Alpha House, Wythenshawe

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY REPORT

11 September 2026

Alpha House, Wythenshawe

Flood Risk Assessment & Drainage Strategy

AJP Ref: 224-126

18703-AJP-XX-ZZ-T-C-003000

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Alpha House, Wythenshawe

Flood Risk Assessment & Drainage Strategy Report

Record of Approval	Originator:	Approved:	Date:
	J. Speers Associate	K. O'Brien Director	10/08/2026
Version	Author:	Change Description:	
P03	J.Speers	Updated to suit further comments	25/11/2025
P04	J.Speers	Updated to suit LLFA comments	25/02/2026
P05	J.Speers	Updated to suit latest drainage design	10/07/2026
P06	J.Speers	Updated to suit latest site layout	10/08/2026
P07	K O'Brien	Updated following LLFA comments	11/09/2026

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Alan Johnston Partnership Ltd.

Company No. 13204766

Alpha House, Wythenshawe

Flood Risk Assessment & Drainage Strategy Report

1. INTRODUCTION

This Flood Risk Assessment (FRA) and Drainage Strategy Report has been prepared on behalf of Muse Places in connection with the construction of new multi-storey apartment block in Rowlandsway, Wythenshawe, situated within Manchester City Council. Even though the site is located entirely within Flood Zone 1 and the total area of the proposed development is under 1.0ha, an FRA has been completed as the site has a medium risk of surface water flooding.

This FRA has been prepared in accordance with the general requirements of the National Planning Policy Framework and the associated Planning Practice Guidance, 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 Planning Practice Guidance, 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), Design and Construction Guidance Version 2.2, Building Regulations Approved Document H (Drainage and waste disposal), the National Planning Policy Framework document (Department for Communities and Local Government, July 2021) and associated Planning Practice Guidance.

2. SITE DESCRIPTION

The site is located on Rowlandsway, Wythenshawe and comprises of a former office building which is currently in the process of being demolished. The site is located at National Grid reference SJ 82829 86982. The site location plan is shown in Figure 2.1, attached in Appendix A, and the extent of the area to which the application relates is shown on the enclosed aerial photo in Figure 2.2, attached in Appendix B.

The existing site covers a total area of 0.361ha with the proposed development area covering the entire 0.361ha site. The site is bounded by existing commercial developments to the north and south, with the existing highways Rowlandsway to the west and Wavell Road to the east.

The levels across the site range from approximately 60.100mAOD to the north-east of the site to 61.200mAOD to the south-west of the site. This indicates a gradual fall in elevation from south-west to north-east, with the minimum level recorded at 60.100mAOD and the maximum level at 61.200mAOD. The topographic and utility survey is attached in Appendix C.

Figure 2.1: Site Location Map



Source Ordnance Survey

Figure 2.2: Aerial Photo



Source: Ordnance Survey

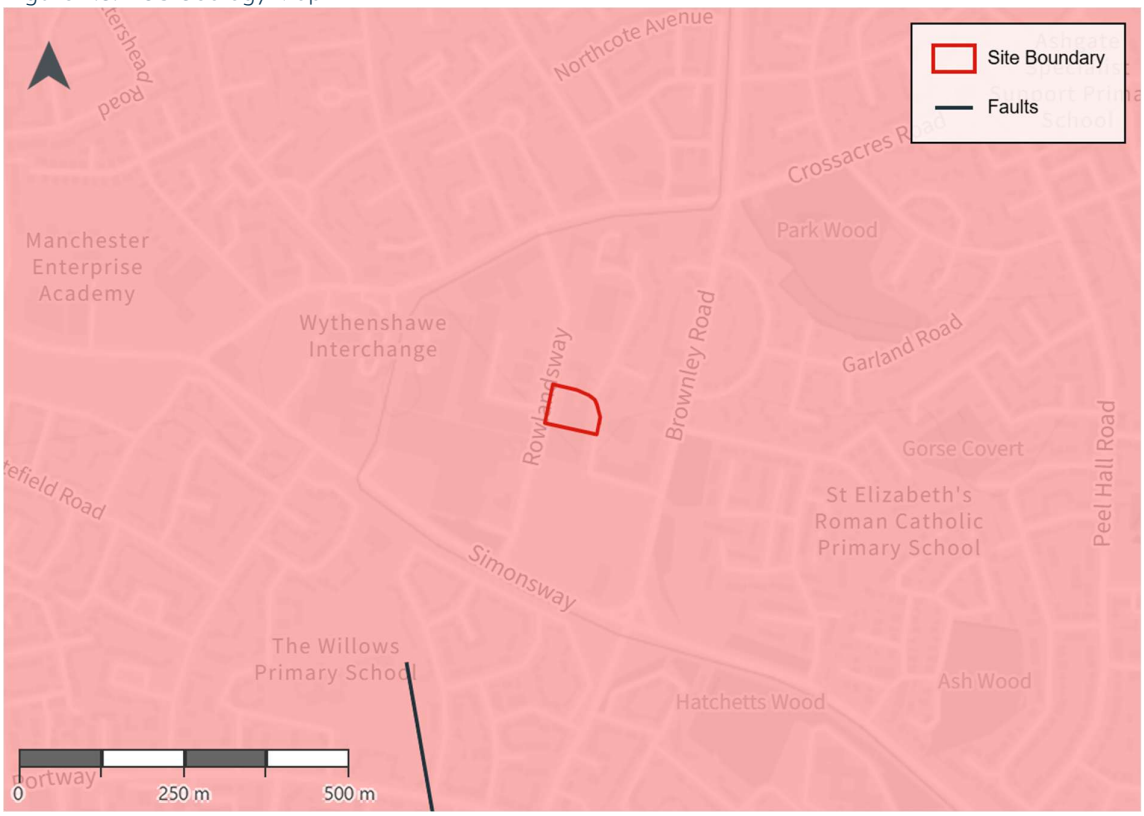
2.1. Geology

An intrusive site investigation was completed in January 2025 by WML Consulting and is contained within the Geo-Environmental Investigation & Assessment Report, 11380G-WML-XX-ZZ RP-G-0002A.

The site investigation report indicates that the underlying strata consists of made ground to depths of up to 0.65mbgl, which is underlain by Glacial deposits comprising mainly of clays to a maximum recorded depth of 2.35mbgl. The bedrock consisted of mudstone and was encountered from depths between 2.10mbgl to a maximum recorded depth of 9.00mbgl.

This is supported by the information taken from the British Geological Survey (BGS) 1:50,000 Bedrock geology maps which also show that the site has superficial deposits comprising of Glacial Till deposits. The survey also show bedrock geology is reported to be Bollin Mudstone Member.

Figure 2.3: BGS Geology Map



Source: Ordnance Survey, BGS

2.2. Hydrogeology

The Environment Agency groundwater maps show that the superficial deposits are classified as a Secondary (undifferentiated). The bedrock aquifer is designated as a Secondary B aquifer.

The Environment Agency groundwater maps also indicate that the development site is not situated within a groundwater Source Protection Zone (SPZ). They also indicate that the site is located within an area which has a medium to low risk of groundwater flooding.

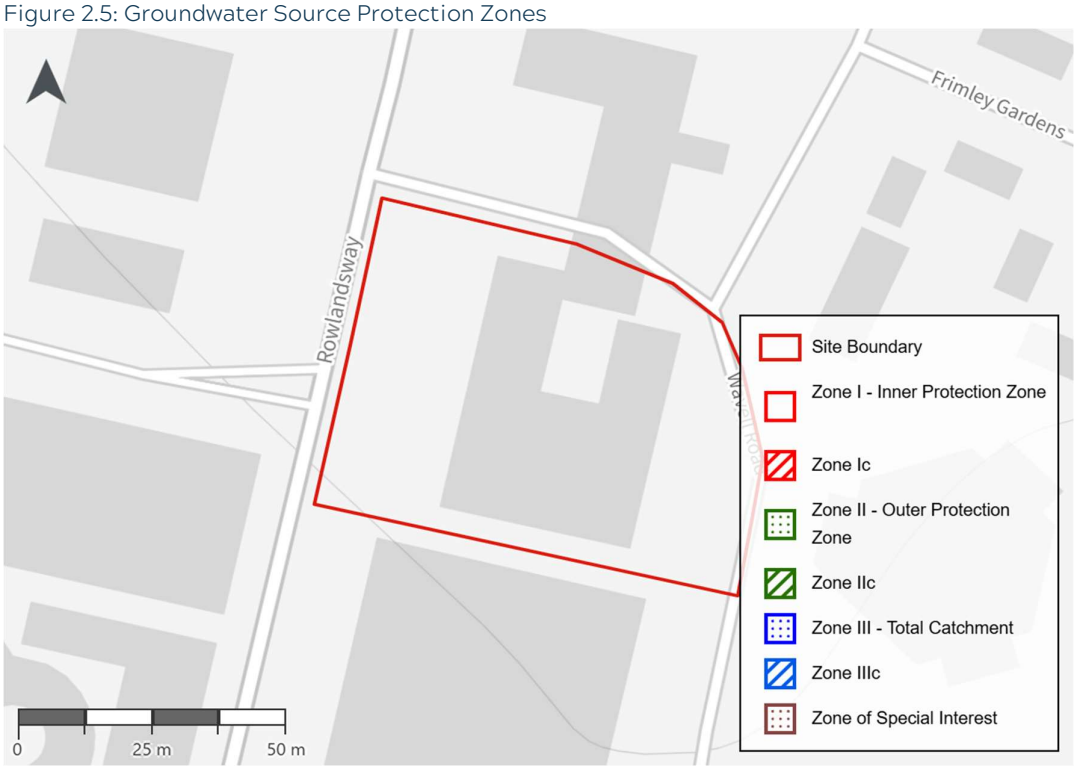
Despite the medium to low risk of groundwater flooding, identified by the Environment Agency groundwater maps, the intrusive site investigation recorded no groundwater strikes for all exploratory holes, to a maximum recorded depth of 9.00mbgl.

