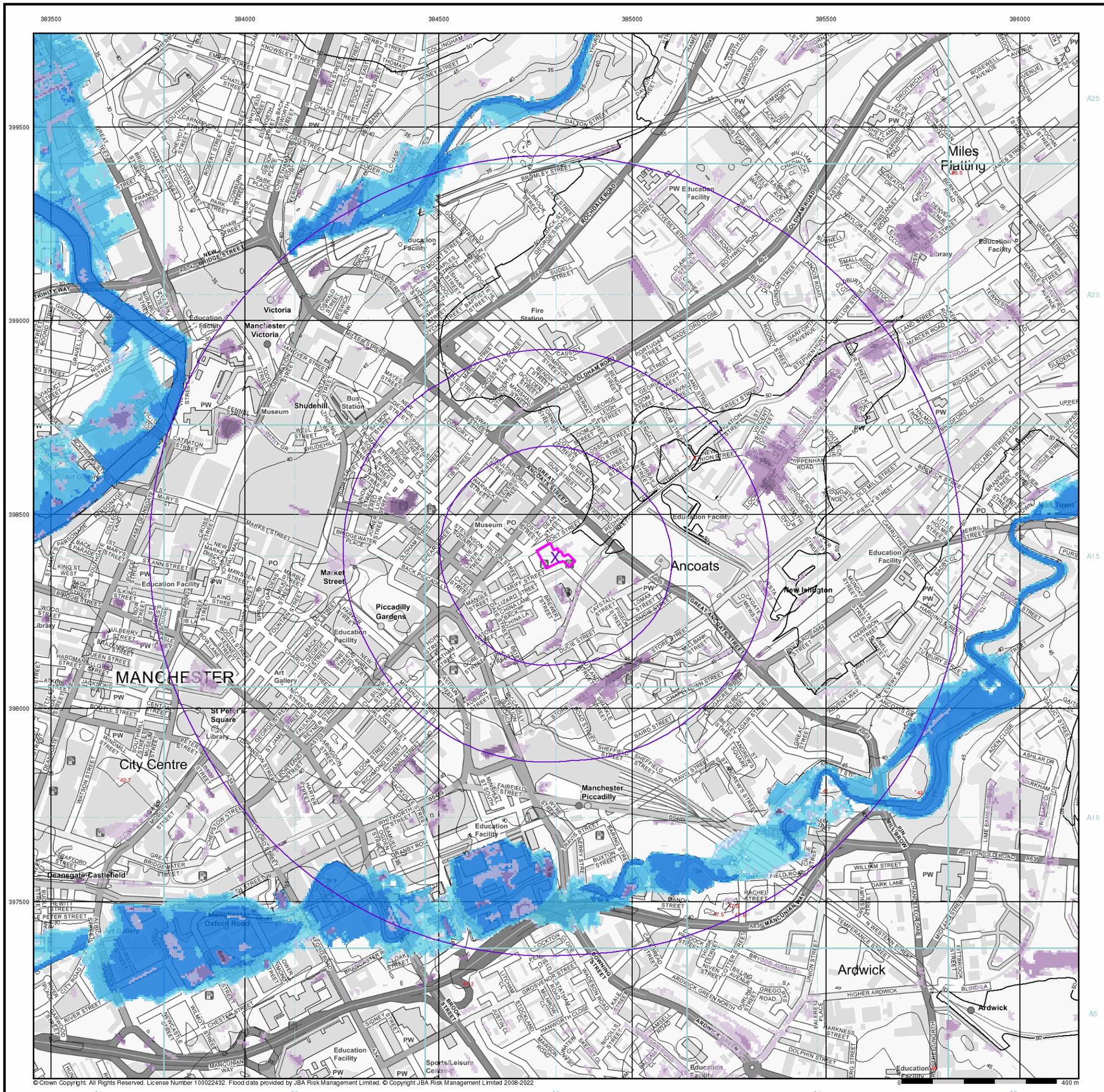
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Customer Ref:	143404 -05 Tariff Street Manchester
National Grid Reference:	384800, 398390
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	1000

Site Details

Site at 384800, 398390

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FAIRHURST

JBA 75 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

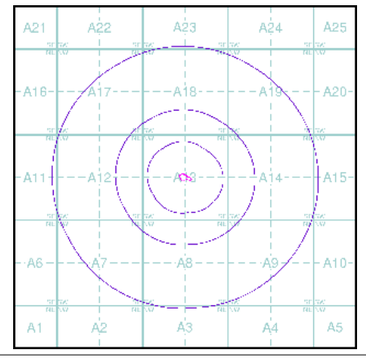
Contours (height in metres)

Standard Contour 105 100 95 — MLW Mean Low Water

Master Contour — MHW Mean High Water

Spot Height 157.8

JBA 75 Year Return Flood Map (Undefended) - Slice A



Order Details

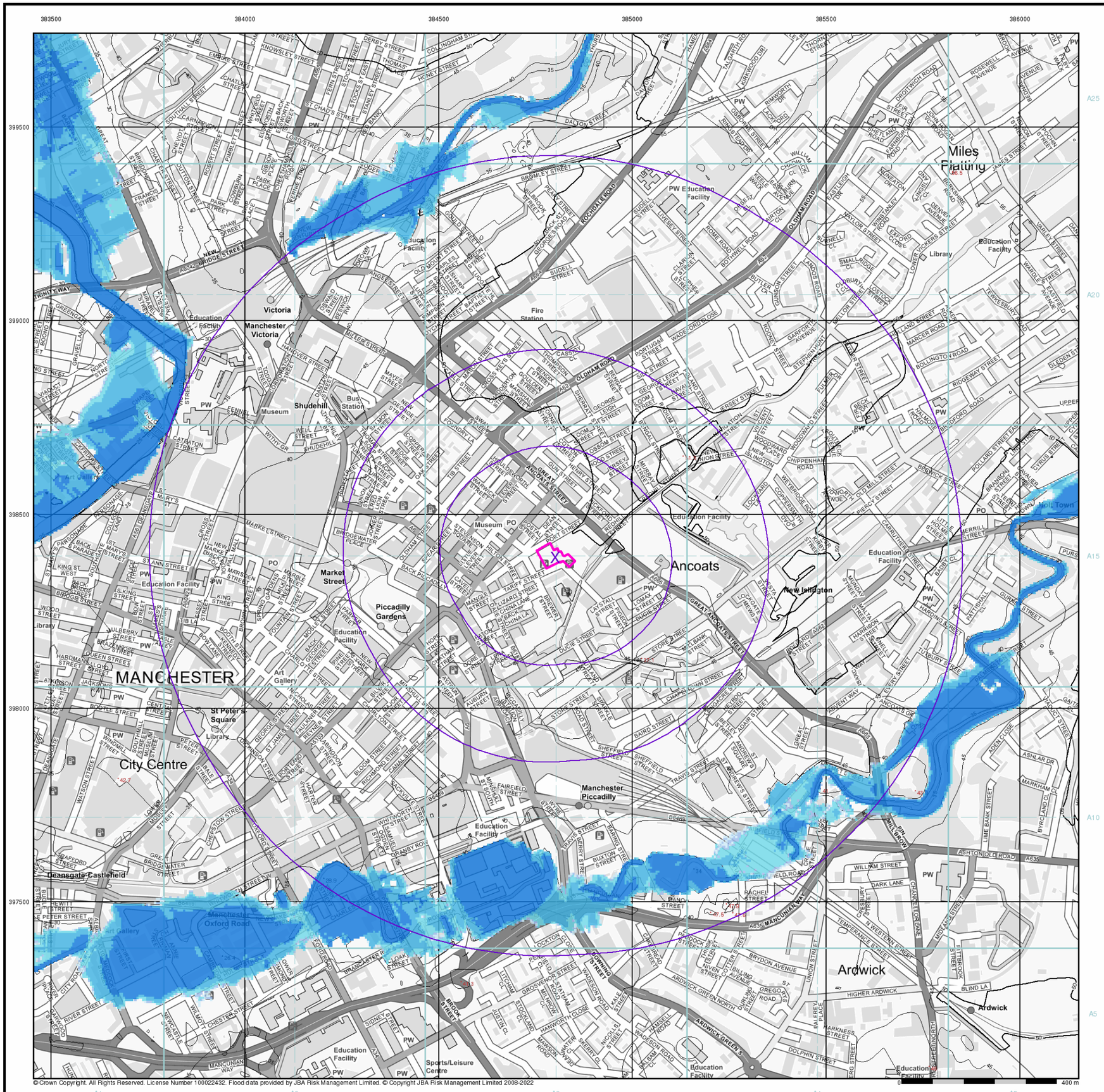
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National Grid Reference:	384800, 398390
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	1000

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FAIRHURST

JBA 100 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Modelled Flood Depth

Fluvial Depth	Coastal Depth
0.01m - 0.05m	0.01m - 0.05m
0.05m - 0.1m	0.05m - 0.1m
0.1m - 0.3m	0.1m - 0.3m
0.3m - 1m	0.3m - 1m
>1m	>1m

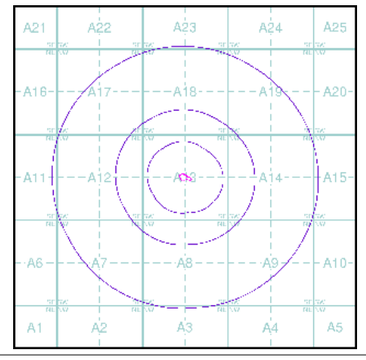
Contours (height in metres)

Standard Contour 105 100 95 — MLW Mean Low Water

Master Contour — MHW Mean High Water

Spot Height 167.8

JBA 100 Year Return Flood Map (Undefended) - Slice A



Order Details

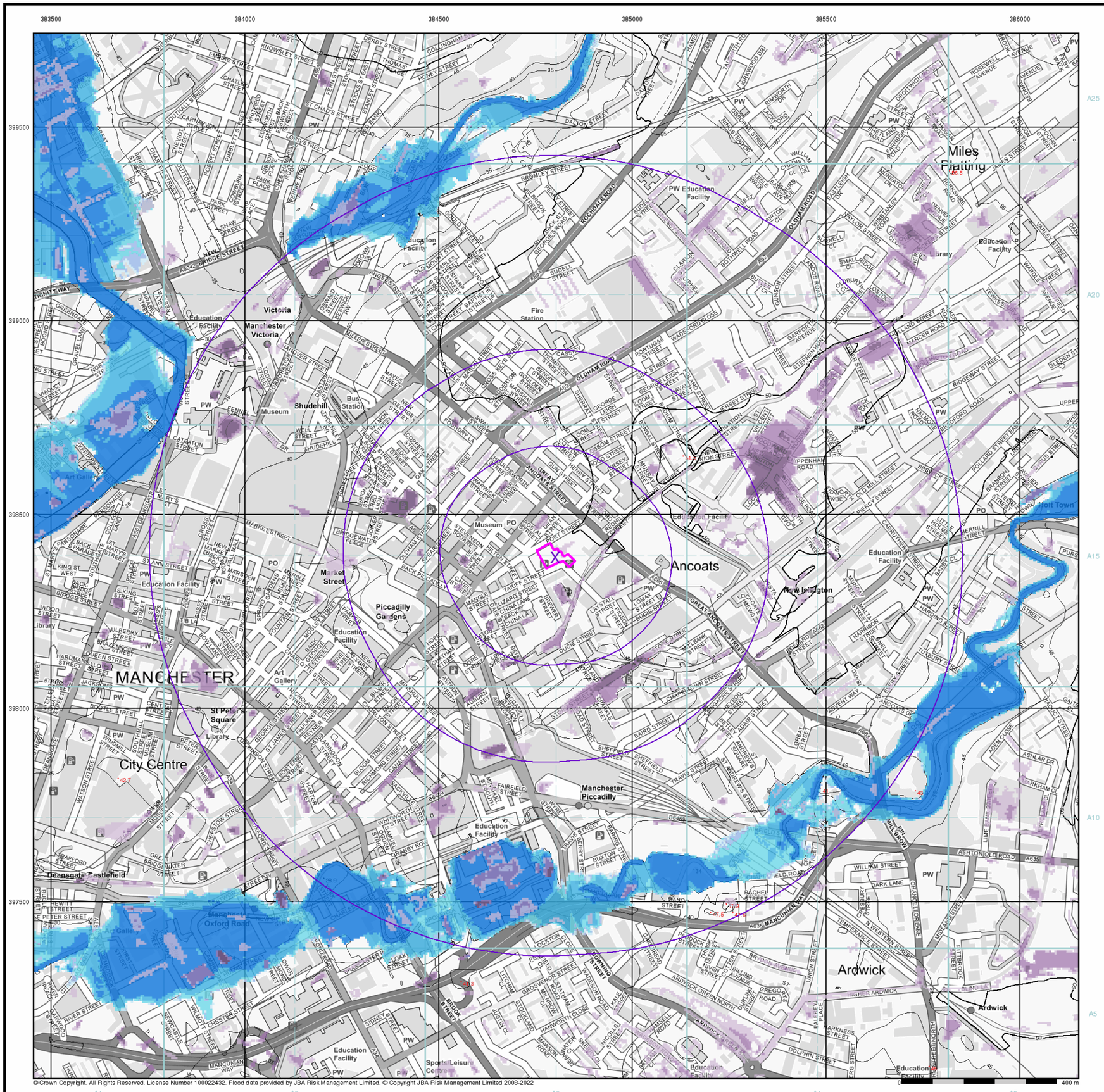
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National Grid Reference:	384800, 398390
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Site Area (Ha):	0.31
Search Buffer (m):	1000

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FAIRHURST

JBA 200 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

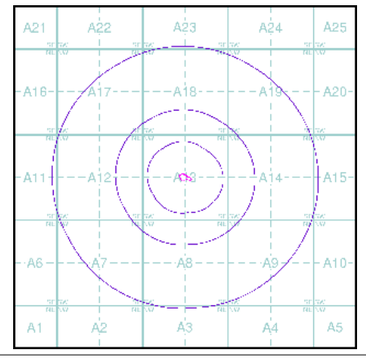
Contours (height in metres)

Standard Contour 105 100 95 — MLW Mean Low Water

Master Contour — MHW Mean High Water

Spot Height 157.8

JBA 200 Year Return Flood Map (Undefended) - Slice A



Order Details

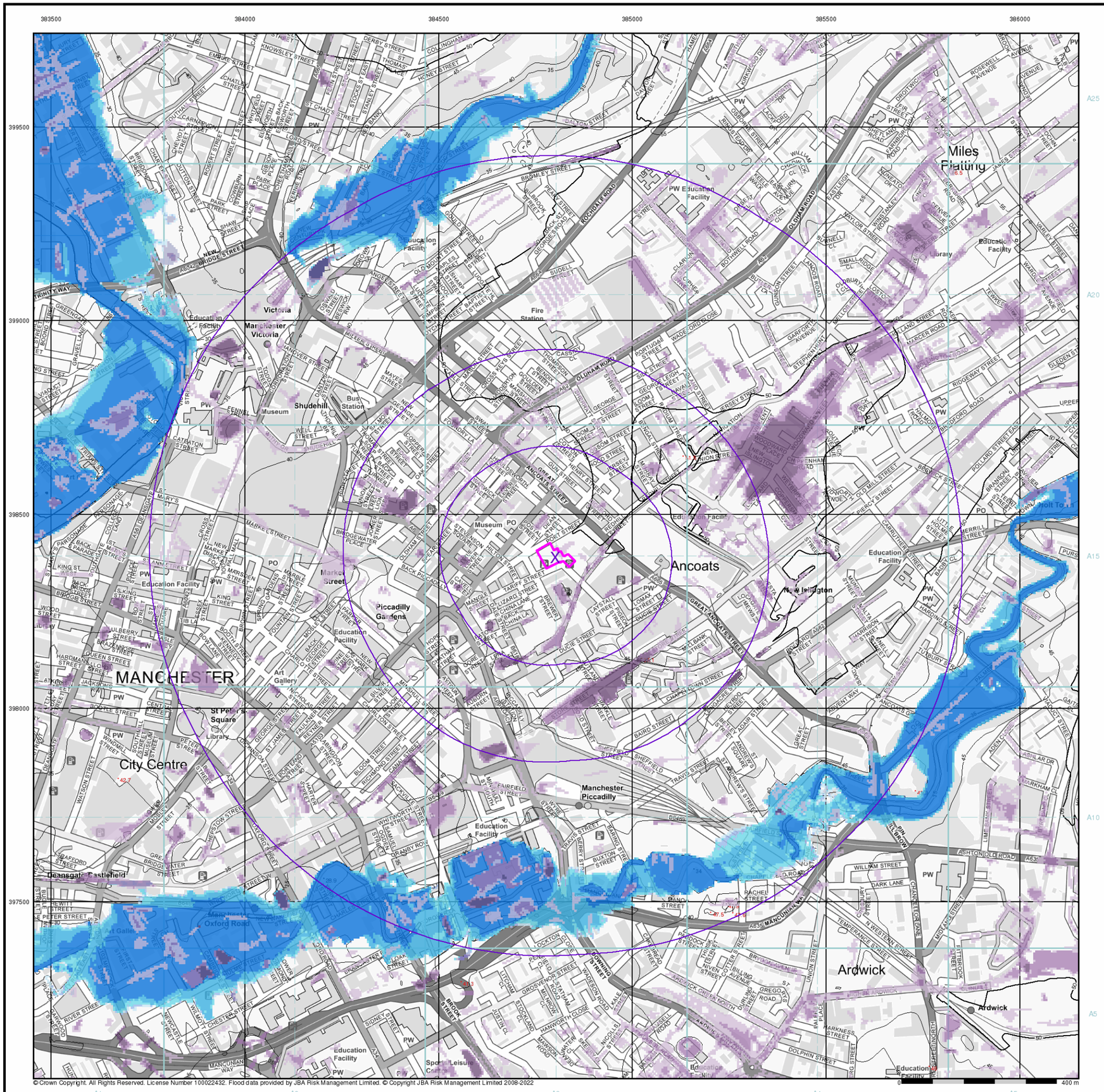
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Customer Ref:	143404 -05 Tariff Street Manchester
National Grid Reference:	384800, 398390
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Site Area (Ha):	0.31
Search Buffer (m):	1000

Site Details

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A1 A2 A3 A4 A5

FAIRHURST

JBA 1000 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

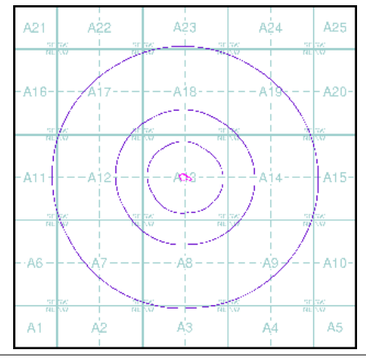
Contours (height in metres)

Standard Contour 105 100 95 — MLW Mean Low Water

Master Contour — MHW Mean High Water

Spot Height 157.8

JBA 1000 Year Return Flood Map (Undefended) - Slice A



Order Details

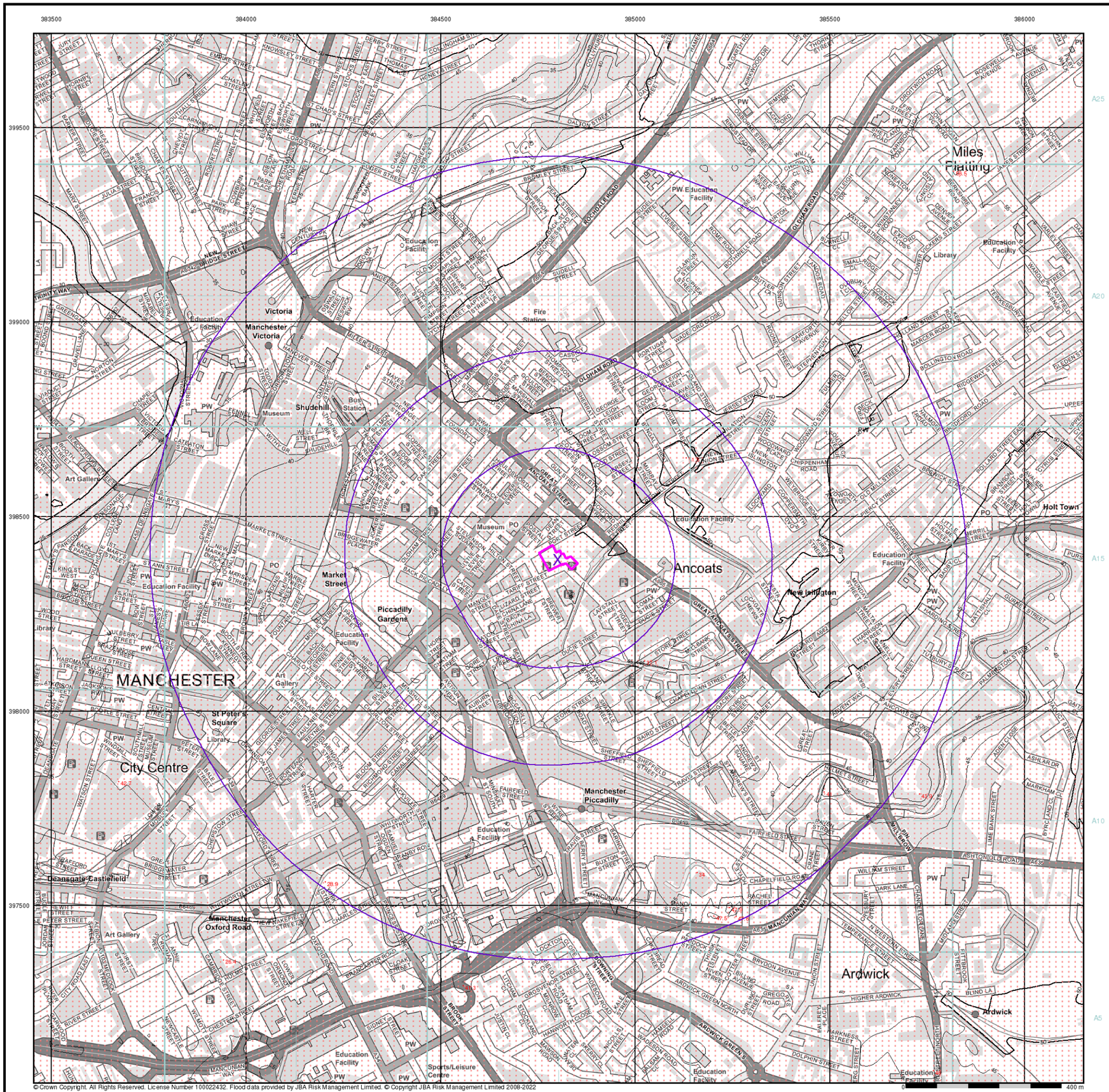
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Customer Ref:	143404 -05 Tariff Street Manchester
National Grid Reference:	384800, 398390
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	1000

Site Details

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FAIRHURST

JBA Canal Failure Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Flood Data

- Canal Failure
- Coverage

Contours (height in metres)

