

TEN ACRES LANE, NEWTON HEATH, MANCHESTER



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FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY REPORT

The Alan Johnston Partnership

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1.0 INTRODUCTION

This Flood Risk Assessment (FRA) and Drainage Strategy Report has been prepared on behalf of Your Housing Group in connection with a planning application for the construction of a proposed mixed-use development. The proposed site is located to the east of Ten Acres Lane, Newton Heath, Manchester. This FRA is required as even though the site is located within Flood Zone 1, the total area of the proposed development site is over 1.0ha in area.

This FRA has been prepared in accordance with the general requirements of the National Planning Policy Framework and the Technical Guidance to the National Planning Policy Framework, both published by the Department for Communities and Local Government. This involves the identification of flood risk to new development(s) on the site, the possible effect of this development on flood risk elsewhere and the investigation of the impact on the development as a result of increased sea levels, fluvial flows and larger pluvial events due to increased impermeable areas and climate change.

The purpose of this report is to present a site-specific assessment of flood risk based on available information, to identify relevant flood levels affecting the site with respect to a particular probability of flooding. The flood levels identified are dependent on the correctness of the current conditions, as stated in this report and the prediction of future climatic conditions implicit in the National Planning Policy Framework.

For any size of storm event, the procedure will always yield a probability that the event will occur in any year, albeit the probability is smaller for larger events. The predicted storm event has a probability of occurrence in any year and the derived flood level has an associated probability of exceedance. This means that there is always a risk that property flooding could occur one or more times in any year.

Therefore, this report should not be interpreted or relied upon as providing a guarantee against flooding. There is always a residual risk that flooding will occur and it is not possible to predict a zero risk of flooding.

In accordance with National Planning Policy Framework (NPPF) and the associated Technical Guidance document, flood risk must be assessed for all sources including tidal (from the sea), fluvial (from rivers), pluvial (from land), groundwater, sewer and artificial water bodies (e.g. reservoirs, canals, major water supply infrastructure etc.).

More specifically, the development of any site must be carried out in such a way as to mitigate any potential flood risk, both on and off site from all sources of flooding.

The other purpose of this report is to present the surface water and foul water outline drainage strategies for the site which have been developed by the Alan Johnston Partnership. To demonstrate how the specific drainage requirements are to be met, the report should be read in conjunction with the relevant drawings and supporting information, included within the appendices.

The drainage strategies outlined within this report, have been prepared in accordance with BS EN 752:2017 (Drain and sewer systems outside buildings), Sewers for Adoption, Building Regulations Approved Document H (Drainage and waste disposal) and the Technical Guidance to the National Planning Policy Framework document (Department for Communities and Local Government, March 2012).

2.0 SITE DESCRIPTION

The existing site is situated to the east of Ten Acres Lane, Newton Heath, Manchester and is located at National Grid reference SD 87580 00295. The location of the existing site is illustrated in Appendix A and the extent of the area to which the application relates is shown on the enclosed aerial photo, attached in Appendix B.

The existing site covers a total area of approximately 19.18ha and currently consists entirely of a greenfield site. The site is bounded to the east, south and west by existing residential developments, with Mitchell Street to the east and Ten Acres Lane to the west. The site is also bounded to the north by the Rochdale Canal.

The site slopes from east to west with levels falling from approximately 86.00mAOD in the north-east corner to approximately 76.00mAOD in the north-west corner. Generally, the northern half of the site falls in a north westerly

direction and the southern portion of site falls in a south westerly direction. A topographical survey of the existing site is attached in Appendix C and an aerial photo is included in Appendix B to illustrate the site at the present day.

2.1 Geology

An intrusive site investigation was completed in May 2021 by Wardell Armstrong, report reference, LD10162 V1.1. The site investigation report indicates that the site was previously occupied by a brickworks up until around the 1950's and this has resulted in large clay pits being infilled across the site. As such, the underlying strata within areas around the periphery of the site consists of made ground to a maximum recorded depth of 2.70mbgl, which is underlain by Glacial Till deposits comprising of stiff boulder clays.

Within the clay pits areas, the underlying strata consists of greater depths of made ground, with a general depth of 2.0mbgl to 5.0mbgl but in some areas the made ground strata was found to be up to 14.8mbgl. Again, the made ground strata is underlain by Glacial Till deposits comprising of stiff boulder clays, with a maximum recorded depth of approximately 40.0mbgl. This is then underlain by bedrock, comprising mainly of sandstone and mudstone, at recorded depths up to 40.0mbgl.

This is supported by the information taken from the British Geological Survey (BGS) 1:50,000 Bedrock geology maps. These show that the site has superficial deposits comprising of both Glaciofluvial Sheet Deposits and Till, Devensian deposits, with the bedrock reported to be of both the Collyhurst Sandstone Formation, comprising of sandstone and the Manchester Marls Formation comprising of mudstone.

2.2 Hydrogeology

The Environment Agency groundwater maps show that the superficial deposits are classified as Secondary undifferentiated strata. These are defined as areas where it has not been possible to attribute either category A or B to a rock type, respectively. In most cases this is due to the variable characteristics of the rock type.

The bedrock is classified as both a Principal Aquifer (Collyhurst Sandstone Formation) and a Secondary B Aquifer (Manchester Marls Formation). Principal Aquifer areas are defined as those that exhibit high permeability and/or provide a high level of water storage that may also support water supply and/or river base flow on a strategic scale, whereas Secondary B Aquifer areas are defined as areas with lower permeability layers that may store and yield limited amounts of groundwater.

The Environment Agency groundwater maps also indicate that the site is not situated within a groundwater Source Protection Zone (SPZ). The Wardell Armstrong Ground Investigation Report indicates that groundwater strikes were recorded across the site but these seem to be indicative of perched groundwater above the impermeable clay strata.

2.3 Hydrology

The development site is situated in the catchment of the River Medlock, which is located approximately 600m south of the site. The site is located within Flood Zone 1 which is categorized by the Environment Agency as land assessed as having less than a 1 in 1,000 annual probability of river flooding (1% – 0.1%). Therefore, the site is an area identified by the Environment Agency as low risk of flooding from rivers and streams.

3.0 PROPOSED DEVELOPMENT

The proposed development will occupy the entire 19.18ha site and will consist of residential units and commercial/employment development buildings. The proposed development will also contain associated access roads, car parking areas and also landscaping areas. The proposed development is to be split into 2no. separate phases and also includes a 3.83ha area which is to be set aside for a school development.

To enable a viable scheme, the proposed site levels are constrained by the existing residential developments and highways surrounding the site, therefore the site levels are likely to remain similar to the existing. The proposed site plan is attached in Appendix D.

4.0 PLANNING POLICY

The National Planning Policy Framework (NPPF) sets out the Government's policy on meeting the challenges of climate change, flooding and coastal change. The NPPF states that:

"Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impact of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development. Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change taking full account of flood risk, coastal change and water supply and demand consideration."

This Flood Risk Assessment proposes recommendations to facilitate the proposed development so that it takes into account flood risk at all stages of the development.

4.1 Sequential Test

Based on the sites location, within Flood Zone 1, the Sequential Test is not required. Therefore, the development is deemed appropriate, in Flood Zone 1 and a sequential test is not required.

4.2 Exception Test

NPPF classifies the development (Residential) as a 'More vulnerable development' but as the site is located within Flood Zone 1, the development is deemed appropriate according to NPPF and therefore the Exception Test is not required.

5.0 FORMS OF FLOODING

The Technical Guidance to the National Planning Policy Framework requires all forms of flooding to be considered.

5.1 Flooding from Rivers

The Flood Risk map is included as Appendix E.

As can be seen from the Flood Risk map, the entire site is located within Flood Zone 1 and therefore, the site is located in Flood Zone 1 with a chance of flooding of less than 0.1% (or 1 in 1000).

The nearest river is the River Medlock, which is located approximately 600m south of the site and therefore the risk of flooding to the new development from rivers is considered to be low.

5.2 Flooding from the Sea

The site is not at risk of flooding from the sea. The lowest level of the site is approximately 76.00m AOD, i.e. well above tidal flood levels.

5.3 Flooding from Land

Intense rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems can run quickly off land and result in local flooding.

The Surface Water Flooding map is included in Appendix E. It can be seen from the map that the majority of the site is classified as having a very low risk of surface water flooding with only very small areas classified as having a medium to high risk of surface water flooding.

Assessing the existing topography of the site it can be seen that the areas at medium to high risk are small depressions in the existing levels and as these will be removed and the site positively drained as part of the proposed development, the risk of flooding from overland flows due to surface water flooding is considered to be low.

Therefore, the risk of flooding from overland flows due to surface water flooding is considered to be low and as such the overall site is considered to be at low risk of flooding from surface water/surrounding land.

5.4 Flooding from Groundwater

The Groundwater Flooding Map contained within the Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (SFRA) Report indicates that the site is in an area which is not at risk of groundwater flooding.

As outlined in Section 2.2, the Wardell Armstrong Ground Investigation Report indicated that groundwater strikes were recorded across the site but these seem to be indicative of perched groundwater above the impermeable clay strata. This would therefore indicate that the actual groundwater level is located within the bedrock strata at depths below 15.0mbgl. As such, due to the likely depths of the groundwater table it is envisaged that the site has a negligible risk of groundwater flooding.

Therefore, the site is considered to be at low risk of flooding from groundwater.

5.5 Flooding from Sewers

A record of Public Sewers surrounding and serving the development site has been obtained from United Utilities and this is included in Appendix F. As can be seen from the United Utilities map, there are no exiting public sewers located within the site, with all nearby public sewers located within the surrounding highways. As such, it is envisaged that any flooding from the public sewers would be contained within the surrounding highways and not encroach upon the site.

Therefore, the lack of public sewers within the proposed site leads to the conclusion that the site itself is considered to have a low risk of flooding from sewers.

5.6 Flooding from Reservoirs, Canals and Other Artificial Sources

The Reservoir Flood Risk map is included in Appendix E and the nearest reservoir is Audenshaw Reservoir which is located approximately 4.5km south-east of the site. As such, it can be seen from the map that the site is not at risk of flooding from reservoirs.

However, the nearest canal is the Rochdale Canal which is located adjacent to the northern boundary of the site. The Canal Hazard Zones Map contained within the Manchester City, Salford City and Trafford Councils Level 2 Hybrid Strategic Flood Risk Assessment (SFRA) Report indicates that a small area to the north-west corner of the site is located within a Canal Breach Zone B, which is defined as a less likely breach location.

Assessing the topography of the site with respect to the canal and towpath it can be seen that the towpath level is typically around 1.5m – 3.0m below the adjacent site levels. This is further demonstrated by the below photograph which indicates the level of the towpath and canal relative to the adjacent site level (left), at Ten Acres Lane bridge.



The fact that the water levels in canals are closely controlled and that canals are maintained by the Canal & Rivers Trust makes the likelihood of canal flooding occurring low. Therefore, this coupled with the above information leads to the conclusion that the proposed development has a low risk of flooding from reservoirs, canals and other artificial sources.

6.0 DEVELOPMENT AND DRAINAGE STRATEGY

6.1 Effect of Development on Flood Risk

As previously outlined in Section 2.0, the total site area is approximately 19.18ha and, as can be seen from the aerial photo, attached in Appendix B, the site entire is greenfield. As previously outlined, the proposed development is to be split into 2no. separate phases and also includes a 3.83ha area which is to be set aside for a school development.

As such, the introduction of the proposed roof areas, access roads and other areas of hardstanding will increase the impermeable areas across both sites. Assessing the proposed site plans it is estimated that the total post development impermeable area is approximately 60% of the total site, which results in a total post development impermeable area 11.4ha and therefore this area will require positive drainage.

The introduction of the residential units and the associated access roads and car parking will increase the impermeable area across the site. This increase in the impervious area within both proposed sites will lead to an increase in the;

- Volume of surface water ponding on the sites.
- Volume of surface water runoff leaving the sites or discharging into surrounding areas.
- Peak discharge rate from the sites.

Accordingly, site-wide drainage systems are required to drain the foul and surface water flows arising from the proposed developments. Where possible, any existing drainage networks should be utilised. Appropriate design and construction of these systems as set out in Section 6.3 should ensure that there is no increase in offsite flood risk that would otherwise impact downstream areas.

6.2 Existing Drainage Systems

As can be seen from the United Utilities sewer map, attached in Appendix F, there are no existing public sewers running through the proposed site, with the only nearby public sewers being located within the surrounding highways and residential developments. There are also no records of any open watercourses or tributaries located within the site or nearby, nor have any such features been located through site investigation and topographical surveys.

A CCTV survey of the existing public and private sewers has been undertaken and it has confirmed that there are no existing public or private sewers located within the site and that there are no existing outfalls from the site to the Rochdale Canal, to the north. The CCTV survey has also confirmed the location, details, levels and condition of the existing public sewers surrounding the proposed site.