Figure 2.4: Site Hydrogeology



Source: Ordnance Survey, BGS

Figure 2.5: Groundwater Source Protection Zones



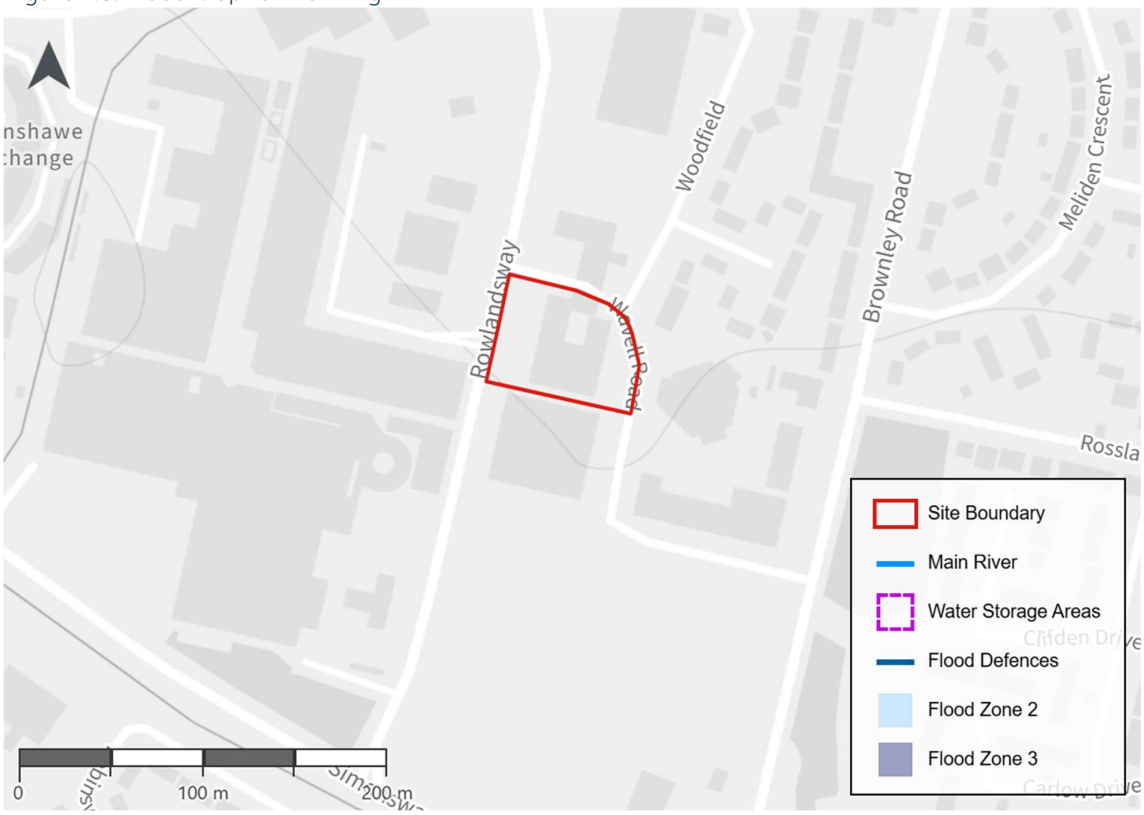
Source: Ordnance Survey, Environment Agency

2.3. Hydrology

The site is located within Flood Zone 1, land assessed to have a low probability of flooding

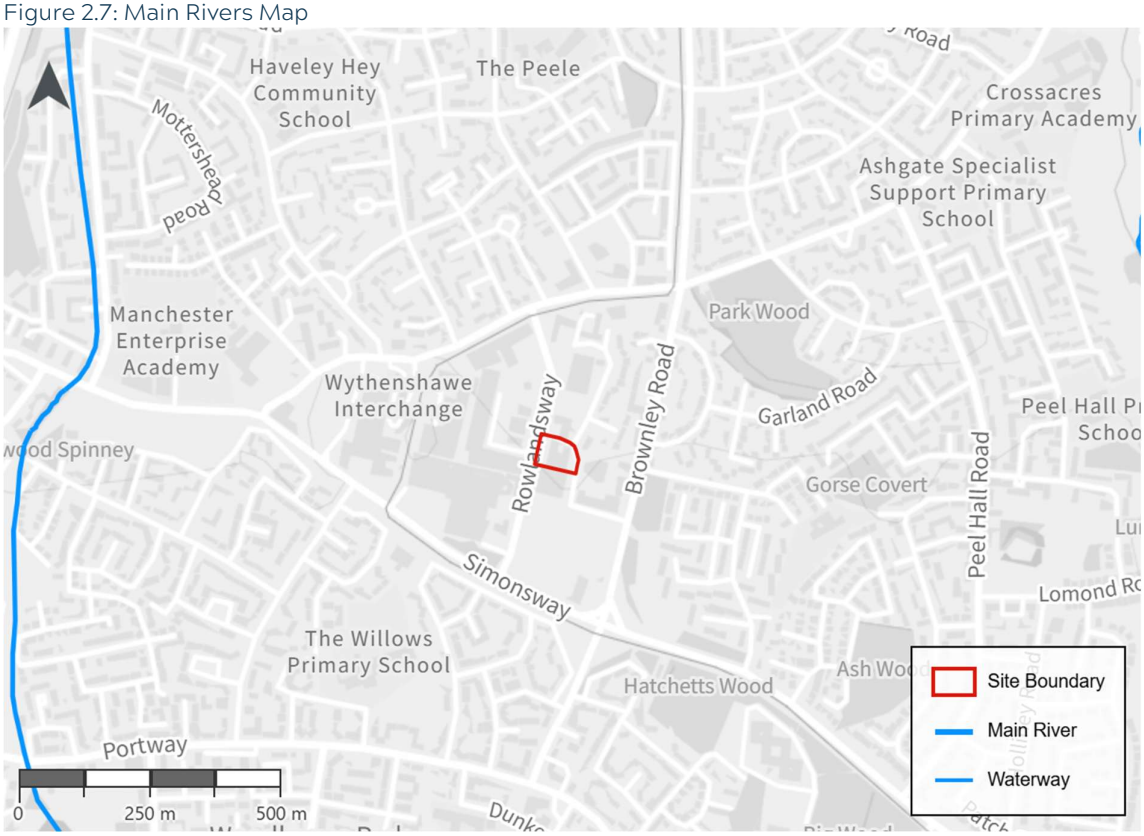
The nearest watercourse to the site is the Baguley Brook, classified as a main river. It is located approximately 900m to the west of the site.

Figure 2.6: Flood Map for Planning



Source: Ordnance Survey, Environment Agency

Figure 2.7: Main Rivers Map



Source: Ordnance Survey, Environment Agency

3. PROPOSED DEVELOPMENT

The proposed development at Alpha House, Wythenshawe, involves the construction of a new multi-storey residential apartment building. The scheme will comprise of a new multi-storey apartment block containing 125no. apartments, with an internal courtyard garden located at first floor level and an internal car park at ground floor level.

The total area of the proposed development is 0.361ha, and the small areas surrounding the building will be appropriately paved and landscaped. The former use of the site is offices, and the proposed use is residential.

To enable a viable scheme, the proposed site levels are constrained by the existing site boundaries, therefore, site levels are likely to remain similar to the existing. The proposed site plans for the development are attached in Appendix D.

4. 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 and Exception Test

Based on the sites location in Flood Zone 1, the development is deemed appropriate according to NPPF therefore the development is appropriately situated and the Sequential Test is not required.

4.2. Exception Test

NPPF classifies the development as 'More vulnerable' and as the site is located within Flood Zone 1, the Exception Test is not required.

5. FORMS OF FLOODING

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

5.1. Flooding from Rivers

The Flood Risk map is shown in Figure 5.1 below. Records of historical flooding have also been assessed and shown in Figure 5.2 below.

As can be seen from the Flood risk map, the site is located within Flood Zone 1, land assessed to have a low probability of flooding

The nearest watercourse to the site is the Baguley Brook, classified as a main river. It is located approximately 900m to the west of the site.