Standard Contour 105 100 95

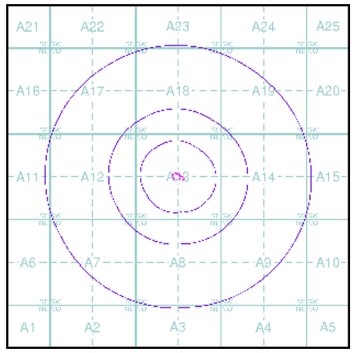
Master Contour

Spot Height *167.8

MLW Mean Low Water

MHW Mean High Water

JBA Canal Failure Flood Map - Slice A



Order Details

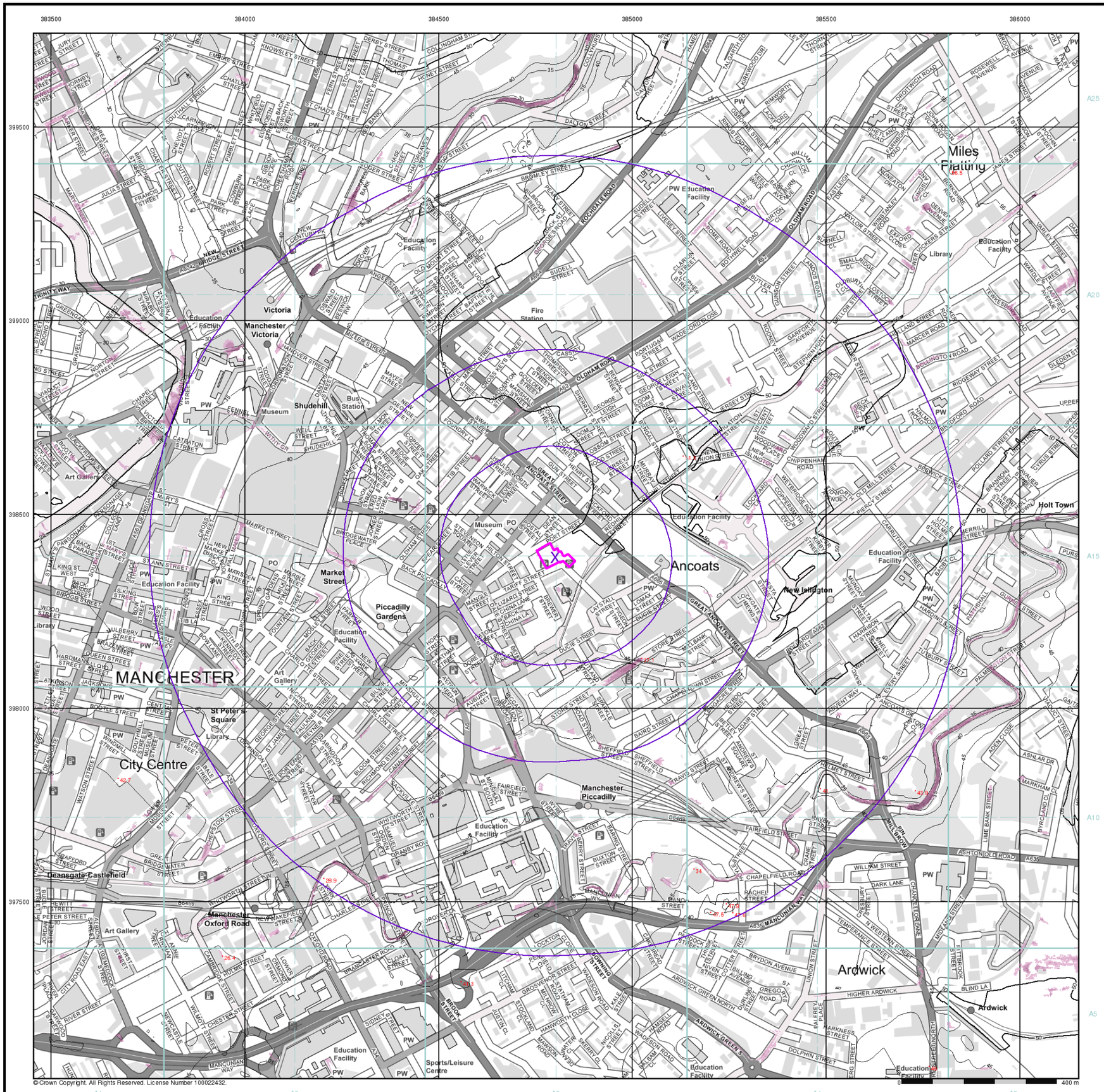
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Customer Ref:	143404 -05 Tariff Street Manchester
National Grid Reference:	384800, 398390
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	1000

Site Details

Site at 384800, 398390

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FAIRHURST

EA/NRW Surface Water 30 Year Return Depth Map (1:10,000)

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

Surface Water Depth

- 0 - 0.15m
- 0.15 - 0.30m
- 0.30 - 0.60m
- 0.60 - 0.90m
- 0.90 - 1.20m
- > 1.20m

Contours (height in metres)

Standard Contour 105 | Master Contour 100 95 | Spot Height *167.8

MLW Mean Low Water

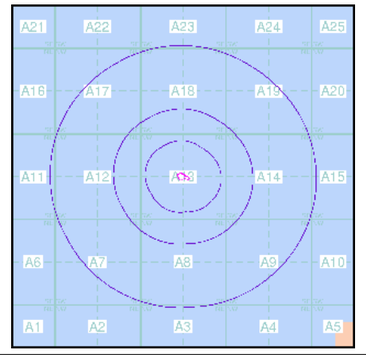
MHW Mean High Water

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

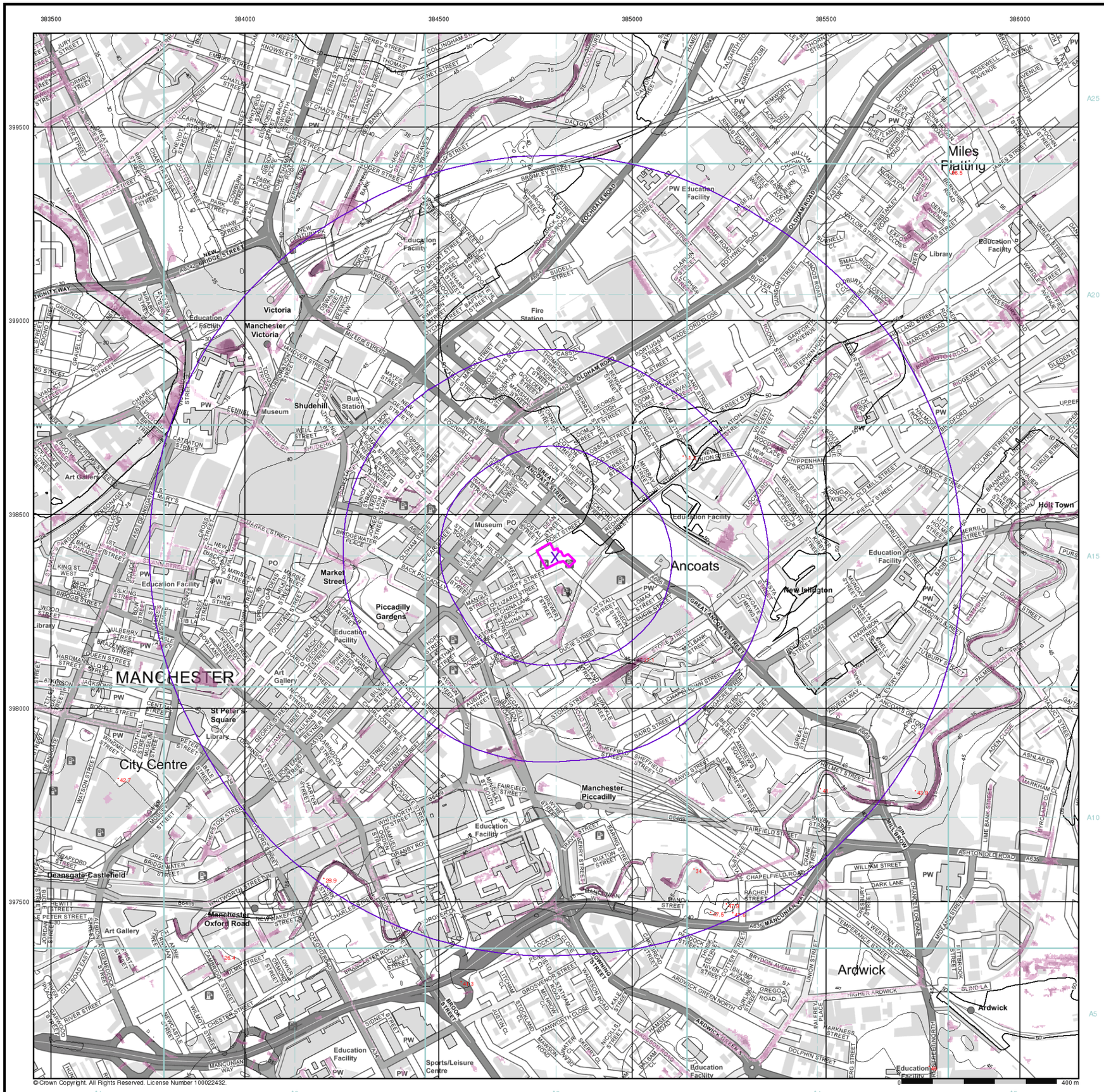
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Customer Ref:	143404 -05 Tariff Street Manchester
National Grid Reference:	384800, 398390
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	1000

Site Details

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FAIRHURST

EA/NRW Surface Water 100 Year Return Depth Map

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

Surface Water Depth

- 0 - 0.15m
- 0.15 - 0.30m
- 0.30 - 0.60m
- 0.60 - 0.90m
- 0.90 - 1.20m
- > 1.20m

Contours (height in metres)

Standard Contour | Master Contour | Spot Height *167.8

MLW Mean Low Water

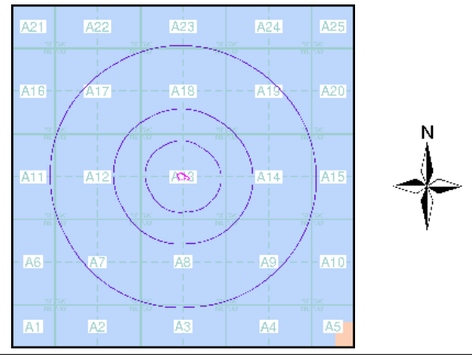
MHW Mean High Water

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

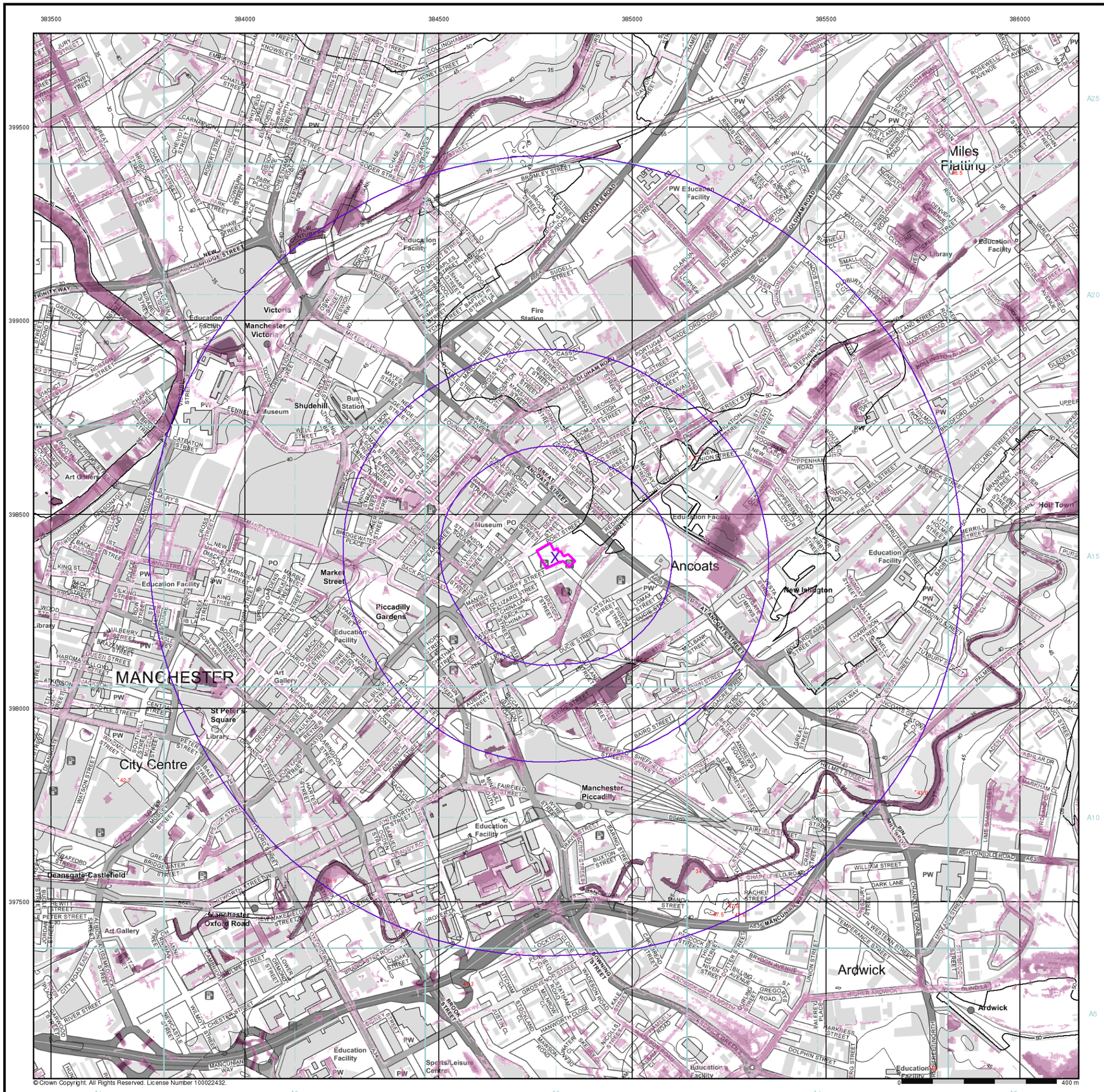
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Customer Ref:	143404 -05 Tariff Street Manchester
National Grid Reference:	384800, 398390
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	1000

Site Details

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FAIRHURST

EA/NRW Surface Water 1000 Year Return Depth Map (1:10,000)

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

Surface Water Depth

- 0 - 0.15m
- 0.15 - 0.30m
- 0.30 - 0.60m
- 0.60 - 0.90m
- 0.90 - 1.20m
- > 1.20m

Contours (height in metres)

Standard Contour | Master Contour | Spot Height 167.8

MLW Mean Low Water

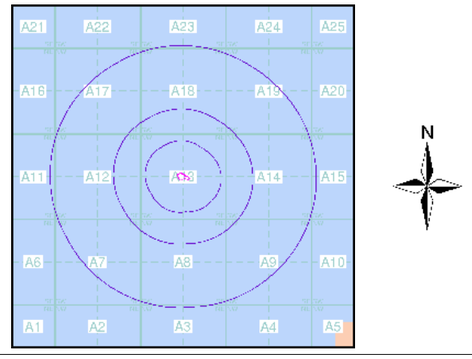
MHW Mean High Water

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



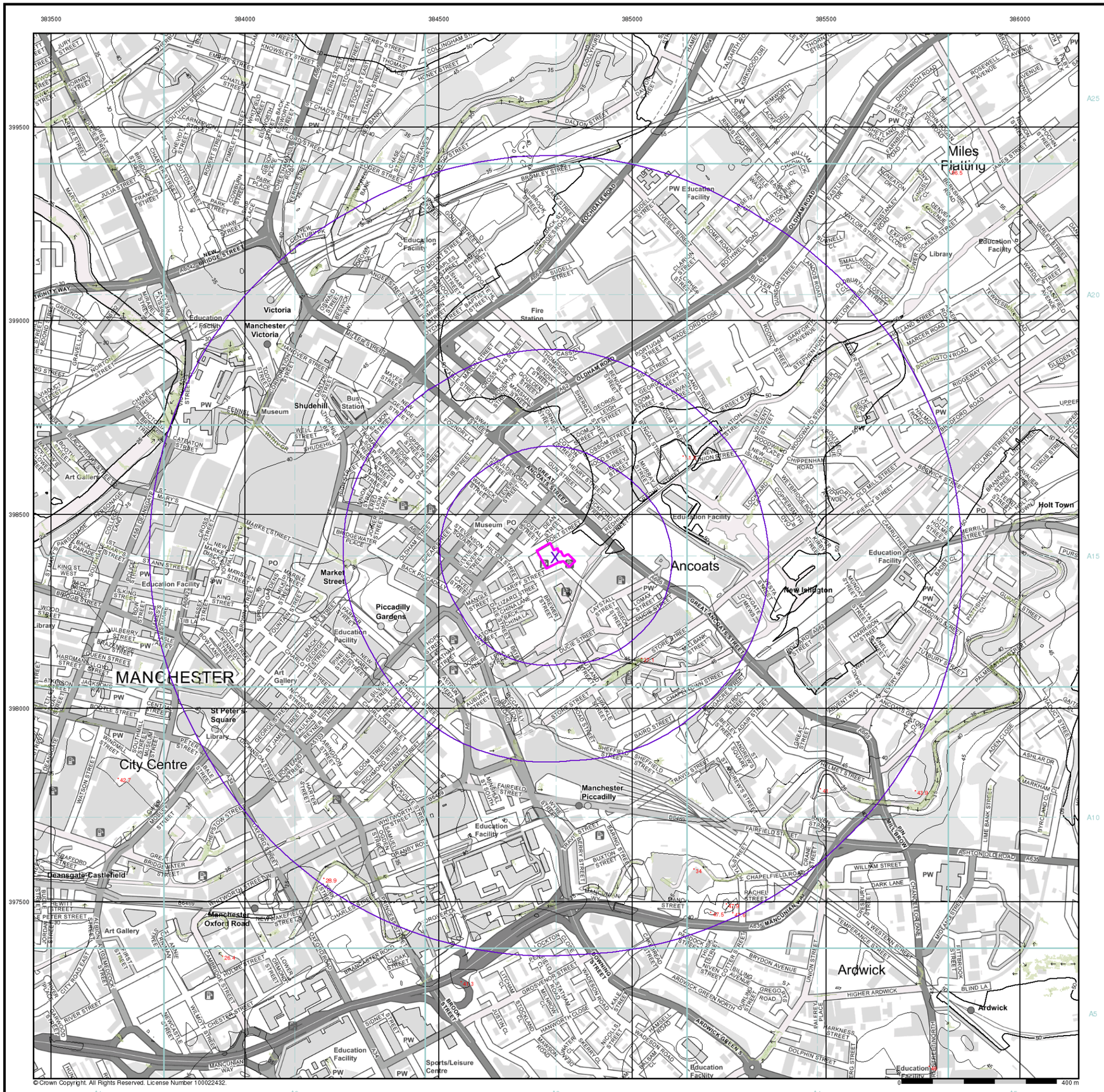
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Order Number:	301876956_1_1
Customer Ref:	143404 -05 Tariff Street Manchester
National Grid Reference:	384800, 398390
Slice:	A
Site Area (Ha):	0.31
Search Buffer (m):	1000

Site Details

Site at 384800, 398390

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FAIRHURST

EA/NRW Surface Water 30 Year Return Velocity and Flow Direction Map (1:10,000)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

Surface Water Velocity and Direction

- 0.00 - 0.25m/s
- 0.25 - 0.50m/s
- 0.50 - 1.00m/s
- 1.00 - 2.00m/s
- > 2.00m/s

Flow Direction at maximum velocity

Contours (height in metres)

Standard Contour | Master Contour | Spot Height (*167.8)

MLW Mean Low Water

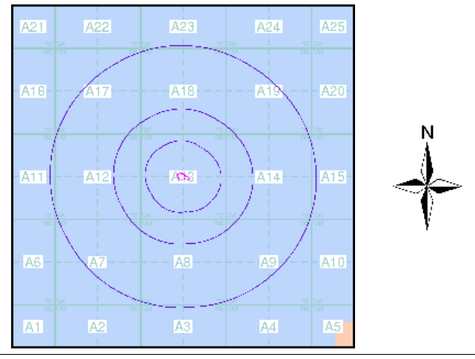
MHW Mean High Water

Suitability

See the suitability map below

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- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



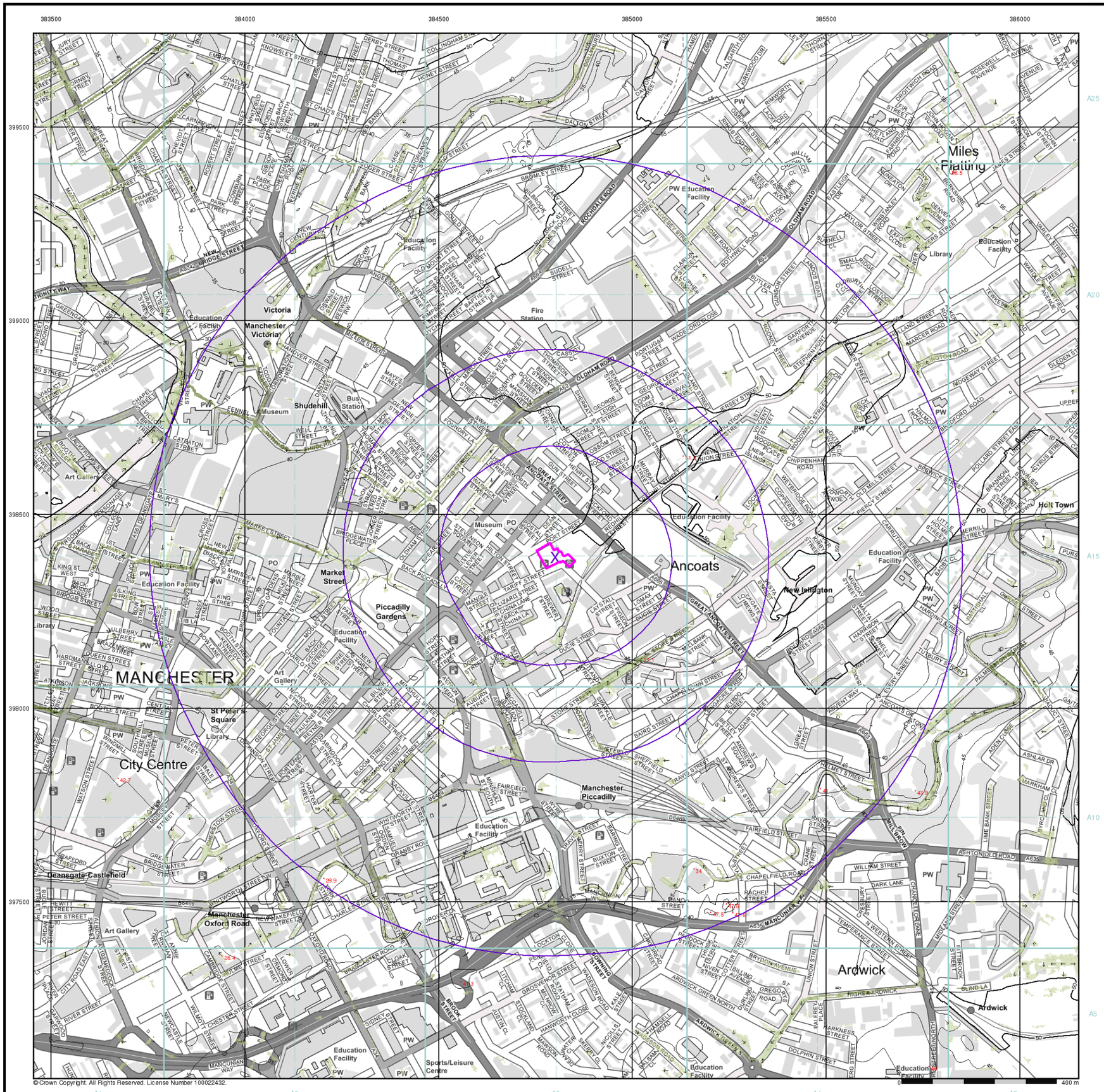
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- 0.25 - 0.50m/s
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- 1.00 - 2.00m/s
- > 2.00m/s