6.3 Proposed Drainage Strategy

As outlined above in section 6.1, where required drainage systems are needed to drain the foul and surface water flows arising from the proposed development. The proposed drainage systems must ensure that there is no increase in offsite flood risk that would otherwise impact downstream areas.

6.3.1 Surface Water Drainage

The Building Regulations - Approved Document H (2002) details a hierarchy of potential methods for disposing of surface water as shown below in order of preference:

- Discharge via infiltration
- Discharge to watercourse
- Discharge to sewer

Considering the hierarchy above, the surface water drainage for the proposed development should infiltrate where possible. The Wardell Armstrong Site Investigation Report, LD10162 V1.1, undertook 4no. BRE365 complaint infiltration tests. The results of these tests indicated that infiltration was not suitable in the areas of

the site underlain by the cohesive glacial till strata but areas of the site underlain by made ground stratum provided suitable infiltration rates.

However, due to the potential for inundation settlement within the large depths of made ground it is envisaged that soakaways would not be suitable method for the discharge of the surface water runoff from the site. This is supported within Section 17.3.2 of the Wardell Armstrong Site Investigation Report, LD10162 V1.1, which states; *"Testing indicates that traditional soakaways will not provide a suitable drainage solution for the discharge of surface water run-off within the Cohesive Glacial Till at the site. Furthermore, given the significant thicknesses of Made Ground encountered across the site....that are risk associated with collapse compression, soakaway construction is not considered suitable."*

Therefore, it is envisaged that, as a result of the impermeable clay strata and potential for inundation settlement resulting from the large depths of made ground across the site, infiltration is not suitable across the proposed site.

As the site investigation has ruled out the use of infiltration, the intention for the development would be to discharge to watercourse. The nearest river is the River Medlock, which is located approximately 600m south of the site. Due to the distance through developed third-party land, discharging to the River Medlock has been deemed impractical.

The Rochdale Canal is also an option for the discharge of the surface water runoff from the site, as it is located adjacent to the northern boundary of the site. However, assessing the Canal & River Trust map, attached in Appendix G, it can be seen that there is a bridge, a footbridge and four locks located along the approximate 700m length of canal to the north of the site boundary.

Section 3.2 of the Code of Practice for Works Affecting the Canal & River Trust: Part 2: Detailed Information, states; *"Discharges are not usually permissible directly above and below locks, adjacent to moving bridges and at mooring sites."* The same section also states that; *"Discharge velocity generally must not exceed 0.3m/s"*.

Due to the size of the site, the large greenfield discharge rates and the velocity restrictions imposed on discharging into the canal, it is anticipated that the site would require multiple new outfall connections into the canal. As a result of the likely requirement for numerous outfalls into the canal, it is envisaged that discharging into this section of canal to the north of the site would not be feasible due to at least some of the outfalls likely needing to be located within close vicinity of the numerous structures within the canal.

Despite this, the Canal & River Trust have been contacted regarding the discharge of the surface water runoff from the site into the adjacent Rochdale Canal. The correspondence is attached in Appendix G. As can be seen the application has been submitted and is currently under assessment by the Canal & River Trust.

Should the surface water discharge into the canal not be feasible, the only practical solution for discharge of the surface water is discharge to public sewer. As indicated within Section 6.2, the only nearby public sewers are located within the surrounding highways and residential areas. As can be seen from the United Utilities sewer maps, attached in Appendix F, there are no nearby public surface water sewers and therefore it is envisaged that the surface water runoff would discharge into the surrounding public combined water sewers.

The only public sewers which are potential options for the proposed drainage connections from the site are the 300mm/375mm diameter public combined water sewer located within Ten Acres Lane to the west of the site, the 300mm diameter public combined water sewer located within Hallam Road to the south of the site and the 300mm diameter public combined water sewer located within Mitchell Street to the east of the site. As such, it is envisaged that the surface water runoff from the proposed development will discharge to the surrounding public combined water sewers.

While every effort to utilise any suitable existing systems should be made, the drainage systems should be designed to suit the proposed site layout and topography which aims to provide an efficient design.

In line with Sewers for Adoption (7th Edition), the requirements for the design of a new surface water drainage systems are as follows:

- Below ground drainage to be sized to accommodate the 1 in 2 year design storm without surcharge.
- System to be designed not to flood any part of the site in a 1 in 30 year design storm.
- For events in exceedance of the 1 in 30 year design storm and up to and including the 1 in 100 year event, site drainage and topography should be designed where practicable to route surface water run-off away from buildings to safe above-ground storage areas on site, thereby preventing this run-off from leaving the site and increasing flood risk elsewhere.

For each design case described above, the design storm is the critical storm duration for the site conditions. In the case of the 1 in 100 year design storm, a 40% increase in the peak rainfall intensity is applied to allow for the estimated worst case impacts of climate change. This is in accordance with new advice, issued by the Environment Agency, which updates previous allowances within the National Planning Policy Framework.

Therefore, suitable systems of below ground drainage will be required to contain as a minimum requirement, the 1 in 30 year event. Additionally, any surface water run-off from events that exceed the design capacity of the new drainage system, up to and including the 1 in 100 year (+40%) event, will be retained on-site in safe storage areas.

As the site is greenfield and lies within a critical drainage area, the surface water discharge rate will be restricted to the existing greenfield runoff rates in order to comply with Section 3.4.1 of the Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA User Guide. The discharge rates are to be restricted so that the peak runoff rate from the proposed development does not exceed the peak greenfield runoff rate for the same rainfall event.

Discussions with United Utilities have also been undertaken regarding the maximum surface water discharge rate from the site, attached in Appendix F, and they have indicated that should discharge to the canal not be feasible the surface water runoff from the site can discharge to the combined water public sewers at greenfield runoff rates. Further discussions should be undertaken with United Utilities to identify and further requirements.

Therefore, an assessment of the existing surface water run-off from the greenfield site has been completed using the ICP SuDS method which is available in MicroDrainage. Using the total site area of 19.18ha, the following existing greenfield discharge rates have been generated. The greenfield runoff assessment is attached in Appendix H.

Return Period (Years)	Existing Greenfield Runoff Rate (L/s)	Preliminary Storage Estimate (m ³)
1 Year	96.9	1082
Qbar (2 Year)	111.3	1375
30 Year	188.7	2640
100 Year	231.6	5577

Using the estimated total post development impermeable area of 11.4ha, preliminary storage estimates for each of the return periods have also been calculated. The existing greenfield runoff rates for each return period have been utilised to calculate the preliminary storage estimate for each return period. The preliminary storage estimates are attached in Appendix I and are summarised in the table above.

The calculated storage volumes are estimates only and are therefore the actual total storage volume required is likely to change during the detailed design of the proposed surface water drainage system. As such, the actual storage volume required is subject to change and is dependent upon the detailed drainage design.

As outlined below, all SuDS techniques have been considered and comments made on their suitability for this proposed development;

SuDS Technique	Suitable for This Development?	Reasoning
Green Roof	✗	Impractical due to minimal roof area available and residential nature of development.
Rainwater Harvesting	✗	Impractical due to minimal roof area available.
Basins or Ponds	✓	Suitable due to areas of public open space.
Filter Strips & Swales	✓	Swales suitable but filter strips are not due to the impermeable strata.
Infiltration Techniques	✗	Unsuitable due to impermeable strata.
Permeable Surfaces	✓	Only non-infiltration suitable due to impermeable strata.
Tank / Oversized Pipe Systems	✓	Suitable.

Due to the size of the proposed development, the large discharge rates and the level differences across the site, it is envisaged that the surface water discharge will require numerous connections to either the Rochdale Canal to the north or the surrounding public sewer networks.

Therefore, as indicated within the Outline Drainage Strategy drawing attached in Appendix J, the surface water runoff should discharge into the Rochdale Canal to the north of the site, as this is the preferred option in terms of drainage hierarchy. As such, it is envisaged that the proposed surface water drainage will collect the runoff from the proposed residential units, other buildings, car parking areas and access roads and convey the flow, along the proposed access roads, to the Rochdale Canal to the north of the site.

Prior to discharge into the canal the surface water runoff will be restricted to the required discharge rates using vortex flow control devices.

However, should discharge to the canal not be feasible, the surface water runoff will likely discharge to the each of the following public sewers;

- The 300mm/375mm diameter public combined water sewer located within Ten Acres Lane to the west of the site.
- The 300mm diameter public combined water sewer located within Hallam Road to the south of the site.
- The 300mm diameter public combined water sewer located within Mitchell Street to the east of the site.

If discharging to public sewers, the surface water discharge will be restricted to the required runoff rates, prior to combining with the foul water runoff from the site and then discharging into the surrounding public combined water sewers.

The overall discharge rates for the overall development is to be restricted to the previously identified existing greenfield runoff rates. However, as the site is to be separated into Phase 1, Phase 2 and the School area site, it is envisaged that the discharge rate will be pro-rated across each of the 3o. separate areas. As such, using the overall Qbar (2 Year) discharge rate of 111.3 L/s and assuming a 20 L/s maximum discharge rate for the proposed school area, results in the discharge rates being pro-rated as; Phase 1 – 47.3 L/s and Phase 2 – 44.0 L/s.

As a result of the areas of available public open space, it is envisaged that a combination of oversized pipes, detention basins, ponds and swales will be used to store the surcharged runoff. However, this is to be confirmed during the detailed drainage design.

It is envisaged that the proposed surface water drainage will be adopted by the sewerage undertaker under a S104 agreement, and therefore, the oversized pipes will store the surcharged runoff for all rainfall events up to and including the 1 in 30 year storm event, with events in exceedance of this, up to and including the 1 in 100 year +40% climate change event, stored within; detention basins, ponds, swales, permeable paving areas and rain gardens.

The surface water drainage strategy and SuDS solutions outlined above are all subject to detailed drainage design and LLFA and United Utilities approvals. It is also subject to change, dependent upon the final site layout and levels. The surface water drainage proposals and discharge rates should be confirmed via detailed discussions with the Lead Local Flood Authority and United Utilities prior to the commencement of any works.

6.3.2 Foul Water Drainage

Foul water drainage disposal is set out in Part H of the Building Regulations in order of priority the preferred methods are;

1. Public sewer
2. Septic tank
3. Cesspool.

The foul water system shall be designed in accordance with;

- BS EN 752:2017 (Drain and sewer systems outside buildings)
- Sewers for Adoption (6th Edition)
- Technical Guidance to the National Planning Policy Framework document (Department for Communities and Local Government, March 2012).
- BS EN 12056-2:2000 (Drainage systems inside buildings)
- Building Regulations Approved Document H, Drainage and waste disposal. (Office of the Deputy Prime Minister, December 2010).

It is anticipated that the proposed foul water drainage will collect the runoff from the proposed residential units and other buildings and also convey the flow, along the proposed access roads to each of the public sewer locations identified within Section 6.3.1 above. At each of these discharge locations the foul water will combine with the restricted surface water runoff from the site prior to discharging into the surrounding public combined water sewers.

A CCTV survey of the existing public sewers has been undertaken and it has confirmed the location, levels and condition of the existing sewers. The CCTV survey has indicated that all of the surrounding public combined water sewers are around 2.5m – 4.0m deep and as such it is anticipated that it will be feasible to connect the proposed foul water drainage from the site into the existing public sewers, via gravity. However, this should be confirmed during the detailed design for the site.

Discussions with United Utilities have also been undertaken regarding the foul water discharge from the site, attached in Appendix F, and they have indicated that the foul water discharge from the site can discharge to the combined water public sewers at unrestricted discharge rates. Further discussions should be undertaken with United Utilities to identify and further requirements.

As with the surface water drainage strategy, the foul water drainage strategy outlined above is subject to detailed drainage design and LLFA and United Utilities approvals. It is also subject to change, dependent upon the final site layout and levels. The foul water drainage proposals should be confirmed via detailed discussions with the Lead Local Flood Authority and United Utilities prior to the commencement of any works.

7.0 FUTURE MANAGEMENT & MAINTENANCE

The proposed drainage solution uses SUDS techniques in accordance with the CIRIA SUDS Manual C753. The surface water run-off from the proposed development is to be restricted using vortex flow control devices and the attenuated run-off stored using oversized pipes, swales, detention basins and/or ponds, permeable paving and rain gardens.

It is envisaged that the following components may be included within the drainage strategy for the proposed development:

- Inspection chambers, manholes and catchpits.
- Pipes.
- Drainage channels and gullies.
- Vortex flow control devices.
- Swales.
- Detention basins.
- Ponds.
- Permeable paving.
- Rain gardens.

A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented. As it is envisaged that the main drainage along the access roads will be adopted, the maintenance of the adoptable surface and foul water drainage systems including any vortex flow control units should be the responsibility of United Utilities, following the S104 adoption agreement.