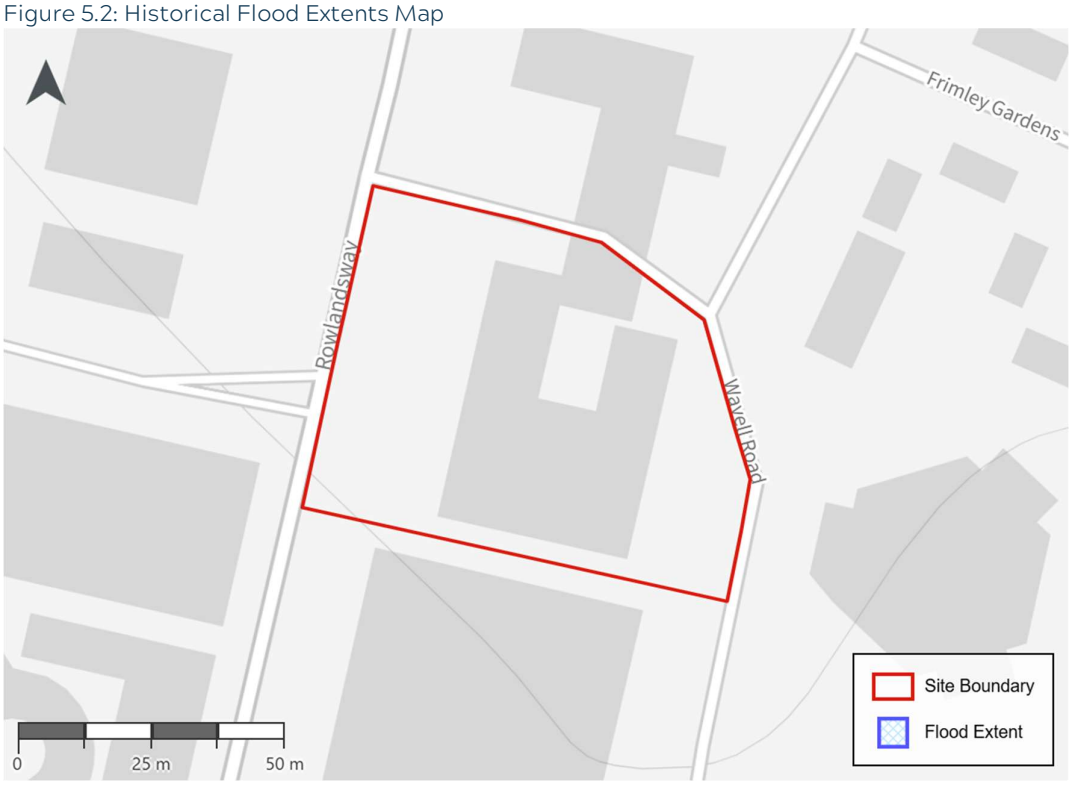
Therefore, the risk of flooding to the new development from rivers is considered to be low.

Figure 5.1: Risk of Flooding from Rivers and Sea (RoFRS) Map



Source: Ordnance Survey, Environment Agency

Figure 5.2: Historical Flood Extents Map



Source: Ordnance Survey, Environment Agency

5.2. Flooding from Sea

The site is not at risk of flooding from the sea. The lowest level of the site is approximately 60.100mAOD, 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

Figure 5.3 below.

It can be seen from the map that some areas of the site are classified as having a medium risk of surface water flooding, while the remainder is classified as having a very low risk of surface water flooding.

However, these areas are to be reworked during the construction of the new multi-storey residential apartment building and surrounding hard landscaping and therefore the levels within these areas will likely be amended to suit the new drainage network. These areas will also have sufficient new positive drainage to collect any surface water runoff.

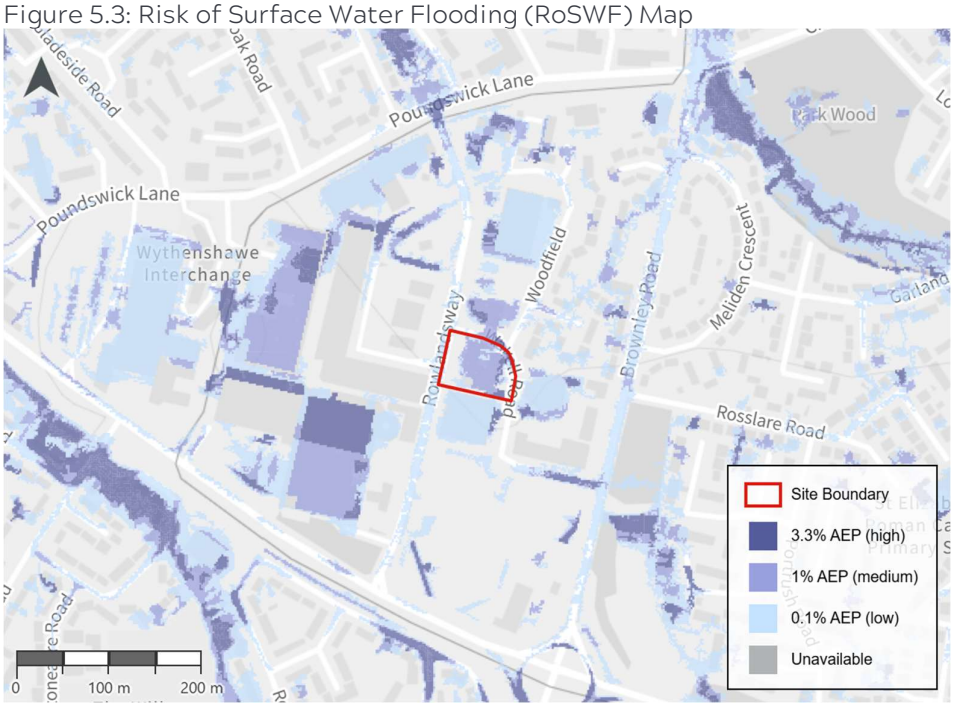
The proposed lowest FFL of 60.600mAOD sits above the surface water flood extents in the 1% AEP + climate change event, with no internal flooding predicted. As such, the proposed development is considered safe for its lifetime without additional freeboard.

This is supported by drawing 18703-LB-ZZ-XX-D-A-130010 which shows that the minimum FFL of the proposed building is 60.600mAOD and this sits around 300mm - 400mm above the adjacent Wavell Road levels to the north-east of the site. As such, any surface water flooding would be contained within Wavell Road to the north of the site and would flow north-east along the lower levels located within the highways Wavell Road and Woodfield Road.

For clarity, AJP have completed an exceedance flow paths drawing which indicates that any overland/surface water flows would flow away from the building and towards the surrounding highways. Please refer to Appendix I for the exceedance flow paths drawing.

Therefore, due to the FFL levels, surrounding lower existing levels and sufficiently designed drainage networks, the site can be considered to be at low risk from flooding. 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.

Figure 5.3: Risk of Surface Water Flooding (RoSWF) Map



Source: Ordnance Survey, Environment Agency

5.4. Flooding from Groundwater

As outlined in Section 5.20 of the WML Consulting Geo-Environmental Investigation & Assessment Report, 11380G-WML-XX-ZZ RP-G-0002A, no groundwater was encountered in any of the exploratory holes.

As such, due to the lack of groundwater encountered by the site investigation and the fact that the Environment Agency groundwater maps indicate that the development site is located within an area which has a medium to low risk of groundwater flooding, 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 E. As can be seen from the United Utilities sewer maps there are public sewers within the site boundary.

There is an existing 525mm diameter public combined water sewer located just inside the western boundary of the proposed site and a number of existing public combined water sewers located within the highways to the north and east of the site.

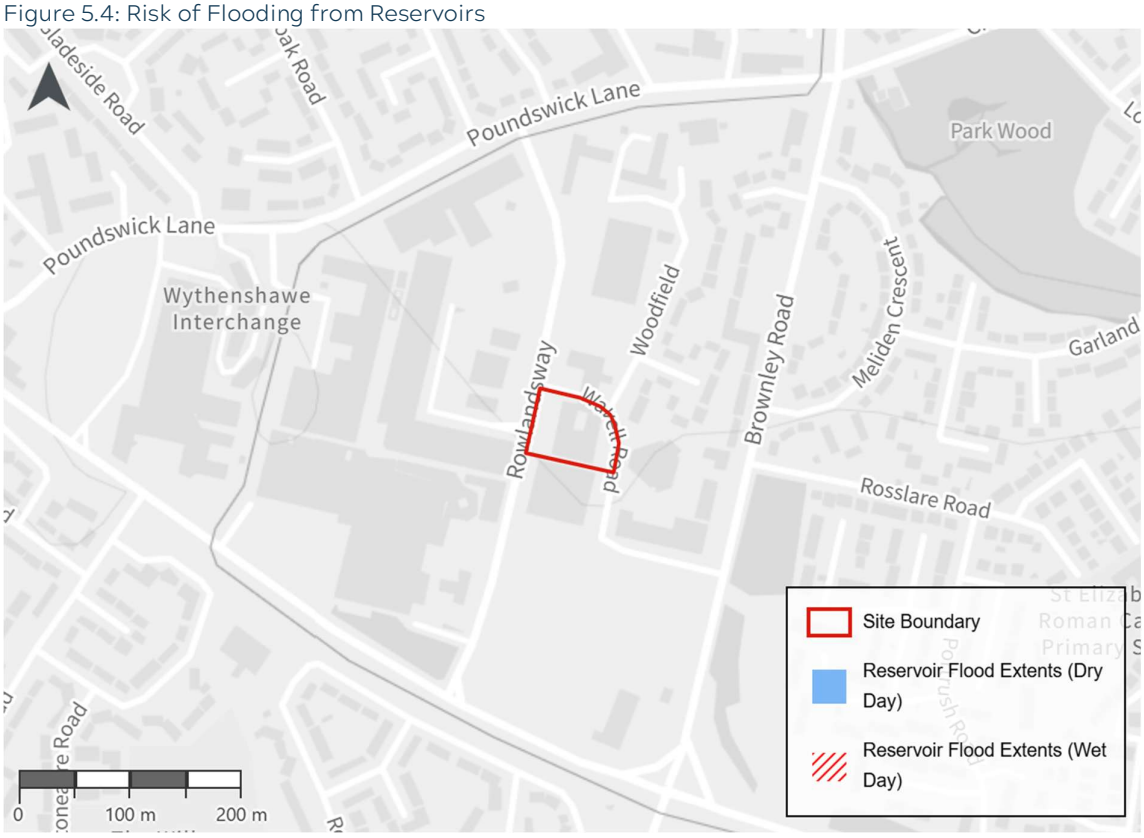
As the public sewers are maintained by United Utilities and also the fact that the proposed drainage for the site will be suitably designed, leads to the conclusion that the site itself is considered to have a low risk of flooding from sewers.