Flow Direction at maximum velocity

Contours (height in metres)

Standard Contour | Master Contour | Spot Height *167.8

MLW Mean Low Water

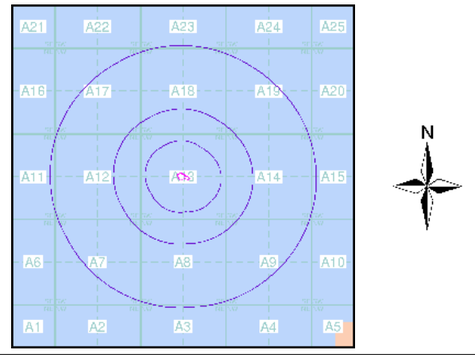
MHW Mean High Water

Suitability

See the suitability map below

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- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

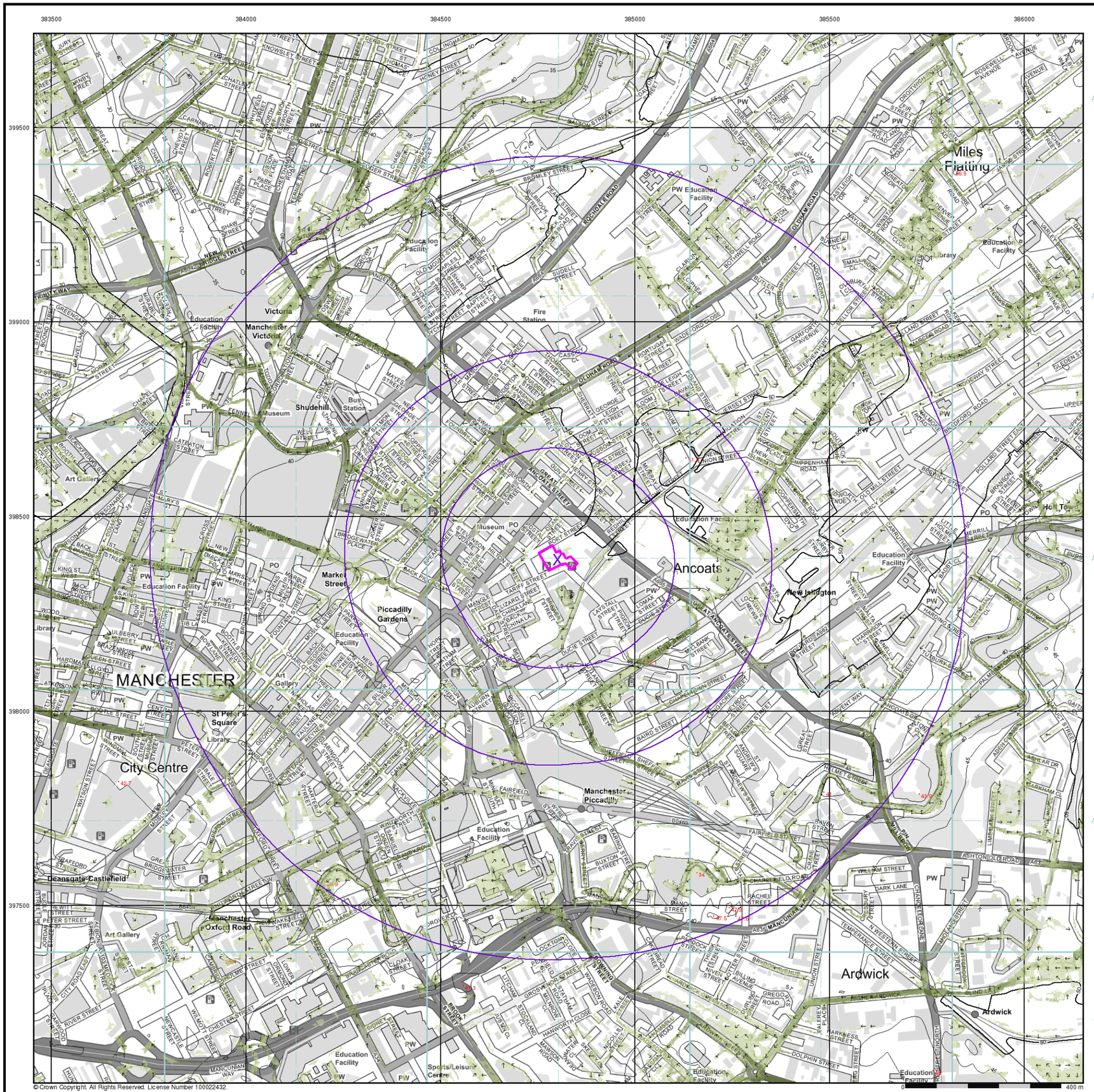
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FAIRHURST

EA/NRW Surface Water 1000 Year Return Velocity and Flow Direction Map (1:10,000)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

Surface Water Velocity and Direction

- 0.00 - 0.25m/s
- 0.25 - 0.50m/s
- 0.50 - 1.00m/s
- 1.00 - 2.00m/s
- > 2.00m/s

Flow Direction at maximum velocity

Contours (height in metres)

Standard Contour | Master Contour | Spot Height *167.8

MLW Mean Low Water

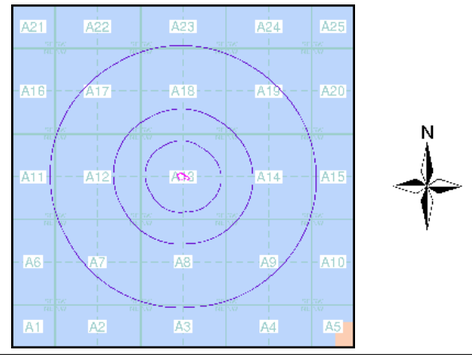
MHW Mean High Water

Suitability

See the suitability map below

- National to county
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- Property

EA/NRW Suitability Map - Slice A



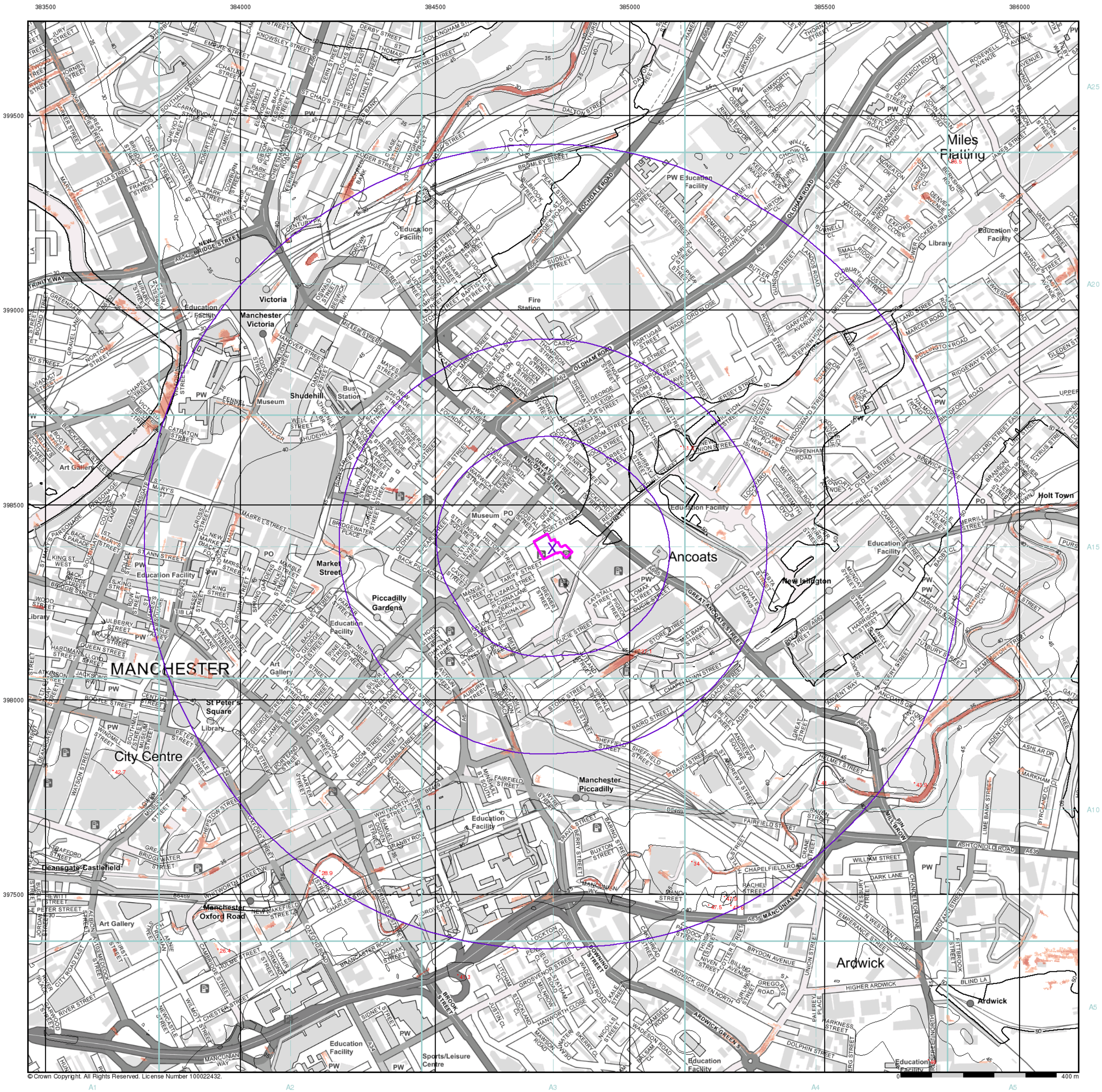
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FAIRHURST

EA/NRW Surface Water 30 Year Return Hazard Rating Map (1:10,000)

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

Surface Water Hazard Rating

- Low (0.5 – 0.75)
- Moderate (0.75 – 1.25)
- Significant (1.25 – 2.0)
- Extreme (>2.0)

Contours (height in metres)

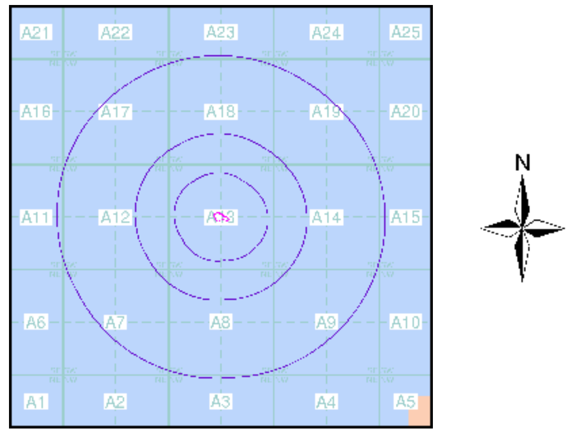
- Standard Contour
- Master Contour
- Spot Height
- MLW Mean Low Water
- MHW Mean High Water

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

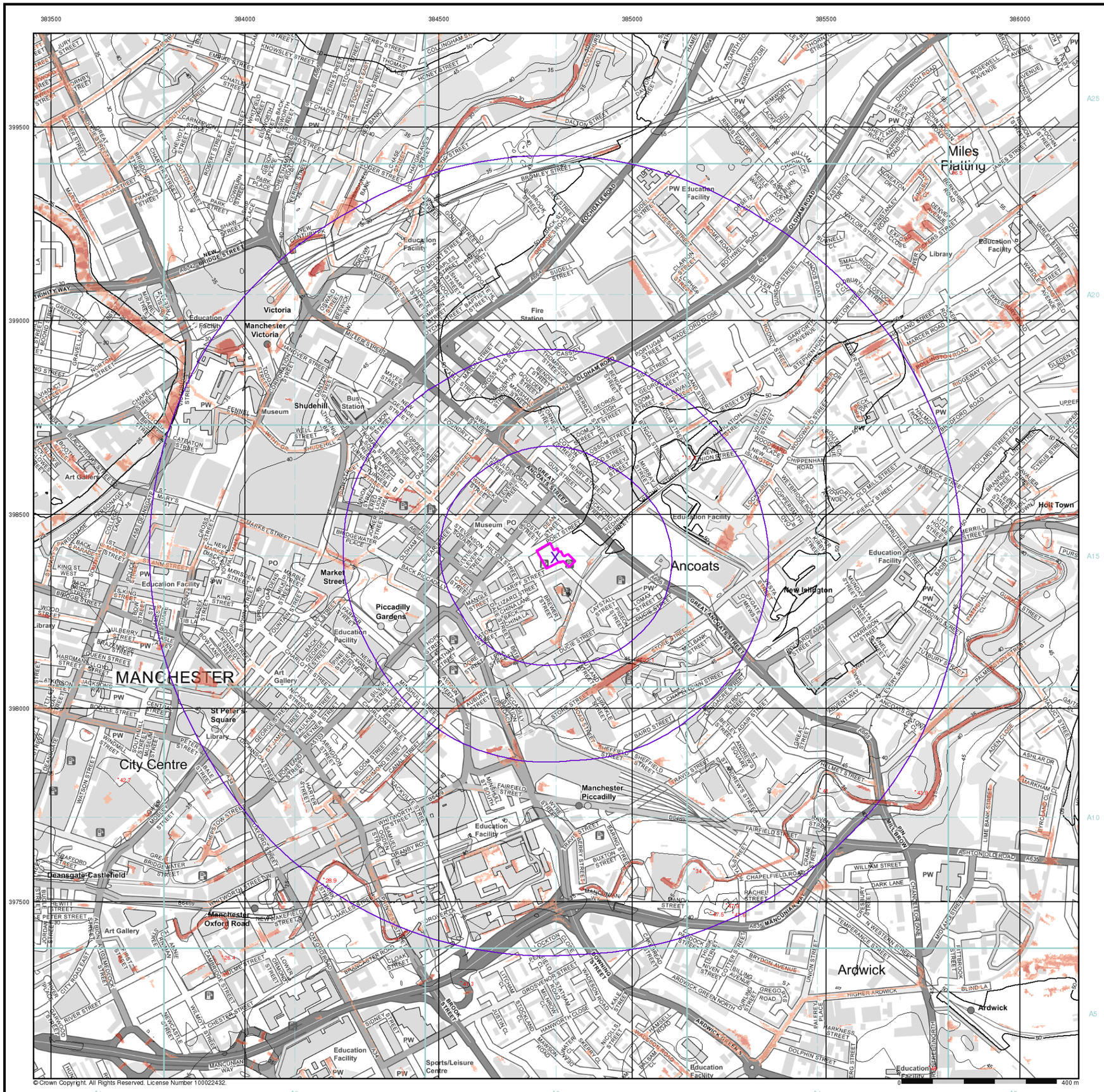
Order Number: 301876956_1_1
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EA/NRW Surface Water 100 Year Return Hazard Rating Map (1:10,000)

General

Specified Site | Specified Buffer(s) | X Bearing Reference Point

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- Low (0.5 – 0.75)
- Moderate (0.75 – 1.25)
- Significant (1.25 – 2.0)
- Extreme (>2.0)

Contours (height in metres)

Standard Contour | Master Contour | Spot Height *167.8

MLW Mean Low Water

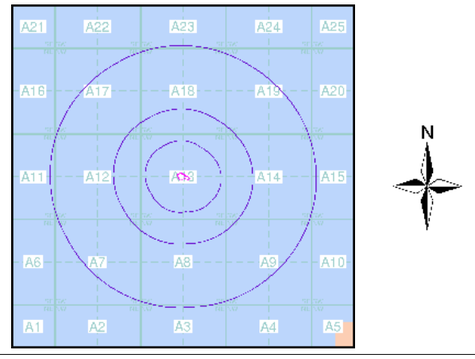
MHW Mean High Water

Suitability

See the suitability map below

- National to county
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- Street to parcels of land
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EA/NRW Suitability Map - Slice A



Order Details

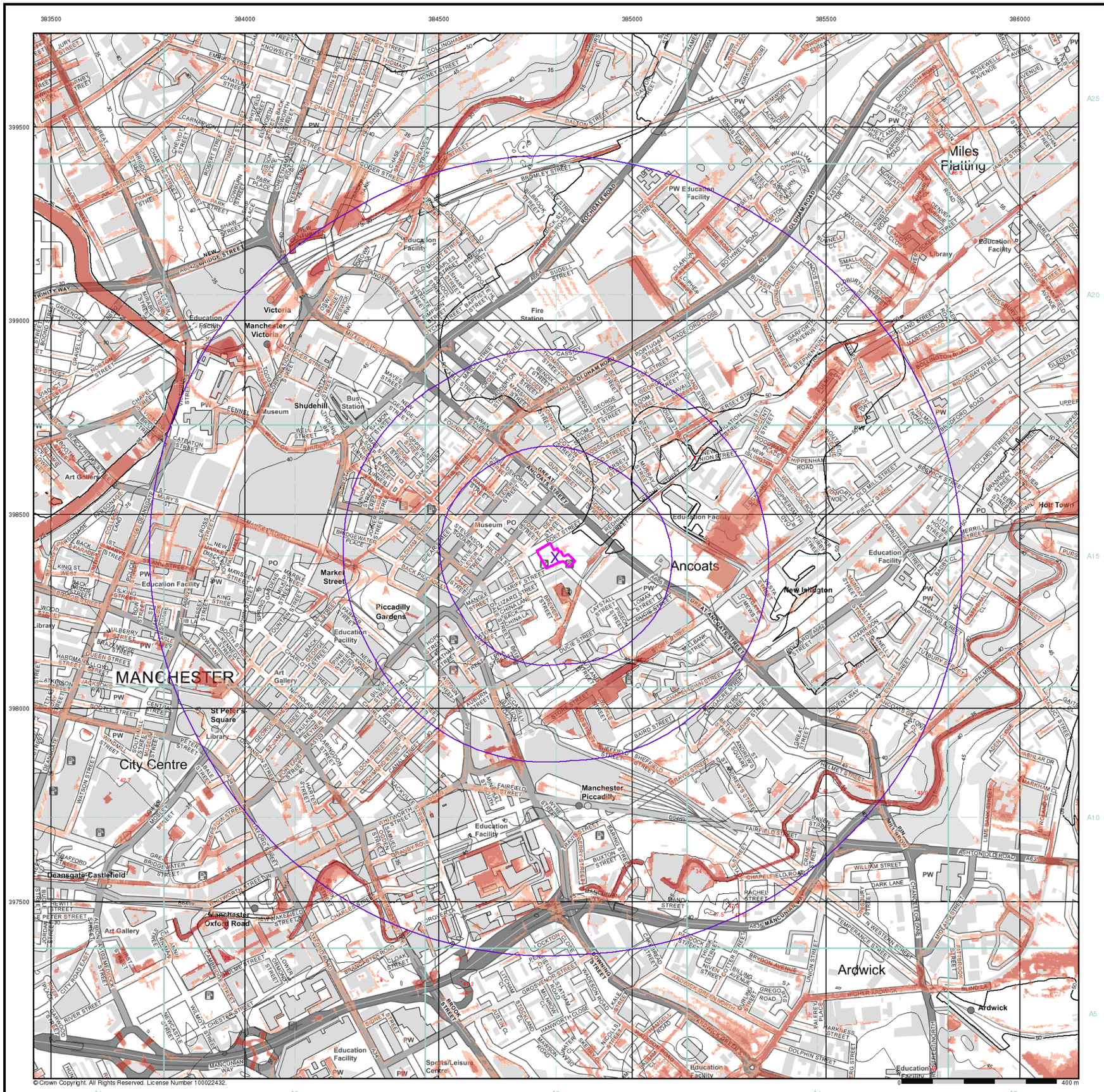
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FAIRHURST

EA/NRW Surface Water 1000 Year Return Hazard Rating Map (1:10,000)

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- Low (0.5 – 0.75)
- Moderate (0.75 – 1.25)
- Significant (1.25 – 2.0)
- Extreme (>2.0)

Contours (height in metres)

Standard Contour | Master Contour | Spot Height *167.8

MLW Mean Low Water

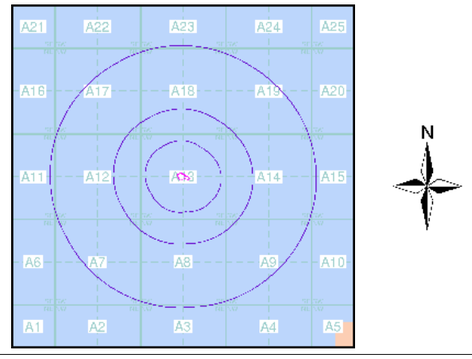
MHW Mean High Water

Suitability

See the suitability map below

- National to county
- County to town
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- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



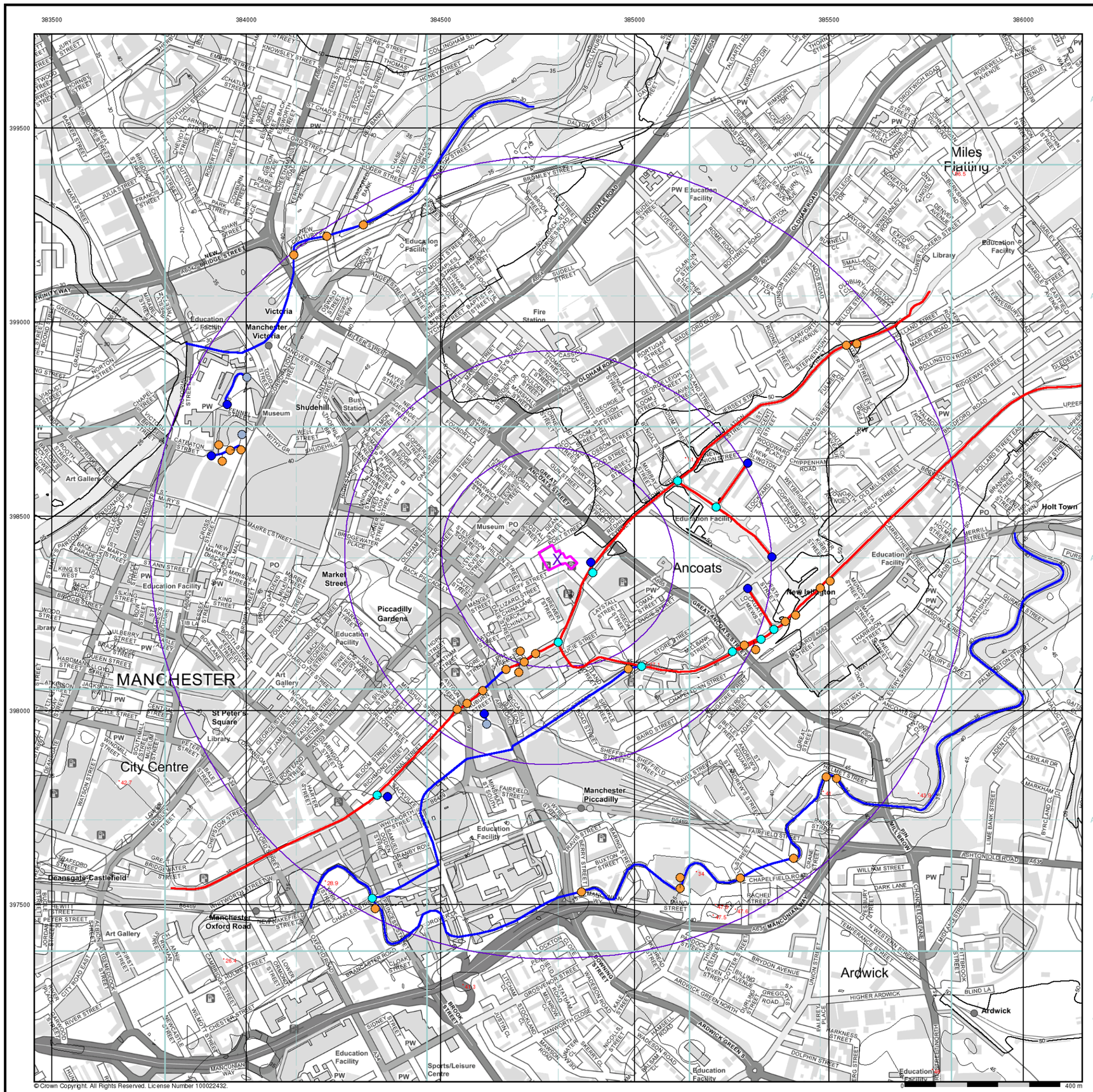
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FAIRHURST