The maintenance of the private plot drainage, any offline attenuation solutions and any gullies and drainage channels within parking areas will be the responsibility of a facilities management team and therefore a copy of the final construction drainage layout should be provided in the final Operations and Maintenance Manual.

As such, the maintenance of the specified SuDS should be included within the developments Operation and Maintenance Manual and should be detailed in accordance with the CIRIA SuDS Manual C753, as per the operation and maintenance guidance outlined below.

7.1 General Maintenance & Inspection Requirements

- No work shall be carried out on the drainage system without permission from a nominated person, who has access to information/a working knowledge of the system.
- Maintenance/inspection work shall be carried out in a safe/planned manner.
- All work is to be carried out by competent persons suitably trained and equipped in accordance with current statutory safe working policies.
- Entry into confined spaces shall be kept to a minimum and be restricted to suitably qualified/equipped persons working in accordance with current statutory safe working policies.
- Drainage systems shall be inspected on a regular basis or should any problems be suspected. Any debris/defects discovered shall be recorded and a programme of cleaning/ repair initiated. Urgent repairs/cleaning shall be actioned as soon as practicable.
- It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.
- Clearing of the drainage system can be achieved by a number of methods depending on the nature of the work;
 - Rodding – Manual/Mechanical with flexible rods.
 - Jetting – High pressure water jetting.
 - Plunging.

7.2 Inspection Chambers, Manholes and Catchpits

The appropriate health and safety equipment must be used when accessing manholes/catchpits. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the Maintenance Manager prior to any access. The following operations should be carried out annually.

- Covers of inspection chambers and manholes shall be removed and the sides, benchings and channels cleared.
- Accumulated deposits of silt in inspection chambers, catchpits and manholes shall be removed. Any traps shall then be plunged and thoroughly flushed out with clean water. This should be completed in Autumn, after leaf fall.
- Main and branch drains shall be cleared as required and afterwards be flushed with clean water. Any obstructions found shall be removed and not flushed down the system.
- Covers of inspection chambers, manholes and catchpits shall be replaced, bedded in suitable grease or other sealing material as required and bolted/locked down as appropriate. Missing bolts and broken items shall be replaced in accordance with the manufacturer's details.

7.3 Pipes

Regular inspection and maintenance is important to identify areas which may have become obstructed/clogged and may not be draining correctly, as failure to do so would expose the development to a greater level of flood risk.

Pipes are proprietary products and therefore the materials used can vary across the site. As such, where used the manufacturer's recommendations should be followed. Access for maintenance of the pipes is provided through inspection chambers and manholes. The below table sets out the maintenance schedule for the pipe components of the proposed drainage systems.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect for evidence of poor operation via water levels. If required take remedial action.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.
	Check and remove large debris and/or vegetation growth near pipe runs.	Monthly or as required.
Remedial Actions	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue.	As required, if above actions do not improve performance.
Monitoring	Initial Inspection should be provided as post construction CCTV survey.	N/A
	Inspect/check all inlets, outlets and overflows to ensure they are in good condition and operating as designed.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.

7.4 Drainage Channels and Gullies

Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.

Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the

frame or seating. The below table sets out the maintenance schedule for the drainage channel and gullies components of the proposed drainage systems.

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Litter and debris removal.	Monthly or as required.
	Check and remove large debris and/or vegetation growth near pipe runs.	Monthly or as required.
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.
Remedial Actions	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue.	As required, if above actions do not improve performance.
Monitoring	Initial Inspection including channel outlet boxes and gully sumps.	Monthly for 3 months, then six-monthly intervals. Also, 48 hours after large storms.

7.5 Vortex Flow Control Devices

Regular inspection and maintenance is important to identify if the vortex flow control device has become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk.

Vortex flow control devices are proprietary products and therefore can vary from manufacturer to manufacturer. As such, where used the manufacturer's recommendations should be followed.

- Normally, little maintenance is required as there are generally a vortex flow control device has no moving parts.
- If blockages occur they tend to do so at the intake of the vortex flow control device.
- Vortex flow control devices are generally fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur.
- The smaller type conical units, below the minimum recommended size, are also supplied with roding facilities or vortex suppressor pipes as standard.
- Following installation of the vortex flow control device it is vitally important that any extraneous material i.e. Building materials are removed from the unit and the chamber.
- After the system is made live, it is recommended that each unit be inspected monthly for three months and thereafter at six monthly intervals with hose down if required. Units should also be inspected within 48 hours after large storms.

7.6 Swales

Regular inspection and maintenance is important to identify if the inlets/outlets have become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk. The maintenance requirements for swales are outlined within Table 17.1 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the swale components of the proposed drainage systems.

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeded	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

7.7 Detention Basins

Regular inspection and maintenance is important to identify if the inlets/outlets have become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk. The maintenance requirements for detention basins are outlined within Table 22.1 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the detention basin components of the proposed drainage systems.

TABLE 22.1	Operation and maintenance requirements for detention basins		
	Maintenance schedule	Required action	Typical frequency
Regular maintenance		Remove litter and debris	Monthly
		Cut grass – for spillways and access routes	Monthly (during growing season), or as required
		Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
		Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
		Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
		Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
		Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
		Check any penstocks and other mechanical devices	Annually
		Tidy all dead growth before start of growing season	Annually
		Remove sediment from inlets, outlet and forebay	Annually (or as required)
		Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance		Reseed areas of poor vegetation growth	As required
		Prune and trim any trees and remove cuttings	Every 2 years, or as required
		Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions		Repair erosion or other damage by reseedling or re-turfing	As required
		Realignment of rip-rap	As required
		Repair/rehabilitation of inlets, outlets and overflows	As required
		Relevel uneven surfaces and reinstate design levels	As required

7.8 Ponds

Regular inspection and maintenance is important to identify if the inlets/outlets have become obstructed/clogged and may not be functioning correctly, as failure to do so would expose the development to a greater level of flood risk. The maintenance requirements for ponds are outlined within Table 23.1 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the pond components of the proposed drainage systems.

TABLE 23.1 Operation and maintenance requirements for ponds and wetlands

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – public areas	Monthly (during growing season)
	Cut the meadow grass	Half yearly (spring, before nesting season, and autumn)
	Inspect marginal and bankside vegetation and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Inspect water body for signs of poor water quality	Monthly (May – October)
	Inspect silt accumulation rates in any forebay and in main body of the pond and establish appropriate removal frequencies; undertake contamination testing once some build-up has occurred, to inform management and disposal options	Half yearly
	Check any mechanical devices eg penstocks	Half yearly
	Hand cut submerged and emergent aquatic plants (at minimum of 0.1 m above pond base; include max 25% of pond surface)	Annually
	Remove 25% of bank vegetation from water's edge to a minimum of 1 m above water level	Annually
	Tidy all dead growth (scrub clearance) before start of growing season (Note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment from any forebay.	Every 1–5 years, or as required
	Remove sediment and planting from one quadrant of the main body of ponds without sediment forebays.	Every 5 years, or as required
Occasional maintenance	Remove sediment from the main body of big ponds when pool volume is reduced by 20%	With effective pre-treatment, this will only be required rarely, eg every 25–50 years
Remedial actions	Repair erosion or other damage	As required
	Replant, where necessary	As required
	Aerate pond when signs of eutrophication are detected	As required
	Realign rip-rap or repair other damage	As required
	Repair / rehabilitate inlets, outlets and overflows.	As required

7.9 Permeable Paving

The maintenance requirements for permeable paving is covered under the pervious pavements section within the CIRIA SUDS Manual C753. As such, the maintenance requirements for permeable paving are outlined within Table 20.15 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the permeable/porous tarmac component of the proposed drainage systems.

TABLE 20.15	Operation and maintenance requirements for pervious pavements		
	Maintenance schedule	Required action	Typical frequency
	Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
	Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
		Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
	Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
		Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
		Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
	Monitoring	Initial inspection	Monthly for three months after installation
		Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
		Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
		Monitor inspection chambers	Annually

7.10 Rain Gardens

The maintenance requirements for rain gardens is covered under the bioretention systems section within the CIRIA SUDS Manual C753. As such, the maintenance requirements for rain gardens are outlined within Table 18.3 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the permeable/porous tarmac component of the proposed drainage systems.

TABLE 18.3 Operation and maintenance requirements for bioretention systems		
Maintenance schedule	Required action	Typical frequency
Regular inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine if maintenance is necessary	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

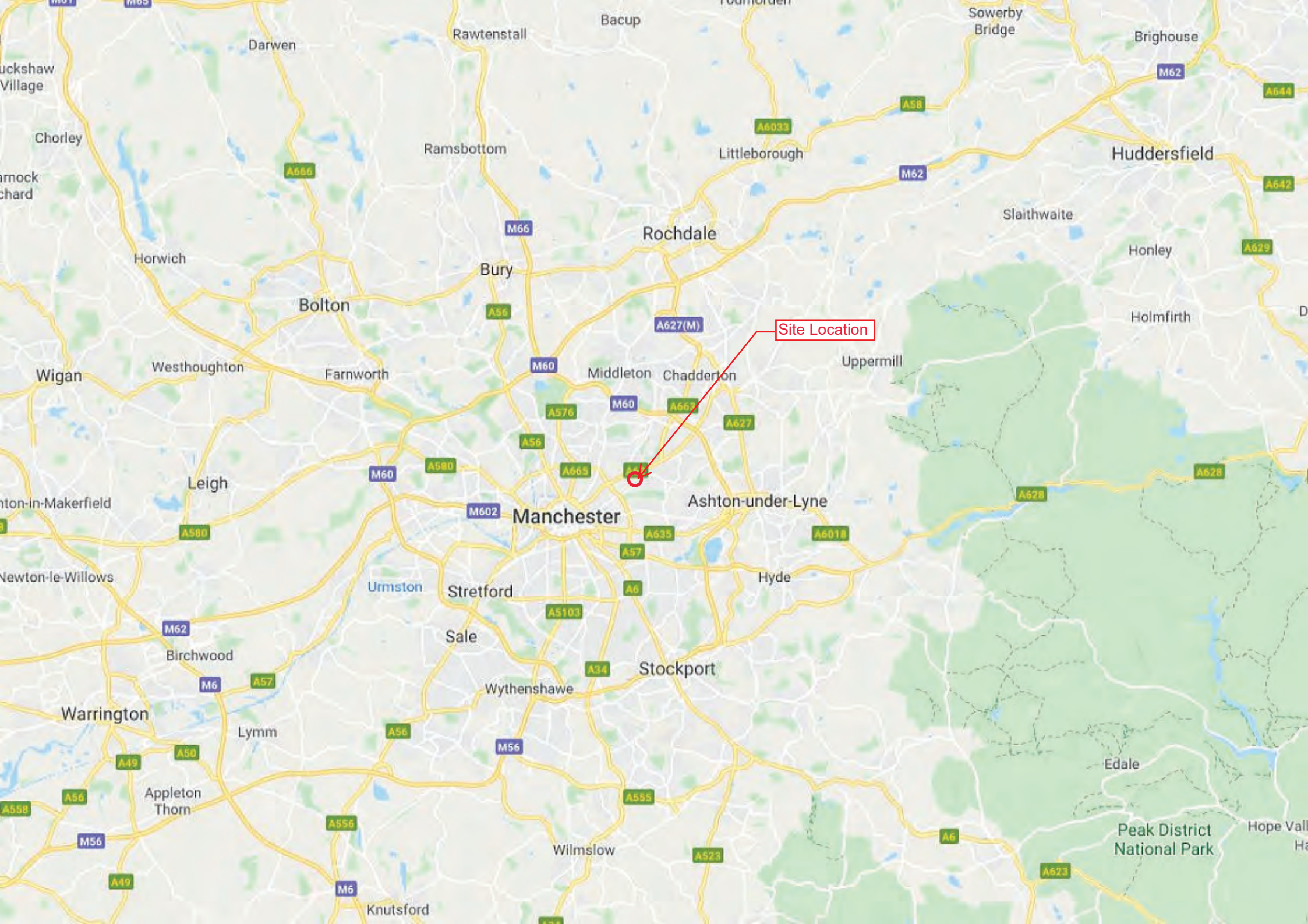
It should be noted that the Main Contractor should provide a Verification Report, including photographic evidence, to demonstrate that the drainage has been constructed as per the design drawings. As-built drawings should as be supplied by the Main Contractor, where the construction of the drainage varies from the design construction status drawings.