5.6. Flooding from Reservoirs, Canals and Other Artificial Sources

The Reservoir Flood Risk map is included in Figure 5.4, with the nearest reservoir being Rostherne Mere, which is located approximately 8.53km to the South West of the site.

As such, it can be seen from the map that the site is at low risk of flooding from reservoirs, canals or other artificial sources.

Figure 5.4: Risk of Flooding from Reservoirs



Source: Ordnance Survey, Environment Agency

6. PROPOSED DEVELOPMENT & DRAINAGE STRATEGY

6.1. Effect of Proposed Development

As previously outlined in Section 2.0, the existing site covers a total area of 0.361ha and consists of the existing derelict office block and surrounding hardstanding, which are in the process of being demolished. As can be seen from the aerial photo, attached in Appendix B.

As such, the pre and post development impermeable areas for the 0.361ha development area have been assessed and are indicated on the attached drawing in Appendix F. The comparison between the pre and post development impermeable areas is also summarised below;

Total Development Site Area (ha)	Existing Impermeable Area (ha)	Proposed Impermeable Area (ha)
0.361	0.263	0.297

Therefore, the changes to the existing site will increase the volume of impermeable areas and as such, the proposed development will lead to an increase in the;

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

Accordingly, drainage systems are needed to drain the foul and surface water flows arising from the proposed development. 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 maps attached in Appendix E, there are public sewers located within the site boundary. There is an existing 525mm diameter public combined water sewer located just inside the western boundary of the proposed site and a number of existing public combined water sewers located within the highways to the north and east of the site.

To the north and east of the proposed development there are 225mm diameter public combined water sewers located within Wavell Road. These sewers both run to the junction of Wavell Road and Woodfield, where they combine into a 300mm diameter public combined water sewer, prior to running north along Woodfield.

As the 525mm diameter public combined water sewer is running adjacent to the proposed building footprint, the required 3m easement from United Utilities will not be achievable. A survey of the existing sewer has therefore been carried out and submitted to United Utilities together with the foundation design, under application reference 08225597 covering both the 525mm and 225mm diameter sewers. United Utilities have agreed the build-over, and the correspondence confirming their agreement is attached in Appendix E.

Following completion of the demolition works, a CCTV and topographic survey of the existing public and private drainage, both within and immediately surrounding the site, has been completed. The survey confirms the exact location, levels and details of the existing public and private drainage, and the detailed drainage design has been fixed against the survey findings.

6.3. Proposed Drainage Strategy

As outlined above in Section 6.1, site-wide drainage systems are required 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 Planning Policy Guidance and the CIRIA SuDS Manual detail that surface water runoff from a development should be disposed of as high up the following hierarchy as reasonable practicable:

- into the ground (infiltration);
- to a surface water body;
- to a surface water sewer, highway drain, or another drainage system;
- to a combined sewer.

Considering the hierarchy above, the surface water network should infiltrate where possible.

Section 6.27 of the WML Consulting, Geo-Environmental Investigation & Assessment Report, 11380G-WML-XX-ZZ RP-G-0002A states; *"In consideration of the predominantly cohesive nature of the natural soils, soakaways are not considered a feasible drainage option for the site. In addition, given the restrictive nature of the site there would likely be insufficient room to locate an appropriately sized soakaway the required distance away from proposed and retained structures."*

Therefore, the use of infiltration to dispose of the surface water runoff from the site is not considered to be feasible. This is due to the underlying impermeable strata and also the space restrictions across the site.

As the possibility of infiltration has been ruled out by the site investigation, the intention for the development would be to discharge to watercourse. As indicated in Section 5.1, the nearest watercourse is the Baguley Brook which is located 900m west of the proposed site. Given the distance and large areas of developed land between the site and the watercourse, discharging to watercourse is considered unacceptable.

Therefore, the surface water runoff from the site should discharge to a surface water sewer. However, as can be seen from the United Utilities sewer map, attached in Appendix E, and the topographic and utility survey is attached in Appendix C, there are no nearby surface water sewers or highway drains. Therefore, it is envisaged that the surface water runoff from the proposed development area will discharge into the existing public combined water sewers.

It is anticipated that the surface water runoff from the proposed development site will discharge into the existing 525mm diameter public combined water sewer located just inside the western boundary of the site.

It should be noted that discussions with United Utilities regarding future proofing the surface water drainage have been undertaken. These discussions have formed a part of the overall Wythenshawe Town Centre masterplan, which involves the construction of a new public surface water sewer along Rowlandsway, to the west of the site. This forms part of the drive from United Utilities to remove surface water runoff from the existing public combined water sewer network.

As such, AJP have agreed that even though the surface water runoff from the proposed development will discharge into the existing 525mm diameter public combined water sewer, should the new public surface water sewer in Rowlandsway be constructed, the surface water runoff from the Alpha House development will be disconnected from the public combined water sewer and connected to the new public surface water sewer in Rowlandsway.

Therefore, AJP will ensure that the surface water drainage design includes a pipe stub from the last surface water manhole within the site which can be utilised, in the future, to connect the surface water drainage network from the site, into the new public surface water sewer in Rowlandsway.

While every effort to use the 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 Design and Construction Guidance (DCG), the requirements for the design of a new surface water drainage systems are as follows:

- Below ground piped drainage to be sized to accommodate the 1 in 2 year (50% AEP) design storm without surcharge.
- System to be designed not to flood any part of the site in a 1 in 30 year (3% AEP) 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 45% 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 Defra, which updates previous climate change allowances outlined in the National Planning Policy Framework.

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 (+45%) event, will be retained on-site in safe storage areas. LLFA requirements also ask for 1 in 30 year event with 45% CC allowance.

In line with common practice, it is proposed the surface water discharge from the proposed development should mimic that from the existing site.

As the existing site is brownfield, to align with the Manchester, Trafford and Salford Strategic Flood Risk Assessment, a minimum of 50% betterment is required for reduction in runoff rate compared to the existing rates.

However, United Utilities have indicated within their pre development enquiry response, which is attached in Appendix E, that the surface water runoff from the site should be restricted to a maximum discharge rate of 5 L/s.

For completeness an assessment of the existing surface water run-off from the brownfield site has been completed using a three pipe network within Micro Drainage. Using only the existing impermeable area of 0.263ha, the existing brownfield run-off rates were calculated. The brownfield runoff assessment is attached in Appendix G and the results summarised within the table below.

Rainfall Return Period (years)	Existing Brownfield Runoff Rate (L/s)	Proposed Discharge Rate (L/s)	Betterment (%)
1 Year	29.0	4.8	83
Qbar (2 Year)	37.5	5.0	87
30 year	73.9	5.0	93
100 year	92.7	5.0	95

As can be seen from the table above, the proposed maximum surface water discharge rate of 5 L/s provides a minimum 83% betterment on the existing brownfield runoff rates and therefore complies with the required 50% betterment within the Manchester, Trafford and Salford Strategic Flood Risk Assessment and the United Utilities requirements.

Therefore, the surface water discharge rate from the site should be limited to a maximum of 5 L/s for all rainfall events up to and including the 1 in 100 year +45% climate change event.

As seen in from the Outline Drainage Strategy Drawing attached in Appendix H, it is anticipated that the surface water runoff from the proposed building will be collected via rainwater downpipes and gullies, and convey the flow to the north-west corner of site.

Here it will combine with the foul water runoff from the site, prior to discharging into the existing 525mm diameter public combined water sewer, located just inside the western boundary of the site.

As previously outlined, should the new public surface water sewer in Rowlandsway be constructed, the surface water runoff from the Alpha House development will be disconnected from the public combined water sewer and connected to the new public surface water sewer in Rowlandsway, via the pipe stub within the last surface water manhole.

The surface water runoff is restricted via a vortex flow control device prior to discharging into the proposed combined water drainage. The vortex flow control device restrict the runoff to 5 L/s for all rainfall events up to and including the 1 in 100 year +45% climate change event.

The surface water drainage calculations have also been included within Appendix H and as can be seen the proposed surface water drainage and attenuation storage prevent any flooding for all rainfall events up to and including the 1 in 100 year + 45% climate change event and also meet the required 5 L/s discharge rate. This is summarised in the table above.

It should be noted that manhole SW08 accommodates the vortex flow control device and is recorded as surcharged in the 1 in 2 year event. Surcharge at the control chamber is a necessary consequence of restricting the discharge to 5 L/s and is required for the attenuation storage to operate. The no surcharge criterion applies to the piped network, and all pipes upstream of the flow control operate at or below capacity without surcharge in the 1 in 2 year event.

It should be noted that the areas of hardstanding/roof which drain directly into the surface water drainage network are indicated within the total area contributing section of the drainage calculations. However, the remaining areas, which consist of the first floor courtyard area, are indicated within the time area diagram section of the calculations with the time of entry into the surface water drainage network adjusted to represent the podium deck construction.

The surface water drainage strategy should be confirmed via more detailed discussions with Manchester City Council and United Utilities prior to the commencement of any works.

6.3.2. SuDS Summary

As outlined within the summary table below, all SuDS techniques have been considered for this development;

SuDS Technique	Suitable for This Development?	Reasoning
Green Roof	✗	Unsuitable; no green or blue roof forms part of the development. The roof areas are occupied by PV panels and other plant and equipment.
Rainwater Harvesting	✗	Impractical due to lack of demand for greywater.
Basins, Ponds & Swales	✗	Unsuitable due to lack of available space across the site.
Filter Strips	✗	Unsuitable due to lack of available space and areas to incorporate across the site.
Bio-retention Areas	✗	Unsuitable due to lack of available space and areas to incorporate across the site.
Infiltration Techniques	✗	Unsuitable due to impermeable strata and building regulations restrictions.