OS Water Network Lines Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea
- Junction
- Outlet
- Pseudo
- Source
- Other

Contours (height in meters)

Standard Contour 105 100 95

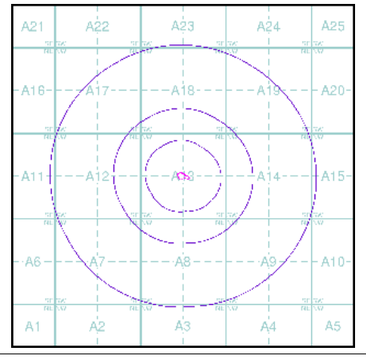
Master Contour

Spot Height *167.3

MLW Mean Low Water

MHW Mean High Water

OS Water Network Map - Slice A



Order Details

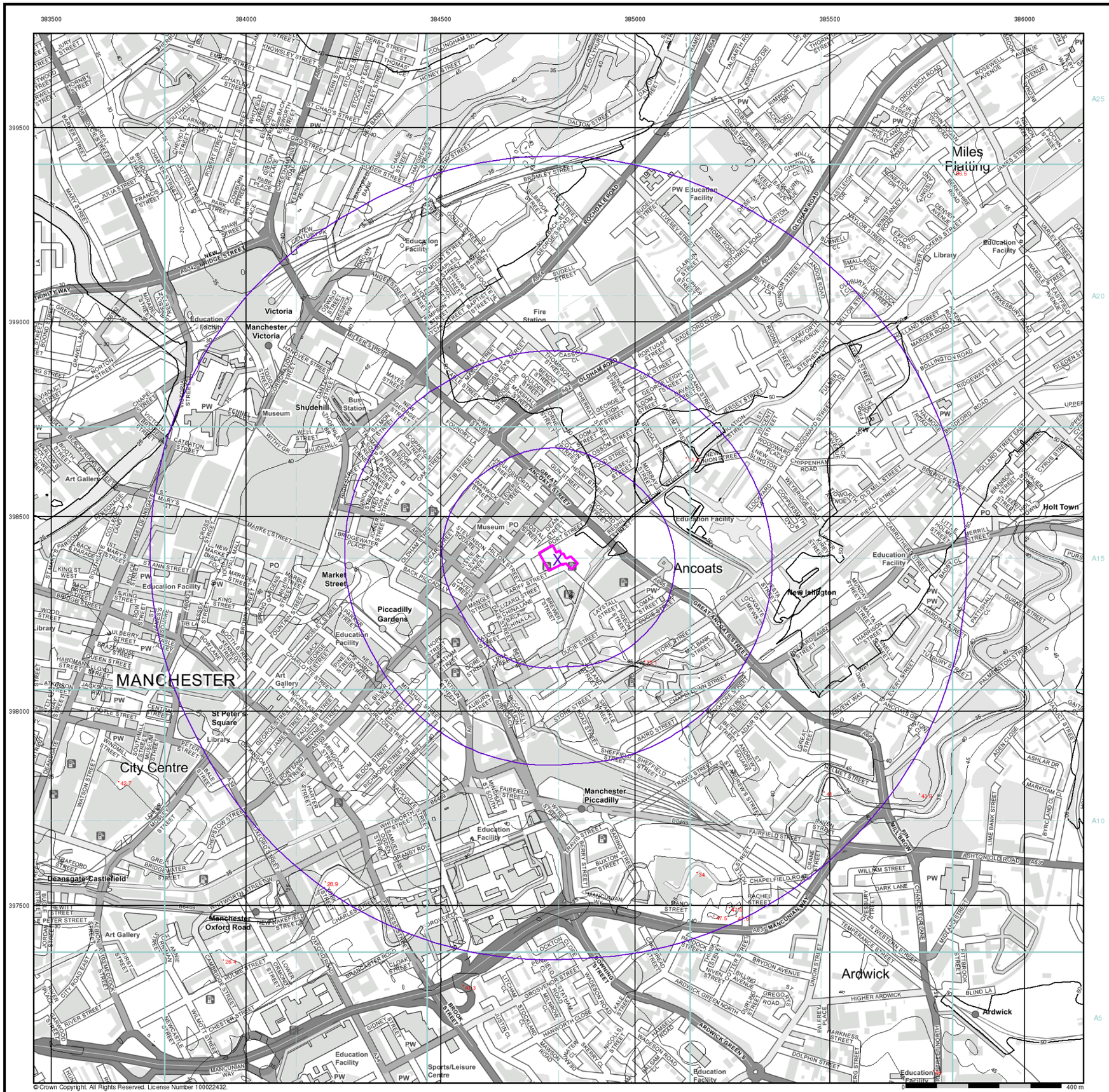
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Site at 384800, 398390

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FAIRHURST

EA/NRW Historic Flood Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID

Historic Flood Events Data

- Channel Capacity Exceeded (no raised defences)
- Channel Capacity Exceeded /Surface Water
- Groundwater/High Water Table
- Local Drainage/Surface Water
- Mechanical Failure
- Obstruction/Blockage - Bridge
- Obstruction/Blockage - Channel
- Historical Flood Liabilities
- Obstruction/Blockage - Culvert
- Obstruction/Blockage - Debris Screen
- Operational Failure/ Breach of Defence
- Other
- Overtopping of Defences
- Surface Water
- Unknown

Contours (height in metres)

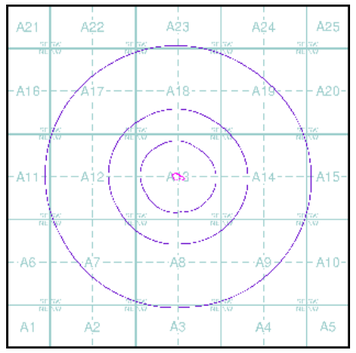
Standard Contour 105 100 95

Master Contour

Spot Height *167.8

- MLW Mean Low Water
- MHW Mean High Water

EA/NRW Historic Flood Map - Slice A



Order Details

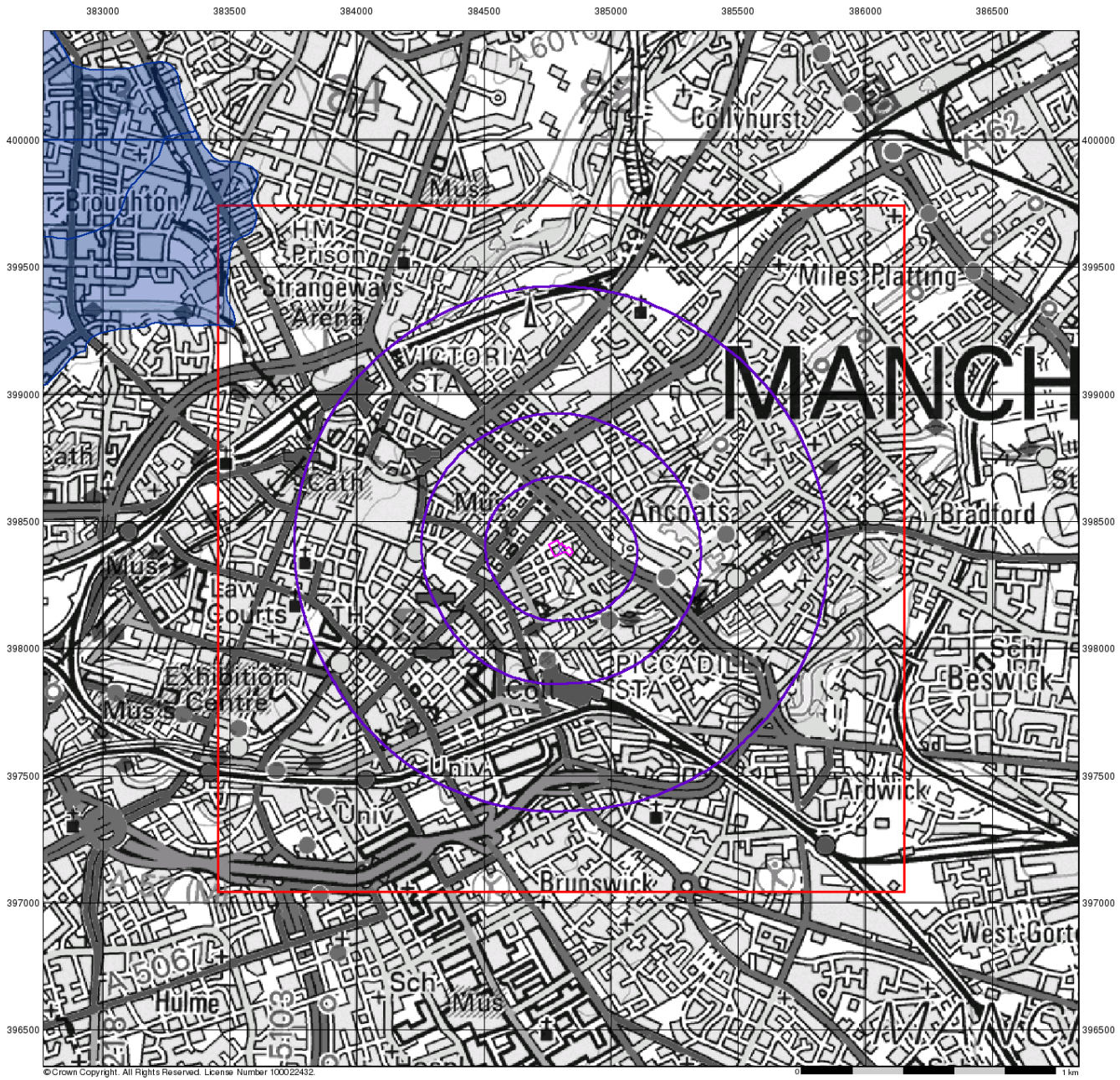
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FAIRHURST

BGS Flood Data (1:50,000)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

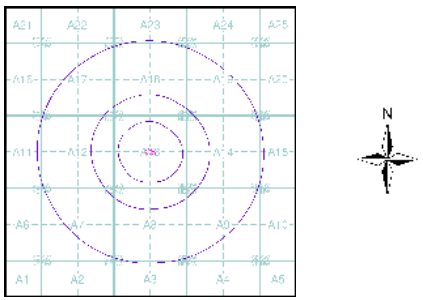
BGS Geological Indicators of Flooding

Coastal

Inland

Bodies of Water

BGS Flood Data Map - Slice A



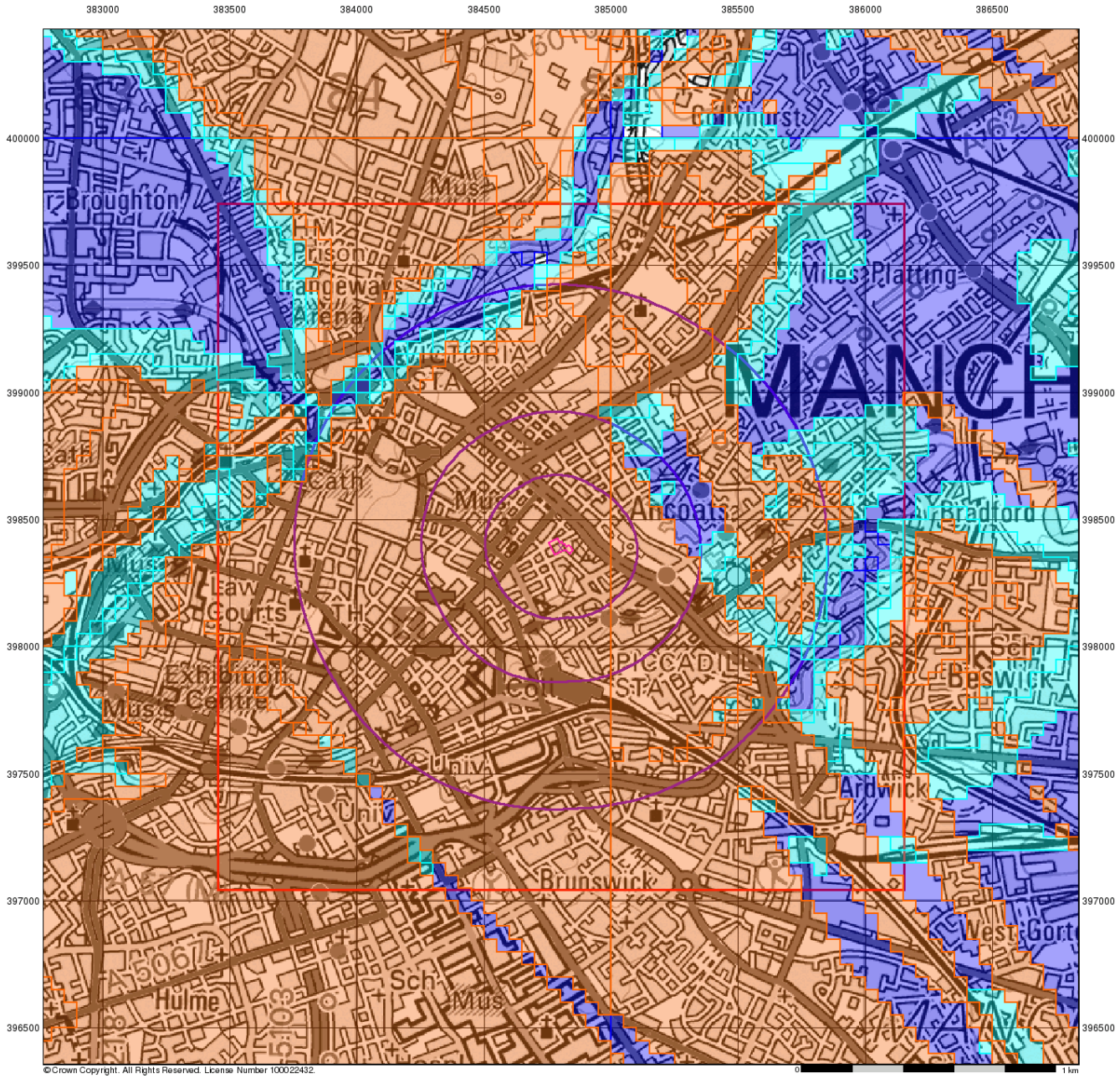
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FAIRHURST

BGS Flood Data (1:50,000)

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

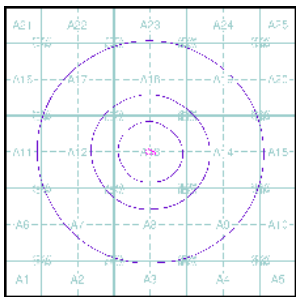
BGS Groundwater Flooding Susceptibility

Potential for Groundwater Flooding to Occur at Surface

Potential for Groundwater Flooding of Property Situated Below Ground Level

Limited Potential for Groundwater Flooding to Occur

BGS Flood Data Map - Slice A



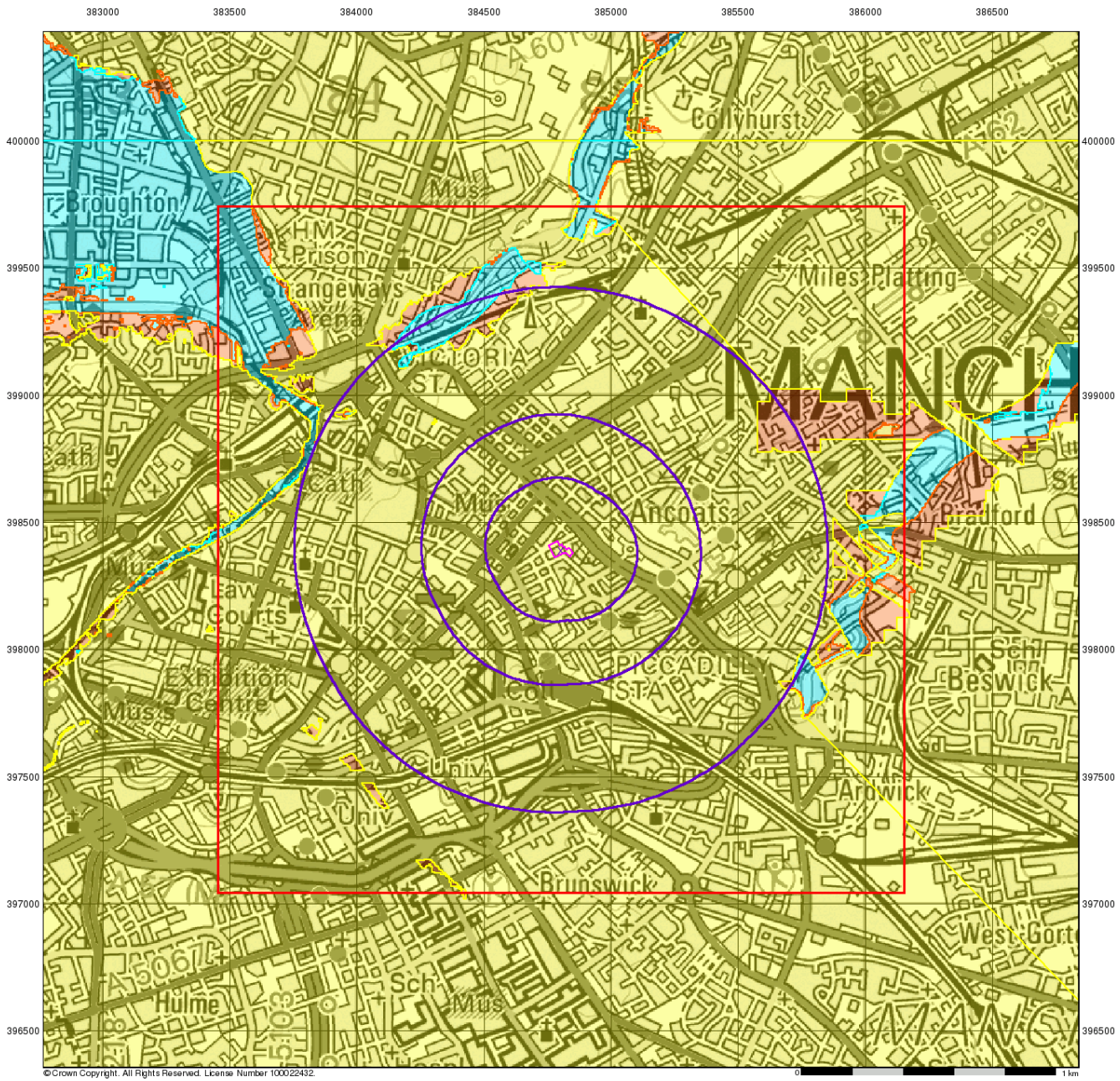
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GeoSmart Information Groundwater Flood Map (1:50,000)

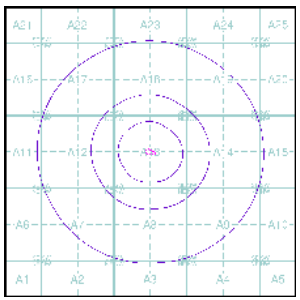
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

GeoSmart Information Groundwater Flooding Risk

- High Risk
- Moderate Risk
- Low Risk
- Negligible Risk

GeoSmart Information Groundwater Flood Map - Slice A



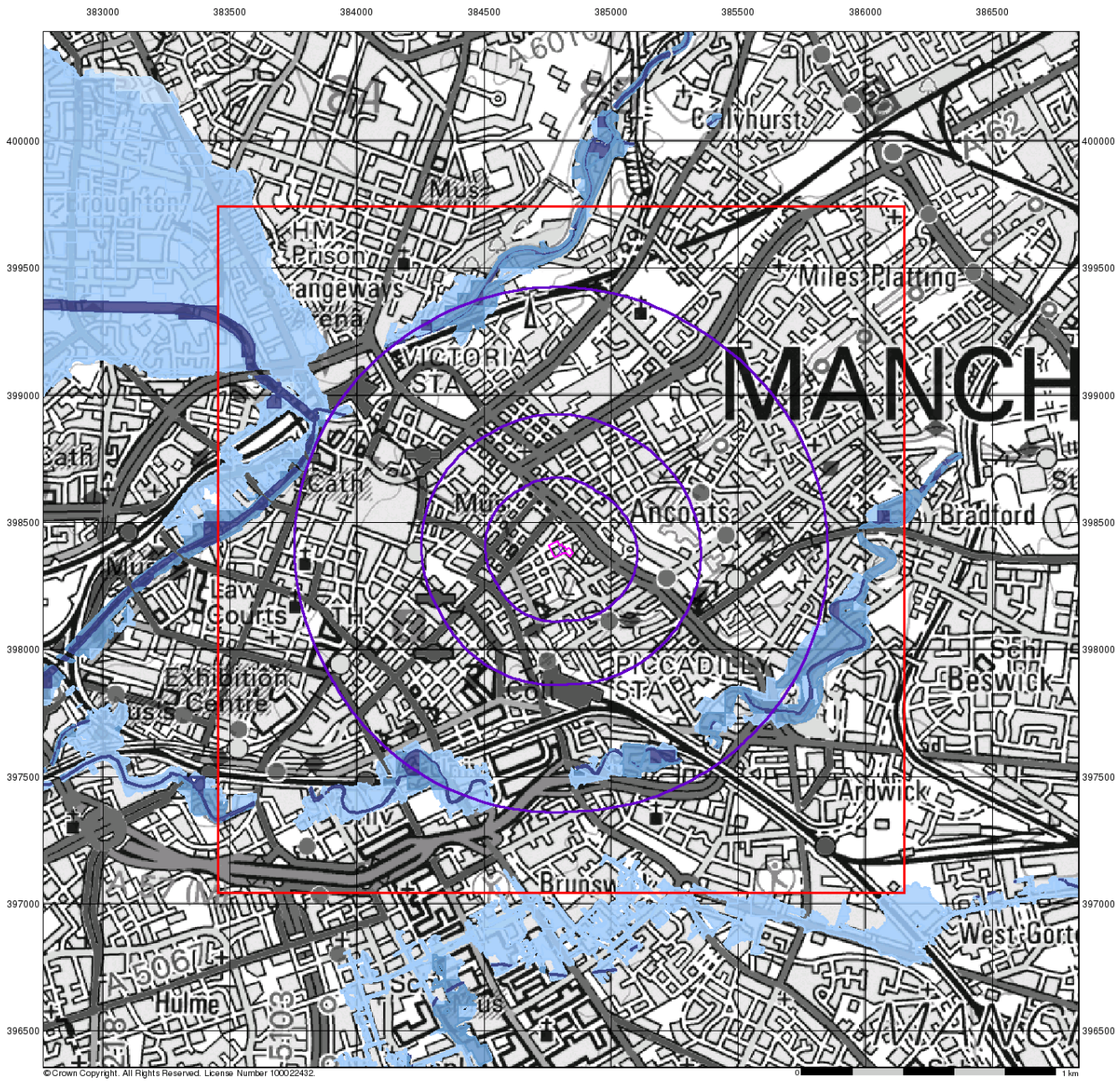
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EA/NRW RoFRS Data (1:50,000)