8.0 CONCLUSIONS

- The site is located within Flood Zone 1 and therefore is classified as having a low probability of flooding from rivers or sea. The site is also at a low risk of flooding from surface water flows and all other sources.
- A site investigation has been completed which includes BRE365 compliant infiltration tests, the underlying impermeable clay strata and potential for inundation settlement due to large depths of made ground has led to the conclusion that infiltration is not feasible across the site.
- The nearest river is the River Medlock, which is located approximately 600m south of the site. Due to the distance through developed third-party land, discharging to the River Medlock has been deemed impractical.
- The Rochdale Canal has also been considered as an option for the discharge of the surface water runoff from the site, as it is located adjacent to the northern boundary of the site. Due to the size of the site, the large greenfield discharge rates and the velocity restrictions imposed on discharging into the canal, it is anticipated that the site would require multiple new outfall connections into the canal.
- Discussions with the Canal & River Trust are ongoing regarding discharging the surface water runoff into the Rochdale Canal with the application having been submitted and currently being reviewed by the Canal & River Trust. Should this be approved the surface water runoff from the proposed site should discharge to the Rochdale Canal to the north of the site.
- Should discharge to the Rochdale Canal not be feasible, the only practical solution for the discharge of the surface water runoff from the site would be to the nearby public sewers. As there are no nearby public surface water sewers, it is envisaged that the surface water runoff will discharge into the surrounding public combined water sewers.
- Due to the size of the proposed development, the large discharge rates and the level differences across the site, it is envisaged that should discharge to the Rochdale Canal not be feasible, the surface water discharge will require numerous connections to the surrounding public sewer networks and as such, it is envisaged that the proposed surface water drainage would discharge at multiple locations into numerous public combined water sewers.
- In order to comply with Section 3.4.1 of the Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA User Guide the surface water discharge rates are to be restricted so that the peak runoff rate from the proposed development does not exceed the peak greenfield runoff rate for the same rainfall event.
- Discussions with United Utilities have been undertaken regarding the maximum surface water discharge rate from the site and they have indicated that should discharge to the canal not be feasible the surface water runoff from the site can discharge to the combined water public sewers at greenfield runoff rates. Further discussions should be undertaken with United Utilities to identify and further requirements.
- An assessment of the existing surface water run-off from the greenfield site has been completed using the ICP SuDS method which is available in MicroDrainage. Using the total site area of 19.18ha, the existing greenfield discharge rates have been generated.
- It is envisaged that the proposed surface water drainage will collect the runoff from the proposed residential units, other buildings, car parking areas and access roads and convey the flow, along the proposed access roads, to the north of the site where it will be restricted to the required discharge rates via vortex flow control devices, prior to discharging into the Rochdale Canal to the north of the site.
- Should discharge to the canal not be feasible, it is envisaged that the proposed surface water drainage will collect the runoff from the proposed residential units, other buildings, car parking areas and access roads and convey the flow, along the proposed access roads, to the numerous surrounding public sewer connection points. At each of these locations, it will be restricted to the required runoff rates prior to combining with the foul water runoff from the site and then discharging into the surrounding public sewers.

- As a result of the areas of available public open space, it is envisaged that a combination of oversized pipes, detention basins, ponds, swales, permeable paving and rain gardens will be used to store the surcharged runoff. However, this is to be confirmed during the detailed drainage design.
- It is envisaged that the proposed surface water drainage will be adopted by the sewerage undertaker under a S104 agreement, and therefore, the oversized pipes will store the surcharged runoff for all rainfall events up to and including the 1 in 30 year storm event, with events in exceedance of this, up to and including the 1 in 100 year +40% climate change event, stored within the detention basins, ponds and swales.
- It is anticipated that the proposed foul water drainage will collect the runoff from the proposed residential units and other buildings and also convey the flow, along the proposed access roads to each of the public sewer connection locations. Should discharging the surface water runoff into the canal not be feasible, it is envisaged that at each of these locations the foul water will combine with the restricted surface water runoff from the site prior to discharging into the surrounding public combined water sewers.
- Discussions with United Utilities have also been undertaken regarding the foul water discharge from the site and they have indicated that the foul water runoff from the site can discharge to the combined water public sewers at unrestricted discharge rates. Further discussions should be undertaken with United Utilities to identify and further requirements.
- A CCTV survey of the existing public sewers has been undertaken and it has confirmed the location, levels and condition of the existing sewers. The CCTV survey has indicated that all of the surrounding public combined water sewers are around 2.5m – 4.0m deep and as such it is anticipated that it will be feasible to connect the proposed foul water drainage from the site into the existing public sewers, via gravity. However, this should be confirmed during the detailed design for the site.
- The surface and foul water drainage strategies are subject to detailed drainage design and LLFA and United Utilities approvals. They are also subject to change, dependent upon the finalised site layout and levels. The surface and foul water drainage proposals and discharge rates should be confirmed via detailed discussions with the Lead Local Flood Authority, United Utilities and Canal & River Trust prior to the commencement of any works.

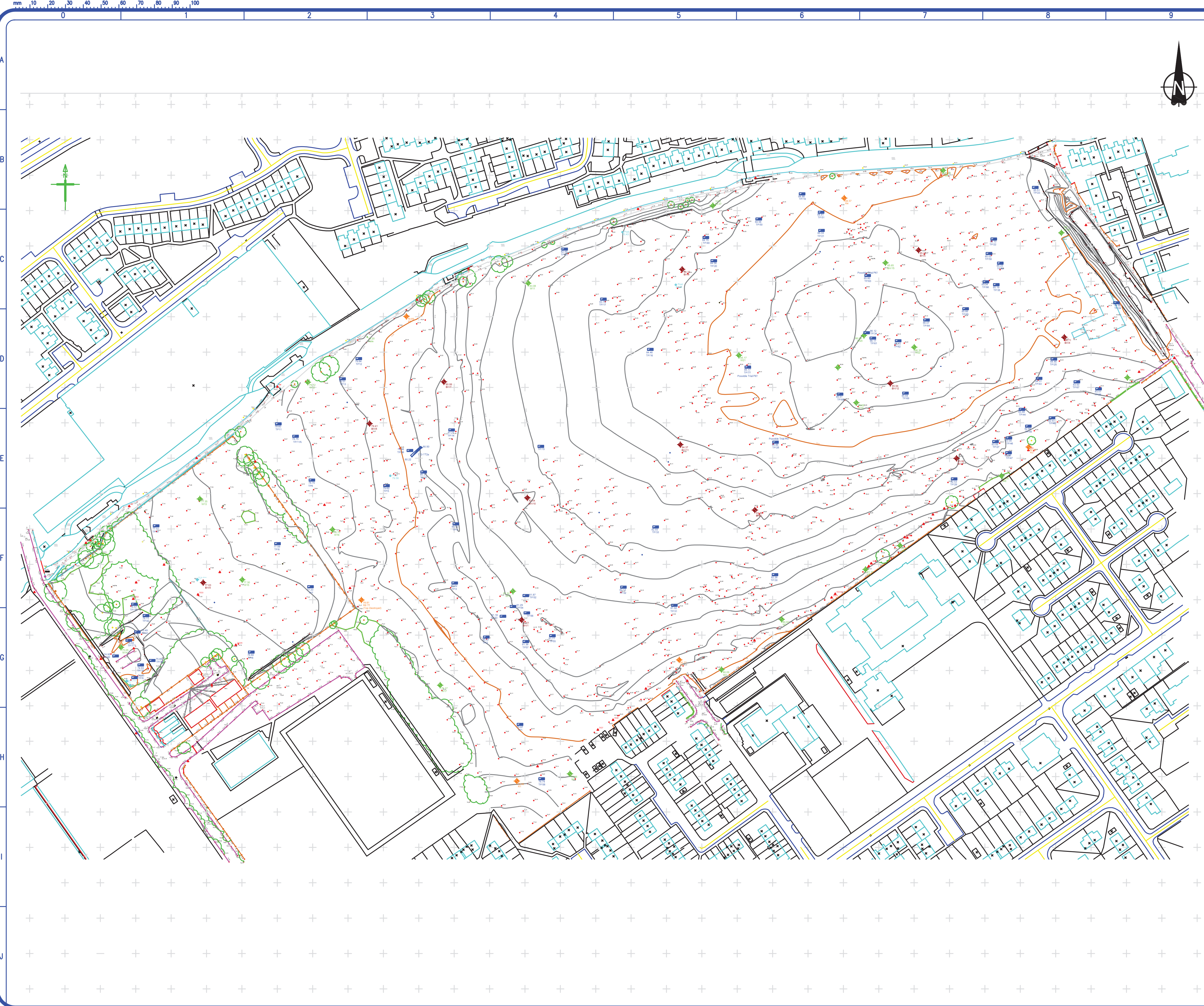
Appendix A Site Location Plan



Appendix B Aerial Photo



Appendix C Topographic Survey



- Legend**
- CABLE PERCUSSION BOREHOLE WITH ROTARY FOLLOW-ON
 - CABLE PERCUSSION BOREHOLE
 - WINDOWLESS HOLE (GAS)
 - TRIAL PIT
- ABBREVIATIONS**
- BH BOREHOLE
 - RH FRESHWATER
 - RH ROTARY BOREHOLE
 - W WINDOWLESS HOLES (GAS)

Drawing Status

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A	ISSUED FOR COMMENT	DATE
REV	COMMENT	



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Client
KPMG

Project
**C1077
Ten Acres Lane**

Title
**Topographic Survey
and exploration locations**

Drawn by SH	Checked SH	Date FEB 08	Authorised	Date
Original Scale 1/500	Date FEB 08	Rev A	Paper A1	

Drawing Number
D1077/08/3327/A1

Appendix D Proposed Site Plan

- NOTE:
1. Do not scale from this drawing
 2. All setting out, levels and dimensions to be agreed on site
 3. The dimensions of all materials must be checked on site before being laid out.
 4. This drawing must be read with the relevant specification clauses and detail drawings
 5. Order of construction and setting out to be agreed on site.
 6. This drawing is copyright protected and may not be reproduced in whole or part without written authority.
 7. All dimensions are in millimetres or metres unless stated otherwise.

BOUNDARIES

Existing Boundaries of Ownership.
In absence / to be confirmed.

THIRD PARTY INFORMATION

Proposed infrastructure surface levels and FFLs as received via Barton Wilmore 28/01/2022.

Phase 1 masterplan layout / house types from 32576-MR-M-034 - Site Layout, Option 1.dwg by Barton Wilmore 24/01/2022

SURVEYS

Topographic survey
LD10162-002.dwg, by Wardell Armstrong, 15/04/2021

LEVELS

83.30 Proposed finished spot levels. Subject to further design coordination with the AJP (civil engineer). AJP information takes precedence.

Proposed contours (only some areas covered)

Purpose of this issue:
Design coordination with AJP civil engineering adn Barton Wilmore.
Changes by Planit-IE to proposed levels (shown here) TBC by AJP.
Changes to FFLs are highlighted in red.

S0-P01	09/02/22	DRAFT	JD	LF
Revision	Date	Description	Drawn	Apprvd.



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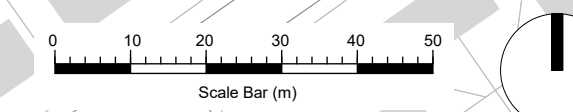
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Unit 6 Waterside, 44-48 Wharf Road, London, N1 7UX
T: 0207 253 5678

LIVERPOOL
Tempest 5.3, 12 Tithebarn Street, Liverpool, L2 2DT
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Client	Your Housing Group
Project	Jacksons Brickworks
Drg Title	Proposed Levels

Created on	Created by	Approved by	
09/02/2022	JD	LF	
Scale	Size	Workstage	Status
1:1000	A1	RIBA 3	DRAFT
Drg No.	Suitability		Revision
2490-PLA-00-00-DR-LA-0049	S0		P01



Appendix E Flood Risk Maps

Flood map for planning

Your reference
219-394

Location (easting/northing)
387562/400270

Created
9 Sep 2020 10:57

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

This means:

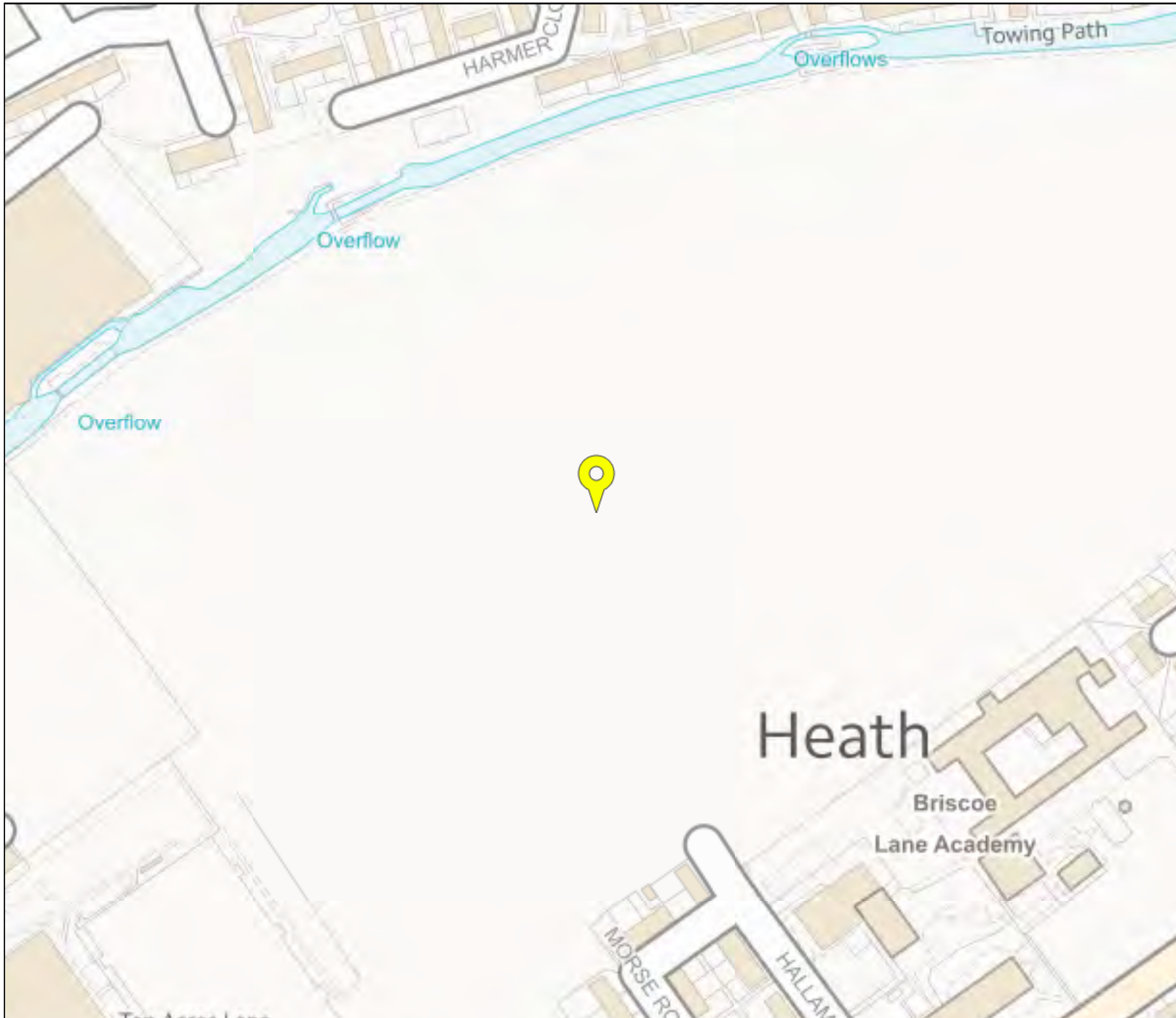
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

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.

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<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>



Flood map for planning

Your reference

219-394

Location (easting/northing)

387562/400270

Scale

1:2500

Created

9 Sep 2020 10:57

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

0 20 40 60m

Extent of flooding

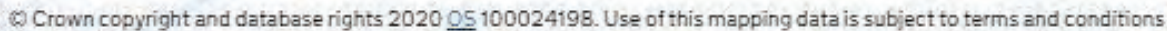
Enter a place or postcode



Extent of flooding from rivers or the sea

High Medium Low Very low Location you selected

▼



○



Location you selected

Extent of flooding

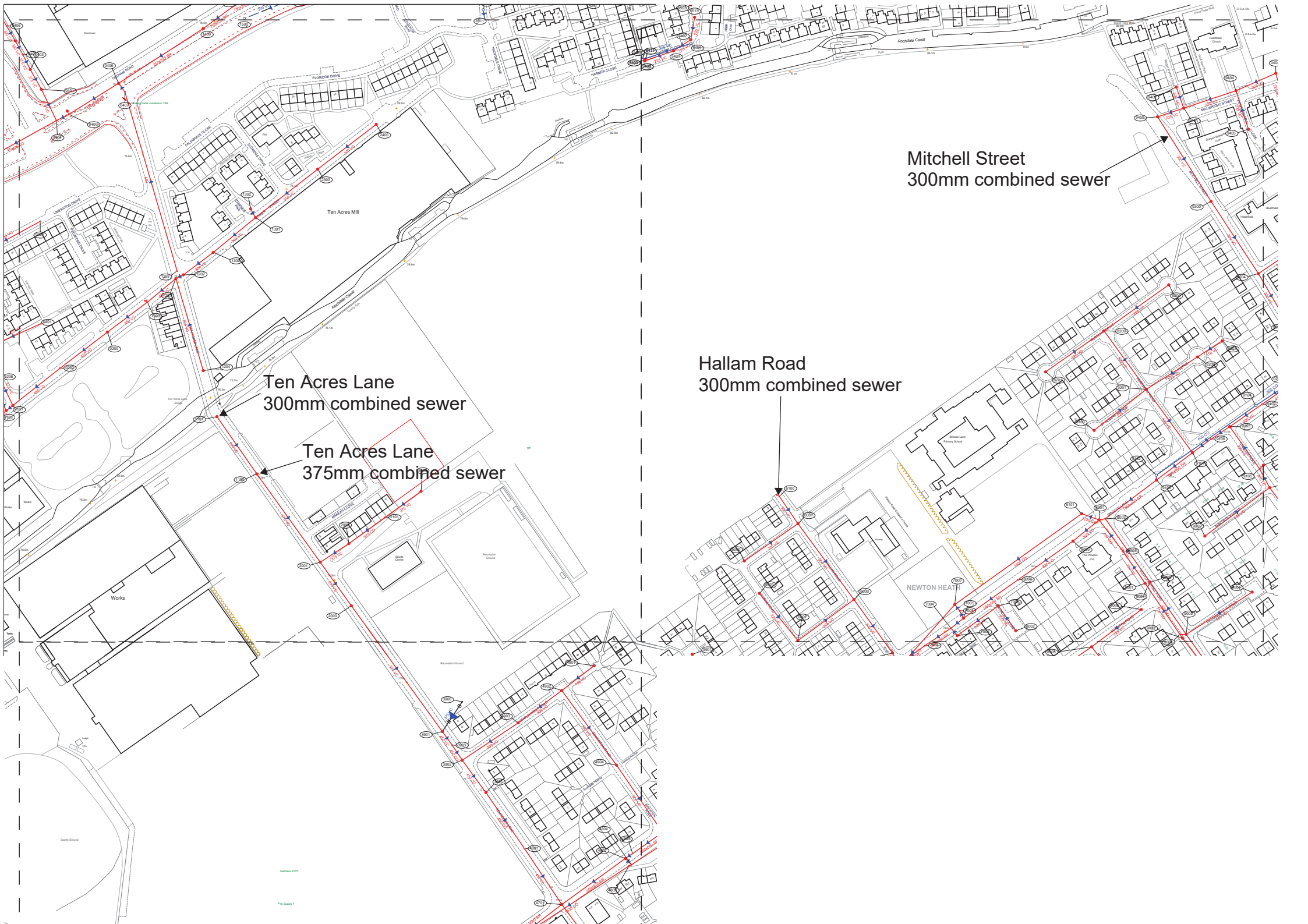
Enter a place or postcode



Extent of flooding from reservoirs

Maximum extent of flooding Location you selected

Appendix F United Utilities Map & Correspondence

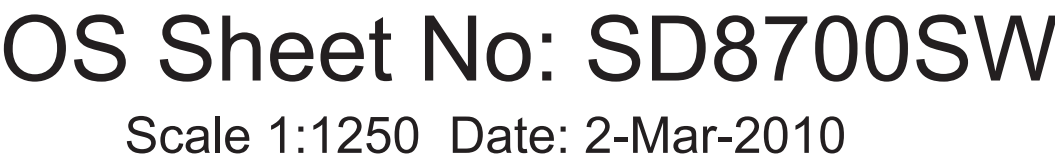


Mitchell Street
300mm combined sewer

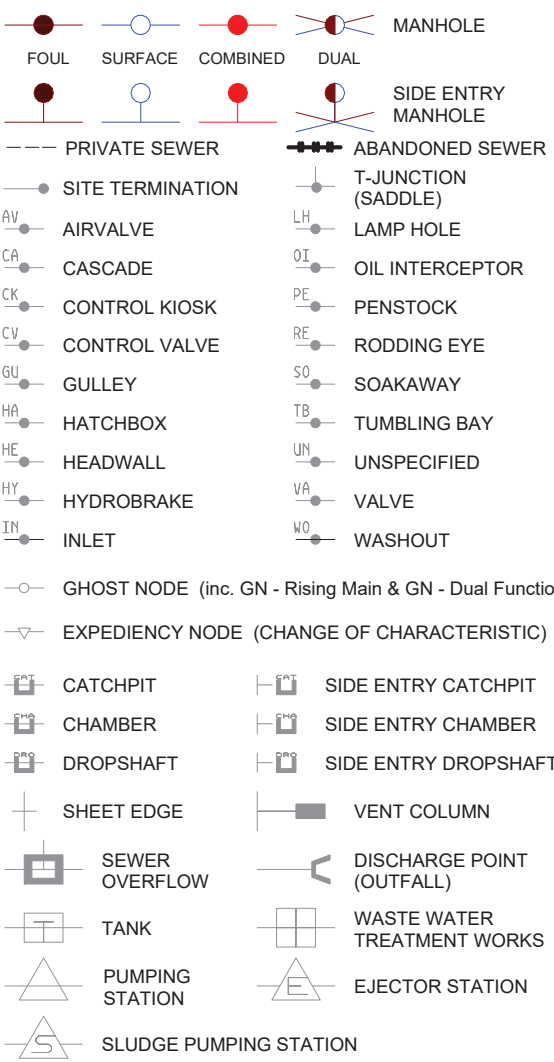
Ten Acres Lane
300mm combined sewer

Ten Acres Lane
375mm combined sewer

Hallam Road
300mm combined sewer



WASTE WATER SYMBOLOGY



Note - ALL flow direction arrows are BLUE - colour not significant

NODE TABLE ABBREVIATIONS

MANHOLE FUNCTION

F Foul	T Transition
S Surface	O Overflow
C Combined	U Unspecified

MANHOLE / NODE TYPE

M Manhole	Z Ghost in Rising Main
J Junction	C Cascade
L Lamphole	Y Gully
H Hatchbox	E Ejector
R Rodding Eye	O Oil Injector
F Foutfall	I Inlet
V Combined Sewer Overflow	B Hydrobrake T Vent Column
P Pumping Station	X Valve
S Soakaway	U Unspecified
D Dual Function Manhole	Q Expediency Node G Ghost
W Treatment Works	(to allow pipe bends)

SEWER SHAPE

C Circular	T Trapezoidal
E Egg	A Arch
O Oval	B Barrel
F Flat Top	H Horseshoe
R Rectangular	U Unspecified
S Square	