Permeable Surfaces	✘	Unsuitable due to lack of available areas to incorporate across the site.
Tanked/Piped Systems	✓	Suitable and incorporated, where required.

No green or blue roof forms part of the development. The roof areas at higher levels lack available space due to the incorporation of PV panels and other plant and equipment, and the first floor garden/courtyard podium deck area is not incorporated as a green roof. Attenuation storage is instead provided by the below ground cellular attenuation tank and the piped network along with a ACO quadraceptor.

Rainwater harvesting was also considered but due to a lack of greywater demand and the cost associated with tanks and pumping of the separate system, it has been deemed as impractical to include a rainwater harvesting system.

The use of basin, ponds, swales and filter drains have been considered but due to a lack of available space across the site, these have been deemed as impractical.

Raingardens have also been considered but due to a lack of available space and a lack of available areas to incorporate them, it has been concluded that the use of raingardens is unsuitable.

As discussed in Section 6.3.1, infiltration is not suitable for the proposed site and therefore infiltration techniques have been discounted. The use of porous surfacing has also been considered but due to a lack of available areas to incorporate, it has been concluded that the use of porous surfacing is unsuitable.

Finally, the use of oversized pipe networks and below ground attenuation tanks have been incorporated, where required.

6.3.3. Water Quality Assessment

Managing the water quality of the surface water runoff from the proposed development is important to ensure that the receiving surface waters or groundwater are well protected. Generally, this can be achieved through the use of well-designed SuDS systems which provide treatment and pollution removal to the surface water runoff.

Standard S3 of the Statutory National Standards for Sustainable Drainage Systems (2018) details the water quality management and addresses the drainage design requirements to minimise the potential pollution risk.

As the proposed development consists mainly of roof areas, car park areas and low traffic roads, in accordance within Table G3.2 of the Statutory National Standards for Sustainable Drainage Systems (2018) the pollution hazard level is low and as such the simple index approach can be used to assess the treatment requirements for the low risk of pollution.

The simple index approach is outlined within Chapter 26 of CIRIA Report C753 - The SuDS Manual. Therefore, using Table 26.2 and applying the proposed site description above, results in a low pollution hazard level, with the pollution hazard indices being; TSS - 0.5, Metals - 0.4 and Hydrocarbons - 0.4.

As no green or blue roof forms part of the development, treatment of the surface water runoff will instead be provided by a proprietary treatment device, an ACO QuadraCeptor, located upstream of the connection to the public sewer to enhance water quality prior to discharge. The QuadraCeptor provides treatment through a four stage process, removing heavy particles, silt, nutrients and dissolved materials such as heavy metals from the surface water runoff.

In accordance with Chapter 26 of CIRIA Report C753 (The SuDS Manual), the performance of proprietary treatment systems is demonstrated using the manufacturer's performance data. Provided the manufacturer's data confirms that the mitigation indices are equal to or greater than each of the pollution hazard indices identified above, the proposed treatment complies with the water quality requirements of Standard S3 of the Statutory National Standards for Sustainable Drainage Systems (2018).

6.3.4. 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)
- Design and Construction Guidance (DCG)
- National Planning Policy Framework document (Department for Communities and Local Government, March 2012).
- Planning Practice Guidance
- 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 2015).

As can be seen from the Drainage Strategy Drawing attached in Appendix H, it is anticipated that the foul water drainage will collect run off from the proposed building and convey the foul water to the north- west corner of the proposed site.

Here the foul water will combine with the restricted surface water runoff, prior to discharging into the existing 525mm diameter public combined water sewer located just inside the western boundary of the site. United Utilities have confirmed that the foul water from the site can discharge into the existing foul water public sewer, at unrestricted rates.

The foul water drainage strategy should be confirmed via more detailed discussions with Manchester City Council (LLFA) and United Utilities prior to the commencement of any works.

7. 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 restricted using a vortex flow control device and the attenuated run-off is stored using a cellular attenuation tank.

It is envisaged that the following components have been or will be included within the drainage strategy for the proposed development:

- Inspection chambers, manholes and catchpits.
- Pipes.
- Drainage channels and gullies.
- Vortex flow control device.
- Cellular attenuation tank.

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. It is assumed that the proposed drainage will remain private and therefore the maintenance of the surface and foul water drainage systems will be the responsibility of the Client and/or end user.

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. A copy of the final construction drainage layout should also be provided in the final Operations and Maintenance Manual.

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 are 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 stable 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 Device

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 rodding 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.
- ACO QuadraCeptor
- The ACO QuadraCeptor provides treatment of the surface water runoff prior to discharge into the public sewer. Regular inspection and maintenance is important to ensure that the chambers and filter media have not become obstructed or clogged and that the unit is functioning correctly, as failure to do so would reduce the level of treatment provided.
- The QuadraCeptor is a proprietary product and the manufacturer's operation and maintenance recommendations should be followed. Typically this includes removal

of accumulated silt and sediment from the chamber and inspection or replacement of the filter media at the intervals recommended by ACO. Following installation, it is recommended that the unit is inspected monthly for three months and thereafter at six monthly intervals, with inspections also undertaken within 48 hours of large storms.

7.6. Cellular Attenuation Tank

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 cellular attenuation tanks are outlined within Table 21.3 of the CIRIA SUDS Manual C753. An extract of that table is given below to set out the maintenance schedule for the cellular attenuation tank component of the proposed drainage systems..

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

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. CONCLUSIONS

- The site is located within Flood Zone 1 and has a low risk of flooding from all sources other than surface water.

- The medium risk of surface water flooding has been mitigated by ensuring that the lowest FFL of the proposed building sits above the surface water flood extents in the 1% AEP + climate change event and also sits around 300mm - 400mm above the adjacent existing highway levels.

- Due to the proposed surface water flood risk mitigation measures and low risk of flooding from all other sources, the risk of flooding from all sources can be considered to be low.

- The WML Consulting, Geo-Environmental Investigation & Assessment Report, 11380G-WML-XX-ZZ RP-G-0002A states that the use of infiltration to dispose of the surface water runoff from the site is not considered to be feasible. This is due to the underlying impermeable strata and also the space restrictions across the site.

- As the possibility of infiltration has been ruled out by the intrusive site investigation, the intention for the development would be to discharge to watercourse. The nearest watercourse is Baguley Brook which is located 900m west of the proposed site. Due to the distance across previously developed land, discharging to watercourse has been deemed as impractical.

- Therefore, the surface water runoff from the proposed development should discharge to a public surface water sewer. However, there are no nearby public surface water sewers. As such, it is envisaged that the surface water runoff from the proposed development will discharge into the existing 525mm diameter public combined water sewer located just inside the western boundary of the site.

- It should be noted that discussions with United Utilities regarding future proofing the surface water drainage have been undertaken. These discussions have formed a part of the overall Wythenshawe Town Centre masterplan, which involves the construction of a new public surface water sewer along Rowlandsway, to the west of the site, to remove surface water runoff from the existing public combined water sewer network.

- As such, it has been agreed that even though the surface water runoff from the proposed development will discharge into the existing 525mm diameter public combined water sewer, should the new public surface water sewer in Rowlandsway be constructed, the surface water runoff from the Alpha House development will be disconnected from the public combined water sewer and connected to the new public surface water sewer in Rowlandsway.

- To comply with the Manchester, Trafford and Salford Strategic Flood Risk Assessment, a minimum of 50% betterment is required for reduction in runoff rate compared to the existing rates. However, United Utilities have indicated that the

surface water runoff from the site should be restricted to a maximum discharge rate of 5 L/s.

- Therefore, the proposed surface water drainage collects the runoff from the site area and conveys it to the north-west corner of the proposed site. Here the surface water runoff is restricted to a maximum discharge rate of 5 L/s, via a flow control device prior to combining with the foul water discharge from the site. The combined drainage then discharges into the existing 525mm diameter public combined water sewer located just inside the western boundary of the site.

- The surcharged runoff is attenuated with the proposed below ground cellular attenuation tank and the drainage network itself.

- Prior to discharge into the public combined water sewer, the surface water runoff will be treated by an ACO QuadraCeptor, a proprietary four stage treatment device, to enhance water quality in accordance with Standard S3 of the Statutory National Standards for Sustainable Drainage Systems (2018).

- Using a vortex flow control device, the surface water discharge is to be restricted to the maximum discharge rate of 5 L/s, for all rainfall events up to and including the 100 year + 45% climate change design storm

- The foul water drainage will collect the run off from the proposed building and convey the foul water to the north-west corner of the proposed site. Here the foul water drainage combines with the restricted surface water runoff prior to discharging into the existing 525mm diameter public combined water sewer located just inside the western boundary of the site.

- As a new connection into the United Utilities public combined water sewer will be required, a Section 106 agreement with United Utilities will be required. This should be obtained prior to the commencement of any works on the United Utilities public combined water sewer.