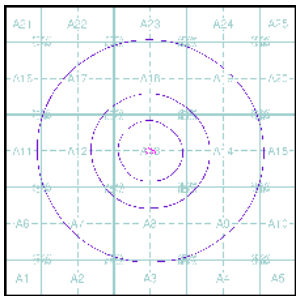
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Risk of Flooding from Rivers and Sea (RoFRS)

- High Risk
- Medium Risk
- Low Risk
- Very Low Risk

EA/NRW RoFRS Data Map - Slice A



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FAIRHURST

Envirocheck® Report:

Flood Screening Report Datasheet

Order Details:

Order Number:
301876956_1_1

Customer Reference:
143404 -05 Tariff Street Manchester

National Grid Reference:
384800, 398390

Slice:
A

Site Area (Ha):
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Search Buffer (m):
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Site Details:

Site at 384800, 398390

Client Details:

Mr J Blacker
Fairhurst Group LLP
51a St Pauls Street
Leeds
LS1 2TE

FAIRHURST

Contents

Report Section and Details	Page Number
Summary	-
The Summary section provides an overview of the data contained within the report, detailing the number of data set features or the existence of a data set in relation to the buffer(s) selected. For ease of reference, the report is broken down into seven sections of data.	
EA / NRW / CEH Flood Data	-
This section details data from the Environment Agency/Natural Resources Wales and the Centre for Ecology and Hydrology. The EA/NRW data is reported to a distance of 250m from the edge of the site polygon and details both Zone 2 (extreme) and Zone 3 flood extents, as well as flood defences, flood water storage areas and areas benefiting from flood defences. The CEH data is reported to a distance of 250m from the edge of the site polygon and covers flood data for Scotland, divided into levels based on the frequency and magnitude of a predicted 100 year term. All data sets within this section are plotted and feature on the EA / NRW / CEH Flood Data (1:10,000) map. For added value, OS Contour data is also plotted, detailing contours, spot heights and land water boundaries.	
JBA Flood Data	1
This section contains the Comprehensive Flood Map ("CFM") data from JBA Risk Management Limited. The data is based upon the likelihood of a flood occurrence for up to 4 flood return periods depending on the type of flooding; these being 75 years, 100 years, 200 years and 1000 years. Each layer being modelled at a 5m cell resolution. Each return period is depicted on a separate 1:10,000 scale map and reports features to a distance of 250m in the datasheet from the edge of the site polygon. For each return period the following three sources of flooding are identified, surface water or pluvial flooding, undefended river flooding or fluvial flooding and undefended coastal flooding. In each case the extent of the flooding source is displayed with the associated depth range. In addition, a 1:10,000 scale map depicting flooding from a Canal Failure and a coverage check for this dataset is included. Where coverage exists, information is reported in the datasheet where the site could be affected by flooding that results from a dam breach. For added value, OS Contour data is also plotted, detailing contours, spot heights and land water boundaries.	
BGS Flood Data	19
This section contains two BGS data sets; namely Geological Indicators of Flooding and Groundwater Flooding Susceptibility, both of which report features out to a possible 1000m, with coverage in England, Wales and Scotland. Each data set is plotted on a seperate BGS Flood Data (1:50,000) map.	
GeoSmart Information Groundwater Flood Data	24
This section contains data provided by GeoSmart Information who, building on their expertise, have developed algorithms and calibrated predictions of the risk of groundwater flooding occurring in Great Britain. The resulting map, classifies groundwater flood risk for each 5m x 5m into four categories, negligible, low, moderate and high. These classifications are based on the level of risk, combining severity and uncertainty that a site will suffer groundwater flooding within a return period of about 200 years.	
OS Water Network Data	26
This section details the MasterMap Water Network data sourced from the Ordnance Survey. The OS MasterMap Water Network data details a network representing the watercourse within Great Britain. The OS Water Network Lines data set details the approximate central alignment of a watercourse, including rivers, lakes and canals. The OS Water Network Nodes data set details features that represent a river's source, end, a junction where three of more links meet, and places where the real world related attribution changes; for example a watercourse becoming tidal. The data sets within this section are plotted and feature on the OS Water Network Map (1:10,000) . For added value, OS Contour data is also plotted, detailing contours, spot heights and land water boundaries.	

FAIRHURST

Contents

EA/NRW Historic Flood Events Data	**-**

This section details Historic Flood data sourced from the Environment Agency/Natural Resources Wales and from data held by Landmark. The EA/NRW Historic Flood Events data is reported to a distance of 1000m from the edge of the site polygon and details recorded historic flood events from 1703 to October 2008. The data also contains information on the source and cause of the flood, and how the flood outline was established.

Also included in this section is Landmark's Historical Flood Liabilities data set, which identifies areas that are liable to flood based on systematic analysis of historical mapping dating back to the mid 19th century.

Both data sets within this section are plotted and feature on the EA/NRW Historical Flood (1:10,000) map. For added value, OS Contour data is also plotted, detailing contours, spot heights and land water boundaries.

EA/NRW RoFRS Data	**35**

This section details the Risk of Flooding from Rivers and Sea (RoFRS) data sourced from the Environment Agency/Natural Resources Wales and is reported to a distance of 1000m from the edge of the site polygon. The RoFRS data provides an indication of areas of land at risk of flooding from rivers and the sea. These areas of land, called impacted cells, are represented as 50 metre squares, or smaller areas where a square is intersected by a river or coastline.

The average height information of the impacted cell, modelled river and sea levels and information about over 200,000 flood defences are used as inputs to a computer flood model run by the Environment Agency/Natural Resources Wales. The model compares the probability that the flood defences will overtop or breach and the distance of the impact cell from the river or the sea for 40 scenarios for probabilities of between 100% to 0.1%.

The results are then consolidated to calculate a single probability category for each impacted cell. These results have been validated by local staff using their local knowledge and expertise. RoFRS is a national flood risk assessment and does not contain information about property thresholds. Due to variations in the input data and the performance of the computer flood model at particular locations, the resulting category of an impacted cell should only be used at a specific study scale. In certain areas it would only be appropriate to compare risks between towns and counties whereas in other areas they would be more suitable for understanding risk at a street level. The level of suitability for a particular cell is indicated by the cell's suitability scale.

The data within this section is plotted and feature on the EA/NRW RoFRS Data (1:50,000) map. This dataset is not available in Scotland.

Flood Insurance Risk Data	**44**

This section contains flood risk data from Crawford and Company. This dataset is not plotted on any of the associated Flood maps.

Crawford & Co have generated an Insurance Claims rating for Flood Risk. The risk is determined by comparing the number of flood insurance claims made to the number of properties in the postcode sector. The data will also include flood claims from domestic accidents or blocked drains, as well as flooding from river or tidal events. Flood insurance claim ratings are reported for the site only.

Data Currency	**45**
Data Suppliers	**48**
Useful Contacts	**49**

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FAIRHURST

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
EA / NRW / CEH Flood Data					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
JBA Flood Data					
JBA 75 Year Return (undefended) - Pluvial	pg 1	1	75	n/a	n/a
JBA 75 Year Return (undefended) - Fluvial				n/a	n/a
JBA 75 Year Return (undefended) - Coastal				n/a	n/a
JBA 100 Year Return (undefended) - Fluvial				n/a	n/a
JBA 100 Year Return (undefended) - Coastal				n/a	n/a
JBA 200 Year Return (undefended) - Pluvial	pg 4	1	128	n/a	n/a
JBA 200 Year Return (undefended) - Fluvial				n/a	n/a
JBA 200 Year Return (undefended) - Coastal				n/a	n/a
JBA 1000 Year Return (undefended) - Pluvial	pg 10	1	176	n/a	n/a
JBA 1000 Year Return (undefended) - Fluvial				n/a	n/a
JBA 1000 Year Return (undefended) - Coastal				n/a	n/a
JBA Canal Failure					
JBA Dam Break	pg 18				3
BGS Flood Data					
BGS Geological Indicators of Flooding					
BGS Groundwater Flooding Susceptibility	pg 19	1	1	6	88
GeoSmart Information Groundwater Flood					
GeoSmart Information Groundwater Flood Risk	pg 24	1			21
OS Water Network Data					
OS Water Network Lines	pg 26		8	18	31
OS Water Network Nodes	pg 32		6	15	32
EA/NRW Historic Flood Events Data					
Historic Flood Events					
Historical Flood Liabilities					
EA/NRW RoFRS Data					
RoFRS - Risk of Flooding from Rivers and Sea	pg 35				120
Flood Insurance Risk Data					
Postcode Sector Flood Insurance Claim Ratings	pg 44	1	n/a	n/a	n/a

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Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	0	2	384815 398395
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	41	2	384870 398340
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	45	2	384895 398365
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	45	2	384870 398335
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	45	2	384865 398330
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	46	2	384755 398460
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	48	2	384900 398375
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	48	2	384805 398320
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	49	2	384800 398315
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	50	2	384860 398320
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	50	2	384765 398470
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	51	2	384801 398315
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	52	2	384760 398470
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	53	2	384905 398380
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	56	2	384820 398310
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (N)	57	2	384770 398480
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	58	2	384910 398385
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	58	2	384910 398380
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	60	2	384780 398485
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	61	2	384760 398480
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	62	2	384855 398305
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	64	2	384765 398485

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	65	2	384801 398300
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (N)	66	2	384775 398490
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	66	2	384850 398300
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	67	2	384770 398490
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	69	2	384920 398390
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	69	2	384860 398300
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	70	2	384825 398295
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	71	2	384805 398295
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	77	2	384810 398290
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	90	2	384840 398275
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	115	2	384940 398305
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	118	2	384940 398300
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	118	2	384935 398295
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	118	2	384930 398290
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	120	2	384830 398245
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	129	2	384750 398235
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	138	2	384905 398515
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	138	2	384735 398230
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	143	2	384735 398225
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	144	2	384720 398230
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	146	2	384895 398530
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (NE)	147	2	384915 398520

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	150	2	384715 398225
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	151	2	384725 398220
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	151	2	384915 398525
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	154	2	384810 398210
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	156	2	385000 398330
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	161	2	384925 398530
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	167	2	385010 398325
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	168	2	385015 398340
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	175	2	384580 398385
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (W)	180	2	384575 398385
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	181	2	384575 398380
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	182	2	384801 398180
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (W)	185	2	384570 398390
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	185	2	384570 398385
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (W)	186	2	384570 398380
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	187	2	384570 398375
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	187	2	384625 398255
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	188	2	384570 398370
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	189	2	384565 398390
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (W)	190	2	384565 398385
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	190	2	384625 398250
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	193	2	384810 398170

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	196	2	384625 398240
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	198	2	384635 398225
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	201	2	384775 398160
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	202	2	384630 398225
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	203	2	384810 398160
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	204	2	384615 398240
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	216	2	384585 398540
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	243	2	384705 398130
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	247	2	384705 398125
	JBA 75 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	250	2	384700 398660
	JBA 75 Year Return (undefended) - Fluvial None				
	JBA 75 Year Return (undefended) - Coastal None				
	JBA 100 Year Return (undefended) - Fluvial None				
	JBA 100 Year Return (undefended) - Coastal None				
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	0	2	384810 398400
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	41	2	384870 398340
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	44	2	384760 398460
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	45	2	384765 398465
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	45	2	384895 398365
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	45	2	384870 398335
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	45	2	384865 398330
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	46	2	384810 398325
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	46	2	384801 398320

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	48	2	384760 398465
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	48	2	384900 398375
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	48	2	384815 398320
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	48	2	384855 398320
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (S)	48	2	384805 398320
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	49	2	384900 398370
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	49	2	384800 398315
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	50	2	384860 398320
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	53	2	384750 398465
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	53	2	384905 398380
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	56	2	384820 398310
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	59	2	384755 398475
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	61	2	384760 398480
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	61	2	384850 398305
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	64	2	384765 398485
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	64	2	384915 398390
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	65	2	384801 398300
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	65	2	384825 398300
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	69	2	384920 398390
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	69	2	384860 398300
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	70	2	384920 398395
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	71	2	384915 398410

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	71	2	384805 398295
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	72	2	384770 398495
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	72	2	384920 398400
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	75	2	384830 398290
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	80	2	384845 398285
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	83	2	384930 398405
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	87	2	384810 398280
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	90	2	384825 398275
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	90	2	384835 398275
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (S)	90	2	384840 398275
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	95	2	384840 398270
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	95	2	384935 398425
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	96	2	384815 398270
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	102	2	384940 398430
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	105	2	384940 398435
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	112	2	384945 398440
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	115	2	384940 398305
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	115	2	384935 398300
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	115	2	384930 398295
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	116	2	384945 398310
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	118	2	384930 398290
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	119	2	384950 398445

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (S)	125	2	384835 398240
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	126	2	384955 398450
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	129	2	384750 398235
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	135	2	384900 398515
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	138	2	384735 398230
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	143	2	384735 398225
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	144	2	384720 398230
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (NE)	147	2	384915 398520
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	149	2	384925 398515
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	150	2	384715 398225
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	151	2	384915 398525
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	151	2	384725 398220
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	155	2	385000 398335
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	156	2	385000 398330
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	158	2	385005 398340
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (S)	160	2	384815 398205
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	161	2	384925 398530
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	167	2	385010 398325
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	168	2	385015 398340
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	170	2	384780 398595
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	174	2	384665 398555
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	175	2	384770 398600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	175	2	384580 398385
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	176	2	384670 398560
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	176	2	384800 398185
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	176	2	384580 398380
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13NW (NW)	178	2	384665 398560
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	180	2	384575 398390
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (W)	180	2	384575 398385
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	181	2	384765 398605
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	181	2	384660 398560
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	181	2	384575 398380
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	182	2	384675 398570
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	182	2	384575 398375
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	183	2	384680 398575
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	183	2	384630 398255
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	185	2	384660 398565
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	185	2	384815 398180
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	186	2	384760 398610
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	186	2	384785 398175
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	187	2	384665 398570
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	187	2	384570 398375
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	187	2	384625 398255
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	189	2	384565 398390

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	191	2	384665 398575
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	191	2	384620 398255
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	192	2	384755 398615
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	193	2	384670 398580
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	195	2	384560 398390
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	195	2	384640 398225
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	197	2	384560 398375
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (SW)	197	2	384620 398245
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	198	2	384750 398620
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	200	2	384555 398390
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (SW)	202	2	384635 398220
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	203	2	384805 398160
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	203	2	384620 398235
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	205	2	384610 398245
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	206	2	384790 398155
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	209	2	384630 398215
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (SW)	209	2	384635 398210
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	211	2	384780 398150
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	212	2	384560 398320
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	212	2	384635 398205
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	214	2	384560 398315
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	216	2	384735 398635

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	216	2	384585 398540
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	222	2	384550 398320
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	230	2	384720 398645
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	232	2	384725 398135
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	236	2	384715 398650
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (S)	238	2	384720 398130
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	240	2	384715 398130
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	243	2	384705 398130
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (N)	249	2	384905 398645
	JBA 200 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	250	2	384825 398115
	JBA 200 Year Return (undefended) - Fluvial None				
	JBA 200 Year Return (undefended) - Coastal None				
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	0	2	384805 398395
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	15	2	384860 398395
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	30	2	384875 398360
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SE (E)	32	2	384880 398365
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	34	2	384885 398375
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	34	2	384885 398370
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	37	2	384880 398355
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	39	2	384810 398330
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	41	2	384765 398460
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	41	2	384870 398340
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	41	2	384865 398335

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	42	2	384801 398320
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	44	2	384895 398370
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	44	2	384885 398350
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	45	2	384895 398365
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	45	2	384890 398355
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	48	2	384760 398465
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	48	2	384900 398380
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	48	2	384900 398375
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	48	2	384815 398320
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (S)	48	2	384805 398320
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	50	2	384860 398320
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	53	2	384750 398465
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (E)	53	2	384905 398390
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	56	2	384820 398310
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	56	2	384850 398310
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	58	2	384800 398305
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	59	2	384755 398475
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	61	2	384760 398480
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	62	2	384910 398400
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	64	2	384785 398490
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	65	2	384825 398300
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	69	2	384915 398405

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	69	2	384801 398295
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	72	2	384770 398495
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	75	2	384780 398500
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	75	2	384830 398290
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	75	2	384845 398290
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	76	2	384805 398290
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	80	2	384925 398410
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	87	2	384810 398280
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	90	2	384825 398275
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	90	2	384835 398275
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (S)	90	2	384840 398275
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	95	2	384935 398425
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	96	2	384815 398270
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	96	2	384850 398270
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	102	2	384940 398430
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	105	2	384835 398260
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (E)	105	2	384940 398435
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	109	2	384945 398435
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	110	2	384845 398255
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	115	2	384675 398490
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (SE)	115	2	384930 398295
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	115	2	384925 398290

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	117	2	384950 398315
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	119	2	384950 398445
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	120	2	384840 398245
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (S)	120	2	384830 398245
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	123	2	384755 398240
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	124	2	384695 398515
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	125	2	384820 398240
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (E)	126	2	384955 398450
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	128	2	384960 398310
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (N)	132	2	384815 398555
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	133	2	384885 398520
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	135	2	384965 398305
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (N)	135	2	384805 398560
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	135	2	384900 398515
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	137	2	384740 398230
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	143	2	384735 398225
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	144	2	384720 398230
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NE (NE)	147	2	384915 398520
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	149	2	384890 398535
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	149	2	384925 398515
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	149	2	384800 398575
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	150	2	384715 398225

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	151	2	384915 398525
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	151	2	384725 398220
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (E)	151	2	384995 398330
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SE (S)	155	2	384815 398210
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	158	2	384920 398530
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (NE)	160	2	384930 398525
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	165	2	384780 398590
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	172	2	384800 398190
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	174	2	384665 398555
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (W)	175	2	384580 398385
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	176	2	384580 398380
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	176	2	384795 398185
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	176	2	384670 398560
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13NW (NW)	178	2	384665 398560
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	180	2	384575 398390
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	181	2	384660 398560
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	181	2	384790 398180
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	182	2	384675 398570
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	182	2	384575 398375
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	183	2	384630 398255
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	185	2	384660 398565
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	186	2	384630 398250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	186	2	384785 398175
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13NW (NW)	187	2	384665 398570
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	188	2	384680 398580
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	188	2	384570 398370
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	189	2	384565 398390
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	191	2	384640 398230
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	191	2	384645 398225
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	191	2	384665 398575
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	192	2	384630 398240
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	192	2	384610 398270
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	193	2	384670 398580
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (SW)	194	2	384620 398250
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (SW)	195	2	384640 398225
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	195	2	384645 398220
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	197	2	384560 398375
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	198	2	384645 398215
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	199	2	384555 398390
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	202	2	384555 398375
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	203	2	384805 398160
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	206	2	384790 398155
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	207	2	384615 398235
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	207	2	384610 398555

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	208	2	384610 398240
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	209	2	384640 398205
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	211	2	384735 398630
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	211	2	384615 398565
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	211	2	384595 398545
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	211	2	384780 398150
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	211	2	384570 398510
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	212	2	384560 398320
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	212	2	384625 398215
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	213	2	384585 398535
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	213	2	384750 398150
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	214	2	384605 398560
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	214	2	384560 398495
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (W)	214	2	384555 398485
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	216	2	384625 398210
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	216	2	384635 398200
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (W)	217	2	384555 398320
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (W)	217	2	384560 398310
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	219	2	384740 398145
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	220	2	384735 398145
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	220	2	384740 398640
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	221	2	384555 398310

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (N)	221	2	384810 398645
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (W)	222	2	384550 398320
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	222	2	384615 398580
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	223	2	384745 398645
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (W)	227	2	384540 398480
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	228	2	384750 398650
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	230	2	384665 398620
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	231	2	384730 398135
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (S)	232	2	384725 398135
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (W)	233	2	384535 398485
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (S)	234	2	384720 398135
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (N)	234	2	384801 398660
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	236	2	385030 398225
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	236	2	384600 398585
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (W)	236	2	384535 398495
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	237	2	385040 398235
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 1.0m	A13SW (S)	238	2	384720 398130
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (W)	239	2	384530 398490
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	240	2	384970 398165
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	242	2	384685 398645
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	243	2	384720 398125
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	244	2	384645 398625

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (S)	246	2	384695 398130
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	246	2	385035 398215
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (W)	246	2	384525 398495
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SW (SW)	247	2	384680 398135
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.3m and Less than or equal to 1.0m	A13SW (SW)	248	2	384690 398130
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NE (N)	249	2	384905 398645
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (SE)	249	2	385030 398205
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	250	2	384565 398570
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	250	2	384585 398590
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	250	2	384575 398580
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13NW (NW)	250	2	384570 398575
	JBA 1000 Year Return (undefended) - Pluvial Flood Depth: Greater than 0.1m and Less than or equal to 0.3m	A13SE (S)	250	2	384825 398115
	JBA 1000 Year Return (undefended) - Fluvial None				
	JBA 1000 Year Return (undefended) - Coastal None				
	JBA Canal Failure Coverage Coverage: This area has been mapped for risk of flooding from canal or aqueduct failure or breach. Please note that all canals in this area may not have been mapped for failure or breach.	A13SW (S)	0	2	384801 398390
	JBA Canal Failure None				
	JBA Dam Break Coverage Coverage: This area has been mapped for flooding from dam or reservoir embankment failure or breach.	A13SW (S)	0	2	384801 398390
	JBA Dam Break Assessment: This area is regarded as being at some risk of flooding in the event of an instantaneous catastrophic breach of dam or reservoir embankment. Flooded Area Size: 2352050m2	A17NE (NW)	811	2	384465 399170
	JBA Dam Break Assessment: This area is regarded as being at some risk of flooding in the event of an instantaneous catastrophic breach of dam or reservoir embankment. Flooded Area Size: 2031875m2	A17NE (NW)	811	2	384465 399170
	JBA Dam Break Assessment: This area is regarded as being at some risk of flooding in the event of an instantaneous catastrophic breach of dam or reservoir embankment. Flooded Area Size: 6014625m2	A8SE (S)	876	2	384890 397490

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	0	3	384801 398390
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	148	3	385000 398390
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	344	3	385150 398550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	367	3	385100 398650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (NE)	369	3	385050 398700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	413	3	385200 398600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (NE)	414	3	385050 398750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	498	3	385350 398390
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	501	3	384950 398900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	520	3	385000 398900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	549	3	384950 398950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	554	3	385400 398300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	566	3	385000 398950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (NE)	567	3	385350 398650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SE (E)	673	3	385500 398200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18NE (N)	684	3	384900 399100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A19SW (NE)	692	3	385400 398800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SE (E)	703	3	385550 398300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18NE (N)	707	3	385000 399100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NE (E)	749	3	385550 398650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NE (E)	758	3	385600 398500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18NW (N)	762	3	384550 399150