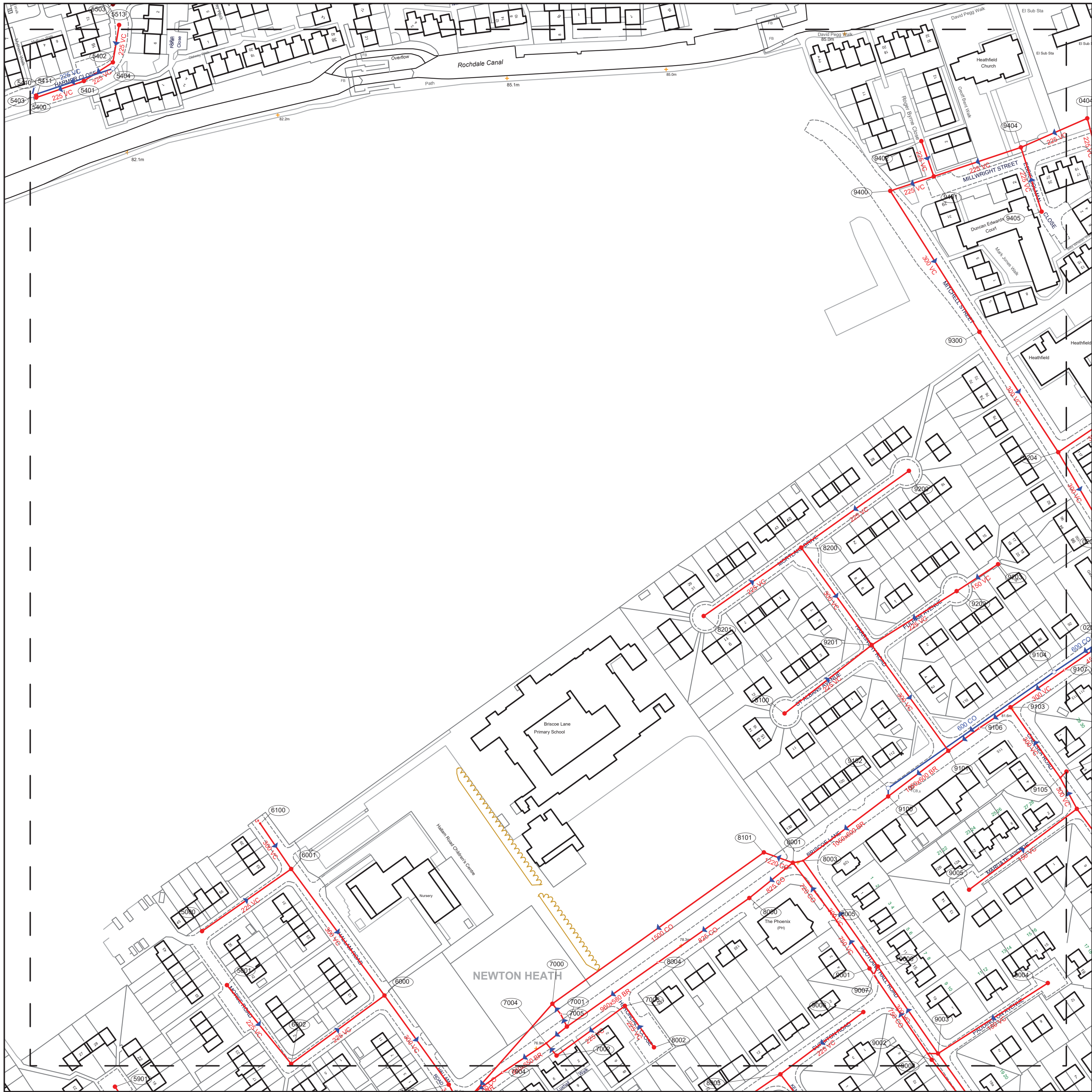
SEWER MATERIAL

AC Asbestos Cement
BR Brick
CI Cast Iron
SI Spun (Grey) Iron
CO Concrete
CC Concrete Segments (Bolted)
CS Concrete Segments (Unbolted)
CC Concrete Box Culvert
DI Ductile Iron
GR Glass Reinforced Concrete
GR Glass Reinforced Plastic
PS Plastic / Steel Composite
PV Polyvinyl Chloride
PE Polythene
RP Reinforced Plastic Matrix
ST Steel
VC Vitrified Clay (All Clayware)
PP Polypropylene
PF Pitch Fibre
MA Masonry - In Regular Courses
MA Masonry - Randomly Coursed
U Unspecified

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OS Sheet No: SD8700SW
Scale 1:1250 Date: 2-Mar-2010
29 Nodes
Sheet 1 of 1





Refno	Cover	Func	Type	Invert	Size.x	Size.y	Shape	Mati	Grad	Length
0108	81.26	C	M	78.93	300		C	VC		4.24
0000	78.81	C	M	77.26	225		C	VC	328	82.43
0001	78.16	C	M	76.34	225		C	VC	49	49.04
0400	81.52	C	M	79.03	225		C	VC	-2	1
0401	81.78	C	M	79.27	225		C	VC	101	24.35
0402	82.07	C	M	79.55	225		C	VC	62	16.64
0403	81.54	S	M	79.6	225		C	VC		4.12
0404	82	S	M	80.01	225		C	VC	105	41.11
0410			S	G						
0411	81.52	C	M							
6000	77.38	C	M	74.79	300		C	VC	19	53.01
6001	79.15	C	M	76.02	300		C	VC	64	75.8
6002	77.1	C	M	75.26	225		C	VC	130	55.8
6100		C	L	76.51	300		C	VC	55	26.63
7000	77.38	C	M	66.77	1500		C	CO		102.73
7001	77.35	C	M	71.89	960	650	E	BR		12.81
7001	77.35	C	M	71.95	390		C	BR	45	6.71
7002	77.15	C	M	74.92	225		C	VC		7.81
7003	77.42	C	M	75.07	225		C	VC		40.8
7004		C	J		960	650	E	BR		25.24
7005		C	Q	71.8	300		C	CI	46	6.4
8000	78.92	C	M	72.96	825		C	CO	102	53.82
8001	79.37	C	M	73.4	1220		C	CO	87	14.87
8001	79.37	C	M	73.43	825		C	CO	60	27.02
8002	77.34	C	M	75.73	225		C	VC	39	24.41
8003		C	J	73.5	1050	600		BR		5.1
8004		C	Q	72.43	960	580	E	BR	103	53.82
8005		C	Q	73.77	720		C	CO	126	31.4
8100	80.45	C	M	78.61	225		C	VC	85	53.41
8101	79.57	C	M	67.69	1500		C	CO	139	125.43
8200	82.31	C	M	78.58	300		C	VC	97	58.01
8201	81.03	C	M	79.1	225		C	VC	125	57.43
9000	78.9	C	M	74.37	300		C	VC	72	62.43
9000	78.9	C	M	74.41	300		C	VC		4.47
9001	78.76	C	M	74.02	750		C	VC	126	31.62
9002	78.49	C	M	74.58	750		C	CO		3.61
9003	78.55	C	M	74.73	300		C	VC	150	51.04
9003	78.55	C	M	74.73	300		C	VC		5
9004	79.21	C	M	77.33	150		C	VC	58	62.97
9005	78.52	C	M	77.32	150		C	VC	241	65
9006	78.19	C	M	74.81	225		C	VC	98	50
9007		C	G		750		C	CO		3.61
9008		C	J		750		C	CO		46.04
9100	80.2	C	M	73.85	1050	600		BR	147	51.4
9101	80.51	C	M	74.17	1050	600		BR	114	36.4
9102	80.24	S	M	77.93	300		C	VC	1	4
9103	81.48	C	M	74.29	1000	650	E	BR	361	18.03
9104	82.06	S	M	79.79	600		C	CO	53	97.65
9105		C	J		300		C	VC		41.62
9106		C	Q	74.24	1050	600	E	BR	372	18.6
9107		C	Q	75.57	300		C	VC	-66	31.62
9200	83.1	C	M	81.39	225		C	VC	90	63.82
9201	81.47	C	M	77.98	300		C	VC	107	63.01
9202	82.25	C	M	80.04	225		C	VC	24	48.55
9203	82.72	C	M	80.48	150		C	VC		23.85
9204	84.15	C	M	80.67	300		C	VC	89	41.68
9300	85.04	C	M	81.25	300		C	VC	120	69.34
9400	86.4	C	M	83.8	300		C	VC	32	90.45
9401	85.4	C	M	82.8	225		C	VC		22.14
9402	85.75	C	M	83.31	225		C	VC	49	18.03
9404	86.48	C	M	83.2	225		C	VC	116	44.27
9405	86.06	C	M	84.05	225		C	VC		32.57

WASTE WATER SYMBOLOLOGY

- FOUL MANHOLE
- SURFACE MANHOLE
- COMBINED MANHOLE
- DUAL MANHOLE
- SIDE ENTRY MANHOLE
- PRIVATE SEWER
- ABANDONED SEWER
- SITE TERMINATION
- AIR VALVE
- CASCADE
- CONTROL KIOSK
- CONTROL VALVE
- GULLEY
- HATCHBOX
- HEADWALL
- HYDROBRAKE
- INLET
- T-JUNCTION (SADDLE)
- LAMP HOLE
- OIL INTERCEPTOR
- PENSTOCK
- RODDING EYE
- SOAKAWAY
- TUMBLING BAY
- UNSPECIFIED
- VALVE
- WASHOUT
- GHOST NODE (inc. GN - Rising Main & GN - Dual Function)
- EXPEDIENCY NODE (CHANGE OF CHARACTERISTIC)
- CATCHPIT
- SIDE ENTRY CATCHPIT
- CHAMBER
- SIDE ENTRY CHAMBER
- DROPSHAFT
- SIDE ENTRY DROPSHAFT
- SHEET EDGE
- VENT COLUMN
- SEWER OVERFLOW
- DISCHARGE POINT (OUTFALL)
- TANK
- WASTE WATER TREATMENT WORKS
- PUMPING STATION
- EJECTOR STATION
- SLUDGE PUMPING STATION

Note - ALL flow direction arrows are BLUE - colour not significant

NODE TABLE ABBREVIATIONS

MANHOLE FUNCTION

- F Foul

S Surface

C Combined
- T Transition

O Overflow

U Unspecified

MANHOLE / NODE TYPE

- M Manhole

J Junction

L Lamphole

H Hatchbox

R Rodding Eye

F Outfall

V Combined Sewer Overflow

P Pumping Station

S Soakaway

D Dual Function Manhole

W Treatment Works
- Z Ghost in Rising Main

C Cascade

Y Gulley

E Ejector

O Oil Injector

I Inlet

B Hydrobrake

T Vent Column

X Valve

U Unspecified

Q Expediency Node

G Ghost (to allow pipe bends)

SEWER SHAPE

- C Circular

E Egg

O Oval

F Flat Top

R Rectangular

S Square
- T Trapezoidal

A Arch

B Barrel

H Horseshoe

U Unspecified

SEWER MATERIAL

- AC Asbestos Cement

BR Brick

CI Cast Iron

SI Spun (Grey) Iron

CO Concrete

CS Concrete Segments (Bolted)

CS Concrete Segments (Unbolted)

CC Concrete Box Culvert

DI Ductile Iron

GR Glass Reinforced Concrete

GR Glass Reinforced Plastic

PS Plastic / Steel Composite

PV Polyvinyl Chloride

PE Polythene

RP Reinforced Plastic Matrix

ST Steel

VC Vitrified Clay (All Clayware)

PP Polypropylene

PF Pitch Fibre

MA Masonry - In Regular Courses

MA Masonry - Randomly Coursed

U Unspecified

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OS Sheet No: SD8700SE
Scale 1:1250 Date: 2-Mar-2010
62 Nodes
Sheet 1 of 1



John Speers

From: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Sent: 25 August 2020 16:29
To: John Speers
Cc: Wastewater Developer Services
Subject: RE: 219-394 - Ten Acres Lane, Newton Heath, Manchester - Pre Dev Enquiry UU Ref 4200033081

Follow Up Flag: Follow up
Flag Status: Flagged

Good Afternoon John

Pre Development Enquiry for: Ten Acres Lane, Newton Heath, Manchester UU Reference Number : 4200033081

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 3723223 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 at an unrestricted rate.

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

Please provide evidence that the option to discharge to the Rochdale Canal has been properly considered and negotiations have taken place with the Canal and Rivers' Trust.

Until such time that evidence has been provided to confirm that discharging surface water flows to the canal is not a viable option, UU would expect to see all SW flows directed to the canal.

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 surrounding combined sewer networks at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed the greenfield run-off rate for the existing site. If surface water is allowed to discharge to the public sewer network, there will need to be further discussion around allowable rates at multiple connection points, in order to ensure the public sewer network is not overwhelmed at any particular points.

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.

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.

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/wp-content/uploads/2020/03/SSG-App-C-Des-Con-Guide-v-2-100320-C.pdf>

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/larger-developments/wastewater/sewer-connections/>

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.

Kind regards,



Matthew Dodd
Developer Engineer
Developer Services & Metering
Customer Services
T: 07468 758244
[unitedutilities.com](https://www.unitedutilities.com)

If you have received a great service today why not tell us?
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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 developerserviceswater@uuplc.co.uk

From: John Speers [mailto:johnSpeers@ajpstructeng.com]
Sent: 14 August 2020 11:57
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: 219-394 - Ten Acres Lane, Newton Heath, Manchester - Pre Dev Enquiry

Please find attached a pre-development form and associated information for your consideration.

The total site covers an area of approximately 19.1ha and is currently a greenfield site.

Previous site investigations were completed in 2008 and even though they did not include BRE365 soakaway tests they have indicated that infiltration is not suitable across the site due to impermeable clay strata. As such, discharge to watercourse has been considered. The nearest watercourse is the Rochdale Canal which is located just to the north of the site. However, due to the size of the site and the associated greenfield runoff discharge rates it is envisaged that the Canal and Rivers Trust would not allow the surface water runoff to discharge into the canal at these rates. This is due to the large discharge rates and the restrictions such as maximum discharge velocities imposed on discharging to the canal.

The nearest river is the River Medlock which is located around 700m south of the site. Therefore, due to the distance across developed third-party land it has been deemed impractical to discharge to this watercourse.

Therefore, it is anticipated that the surface water runoff from the site will discharge to the surrounding public sewers. Due to the lack of nearby existing public surface water sewers it is envisaged that the surface water runoff from the proposed site will discharge at the existing greenfield runoff rates into the existing public combined water sewers located within the surrounding highways. Due to the size of the site it is envisaged that the site will discharge into the public combined water sewers at a number of different locations, such as the public combined water sewers located within Ten Acres Lane to the east, Hallam Road to the south and Mitchell Street to the east.