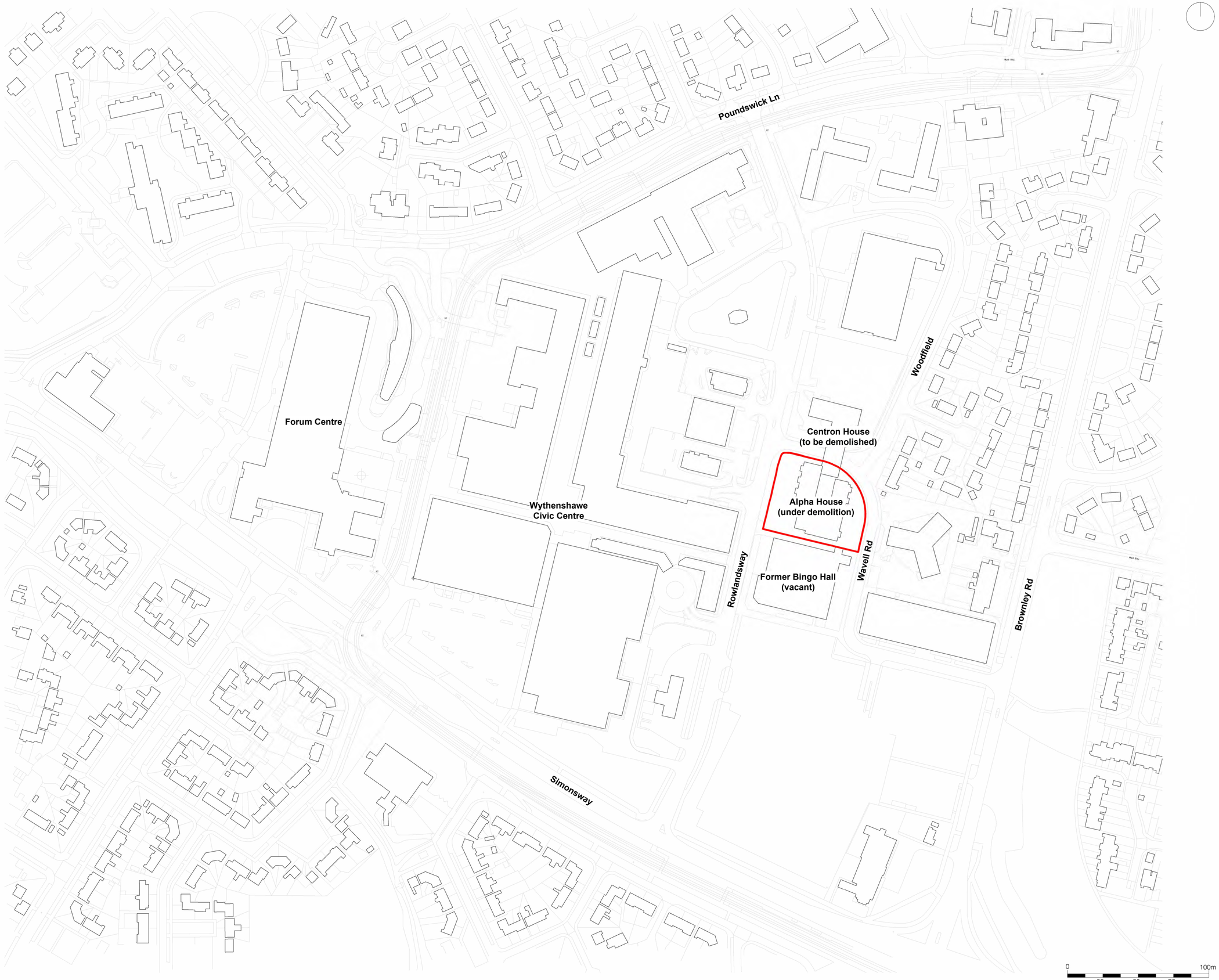
- As the 525mm diameter public combined water sewer is running adjacent to the proposed building footprint, the required 3m easement from United Utilities will not be achievable. United Utilities have agreed the build-over of the existing public sewers under application reference 08225597, and the correspondence confirming their agreement is attached in Appendix E.

- The external ground levels around proposed buildings shall fall away from the proposed building with any new levels being designed to ensure any overland flood routes, for events in excess of the 1 in 100 Year + 45% CC, exit towards the surrounding highways, for use in exceptional circumstances.
- The covered external area at the south-east corner of the site, identified on the exceedance flow paths drawing in Appendix I, is outside the building and is served by an ACO channel drain. No exceedance flow route is directed into a building.

9. RECOMMENDATIONS

- United Utilities have agreed the build-over of the existing public sewers under application reference 08225597; no further easement discussions are required.
- The surface water drainage strategy should be confirmed via more detailed discussions with Manchester City Council (LLFA) and United Utilities prior to the commencement of any works.
- The foul water drainage strategy and unrestricted discharge rate should be confirmed via more detailed discussions with Manchester City Council (LLFA) and United Utilities prior to the commencement of any works.

APPENDIX A – SITE LOCATION PLAN



Notes

1. Do not scale this drawing.
2. All dimensions must be checked on site and any discrepancies verified with the architect.
3. Unless shown otherwise, all dimensions are to structural surfaces.
4. Drawing to be read with all other issued information. Any discrepancies to be brought to the attention of the architect.
5. This drawing is the copyright of Levitt Bernstein and may not be copied, altered or reproduced in any form, or passed to a third party without license or written consent.
6. This document is prepared for the sole use of Wythenshawe Community Housing Group and Muse Places. No liability to any other persons is accepted by Levitt Bernstein. Levitt Bernstein accepts no liability for use of this drawing by parties other than the party for whom it was prepared or for purposes other than those for which it was prepared.
7. Unless indicated otherwise, all Structural and MEPH information shown in this architectural drawing has been designed and modelled by the relevant consultants, who have complete design responsibility for those elements.

This is not a construction drawing, it is unsuitable for the purpose of construction and must on no account be used as such.

Ownership Boundary

DRAFT

Rev	Date	Description	Drawn / Checked
P01	31.10.25	Draft planning issue	TM/DM

Project name

Alpha House

3995B

Drawing number — Rev

18703 - LB - ZZ - XX - D - A - 100000 — **P01**

Drawing

Site Location Plan

Purpose of issue — Suitability code

For Comment

Scale — First issue date

1 : 1250 @ A1 — 09/15/25

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Wythenshawe Community Housing Group and Muse Places

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APPENDIX B – AERIAL PHOTO



APPENDIX C – TOPOGRAPHIC & UTILITY SURVEY

NOTES

KEY

Grid & Datum — Local Plane Grid related to OS National Grid & Datum
By GNSS RTK Observations

STANDARD ABBREVIATIONS

STREET FURNITURE

AC - AIR CONDITIONING
AD - AERIAL
AL - ALARM
AV - AIR VALVE
BA - BUOYANCY AID
BB - BELISHA BEACON
BC - BOUNDARY POST
BH - BOREHOLE
BI - BOLLARD ILLUMINATED
BL - BASEMENT LIGHT
BO - BOLLARD
BP - BOUNDARY POST
BR - BENCH
BS - BUS STOP
BU - BUSH
CA - CABLE
CB - CONTROL BOX
CC - CLOSE CIRCUIT TV
CD - CONTROL DEVICE BIN
CM - COLUMN
CT - CLOSE CIRCUIT TV POLE
DP - DOWN PIPE
DR - DRAIN
DU - DUCT/CABLE CHANNEL
DV - DUCT
EL - ELECTRIC
EP - ELECTRICITY POLE
ER - EARTH ROD
FA - FENDER ANCHOR
FB - FLUSH BOLLARD
FH - FIRE HYDRANT
FL - FLOODLIGHT
FS - FLAG STAFF
GA - GAS
GM - GAS METER
GP - GUARD POST
GR - GATE POST
GU - GULLY
GV - GAS VALVE
Hyd - HYDRANT
IC - INSPECTION COVER
IT - TRAFFIC COVER
JB - JUNCTION BOX
KO - KERB OFFLET
LA - LADDER
LB - LITTER BIN
LC - LIGHTING COLUMN
LP - LAMP
LP - LAMP POST
MBO - MOORING BOLLARD
MA - MAST
MH - MANHOLE
MO - MONUMENT
MP - MARKER POST
MR - MOORING RING
MW - MONITORING WELL
NP - NAME PLATE
OH - OVERHEAD
OSBM - ORDNANCE SURVEY BENCH MARK
PA - PLAY APPARATUS
PB - PILLAR BOX
PH - PUBLIC HOUSE
PI - PIPE
PL - PLANT
PM - PARKING METER
PN - PLANTER
PO - POST
PP - PETROL PUMP
RH - RIDGE HEIGHT
RP - REFLECTOR
RS - ROAD SIGN ILLUMINATED
RTW - RETAINING WALL
RWP - RAINWATER PIPE
SA - STANCHION
SC - SPEED CAMERA
SD - SATELLITE DISH
SF - SECURITY FENCE
SG - SIGN
SI - SIGN
SL - SIGN ILLUMINATED
SMP - SERVICE MARKER POST
SN - SOIL PIPE SENSOR
ST - STOP TAP
SU - STUMP
SV - STOP VALVE
SW - SWITCHGEAR
TA - TANK
TH - TRAP
TBM - TEMPORARY BENCH MARK
TCB - TELEPHONE CALL BOX
TE - TELEPHONE
TM - TICKET MACHINE
TS - TRAFFIC SIGNAL
TV - TELEVISION CABLE
UTL - UNDERGROUND LIFT
VDP - VEHICLE DETECTOR PAD
VP - VENT PIPE
WB - WHISTLE BLOW
WM - WATER METER
WP - WASTE PIPE
WT - WASTE PIPE

FENCE TYPES

BAW - BARBED WIRE
CAB - CLOSE BOARDED
CR - CORRUGATED IRON
CP - CONCRETE PANEL
HR - HANDRAIL
IR - IRON RAILING
PAL - PALISADE
PC - POST & CHAIN
PM - POST & PANEL
PR - POST & RAIL
PSB - PEDESTRIAN SAFETY BARRIER
PW - POST & WIRE
WM - WIRE MESH