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NE (E)	768	3	385600 398550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A19SE (NE)	773	3	385500 398800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18NW (N)	779	3	384700 399200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A17SE (NW)	779	3	384250 399000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A17SE (NW)	780	3	384150 398900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8SE (S)	782	3	385000 397600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9NW (SE)	797	3	385400 397800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NE (NW)	799	3	384450 399150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NE (E)	801	3	385650 398450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NW (N)	810	3	384550 399200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NE (E)	814	3	385600 398700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A17NE (NW)	822	3	384400 399150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9SW (SE)	826	3	385150 397600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NW (N)	826	3	384500 399200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19SW (NE)	827	3	385450 398950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A9NW (SE)	833	3	385450 397800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A9NW (SE)	834	3	385400 397750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19SE (NE)	835	3	385600 398750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NW (N)	836	3	384650 399250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9NE (SE)	837	3	385500 397850
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A9NE (SE)	839	3	385600 398000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9SW (SE)	840	3	385350 397700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NE (NW)	846	3	384350 399150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SE (NW)	847	3	384150 399000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SE (NW)	850	3	384200 399050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	851	3	384100 398950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NE (NW)	858	3	384250 399100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NW (N)	858	3	384550 399250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NE (E)	865	3	385700 398550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9NW (SE)	868	3	385450 397750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9SW (SE)	869	3	385250 397600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NE (NW)	872	3	384300 399150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18NW (N)	873	3	384500 399250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NE (E)	877	3	385700 398600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SE (NW)	883	3	384150 399050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	884	3	384100 399000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NW (N)	885	3	384650 399300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NE (NW)	888	3	384200 399100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	890	3	384050 398950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19SW (NE)	898	3	385450 399050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SE (E)	898	3	385750 398390
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	902	3	384000 398900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SE (E)	907	3	385750 398250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A9NE (SE)	907	3	385550 397800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A17SW (NW)	918	3	384100 399050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A17SW (W)	921	3	383900 398750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A17SW (NW)	921	3	384050 399000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NE (NW)	928	3	384200 399150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A9NE (SE)	929	3	385700 398000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A17SW (NW)	930	3	384000 398950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	941	3	383900 398800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SE (E)	941	3	385750 398100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A19NW (NE)	942	3	385400 399150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NW (W)	951	3	383850 398700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SE (E)	952	3	385800 398300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NE (E)	954	3	385750 398700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	954	3	384050 399050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NW (NW)	954	3	384100 399100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	960	3	384000 399000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SE (E)	965	3	385800 398200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (W)	967	3	383850 398750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18NW (N)	974	3	384800 399400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18NW (N)	975	3	384750 399400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A9NE (E)	975	3	385750 398000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NW (W)	985	3	383800 398650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A9NE (SE)	986	3	385650 397800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A17SW (NW)	986	3	383850 398800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	987	3	383900 398900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SE (E)	988	3	385800 398100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17NW (NW)	989	3	384050 399100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	992	3	384000 399050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NW (W)	998	3	383800 398700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A15NW (E)	999	3	385850 398400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SW (NW)	1000	3	383950 399000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	GeoSmart Information Groundwater Flood Data Risk: Negligible Risk Risk Details: There is a negligible risk of groundwater flooding in this area and any groundwater flooding incidence has a chance of less than 1 in 100 (<1%) probability of occurrence.	A13SW (S)	0	2	384801 398390
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17SE (NW)	657	2	384305 398885
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A19SE (NE)	825	2	385575 398775
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	846	2	384405 399180
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	890	2	384315 399180
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	894	2	384350 399205
	GeoSmart Information Groundwater Flood Data Risk: Moderate Risk Risk Details: There is a moderate risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	894	2	384340 399200
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	896	2	384200 399110
	GeoSmart Information Groundwater Flood Data Risk: Moderate Risk Risk Details: There is a moderate risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17SW (NW)	921	2	384000 398935
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	921	2	384240 399170
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17SW (NW)	929	2	383990 398935
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	930	2	384210 399160
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17SW (NW)	935	2	383970 398915
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17SW (NW)	938	2	383960 398905
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A9NE (SE)	953	2	385660 397875
	GeoSmart Information Groundwater Flood Data Risk: Moderate Risk Risk Details: There is a moderate risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A9NE (SE)	973	2	385735 397970

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	976	2	384160 399180
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17NE (NW)	980	2	384140 399170
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A15SW (E)	985	2	385825 398225
	GeoSmart Information Groundwater Flood Data Risk: Moderate Risk Risk Details: There is a moderate risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17SW (W)	994	2	383825 398760
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17SW (W)	995	2	383830 398775
	GeoSmart Information Groundwater Flood Data Risk: Low Risk Risk Details: There is a low risk of groundwater flooding in this area with a chance of greater than 1 in 100 (>1%) probability of occurrence.	A17SW (NW)	999	2	383840 398810

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 9.5 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SE (E)	35	4	384886 398382
2	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 219.1 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SE (SE)	37	4	384877 398348
3	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 309.0 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SE (E)	41	4	384892 398374
4	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 66.0 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SW (S)	186	4	384803 398176
5	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 260.8 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SW (S)	186	4	384803 398176
6	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Lock or flight of locks Watercourse Length: 25.5 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SW (S)	217	4	384744 398147
7	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 10.3 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SW (S)	236	4	384724 398132
8	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Inland river Watercourse Length: 15.8 Watercourse Level: Underground Primacy: 1 Permanent: True Catchment Name: Mersey	A13SW (S)	244	4	384716 398126
9	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 35.2 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SW (S)	254	4	384701 398120

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Inland river Watercourse Length: 80.9 Watercourse Level: Underground Primacy: 1 Permanent: True Catchment Name: Mersey	A13SW (SW)	278	4	384669 398106
11	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 1011.1 Watercourse Level: On ground surface Primacy: 2 Permanent: True Catchment Name: Mersey	A13SE (SE)	296	4	384983 398107
12	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 34.6 Watercourse Level: On ground surface Primacy: 2 Permanent: True Catchment Name: Mersey	A13SE (SE)	296	4	384983 398107
13	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 250.7 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13SE (SE)	309	4	385017 398114
14	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 569.9 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13NE (NE)	334	4	385110 398591
15	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Canal Watercourse Length: 119.9 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A13NE (NE)	334	4	385110 398591
16	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 53.0 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A8NW (SW)	353	4	384609 398051
17	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Canal Watercourse Length: 193.7 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14NW (E)	386	4	385209 398524
18	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Canal Watercourse Length: 139.4 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14NW (E)	386	4	385209 398524

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 23.0 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A8NW (SW)	403	4	384568 398018
20	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 18.4 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A8NW (SW)	405	4	384612 397992
21	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 310.2 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A8NW (SW)	424	4	384550 398004
22	**OS Water Network Lines** Watercourse Name: Islington Branch Watercourse Form: Canal Watercourse Length: 125.5 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14SW (E)	444	4	385291 398315
23	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 81.2 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14SW (SE)	459	4	385252 398152
24	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 34.4 Watercourse Level: On ground surface Primacy: 2 Permanent: True Catchment Name: Mersey	A14SW (SE)	459	4	385252 398152
25	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Lock or flight of locks Watercourse Length: 25.7 Watercourse Level: On ground surface Primacy: 2 Permanent: True Catchment Name: Mersey	A14SW (SE)	479	4	385282 398168
26	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 20.8 Watercourse Level: On ground surface Primacy: 2 Permanent: True Catchment Name: Mersey	A14SW (SE)	496	4	385305 398179
27	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 41.5 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14SW (E)	512	4	385325 398184

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
28	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 36.7 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14SW (E)	534	4	385358 398209
29	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Lock or flight of locks Watercourse Length: 23.4 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14SW (E)	556	4	385388 398229
30	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 101.9 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14SW (E)	568	4	385404 398246
31	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Lock or flight of locks Watercourse Length: 24.0 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14SW (E)	628	4	385477 398316
32	**OS Water Network Lines** Watercourse Name: Ashton Canal Watercourse Form: Canal Watercourse Length: 1604.5 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A14SE (E)	644	4	385494 398333
33	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A7NE (SW)	729	4	384336 397782
34	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 589.8 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A7NE (SW)	729	4	384336 397782
35	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 340.7 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A8SE (S)	779	4	385001 397603
36	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 20.9 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A12NW (W)	821	4	383981 398682

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 216.9 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A9SW (SE)	822	4	385152 397606
38	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 536.1 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A8SE (S)	832	4	384863 397533
39	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A12NW (W)	835	4	383963 398671
40	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 22.3 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A12NW (W)	838	4	383959 398670
41	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 299.3 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A9NE (SE)	842	4	385490 397830
42	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 9.6 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A12NW (W)	855	4	383938 398661
43	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 6.4 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A9NE (SE)	861	4	385514 397829
44	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 19.7 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A12NW (W)	863	4	383929 398659
45	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 1387.3 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A9NE (SE)	867	4	385519 397825

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 1.3 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A8SE (S)	868	4	385117 397543
47	**OS Water Network Lines** Watercourse Name: Not Supplied Watercourse Form: Inland river Watercourse Length: 111.8 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A17SW (NW)	878	4	384002 398858
48	**OS Water Network Lines** Watercourse Name: River Irk Watercourse Form: Inland river Watercourse Length: 453.6 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A17SW (NW)	889	4	384061 398962
49	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 13.1 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A19SE (NE)	892	4	385545 398941
50	**OS Water Network Lines** Watercourse Name: Rochdale Canal Watercourse Form: Canal Watercourse Length: 251.6 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A19SE (NE)	905	4	385557 398945
51	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 147.4 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A9SW (SE)	908	4	385272 397568
52	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 261.0 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A7SE (SW)	931	4	384252 397593
53	**OS Water Network Lines** Watercourse Name: River Irk Watercourse Form: Inland river Watercourse Length: 582.0 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A17NE (NW)	955	4	384341 399270
54	**OS Water Network Lines** Watercourse Name: River Irk Watercourse Form: Inland river Watercourse Length: 97.8 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A17NE (NW)	958	4	384301 399251

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 14.2 Watercourse Level: Underground Primacy: 1 Permanent: True Catchment Name: Mersey	A7SE (SW)	959	4	384324 397517
56	**OS Water Network Lines** Watercourse Name: River Medlock Watercourse Form: Inland river Watercourse Length: 177.3 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A7SE (SW)	966	4	384332 397505
57	**OS Water Network Lines** Watercourse Name: River Irk Watercourse Form: Inland river Watercourse Length: 110.0 Watercourse Level: On ground surface Primacy: 1 Permanent: True Catchment Name: Mersey	A17NE (NW)	981	4	384208 399221
58	**OS Water Network Nodes** Hydronode Category: Source	A13SE (E)	35	4	384886 398382
59	**OS Water Network Nodes** Hydronode Category: Junction	A13SE (E)	41	4	384892 398374
60	**OS Water Network Nodes** Hydronode Category: Junction	A13SW (S)	186	4	384803 398176
61	**OS Water Network Nodes** Hydronode Category: Pseudo	A13SW (S)	217	4	384744 398147
62	**OS Water Network Nodes** Hydronode Category: Pseudo	A13SW (S)	236	4	384724 398132
63	**OS Water Network Nodes** Hydronode Category: Pseudo	A13SW (S)	244	4	384716 398126
64	**OS Water Network Nodes** Hydronode Category: Pseudo	A13SW (S)	254	4	384701 398120
65	**OS Water Network Nodes** Hydronode Category: Pseudo	A13SW (SW)	278	4	384669 398106
66	**OS Water Network Nodes** Hydronode Category: Pseudo	A13SE (SE)	296	4	384983 398107
67	**OS Water Network Nodes** Hydronode Category: Junction	A13SE (SE)	309	4	385017 398114
68	**OS Water Network Nodes** Hydronode Category: Junction	A13NE (NE)	334	4	385110 398591
69	**OS Water Network Nodes** Hydronode Category: Pseudo	A8NW (SW)	353	4	384609 398051
70	**OS Water Network Nodes** Hydronode Category: Junction	A14NW (E)	386	4	385209 398524
71	**OS Water Network Nodes** Hydronode Category: Pseudo	A8NW (SW)	403	4	384568 398018

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
72	**OS Water Network Nodes** Hydronode Category: Source	A8NW (SW)	405	4	384612 397992
73	**OS Water Network Nodes** Hydronode Category: Outlet	A8NW (SW)	418	4	384619 397975
74	**OS Water Network Nodes** Hydronode Category: Pseudo	A8NW (SW)	424	4	384550 398004
75	**OS Water Network Nodes** Hydronode Category: Source	A14SW (E)	444	4	385291 398315
76	**OS Water Network Nodes** Hydronode Category: Junction	A14SW (SE)	459	4	385252 398152
77	**OS Water Network Nodes** Hydronode Category: Pseudo	A14SW (SE)	479	4	385282 398168
78	**OS Water Network Nodes** Hydronode Category: Pseudo	A14SW (SE)	496	4	385305 398179
79	**OS Water Network Nodes** Hydronode Category: Source	A14NW (E)	501	4	385352 398395
80	**OS Water Network Nodes** Hydronode Category: Source	A14NW (NE)	509	4	385290 398637
81	**OS Water Network Nodes** Hydronode Category: Junction	A14SW (E)	512	4	385325 398184
82	**OS Water Network Nodes** Hydronode Category: Junction	A14SW (E)	534	4	385358 398209
83	**OS Water Network Nodes** Hydronode Category: Pseudo	A14SW (E)	556	4	385388 398229
84	**OS Water Network Nodes** Hydronode Category: Pseudo	A14SW (E)	568	4	385404 398246
85	**OS Water Network Nodes** Hydronode Category: Pseudo	A14SW (E)	628	4	385477 398316
86	**OS Water Network Nodes** Hydronode Category: Pseudo	A14SE (E)	644	4	385494 398333
87	**OS Water Network Nodes** Hydronode Category: Source	A7NE (SW)	729	4	384341 397779
88	**OS Water Network Nodes** Hydronode Category: Junction	A7NE (SW)	729	4	384336 397782
89	**OS Water Network Nodes** Hydronode Category: Outlet	A12NW (W)	821	4	383981 398682
90	**OS Water Network Nodes** Hydronode Category: Pseudo	A8SE (S)	832	4	384863 397533
91	**OS Water Network Nodes** Hydronode Category: Pseudo	A12NW (W)	835	4	383963 398671

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
92	**OS Water Network Nodes** Hydronode Category: Pseudo	A12NW (W)	838	4	383959 398670
93	**OS Water Network Nodes** Hydronode Category: Pseudo	A12NW (W)	855	4	383938 398661
94	**OS Water Network Nodes** Hydronode Category: Pseudo	A9NE (SE)	861	4	385514 397829
95	**OS Water Network Nodes** Hydronode Category: Pseudo	A12NW (W)	863	4	383929 398659
96	**OS Water Network Nodes** Hydronode Category: Pseudo	A9NE (SE)	867	4	385519 397825
97	**OS Water Network Nodes** Hydronode Category: Pseudo	A8SE (S)	868	4	385117 397543
98	**OS Water Network Nodes** Hydronode Category: Pseudo	A8SE (S)	869	4	385116 397542
99	**OS Water Network Nodes** Hydronode Category: Outlet	A17SW (NW)	878	4	384002 398858
100	**OS Water Network Nodes** Hydronode Category: Source	A12NW (W)	881	4	383909 398656
101	**OS Water Network Nodes** Hydronode Category: Source	A17SW (NW)	889	4	383951 398788
102	**OS Water Network Nodes** Hydronode Category: Pseudo	A19SE (NE)	892	4	385545 398941
103	**OS Water Network Nodes** Hydronode Category: Pseudo	A19SE (NE)	905	4	385557 398945
104	**OS Water Network Nodes** Hydronode Category: Pseudo	A9SW (SE)	908	4	385272 397568
105	**OS Water Network Nodes** Hydronode Category: Pseudo	A9SW (SE)	940	4	385409 397619
106	**OS Water Network Nodes** Hydronode Category: Pseudo	A17NE (NW)	958	4	384301 399251
107	**OS Water Network Nodes** Hydronode Category: Junction	A7SE (SW)	959	4	384324 397517
108	**OS Water Network Nodes** Hydronode Category: Pseudo	A7SE (SW)	966	4	384332 397505
109	**OS Water Network Nodes** Hydronode Category: Pseudo	A17NE (NW)	981	4	384208 399221
110	**OS Water Network Nodes** Hydronode Category: Pseudo	A17NW (NW)	994	4	384122 399174

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SE (S)	767	1	385050 397628
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NW (SE)	768	1	385371 397814
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SE (S)	775	1	385006 397609
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SE (S)	776	1	385013 397609
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	777	1	385012 397608
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	783	1	385001 397599
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	788	1	384990 397591
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SE (S)	790	1	384931 397581
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SE (S)	790	1	384980 397588
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	792	1	384984 397587
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SE (S)	793	1	384933 397578
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SE (S)	796	1	384939 397576
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	803	1	385141 397622
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	807	1	384979 397570

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	807	1	385150 397621
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NW (SE)	808	1	385450 397835
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9SW (SE)	809	1	385154 397620
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SE (S)	809	1	385050 397585
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NW (SE)	816	1	385472 397850
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NW (SE)	816	1	385366 397743
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9SW (SE)	817	1	385149 397610
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9SW (SE)	818	1	385203 397633
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SE (SE)	820	1	385132 397600
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	820	1	384896 397547
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SE (S)	822	1	384887 397545
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9SW (SE)	827	1	385350 397716
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9SW (SE)	827	1	385150 397599
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	828	1	384872 397538

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	829	1	384900 397537
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SE (S)	829	1	384866 397537
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SE (S)	830	1	384846 397533
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SE (S)	830	1	384862 397535
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SE (S)	831	1	384863 397534
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SE (S)	833	1	385000 397548
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	838	1	385200 397610
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SE (S)	839	1	385080 397562
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	840	1	385183 397600
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A8SW (S)	853	1	384506 397553
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	856	1	384411 399194
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	856	1	385395 397716
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9NW (SE)	857	1	385400 397719
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9NE (SE)	861	1	385521 397836

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9NE (SE)	864	1	385521 397831
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	865	1	384418 397575
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	865	1	384367 397600
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9SW (SE)	865	1	385411 397717
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	865	1	385387 397698
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NW (SE)	868	1	385450 397750
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	869	1	385250 397600
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SW (S)	871	1	384477 397544
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	879	1	384331 397605
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NE (SE)	881	1	385550 397841
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A18NW (N)	884	1	384500 399262
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A18NW (N)	884	1	384499 399261
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9NE (SE)	884	1	385528 397809
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9SW (SE)	886	1	385243 397577

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	895	1	384422 397540
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A7SE (SW)	895	1	384420 397541
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	896	1	384443 397530
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9SW (SE)	896	1	385212 397551
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	896	1	385250 397569
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SE (S)	897	1	385077 397500
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9SW (SE)	898	1	385380 397650
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SW (S)	899	1	384521 397500
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9SW (SE)	900	1	385227 397553
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	904	1	384240 397635
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9NE (SE)	904	1	385546 397800
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NE (SE)	906	1	385614 397889
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A7SE (SW)	906	1	384300 397592
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9NE (SE)	909	1	385614 397884

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9SW (SE)	910	1	385248 397553
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NE (SE)	911	1	385613 397879
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9SW (SE)	913	1	385272 397562
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A18NW (N)	919	1	384500 399299
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A8SW (S)	920	1	384511 397481
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SW (S)	920	1	384491 397487
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A7SE (SW)	920	1	384263 397600
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SW (S)	926	1	384489 397481
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NE (SE)	928	1	385526 397741
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A7SE (SW)	934	1	384250 397591
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A17SW (NW)	935	1	383984 398936
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9SW (SE)	938	1	385412 397624
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9SW (SE)	938	1	385412 397624
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9SW (SE)	939	1	385411 397622

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A7SE (SW)	941	1	384301 397550
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A7SE (SW)	941	1	384225 397600
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9SW (SE)	943	1	385410 397616
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NE (SE)	944	1	385697 397958
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9NE (SE)	946	1	385650 397872
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A9NE (SE)	950	1	385698 397947
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	951	1	384350 399270
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17SW (NW)	953	1	383954 398924
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	954	1	384308 399250
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A18NW (N)	955	1	384550 399351
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9NE (SE)	955	1	385700 397939
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A18NW (N)	955	1	384549 399350
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A8SW (S)	956	1	384508 397444
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	956	1	384286 399240

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	956	1	384200 397600
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A17SW (NW)	957	1	383947 398920
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	958	1	384252 399222
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	959	1	384344 399276
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A17SW (NW)	961	1	383942 398920
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A9NE (E)	961	1	385738 398007
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	964	1	384288 399250
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	969	1	384176 397603
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A17SW (NW)	972	1	383925 398912
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A18NW (N)	973	1	384550 399369
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: High - Greater than or equal to 1 in 30 (3.3%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	982	1	384187 399208
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A7SE (SW)	986	1	384190 397570
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A14SE (E)	987	1	385794 398083
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A9NE (SE)	987	1	385605 397742

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A7SE (SW)	992	1	384186 397565
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A7SE (SW)	993	1	384150 397593
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A17SW (W)	994	1	383824 398758
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A17SW (NW)	995	1	383900 398917
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: County to Town Source: Environment Agency, Head Office	A17NE (NW)	998	1	384131 399185
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A12NW (W)	998	1	383810 398728
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Medium - Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year Suitability Scale: Town to Street Source: Environment Agency, Head Office	A17SW (NW)	998	1	383872 398872
	Risk of Flooding from Rivers and Sea (RoFRS) Flood Risk Assessment: Low - Less than 1 in 100 (1%) but greater than or equal to 1 in 1,000 (0.1%) chance in any given year Suitability Scale: National to County Source: Environment Agency, Head Office	A17SW (NW)	999	1	383898 398921

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Postcode Sector Flood Insurance Claim Ratings Insurance Rating: Low Flood Insurance Claim Rating Postcode Sector: M1 2	A13SW (S)	0	2	384801 398390

EA / NRW / CEH Flood Data	Version	Update Cycle
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2022	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	August 2022	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	August 2022	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	August 2022	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
EA / NRW Surface Water Flood Data	**Version**	**Update Cycle**
Surface Water 1 in 30 year Flood Depth Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Depth Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Depth Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 30 year Flood Velocity Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Velocity Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Velocity Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 30 year Flood Flow Direction 25m Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Flow Direction 25m Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Flow Direction 25m Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 30 year Flood Hazard Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Hazard Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Hazard Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually

JBA Flood Data	Version	Update Cycle
JBA 75 Year Return (undefended) - Pluvial JBA Risk Management Limited	November 2020	As notified
JBA 75 Year Return (undefended) - Fluvial JBA Risk Management Limited	November 2020	As notified
JBA 75 Year Return (undefended) - Coastal JBA Risk Management Limited	November 2021	As notified
JBA 100 Year Return (undefended) - Fluvial JBA Risk Management Limited	November 2020	As notified
JBA 100 Year Return (undefended) - Coastal JBA Risk Management Limited	November 2021	As notified
JBA 200 Year Return (undefended) - Pluvial JBA Risk Management Limited	November 2020	As notified
JBA 200 Year Return (undefended) - Fluvial JBA Risk Management Limited	November 2020	As notified
JBA 200 Year Return (undefended) - Coastal JBA Risk Management Limited	November 2021	As notified
JBA 1000 Year Return (undefended) - Pluvial JBA Risk Management Limited	November 2020	As notified
JBA 1000 Year Return (undefended) - Fluvial JBA Risk Management Limited	November 2020	As notified
JBA 1000 Year Return (undefended) - Coastal JBA Risk Management Limited	November 2021	As notified
JBA Canal Failure JBA Risk Management Limited	October 2017	As notified
JBA Dam Break JBA Risk Management Limited	October 2017	As notified
BGS Flood Data	**Version**	**Update Cycle**
BGS Geological Indicators of Flooding British Geological Survey - National Geoscience Information Service	October 2013	As notified
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified
GeoSmart Information Groundwater Flooding Data	**Version**	**Update Cycle**
GeoSmart Information Groundwater Flood Risk GeoSmart Information Ltd	October 2020	As notified
OS Water Network Data	**Version**	**Update Cycle**
OS Water Network Lines Ordnance Survey	July 2022	Quarterly
OS Water Network Nodes Ordnance Survey	July 2022	Quarterly
EA/NRW Historic Flood Events Data	**Version**	**Update Cycle**
Historic Flood Events Environment Agency - Head Office	August 2022	Quarterly
Historical Flood Liabilities Landmark Information Group Limited	December 1999	Not Applicable