It is envisaged that the surface water discharge will be restricted to the existing greenfield runoff rates, in line with the Manchester City Council guidance. It is also envisaged that the foul runoff generated from the development can also discharge at an unrestricted rate into the surrounding public sewers at a number of different locations.

Can you confirm that United Utilities are happy with this drainage arrangement and as such have no objections to the drainage strategy or discharge restrictions proposed above?

Please contact me immediately to discuss any matters further.

Kind Regards

John

John Speers CEng MICE
Senior Civil Engineer

Alan Johnston Partnership LLP

Tel: 0151 227 1462 | Mobile: 07841832409

4th Floor, 1 Dale Street | Liverpool, L2 2ET | johnspeers@ajpstructeng.com | www.ajpstructeng.com



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A list of members' names is available for inspection at our registered office: 1 Dale Street, Liverpool, L2 2ET*

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Appendix G Canal & River Trust Map & Correspondence

 View map

 View list

Search location

Find your local waterway

Rochdale Canal

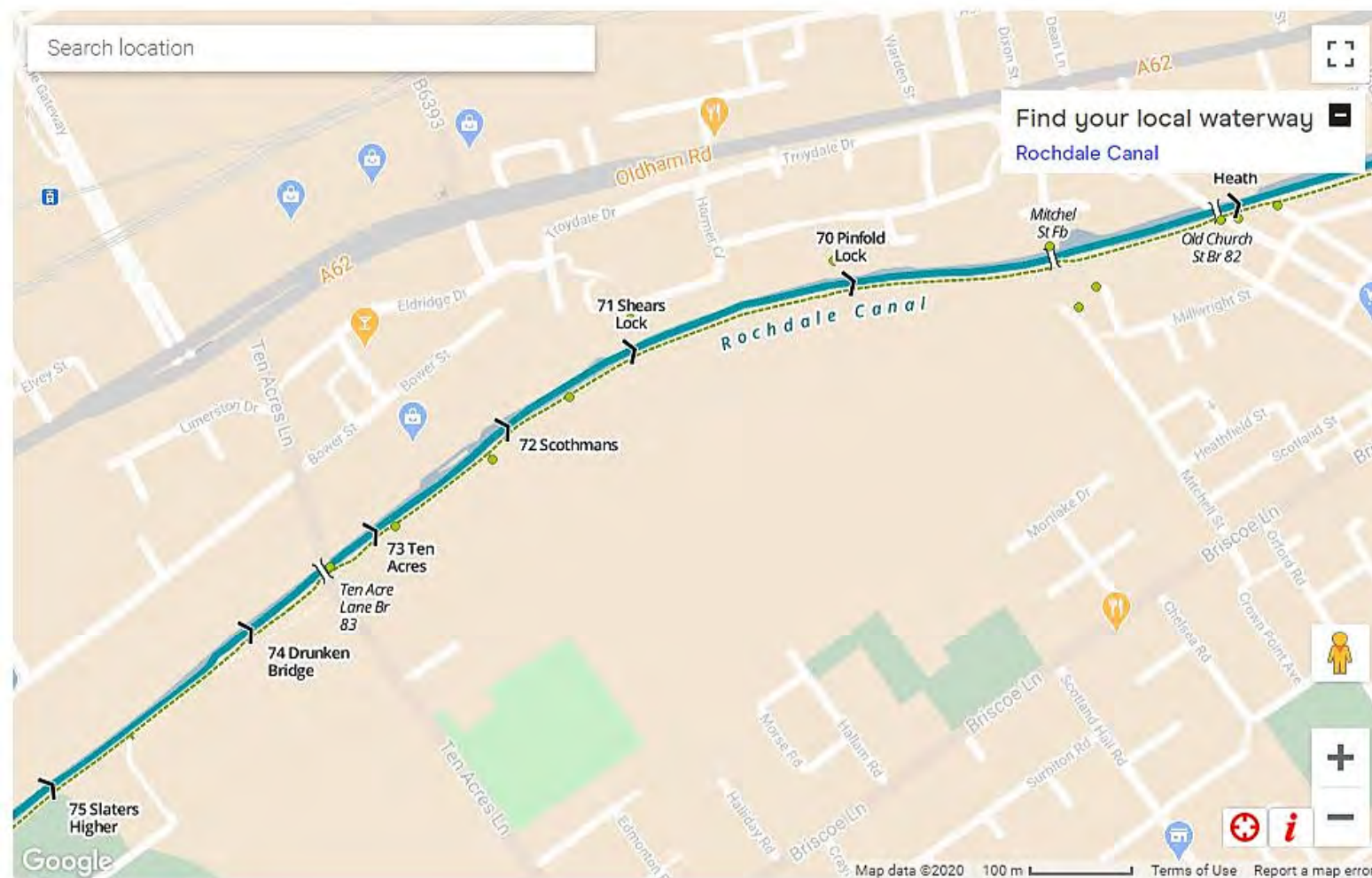
Legend

You may need to zoom further into the map to see these icons.

Icons

Lines

- | | |
|---|----------------------|
|  | Aqueduct / Bridge |
|  | Access Point |
|  | Lock |
|  | Services |
|  | Mooring |
|  | Elsan |
|  | Pump Out |
|  | Rubbish Point |
|  | Showering Facilities |
|  | Toilets |
|  | Water Point |
|  | Winding Hole |



John Speers

From: Jamie Rogers
Sent: 25 March 2022 11:37
To: John Speers
Subject: FW: TPW-NOR-2122-437 - Ten Acres Lane SWD
Attachments: SWD Explanatory process email



Jamie Rogers
Graduate Civil Engineer

☎ 0151 227 1462



✉ jamierogers@ajpltd.co.uk

📍 1 Dale St, Liverpool, L2 2ET

From: Gareth Taylor <Gareth.Taylor@canalrivertrust.org.uk>
Sent: 16 March 2022 11:23
To: Jamie Rogers <JamieRogers@ajpltd.co.uk>
Cc: Kenny O'Brien <kennyobrien@ajpltd.co.uk>; John Speers <johnspeers@ajpltd.co.uk>
Subject: TPW-NOR-2122-437 - Ten Acres Lane SWD

Jamie

Apologies if you have already seen the attached email, but just wanted to make you aware of the process.

Nevertheless thank you for the submission of the completed Forms 1, 2 and 6. I have checked this documentation and satisfied this application can progress. We have previously informed you of the process (attached) in our Explanatory correspondence and will instruct the Hydrologist to coordinate the internal review by Water Management and Environment teams (Stage 3). This is the technical assessment by the Canal & River Trust of the impacts of the proposed discharge on the flood risk and water quality of the receiving Waterway.

The outcome of this stage will be either:

- 1 The proposal is acceptable to proceed, and the Utilities Surveyor will progress the necessary commercial negotiations with you, including costs for supervision of construction (under the Code of Practice).
- 2 The proposal is unacceptable to the Canal & River Trust and is being rejected, for which the reasons will be given.
- 3 Further work may be required (by the Applicant) to enable a more detailed consideration (a Detailed Impact Assessment) to be completed (Stage 4).

Once I have confirmation from the internal SWD Assessment Team, I will invoice the contribution of £2000+VAT towards our costs of reviewing the flood risk and water quality aspects of your proposal. At this point the process will start, however during the review process the Trust may require further clarification, details will be specified.

Please do not hesitate to contact us if you have any additional queries.

Regards

Gareth Taylor (BSc)

Infrastructure Services, Works Engineer (Northwest)

Northwest Region: Lancaster canal, Leeds Liverpool canal (west of Foulridge tunnel).
Manchester, Bury & Bolton Canal, Rochdale Canal & Ashton Canal.



Canal & River Trust | NW Waterway | Canal Cottage | Lowerhouse Lane | Rosegrove | Burnley | BB12 6HU | Mob: 07484 913064 |

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: Enquiries TPWNorth <Enquiries.TPWNorth@canalrivertrust.org.uk>

Sent: 04 March 2022 18:37

To: Jamie Rogers <JamieRogers@ajpltd.co.uk>

Cc: Kenny O'Brien <kennyobrien@ajpltd.co.uk>; John Speers <johnspeers@ajpltd.co.uk>; Gareth Taylor <Gareth.Taylor@canalrivertrust.org.uk>

Subject: RE: [CASE:813296] FW: 219-394 Ten Acres Lane - Form 6 Application to Discharge Surface Water Into A Canal

Hi Jamie,

Thank you for your completed application which has been processed and passed to Gareth Taylor to review. Gareth will contact you directly to progress your application.

If you require any assistance in the meantime, please do not hesitate to contact me.

Kindest Regards

Anna Stevenson

Technical Administrator North, Infrastructure Services
North West, Yorkshire & North East and East Midlands

E: Enquiries.TPWNorth@canalrivertrust.org.uk **Tel:** 07484 913045

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

Please visit our website www.canalrivertrust.org.uk to find out more about us.



From: Jamie Rogers <JamieRogers@ajpltd.co.uk>

Sent: 02 March 2022 13:09

To: Enquiries TPWNorth <Enquiries.TPWNorth@canalrivertrust.org.uk>

Cc: Kenny O'Brien <kennyobrien@ajpltd.co.uk>; John Speers <johnspeers@ajpltd.co.uk>

Subject: ► RE: [CASE:813296] FW: 219-394 Ten Acres Lane - Form 6 Application to Discharge Surface Water Into A Canal

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

Hi there

Please see through the link a Form 1,2 and 3 plus the relevant documents for an application to discharge surface water into The Rochdale Canal at our proposed site at Ten Acres Lane, M40 2SW. I have used a we transfer link as the total file sizes are 21MB. Any issues or queries with the application or documents please get in contact.

<https://we.tl/t-IOPf5zoRQn>

Thanks,



Jamie Rogers
Graduate Civil Engineer

☎ 0151 227 1462



✉ jamierogers@ajpltd.co.uk

📍 1 Dale St, Liverpool, L2 2ET

From: Enquiries TPWNorth <Enquiries.TPWNorth@canalrivertrust.org.uk>

Sent: 31 January 2022 13:52

To: Jamie Rogers <JamieRogers@ajpltd.co.uk>

Cc: Customer Services <Customer.Services@canalrivertrust.org.uk>; Kenny O'Brien <kennyobrien@ajpltd.co.uk>

Subject: RE: [CASE:813296] FW: 219-394 Ten Acres Lane - Form 6 Application to Discharge Surface Water Into A Canal

Dear Jamie,

Thank you for your enquiry regarding the surface water discharge proposals from the planned development at **Ten Acres Lane**. 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.

Kindest Regards

Anna Stevenson

Technical Administrator North, Infrastructure Services
North West, Yorkshire & North East and East Midlands

E: Enquiries.TPWNorth@canalrivertrust.org.uk Tel: 07484 913045

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

Please visit our website www.canalrivertrust.org.uk to find out more about us.



From: Maya Hayes <customer.services@canalrivertrust.org.uk>

Sent: 31 January 2022 10:28

To: Enquiries TPWNorth <Enquiries.TPWNorth@canalrivertrust.org.uk>

Subject: FW: [CASE:813296] FW: 219-394 Ten Acres Lane - Form 6 Application to Discharge Surface Water Into A Canal

Hello team,

I believe the below email is best directed to you. Please let us know if this is not the case so that it can be reassigned.

Best wishes,

Maya Hayes

Customer Service Advisor

T 0303 040 4040

E customer.services@canalrivertrust.org.uk

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We understand customers can sometimes become frustrated and we do our best to listen, understand and help, however from time to time our people experience behaviour which is unacceptable, and we encourage everyone to speak up when this happens. Threatening or abusive behaviour will not be tolerated. This includes threats and abuse received directly or indirectly verbally, in writing, text messages or appearing on social media channels, chat rooms or other electronic media. The Trust will maintain records of all threatening or abusive behaviour and where it is appropriate to do so will take immediate action to protect our people to address threats and abuse from individuals or groups

From: Jamierogers@ajpltd.co.uk

Date: 20/01/2022 12:37

To: customer.services@canalrivertrust.org.uk

Cc: kennyobrien@ajpltd.co.uk

Subject: [CASE:813296] FW: 219-394 Ten Acres Lane - Form 6 Application to Discharge Surface Water Into A Canal

You don't often get email from jamierogers@ajpltd.co.uk. [Learn why this is important](#)

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

Hi there

Please see through the link a Form 6 plus the relevant documents for an application to discharge surface water into a canal at our proposed site at Ten Acres Lane, M40 2SW. I have used a we transfer link as the total file sizes are 21MB. Any issues or queries with the application or documents please get in contact.

<https://we.tl/t-BeMKe7jjDH>

Thanks,

Jamie Rogers
Graduate Civil Engineer



0151 227 1462

 jamierogers@ajpltd.co.uk
 1 Dale St, Liverpool, L2 2ET

Keep in touch

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Canal & River Trust is a charitable company limited by guarantee registered in England & Wales with company number 7807276 and charity number 1146792. Registered office address National Waterways Museum Ellesmere Port, South Pier Road, Ellesmere Port, Cheshire CH65 4FW.