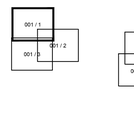
LEVELS

BL43.45 - BED LEVEL
EVL43.45 - EAVE LEVEL
IL43.45 - INVERT LEVEL
43.45 - SPOT LEVEL
RFL43.45 - ROOF LEVEL
RL43.45 - RIDGE LEVEL
SBL43.45 - SOFT BED LEVEL
SL43.45 - SOFFIT LEVEL
THL43.45 - THRESHOLD LEVEL
WL43.45 - WATER LEVEL

SYMBOLS

HEDGE
GATE
BUILDING
TREE CANOPY
CONTROL STATION
EMBANKMENT
TREE
BUSH

SHEET LAYOUT



UNDERGROUND SERVICE KEY

Foul/Combined water drain
Foul/Combined drain 3000 and above
Surface water drain
Surface water drain 3000 and above
Combined Water Drain
Surface water drain 3000 and above
End of trace
Electric cables
HV cables
Gas
Water
Telephone
Catv
CCTV
Comms
Fibre Optics
Pipe
Vents
Fuel
Offsets
Vapour Recovery
Gauge Lines
Unidentified GPS
Unidentified EML
Taken From Records
Assumed Routes
Empty Ducts
Earth Rod
Rising Main
Overhead
Heating Pipes
Traffic Signals
Multi User
Trench Scar
Service Duct

Where chamber extents are significantly greater than the cover size, their approximate extents are shown thus:

ABBREVIATION KEY

AR assumed route
BD base bend
BS backdrop
CP cover pin
COL collar level
CR cable riser
DP down pipe
EBD external back drop
END end of trace
EXT exit to gate
FH fire hydrant
FL flooded
G gully
GV gas valve
HOR head of run
HL high level
IC inspection chamber
IBD internal back drop
LL low level
MH manhole
PL pit level
PR pipe riser
RR rodding eye
RWP rainwater pipe
SIL silted
SL silt level
STP stop valve
SVP soil vent pipe
TE trapped exit
TFR token from records
TP turning point
UDO unable to determine outfall
UTF unable to find
UTI unable to lift
UTS unable to survey
UTT unable to trace
VP vent pipe
WL water level
WM water meter
WO wash out valve

UTILITY SURVEY NOTES

ELECTROMAGNETIC AND/OR GROUND PENETRATING RADAR TECHNIQUES WERE BEEN USED TO LOCATE AND MAP UNDERGROUND UTILITIES AND FEATURES ON THIS SURVEY. THESE METHODS ARE NOT ALWAYS CONCLUSIVE AND THEIR RESULTS MAY BE AFFECTED BY SOIL CONDITIONS, SITE CONSTRAINTS AND ACCURACY AND SO IT IS THE HIGHEST QUALITY, HOWEVER, THE RESULTS SHOWN ON THIS SURVEY PLAN SHOULD BE REGARDED AND INTERPRETED ACCORDINGLY AND CANNOT BE RELIED UPON.

N O SLABS & CO LTD HAVE USED ALL RECORD DRAWINGS THAT WERE AVAILABLE TO US BY THE CLIENT OR BY THE STATUTORY UTILITY PROVIDERS AT THE TIME OF THE SURVEY, HOWEVER THESE RECORDS TEND FROM TIME TO TIME TO BE INACCURATE, INCOMPLETE, DUPLICATED, OUTDATED, WRONG OR NON-EXISTENT. THE RECORDS ARE NOT ALWAYS ACCURATE AND SHOULD BE TREATED WITH CAUTION. WE ARE NOT ENGAGED TO CHECK THESE RECORDS FOR ACCURACY OR OBTAIN ADDITIONAL INFORMATION IN OTHER RESPECTS/CIRCUMSTANCES AND CANNOT BE HELD LIABLE UPON.

A SMALL LOSS REDUCTION & DEPLOY MAY ARISE FROM THE PRESENCE OF MULTIPLE SERVICES WITHIN CLOSE PROXIMITY TO EACH OTHER, WHERE A SINGLE LINE TYPE IS SHOWN WE RECOMMEND HAND DIGGING WITHIN 0.5m TO EXPOSE HIDDEN SERVICES.

WHERE BURIED DEPTH INFORMATION OF UNDERGROUND SERVICES/FEATURES IS STATED, DEPTHS ARE APPROXIMATELY WITHIN +/- 150 ACCURACY, BUT CANNOT BE GUARANTEED. ANY DEPTHS SHOWN ARE USUALLY TO THE TOP OF THE SERVICE/FEATURE. GRAVITY SEWERS AND DRAINS ARE USUALLY TO INVERT LEVEL OF DRAINAGE CHANNELS UNLESS STATED/NOTED OTHERS.

IF N O SLABS & CO LTD WE ARE UNABLE START AND MODERN CALIBRATED EQUIPMENT TO PERFORM OUR SURVEYS, HOWEVER, THE COMPLETENESS OF ANY UNDERGROUND SURVEY CANNOT BE GUARANTEED AND WE CANNOT BE HELD RESPONSIBLE FOR ANY INACCURACIES BEYOND THOSE THAT COULD BE REASONABLY EXPECTED OF A COMPETENT COMPANY.

CONTRACTORS UTILISING OUR DRAWINGS FOR INTERPRETATION WORK SHOULD TAKE ALL REASONABLE MEASURES TO WORK SAFELY IN ACCORDANCE WITH HSG47 GUIDANCE "AVOIDING DANGER FROM UNDERGROUND SERVICES".

Rev	Date	Drawn	Description	Chk'd	App'd
D	15.07.25	NDO/AUL	Survey Area Expanded	AM	NDO
C	09.06.25	NDO/AUL	Survey Area Expanded	AM	NDO

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Title

WYTHENSHAWE CIVIC CENTRE
WYTHENSHAWE
M22 5RQ

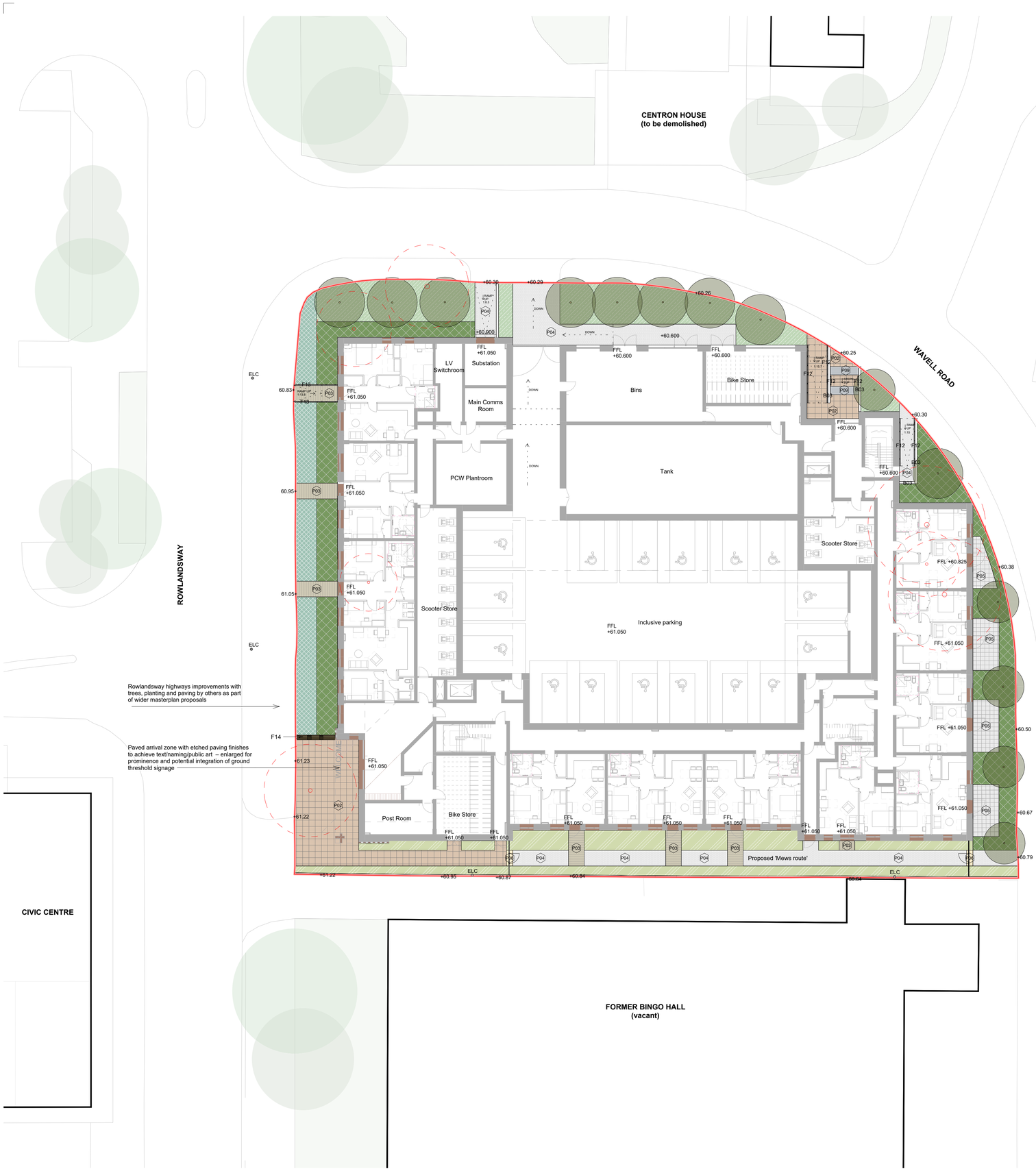
TOPOGRAPHICAL & UTILITIES SURVEY
SHEET 9 OF 13

Surveyed	PG/HS/OB	Drawn	HS/PK/OB	Drawn Date:
Checked	AM	Approved	NDO	30/04/2025

Scale	Project	Status
1:200 @ A1	13162	REV
	CAD File P:\13162\DRAWINGS\13162_001D.DWG	