EA/NRW Risk of Flooding from Rivers and Sea (RoFRS)	Version	Update Cycle
RoFRS - Risk of Flooding from Rivers and Sea Environment Agency - Head Office	May 2022	Annually
Flood Insurance Risk Data	**Version**	**Update Cycle**
Postcode Sector Flood Insurance Claim Ratings Crawford and Company	May 2022	Quarterly

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Natural Resources Wales	
Centre for Ecology and Hydrology	
British Geological Survey	
GeoSmart Information	
JBA Risk Management	

FAIRHURST

Useful Contacts

Contact	Name and Address	Contact Details
1	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
2	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: www.landmark.co.uk
3	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409

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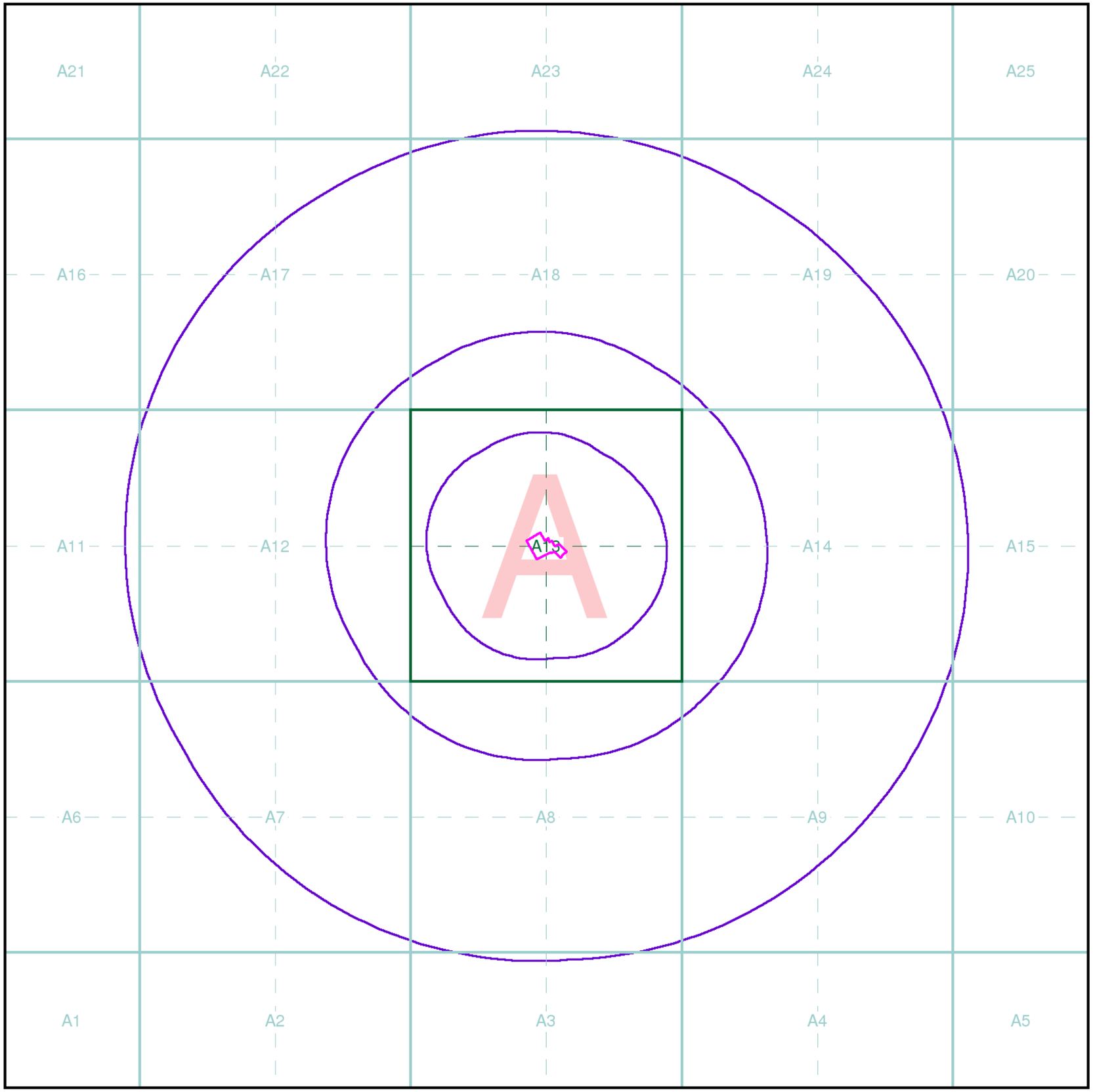
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FAIRHURST

Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:

Map data

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

NATURAL ENGLAND

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr J Blacker, Fairhurst Group LLP, 51a St Pauls Street, Leeds, LS1 2TE

Order Details

Order Number:	301876956_1_1
Customer Ref:	143404 -05 Tariff Street Manchester
National Grid Reference:	384800, 398390
Site Area (Ha):	0.31
Search Buffer (m):	1000

Site Details

Site at 384800, 398390

Full Terms and Conditions can be found on the following link:
http://www.landmarkinfo.co.uk/Terms/Show/515

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

APPENDIX E

Liaison with Regulators

Serhat Kilinc

From: wastewaterdeveloperservices@uuplc.co.uk
Sent: 26 October 2022 10:32
To: Serhat Kilinc; Jeremy Tetley
Subject: RE: Pre Development Enquiry for: Tariff Street, Manchester, M1 2EG UU Reference Number : 02852111

Good Morning,

Thank you for your enquiry.

I would foresee no issue to splitting the flows between port Street and Tarrif Street, as these sewers eventually converge downstream to the same combined sewer system.

If you would like to discuss your scheme further with me, please let me know your availability and I would be happy to speak over the phone/teams, or feel free to contact me on the number below.

Kind regards

Gary Jaundrell
Assistant Developer Engineer
Developer Services & Metering
Customer Services
T: 07388 715 589
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at WastewaterDeveloperServices@uuplc.co.uk

---------- Original Message ----------
From: wastewaterdeveloperservices@uuplc.co.uk [wastewaterdeveloperservices@uuplc.co.uk]
Sent: 18/10/2022 08:55
To: [redacted]
Subject: Pre Development Enquiry for: Tariff Street, Manchester, M1 2EG UU Reference Number : 02852111

Good Morning,

Thank you for contacting United Utilities.

I have passed your details to our engineer who will respond in due course.

Kind Regards,

Louise Dack
Customer Advisor Advanced
Developer Services & Metering
Customer Services
T: 01925 233063 (33063 internal)
unitedutilities.com

Did you know we now have a live chat facility available to you Mon to Friday 8 -5pm. You just click on the orange live chat box on our webpage and one of our advisors will be ready to chat to you and help you with your enquiry https://www.unitedutilities.com/builders-developers/ or you can email us at WastewaterDeveloperServices@uuplc.co.uk

---------- Original Message ----------
From: wastewaterdeveloperservices@uuplc.co.uk [wastewaterdeveloperservices@uuplc.co.uk]
Sent: 05/10/2022 11:01
To: [redacted]
Subject: Pre Development Enquiry for: Tariff Street, Manchester, M1 2EG UU Reference Number : 02852111

Good Morning Serhat

In order to obtain extracts of our sewer records, please contact our property searches team. Their details are as follows:

Email address: propertysearches@uuplc.co.uk
Info: https://propertysearches.unitedutilities.com/8111

Hope this helps,

Kind regards,

Amanda Harding
Developer Services Assistant
Developer Services & Metering
Customer Services
unitedutilities.com

From: wastewaterdeveloperservices@uuplc.co.uk [mailto:wastewaterdeveloperservices@uuplc.co.uk]
Sent: 04 October 2022 14:10
To: Serhat Kilinc [redacted]
Subject: Pre Development Enquiry for: Tariff Street, Manchester, M1 2EG UU Reference Number : 02852111

Good Afternoon, Serhat

Pre Development Enquiry for: Tariff Street, Manchester, M1 2EG UU Reference Number : 02852111

Please ignore previous email with incorrect case number. Please use case number above for all future correspondence.

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 6723 723 or refer to the link below:

https://www.unitedutilities.com/builders-developers/working-near-our-assets/

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.

Our preferred point of discharge would be to the 300mm diameter public combined sewer within Tariff Street located to the South of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as

reasonably practicable.
This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**
4. **to a combined sewer.**

For guidance, The **North West SuDS Pro-Forma** provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

https://www.gov.uk/government/publications/groundwater-protection-position-statements

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Waterbody

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you contact the Lead Local Flood Authority and/or Environment Agency to discuss a point of discharge to Rochdale Canal.

We would encourage you to identify and engage with any third party landowner and riparian owner to agree access and discharge rights to the water body if this is not in your ownership.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges

to a watercourse, by contacting the relevant Highway Authority.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 300mm diameter public combined sewer within Tariff Street located South of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 5l/s. This is based on the peak greenfield flowrate for this development based on impermeable ground.

Please note the given discharge rate is based on the full site area as the specifics of the area being developed are not yet clear. If there are significant areas of the site that will not be developed, the discharge rate should be reduced accordingly.

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the pubic sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest opportunity so that we can offer guidance and update our records.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address: DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

https://www.unitedutilities.com/builders-developers/wastewater-services/sewer-connections/sewer-connection/

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Sewer Adoptions

You have indicated on your application form that you intend to put the sewers forward for adoption (including any SuDS components that can come within the meaning of a sewer).

United Utilities assess adoption applications based on the current Design & Construction Guidance and local practices which have now replaced 'Sewers For Adoption 6th Edition'.

We recommend that you submit a pre design assessment to the sewer adoption mailbox (SewerAdoptions@uuplc.co.uk) stating pre design assessment in the title

Please refer to links below to obtain further guidance:

https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-adoptions/

Site drainage must be designed in accordance with Building Regulations, National Planning Policy, and local flood authority guidelines, we would recommend that you speak and make suitable agreements with the relevant statutory bodies.

If you intend to put forward your wastewater assets for adoption by United Utilities, the proposed detail design will be subject to a technical appraisal by an Adoption Engineer as we need to be sure that the proposals meets the requirements set out in the Design & Construction Guidance. The proposed design should give consideration to long term operability and give United Utilities a safe and cost effective proposal for the lifetime of the assets. In these cases, we strongly recommend that no construction commences until the detailed drainage design, submitted as part of the Section 104 application, has been assessed and accepted in writing by United Utilities. Any work carried out prior to the technical assessment being approved is done entirely at the developer's own risk and could be subject to change.

SuDS

If your development proposal incorporates any SuDS component(s) which interact with a sewer network you plan on offering for adoption to United Utilities; contact should be made with our technical team at your earliest convenience, please complete the 'Section 104 pre-application form : ' and include as much relevant detail as you can. These discussions can help prevent delays later in the development process.

Section 104 Pre application form (1b)

As per the sewerage sector guidance, all SuDS should be designed in accordance with the standards within the Design & construction guidance & the CIRIA SuDS manual (C753)

Codes For Adoption

The new Codes for Adoption are outlined on the Water UK Website. The link below takes you to their webpage:

https://www.water.org.uk/technical-guidance/developers-services/codes-for-adoption/

A free copy of the new Design & Construction Guidance can be downloaded via the link below:

https://www.water.org.uk/sewerage-sector-guidance-approved-documents/

Many thanks and kind regards,

Gary Jaundrell
Assistant Developer Engineer
Developer Services & Metering
Customer Services
T: 07388 715 589
unitedutilities.com

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Serhat Kilinc

From: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Sent: 04 November 2022 14:54
To: Serhat Kilinc
Subject: RE: 143404 Tariff Street, Pre Application Discussion
Attachments: Tariff Street [1].pdf; Manchester City Council - SuDS Requirement for Developers 2019.pdf

Hi Serhat,

Thank you for your email. I hope you're well.

As stated in the National Planning Practice Guidance, the aim should be to discharge surface water run-off as high up the drainage hierarchy, as reasonably practicable:

1. Into the ground (infiltration);
2. To a surface water body;
3. To a surface water sewer
4. To a combined sewer

Proposed surface water drainage will need to be restricted to greenfield rates or by at least 50% from the existing rates where appropriate.

What is the design life of this development?

Please note there are new updates for peak rainfall climate change allowances in Flood risk assessments. For further details on climate change allowances please visit - Flood risk assessments: climate change allowances - GOV.UK (www.gov.uk)

Type in your postcode to determine the % cc - Climate change allowances for peak river flow in England (data.gov.uk)

MCC offer a Data Screening Service. Please find attached letter detailing our Service. If you would like to instruct a data screening, please submit a request at the following link:
https://manchester.civicapayforms.co.uk/Sales/LaunchInternet.aspx?saleform=llfa

Please also find attached our SuDS Guidance for Developers which we recommend is reviewed to guide your drainage strategy. We promote the use of Sustainable Drainage infrastructure and would welcome early discussion with regards to the drainage layout. Please note surface water from the development must not drain onto the highway or any third-party land.

Should you have further queries about your proposal, please do not hesitate to contact us. Thank you.

Kind regards
Talha Esmail
Flood Risk Engineer – Lead Local Flood Authority
E: [redacted] MANCHESTER CITY COUNCIL

From: Serhat Kilinc [redacted]
Sent: 21 October 2022 14:56
To: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Subject: 143404 Tariff Street, Pre Application Discussion

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Dear Sir or Madam,

We are proposing drainage strategy for proposed development located at Tariff Street Manchester.

It has been advised from The Manchester City Council, Planning Building Control to make pre-application discussions with Flood Risk Team.

Please find attached site location and block plans.

Location: **Tariff Street, Manchester, M1 2EG**

We are happy to discuss SUDS and other drainage strategy.

Kind Regards

Serhat

celebrating 120 years of engineering excellence

Serhat Kilinc
Geo-Environmental Engieer

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51a St. Paul's Street
Leeds, LS1 2TE
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Serhat Kilinc

From: Gareth Taylor <[redacted]
Sent: 04 November 2022 15:57
To: Deborah McCormick; Serhat Kilinc
Cc: UtilitiesEnquiry
Subject: RE: 143404_Surface water discharge permit - Tariff Street, Manchester
Attachments: Form 6 SWD.pdf; Form 2 Cost Undertaking.docx; Form 1 Notification.docx

Dear Serhat,

Thank you for your enquiry regarding the surface water discharge proposals from the planned development at Tariff Street, Manchester. Canal & River Trust undertakes a staged process to review the impact of all new or modified discharges to its network, in addition to any considerations that are made by the Environment Agency and/or the Local Planning Authority via the normal planning process. We will need to ensure you are formally signed onto our system before we can progress for licenses to undertake operations that may affect the Canal & River Trust assets. To register you as a customer we need you to be aware of our 'Code of Practice for Works Affecting the Canal & River Trust", this link will gain you access to the code which is in 3 parts and can be located at the bottom of the page https://canalrivertrust.org.uk/business-and-trade/undertaking-works-on-our-property-and-our-code-of-practice

This initial mail constitutes (Stage 1) of our process which requires the applicant to complete and return Forms 1, 2 and 6 from the Code of Practice so that consistent information about the proposal is provided by all applicants, the relevant documents are attached. Section 3 of Part 2, the Detailed Information section of the Code of Practice provides details on the surface water discharge process including guidance on how to undertake the Outline Impact Assessment. Table 3 provides a list of the required information that should be submitted at the Outline and Detailed Impact Assessment stages and should be read in conjunction with Form 6 and used as a check list for submission.

The initial submission must be accompanied by the relevant Administration Fee of £380 plus vat (£456) and the Forms 1, 2 & 6. Once this documentation is received and logged, (Stage 2) consists of checking that all the required information is in place. The standard value on the Undertaking includes a contribution of £2000 plus vat (£2400) towards the cost of the technical review of the flood risk and water quality aspects of your proposal. Any other additional works that involves the Trust after the review completion will be charged from the balance, this will be agreed with the Applicant prior to invoicing.

Upon a satisfactory check of the documentation for completeness, we will instruct the Hydrologist to commence and coordinate the internal technical review by Water Management and Environment teams (Stage 3). Depending on the outcome of this review (which normally takes around 4 weeks), further work may be required (by the Applicant) to enable a more detailed consideration to be completed (Stage 4) or the proposal may be accepted in principle at that point. Further guidance can be found in the Code of Practice and your attention is brought to the fact that a commercial agreement will always be sought before any discharge to our network can take place, an estimation of this can be provided by our Utility Surveyor. The Canal and River Trust is not a drainage authority and we have no obligation to accept discharges.

All submissions by commercial organisations should be in electronic format; hard copy applications are not permissible unless in exceptional circumstances and then only by prior agreement.

A Discharge Consent or Environmental Permit from the Environment Agency does not confer the right to discharge to the waterways that are owned by the Canal and River Trust.

Regards

Gareth Taylor (BSc)

Infrastructure Services, Works Engineer (Northwest)
Northwest Region: Lancaster canal, Leeds to Liverpool canal (Yorkshire Boarder – Greenberfield Locks).
Manchester, Bury & Bolton Canal, Rochdale Canal & Ashton Canal.

Canal & River Trust | NW Waterway | Canal Cottage | Lowerhouse Lane | Rosegrove | Burnley | BB12 6HU | Mob: [redacted] |

For further information and a copy of the 3rd Party Code of Practice please follow the link below.

https://canalrivertrust.org.uk/business-and-trade/undertaking-works-on-our-property-and-our-code-of-practice

---

From: Deborah McCormick [redacted]
Sent: 02 November 2022 16:50
To: [redacted]
Cc: Gareth Taylor <[redacted]>; UtilitiesEnquiry <UtilitiesEnquiry@canalrivertrust.org.uk>
Subject: FW: 143404_Surface water discharge permit - Tariff Street, Manchester

Dear Serhat,

Thanks for your emails and apologies for the short delay in coming back to you.

To confirm, It is possible that we would be able to accept the surface water from your site, this is subject to you obtaining the relevant consents from CRT via our mandatory process. Consent involves following a two-stage process which comprises of Technical Consent and Commercial / Legal Consent. This is progressed as follows;

In the first instance, you would be required to obtain Technical Consent by signing on to our Code of Practice for works affecting Canal & River Trust. This simply involves the provision of information and completion of forms relating to your scheme. Once this information is received and you have paid the appropriate fee, our Works Engineer will be able to assess your application. We have to address the possible impacts on our asset from an engineering, environmental and water management perspective. I have copied our Works Engineer, Gareth Taylor into this email, Gareth will forward the Code of Practice sign on documents to you.

Provided there are no issues with the above we can then grant Legal Consent by instructing solicitors to issue an agreement to discharge surface water. The agreement is subject to charges and these costs will depend on the type of development and the proposed drainage. The Trusts reasonable legal and professional fees would also be payable, and the agreement may also require consent from Defra.

If your client is looking to have the new connection adopted via the Section 104 process, we can grant a Tripartite agreement. This would involve an agreement between CRT, the Freeholder/Developer, and the statutory water authority. The responsibility and any ongoing costs for the agreement would revert to the water authority upon adoption of the outfall.

Although it is possible to draft heads of terms alongside your technical application, we cannot grant the agreement until technical consent is obtained.

I hope the above answers your query, Gareth will forward the forms to you for completion. If you have any further questions, please give me a call on the number below.

Kind regards

Deborah

Deborah McCormick
Utilities Surveyor BSc (Hons)
Canal & River Trust, North West Region
M [redacted]
My working days are Monday to Thursday

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Canal & River Trust

Rainbow Ally

From: UtilitiesEnquiry <UtilitiesEnquiry@canalrivertrust.org.uk>
Sent: 02 November 2022 10:50
To: Deborah McCormick <[redacted]>
Subject: FW: 143404_Surface water discharge permit

Hi Deborah,

How're you?

Are you able to respond to the below enquiry we've had for a discharge into the Rochdale Canal from a site located on Tariff Street, Manchester, M1 2EG (site plan attached)

Thanks for your help,
Laura Wainwright
Utilities Administrator
M [redacted]

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Canal & River Trust
Making life better by water
Celebrating 10 YEARS as a charity

From: Serhat Kilinc <[redacted]>
Sent: 01 November 2022 09:00
To: UtilitiesEnquiry <UtilitiesEnquiry@canalrivertrust.org.uk>
Subject: 143404_Surface water discharge permit

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CAUTION: This email originated from an external source. DO NOT CLICK/OPEN links or attachments unless you are certain of their origin.

Dear Sir/Madam,

We are proposing drainage strategy for proposed development located at Tariff Street Manchester.

Please find attached site location and draft proposed surface water drainage design.

Location: **Tariff Street, Manchester, M1 2EG**

We are planning to discharge surface water to the Canal (Rochdale Canal) which is located south adjacent of the site.

In this sense, the following question arises;

- Do we need to get permit for surface water discharge to the canal? If it is not needed can you please confirm this?
- If it is needed can you please provide peak discharge rate/restrictions?

Many thanks in advance.

Kind Regards

Serhat

celebrating 120 years of engineering excellence

Serhat Kilinc
Geo-Environmental Engieer

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Dilynwch ni ar https://twitter.com/canalrivertrust ac https://www.instagram.com/canalrivertrust

Mae'r e-bost hwn a'i atodiadau ar gyfer defnydd y derbynnydd bwriedig yn unig. Os nad chi yw derbynnydd bwriedig yr e-bost hwn a'i atodiadau, ni ddylech gymryd unrhyw gamau ar sail y cynnwys, ond yn hytrach dylech eu dileu heb eu copïo na'u hanfon ymlaen a rhoi gwybod i'r anfonwr eich bod wedi eu derbyn ar ddamwain. Mae unrhyw farn neu safbwynt a fynegir yn eiddo i'r awdur yn unig ac nid ydynt o reidrwydd yn cynrychioli barn a safbwyntiau Glandŵr Cymru.

Mae Glandŵr Cymru yn gwmni cyfyngedig drwy warant a gofrestrwyd yng Nghymru a Lloegr gyda rhif cwmni 7807276 a rhif elusen gofrestredig 1146792. Swyddfa gofrestredig: National Waterways Museum Ellesmere Port, South Pier Road, Ellesmere Port, Cheshire CH65 4FW.

APPENDIX F

Drainage Design

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IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

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CONSTRUCTION
- RESTRICTED SITE/CONFINED SPACES
- GROUND WATER/INUNDATION

DEMOLITION

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

KEY:-
- PROPOSED FOUL SEWER
- PROPOSED FW PUMPING STATION
- PROPOSED SURFACE WATER SEWER
- PROPOSED COMBINED SEWER
- EXISTING COMBINED PUBLIC SEWER
- PROPOSED ATTENUATION TANK
- PROPOSED SW PUMP STATION
- PROPOSED FW RISING MAIN
- PROPOSED SW RISING MAIN
- *PROPOSED SVP
- *PROPOSED RWP

*INDICATIVE POSITIONS -
ALL LOCATIONS TO BE CONFIRMED BY OTHERS

CONCEPT DRAINAGE DESIGN SUBJECT TO DETAILED DEVELOPMENT

DISCHARGE TO COMBINED PUBLIC SEWERS SUBJECT TO UNITED UTILITIES S106 APPROVAL

DISCHARGE TO ROCHDALE CANAL SUBJECT TO LLFA AND CANAL & RIVER TRUST APPROVAL

Rev.	Date	Description	Drwn.	Chkd.	Appd.