Cadw mewn cysylltiad

Cofrestrwch i dderbyn e-gylchlythyr Glandŵr Cymru <https://canalrivertrust.org.uk/newsletter>

Cefnogwch ni ar <https://www.facebook.com/canalrivertrust>

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 H Existing Greenfield Discharge Rates

The Alan Johnston Partnership		Page 1
1 Dale Street Liverpool L2 2ET	219-394 Ten Acres Lane, Manchester Greenfield Runoff Rate	
Date 10/11/2021 File	Designed by JJR Checked by JRS	
Micro Drainage	Source Control 2019.1	

ICP SUDS Mean Annual Flood

Input

Return Period (years) 1 SAAR (mm) 888 Urban 0.000
Area (ha) 19.184 Soil 0.450 Region Number Region 10

Results l/s

QBAR Rural 111.3
QBAR Urban 111.3

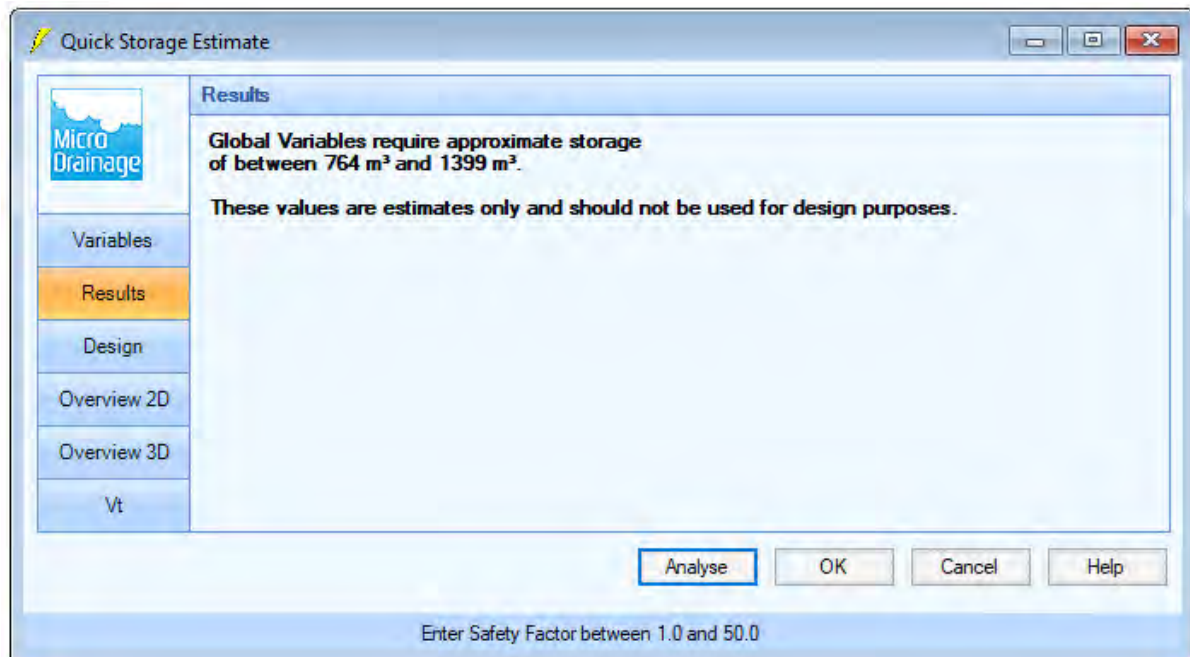
Q1 year 96.9

Q1 year 96.9
Q30 years 188.7
Q100 years 231.6

Appendix I Preliminary Storage Estimates

219-394 – TEN ACRES LANE, NEWTON HEATH, MANCHESTER – PRELIMINARY STORAGE ESTIMATES

1 in 1 Year Storage Estimate – Discharge Rate 96.9 L/s



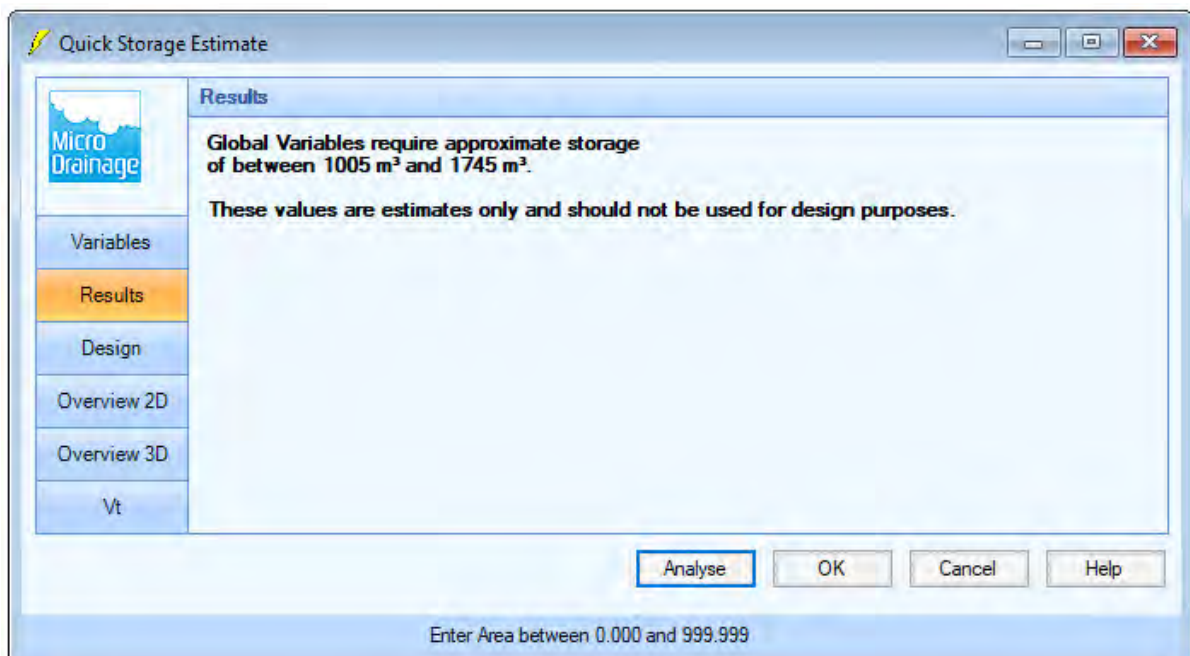
The screenshot shows the 'Quick Storage Estimate' dialog box with the 'Results' tab selected. The 'Results' tab displays the following text:

Global Variables require approximate storage of between 764 m³ and 1399 m³.

These values are estimates only and should not be used for design purposes.

At the bottom of the dialog box, there are four buttons: 'Analyse', 'OK', 'Cancel', and 'Help'. Below the buttons, a text label reads: 'Enter Safety Factor between 1.0 and 50.0'.

1 in 2 Year (Qbar) Storage Estimate – Discharge Rate 111.3L/s



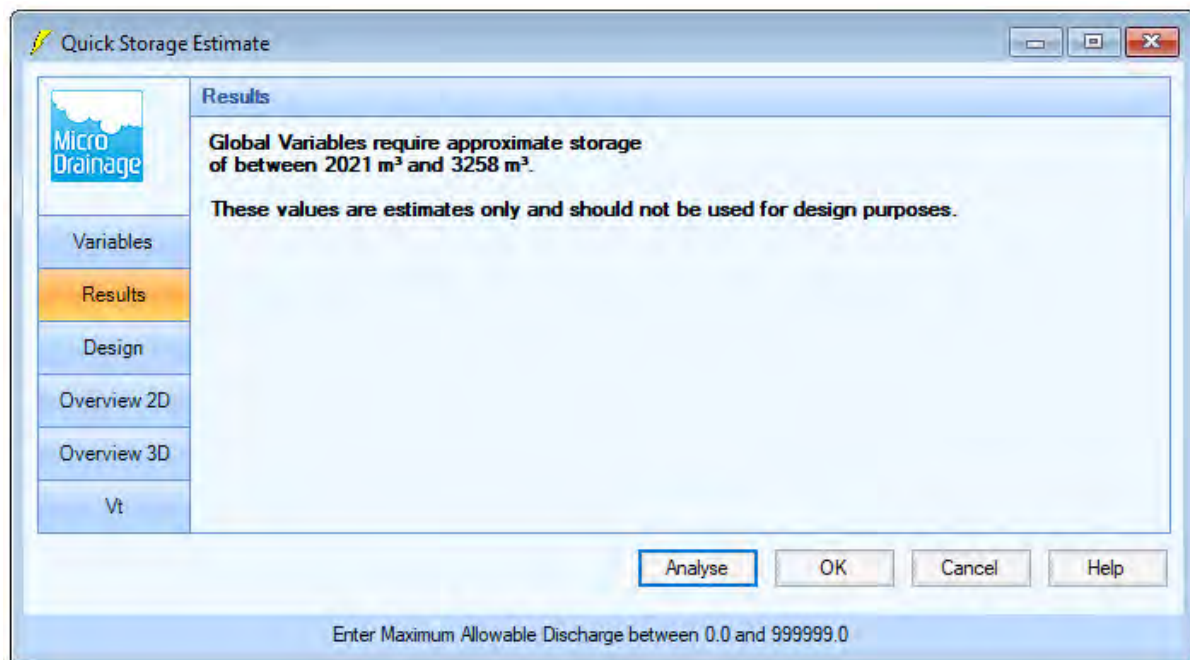
The screenshot shows the 'Quick Storage Estimate' dialog box with the 'Results' tab selected. The 'Results' tab displays the following text:

Global Variables require approximate storage of between 1005 m³ and 1745 m³.

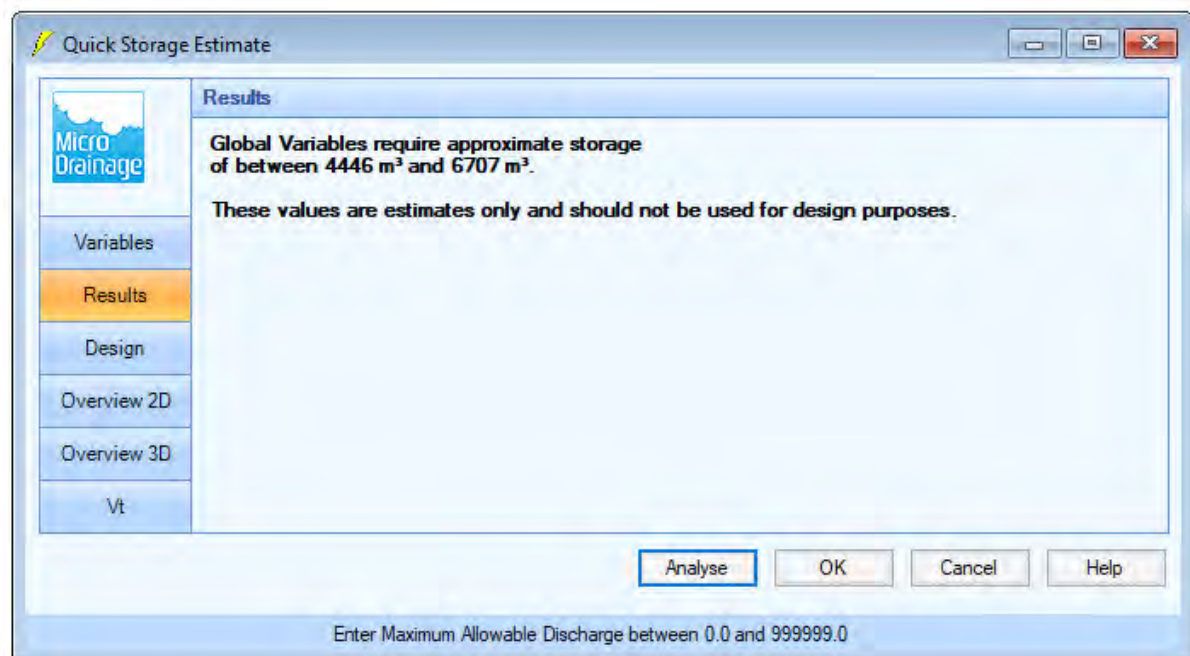
These values are estimates only and should not be used for design purposes.

At the bottom of the dialog box, there are four buttons: 'Analyse', 'OK', 'Cancel', and 'Help'. Below the buttons, a text label reads: 'Enter Area between 0.000 and 999.999'.

1 in 30 Year Storage Estimate – Discharge Rate 188.7L/s



1 in 100 Year + 40% Storage Estimate – Discharge Rate 231.6 L/s



Appendix J Outline Drainage Strategy Drawing