FAIRHURST
51e St. Pauls Street
LEEDS
LS1 2TE
Tel: 0113 243 4671
Fax: 0844 381 4412

Client:

Project Title:
1NQ AND RETAINED BLOCK
MANCHESTER

Drawing Title:
CONCEPT DRAINAGE STRATEGY LAYOUT
GROUND FLOOR

SHEET 1 OF 2

Scale at A1:	Status:		
1:200	Planning		
Drawn:	Checked:	Approved:	
AC			
Date:	Date:	Date:	
02/11/22			

Drawing No.: 143404/7100 Revision: -



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CONSTRUCTION
- RESTRICTED SITE/CONFINED SPACES
- GROUND WATER/INUNDATION

DEMOLITION

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

KEY:-
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- PROPOSED FW PUMPING STATION
- PROPOSED SURFACE WATER SEWER
- PROPOSED COMBINED SEWER
- EXISTING COMBINED PUBLIC SEWER
- PROPOSED ATTENUATION TANK
- PROPOSED SW PUMP STATION
- PROPOSED FW RISING MAIN
- PROPOSED SW RISING MAIN
- *PROPOSED SVP
- *PROPOSED RWP

*INDICATIVE POSITIONS – ALL LOCATIONS TO BE CONFIRMED BY OTHERS

CONCEPT DRAINAGE DESIGN SUBJECT TO DETAILED DEVELOPMENT

Rev.	Date	Description	Drwn.	Chkd.	Appd.

FAIRHURST
51a St. Pauls Street
LEEDS
LS1 2TE
Tel: 0113 243 4671
Fax: 0844 381 4412

Client:

Project Title:
1NQ AND RETAINED BLOCK MANCHESTER

Drawing Title:
CONCEPT DRAINAGE STRATEGY LAYOUT LOWER GROUND FLOOR

SHEET 2 OF 2

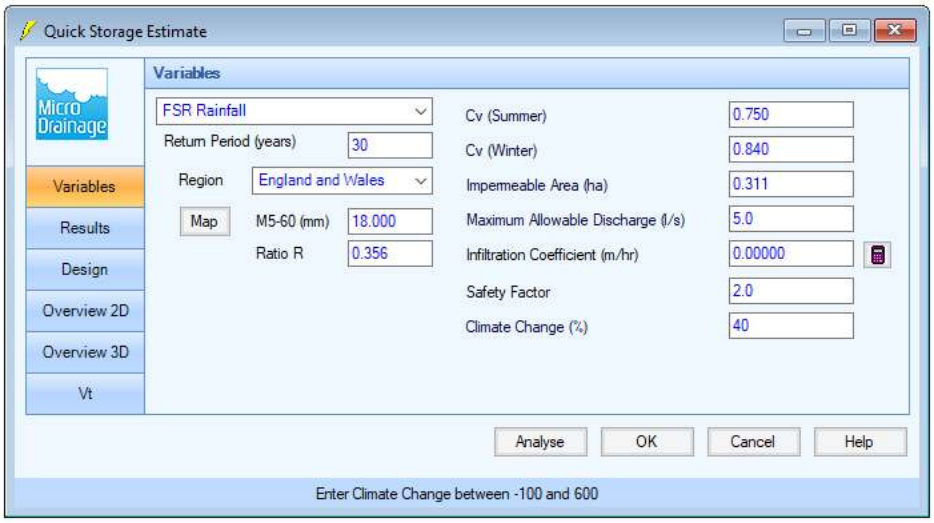
Scale at A1:	Status:	
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Drawn:	Checked:	Approved:
AC		
Date:	Date:	Date:
02/11/22		

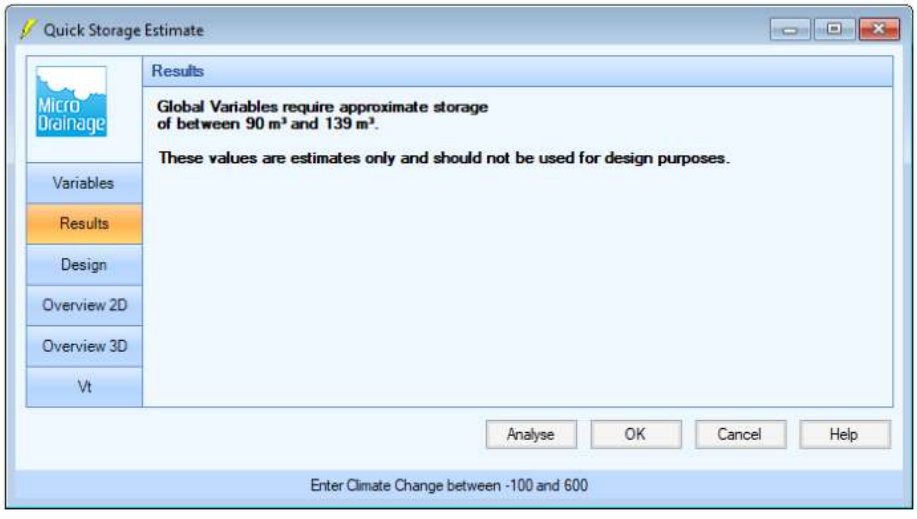
Drawing No.: 143404/7101 Revision: –

143404 Tariff Street - Quick Storage Estimates

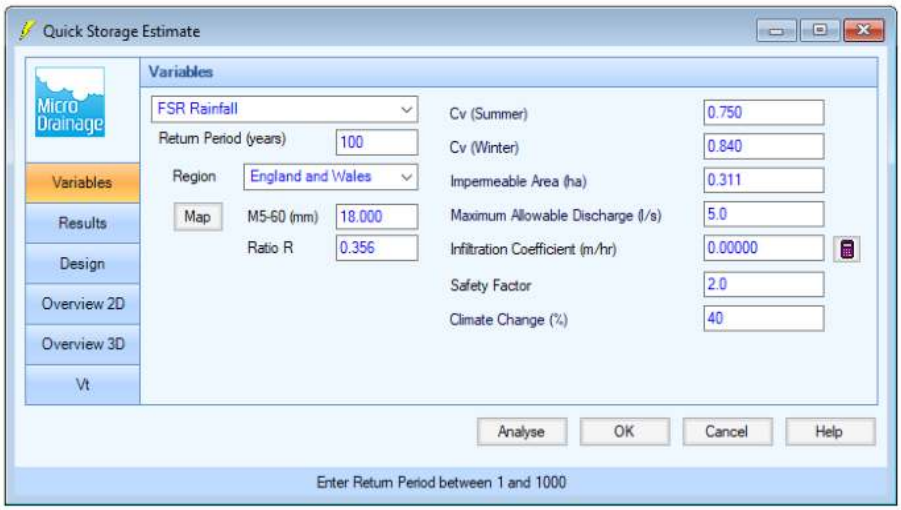
Whole Site - Discharge 5l/s

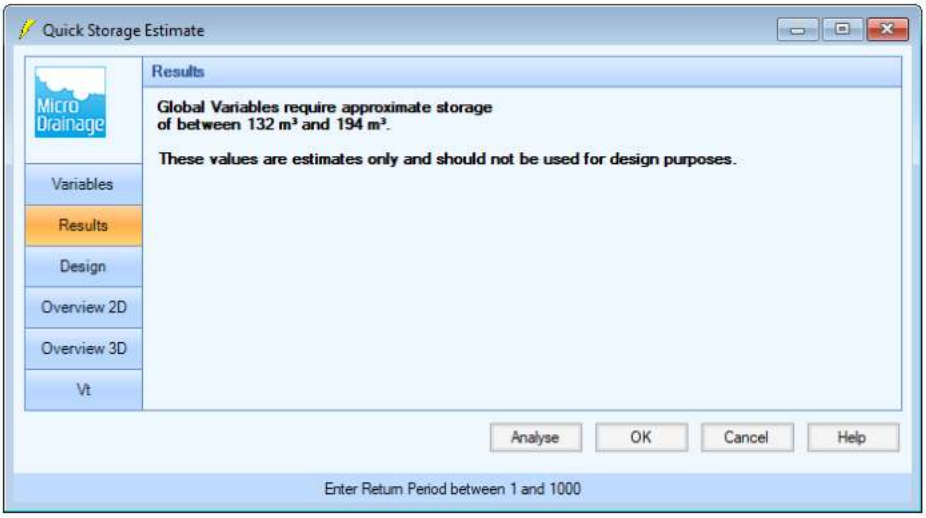
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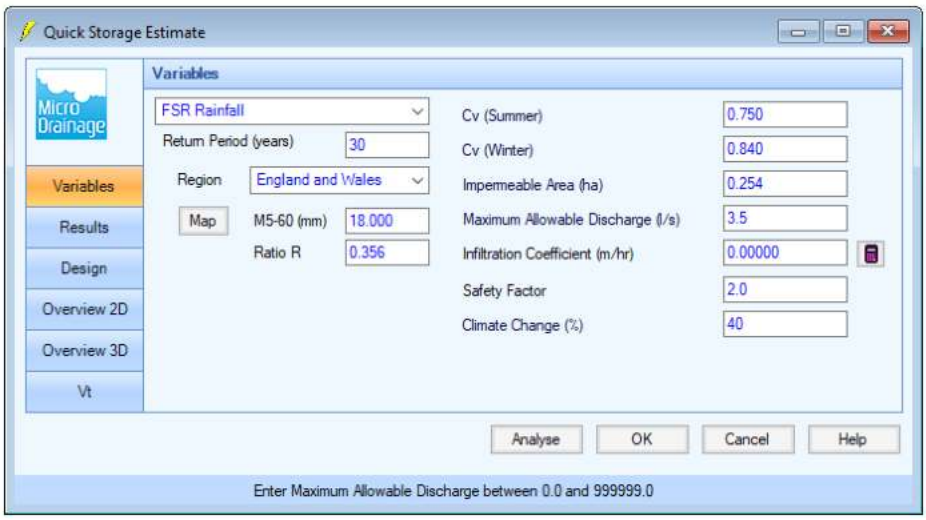
- 1 in 100 +40%CC:

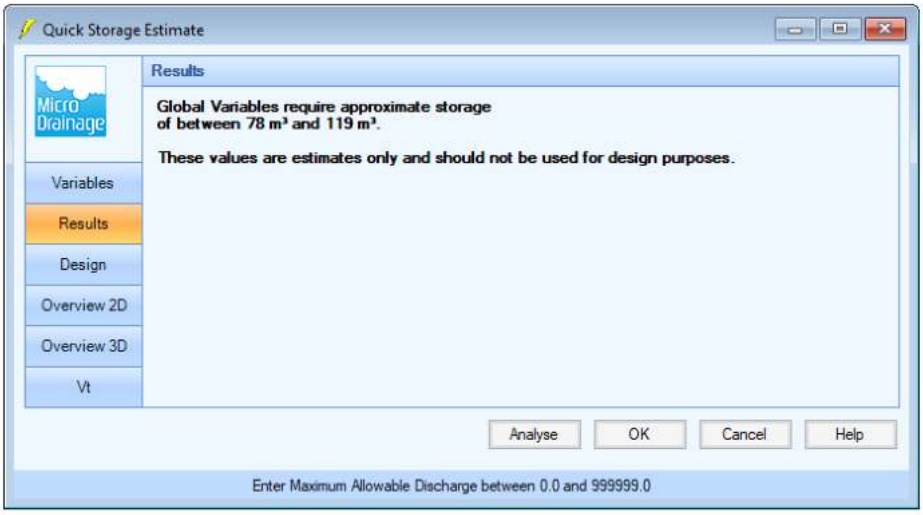

Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Variables
FSR Rainfall
Return Period (years) 100
Region England and Wales
Map
M5-60 (mm) 18.000
Ratio R 0.356
Cv (Summer) 0.750
Cv (Winter) 0.840
Impermeable Area (ha) 0.311
Maximum Allowable Discharge (l/s) 5.0
Infiltration Coefficient (m/hr) 0.00000
Safety Factor 2.0
Climate Change (%) 40
Analyse
OK
Cancel
Help
Enter Return Period between 1 and 1000


Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Results
Global Variables require approximate storage of between 132 m³ and 194 m³.
These values are estimates only and should not be used for design purposes.
Analyse
OK
Cancel
Help
Enter Return Period between 1 and 1000

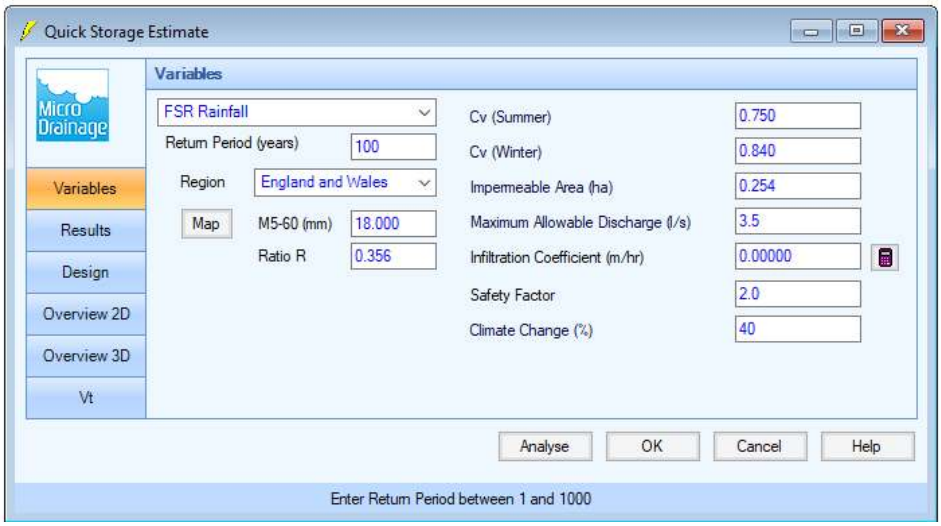
1NQ Only – Discharge 3.5l/s

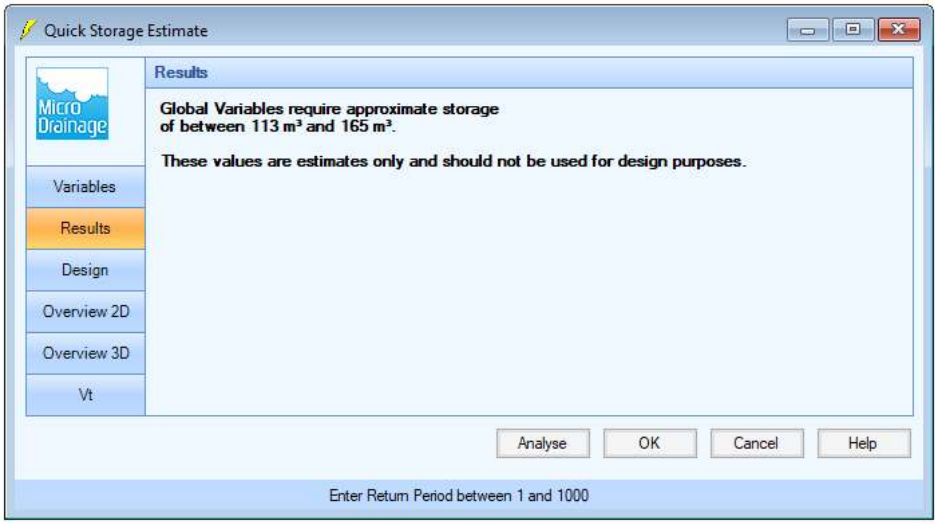
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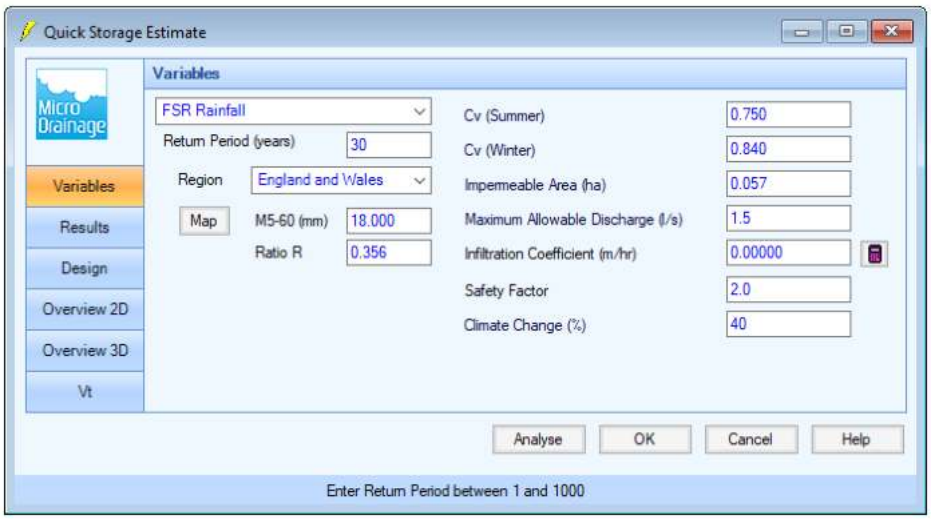
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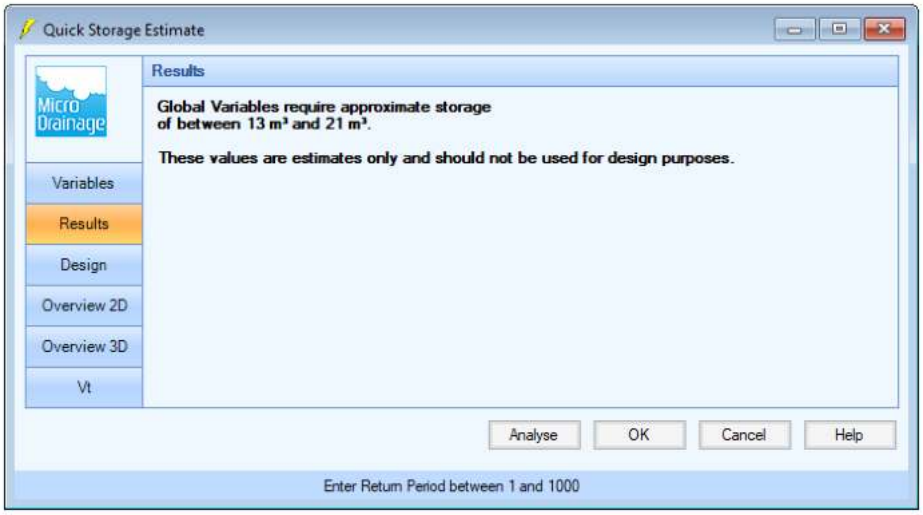

Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Variables
FSR Rainfall
Return Period (years) 100
Region England and Wales
Map
M5-60 (mm) 18.000
Ratio R 0.356
Cv (Summer) 0.750
Cv (Winter) 0.840
Impermeable Area (ha) 0.254
Maximum Allowable Discharge (l/s) 3.5
Infiltration Coefficient (m/hr) 0.00000
Safety Factor 2.0
Climate Change (%) 40
Analyse
OK
Cancel
Help
Enter Return Period between 1 and 1000


Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Results
Global Variables require approximate storage of between 113 m³ and 165 m³.
These values are estimates only and should not be used for design purposes.
Analyse
OK
Cancel
Help
Enter Return Period between 1 and 1000

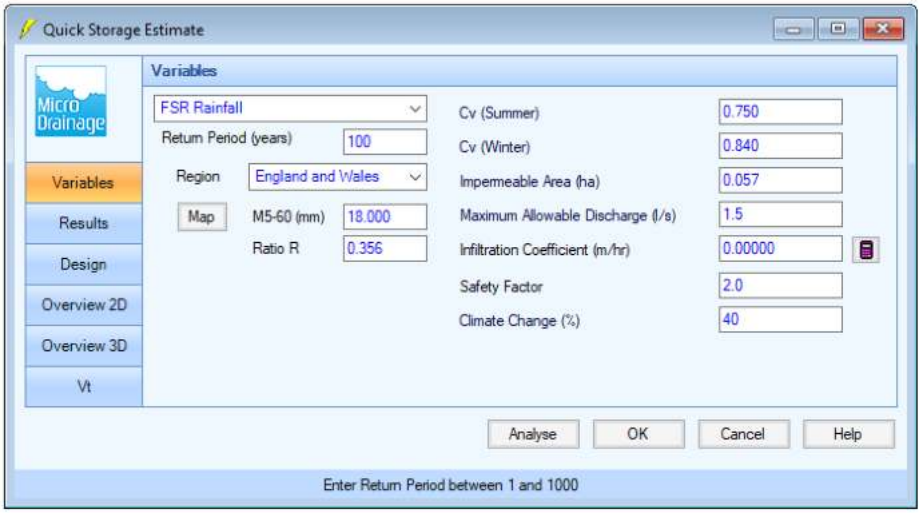
Retained Block Only – Discharge 1.5l/s

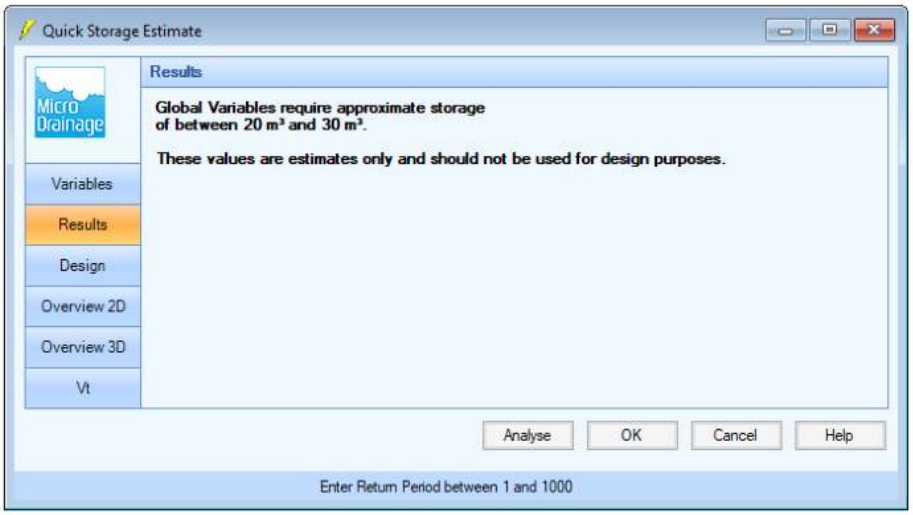
- 1 in 30 +40%CC:





- 1 in 100 +40%CC:


Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
FSR Rainfall
Return Period (years) 100
Region England and Wales
Map
M5-60 (mm) 18.000
Ratio R 0.356
Cv (Summer) 0.750
Cv (Winter) 0.840
Impermeable Area (ha) 0.057
Maximum Allowable Discharge (l/s) 1.5
Infiltration Coefficient (m/hr) 0.00000
Safety Factor 2.0
Climate Change (%) 40
Analyse
OK
Cancel
Help
Enter Return Period between 1 and 1000


Quick Storage Estimate
Micro Drainage
Results
Global Variables require approximate storage of between 20 m³ and 30 m³.
These values are estimates only and should not be used for design purposes.
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Analyse
OK
Cancel
Help
Enter Return Period between 1 and 1000









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