Drawing No	Rev
13162 / 001D/ 9	D

APPENDIX D – PROPOSED SITE PLAN



KEY

- Ownership Boundary
- Proposed trees (ref plans *18703-LB-ZZ-XX-D-L-200003 and 18703-LB-ZZ-XX-D-L-200004 Landscape Planting Plan*)
- Existing trees to be removed
- ELC Existing lighting columns

Hard Landscape

- P01 Recycled composite raised timber decking (to courtyard only)
- P02 Communal lobby entrance slab paving in mixed tones - pcc paving with 70% natural granite aggregate content (eg Lavaro Wit and Grijs/rood by Hardscape, Stack, 400x400mm or similar approved products)
  Paved arrival zone (shown in Ground Floor GA plan) with etched paving finishes to achieve text/naming/public art – enlarged for prominence and potential integration of ground threshold signage.
- P03 Private entrance paving: Textured linear setts in mixed tones - pcc paving with 100% natural granite aggregate content (eg Liscio Bianco and Ambrogio by Hardscape, Stack, 330x110mm or similar approved products)
- P04 Slab paving - pcc paving with 70% natural granite aggregate content, (eg Lavaro Wit by Hardscape, Stretcher, 300x150mm or similar approved products)
- P05 Flags paving - natural granite aggregate paving (eg Mayfair Slabs by Tobermore,Stack, Silver, 400x400mm or similar approved products)
- P06 Gate setts paving - pcc paving with 70% natural granite aggregate content (eg Lavaro Oranje, Stack, 150x150mm or similar approved products)
- P07 Resin bound gravel 1(eg Nickel by GCL Products or similar approved products)
- P08 Resin bound gravel 2 (eg Iberian Sun by GCL Products or similar approved products)
- P09 Corduroy paving, PCC with natural aggregate, colour needs to contrast with P02 paving, 400 x 400mm eg Corduroy by Hardscape or similar approved products)

Soft Landscape (ref plans *18703-LB-ZZ-XX-D-L-200003 and 18703-LB-ZZ-XX-D-L-200004 Landscape Planting Plan*)

- PL01 Wavell Road edge planting
- PL02 Hedge planting
- PL03 Mews planting
- PL04 Courtyard planting
- PL05 Rowlandsway edge planting

Furniture (some features in courtyard only - ref plan *18703-LB-ZZ-XX-D-L-200002-Landscape GA Plan - First Floor*)

- F01 Pergola - 6 x supports forming 3 x arches with catenary wires to allow plants to climb up and over top, Powder-coated steel pergola structure. Approx. 2.4m high x 2.0m wide, arrangement as shown. RAL to match architectural fenestration.
- F02 Ventilation grilles Galvanised steel powder-coated to RAL to match architectural fenestration. Ventilation grilles in horizontal arrangement to satisfy ventilation requirements. Percentage of clear ventilation to be agreed as required by engineer. Grilles to be fixed to concrete upstand to SE detail, suitable to withstand safe pedestrian loading eg by Lang and Fulton.
- F03 Privacy panels - 1.8m high x 1.8m (or 2.5m) depth, powder coated steel privacy panels formed in louvre-style horizontal slatted metal screens to filter views to adjacent homes. RAL to match architectural fenestration.
- F04 FSC certified hardwood timber growing beds, 0.5m high above paving levels, sizes as shown. Plugged fixings sizes as shown.
- F05 FSC certified hardwood communal table and bench set with painted steel frame
- F06 FSC certified hardwood timber linear seat with backrest with painted steel frame
- F07 Painted steel bistro style tables and chairs with backrests and arms - RAL to match fenestration.
- F08 Catenary lighting to specialist design - wires and fixings to SE design directional downlighters to avoid glare into homes (all other lighting to be building-mounted to architect detail)
- F09 Lockable water points
- F10 External power point
- F11 Habitat features - to include bat boxes, bird boxes, bee posts and bricks (locations to be agreed with ecologist)
- F12 Handrail fixed to wall, RAL to match architectural metalwork
- F13 Free-Standing handrail on posts, RAL to match architectural metalwork
- F14 Low brick seating wall with FSC-certified timber slats top

0 2m 4m 6m 8m 10m

Notes

1. Do not scale this drawing.
2. All dimensions must be checked on site and any discrepancies verified with the architect.
3. Unless shown otherwise, all dimensions are to structural surfaces.
4. Drawing to be read with all other issued information. Any discrepancies to be brought to the attention of the architect.
5. This drawing is the copyright of Levitt Bernstein and may not be copied, altered or reproduced in any form, or passed to a third party without license or written consent.
6. This document is prepared for the sole use of Wythenshawe Community Housing Group & Muse Places. No liability to any other persons is accepted by Levitt Bernstein. Levitt Bernstein accepts no liability for use of this drawing by parties other than the party for whom it was prepared or for purposes other than those for which it was prepared.
7. Unless indicated otherwise, all Structural and MEPH information shown in this architectural drawing has been designed and modelled by the relevant consultants, who have complete design responsibility for those elements.

This is not a construction drawing, it is unsuitable for the purpose of construction and must on no account be used as such.

*Desing proposals are subject to Stage 4 detailed design
*Final construction details subject to further civil and MEP
*ALL DRAWINGS SHOW DESIGN INTENT ONLY

Rev	Date	Description	Drawn / Checked
P03	09/02/26	STAGE3+ ISSUE	YD/SA
C02	30/01/26	STAGE3+ ISSUE	YD/SA
C01	21/11/25	FINAL PLANNING ISSUE	DM
P02	06/11/25	PLANNING ISSUE	YD/KD
P01	31/10/25	DRAFT - Planning issue	YD/KD

Project name

Alpha House

3995B

Drawing number: 18703 - LB - ZZ - XX - D - L - 200001 **P03**

Rev

Drawing

Landscape GA Plan - Ground Floor

Purpose of issue: Planning Submission

Scale: 1 : 200 @ A1

First issue date: 31/10/25

Client: Wythenshawe Community Housing Group & Muse Places

London
Thane Studios
2-4 Thane Villas
London N7 7PA
+44 (0)20 7275 7676

Manchester
Eastgate
2 Castle Street
Manchester M3 4LZ
+44 (0)161 669 8740

Levitt Bernstein
levittbernstein.co.uk

1 | 00-Landscape GA - Ground Floor
1 : 200

C:\Revit Local\3995B-Landscape-25-Central_yuxin.ding4YUSX.rvt

APPENDIX E – UNITED UTILITIES SEWER MAP & CORRESPONDENCE

United Utilities
Water for the North West

How to contact us:

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

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

UCML

Mainetti House
Bedwell Road,
Wrexham,
LL13 0TS

FAO:

Your Ref: PR8057
Our Ref: UUPS-ORD-530598
Date: 13/11/2023

Dear Sirs

Location: Alpha House

I acknowledge with thanks your request dated 10/11/2023 for information on the location of our services.

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

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

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

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

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

United Utilities

Water for the North West

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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

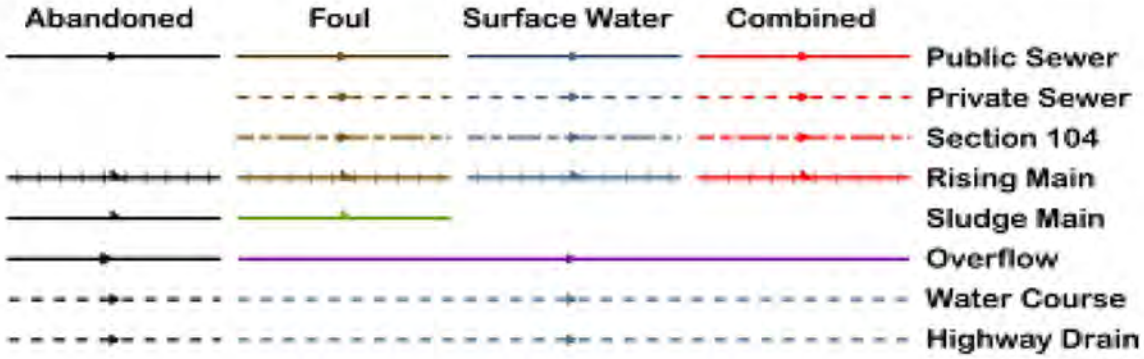
TERMS AND CONDITIONS:

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

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

United Utilities
Water for the North West

Wastewater Symbology



All point assets follow the standard colour convention: red – combined, brown - foul, blue – surface water, purple - overflow

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- VT Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- CA Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- CK Control Kiosk
- Change of Characteristic



United Utilities

Water for the North West

SEWER RECORDS

Address or Site Reference

Alpha House,

Scale: 1:1250

Date: 13/11/2023

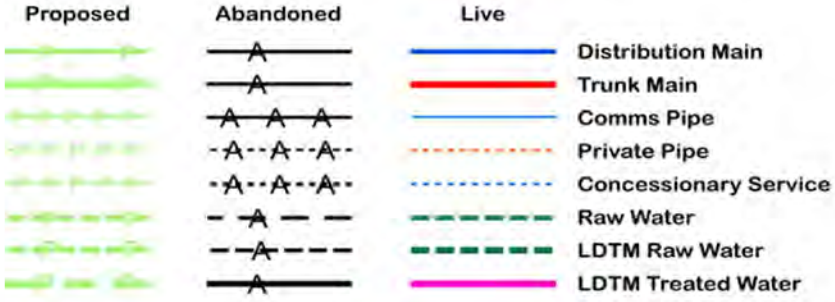
Printed by: Property Searches

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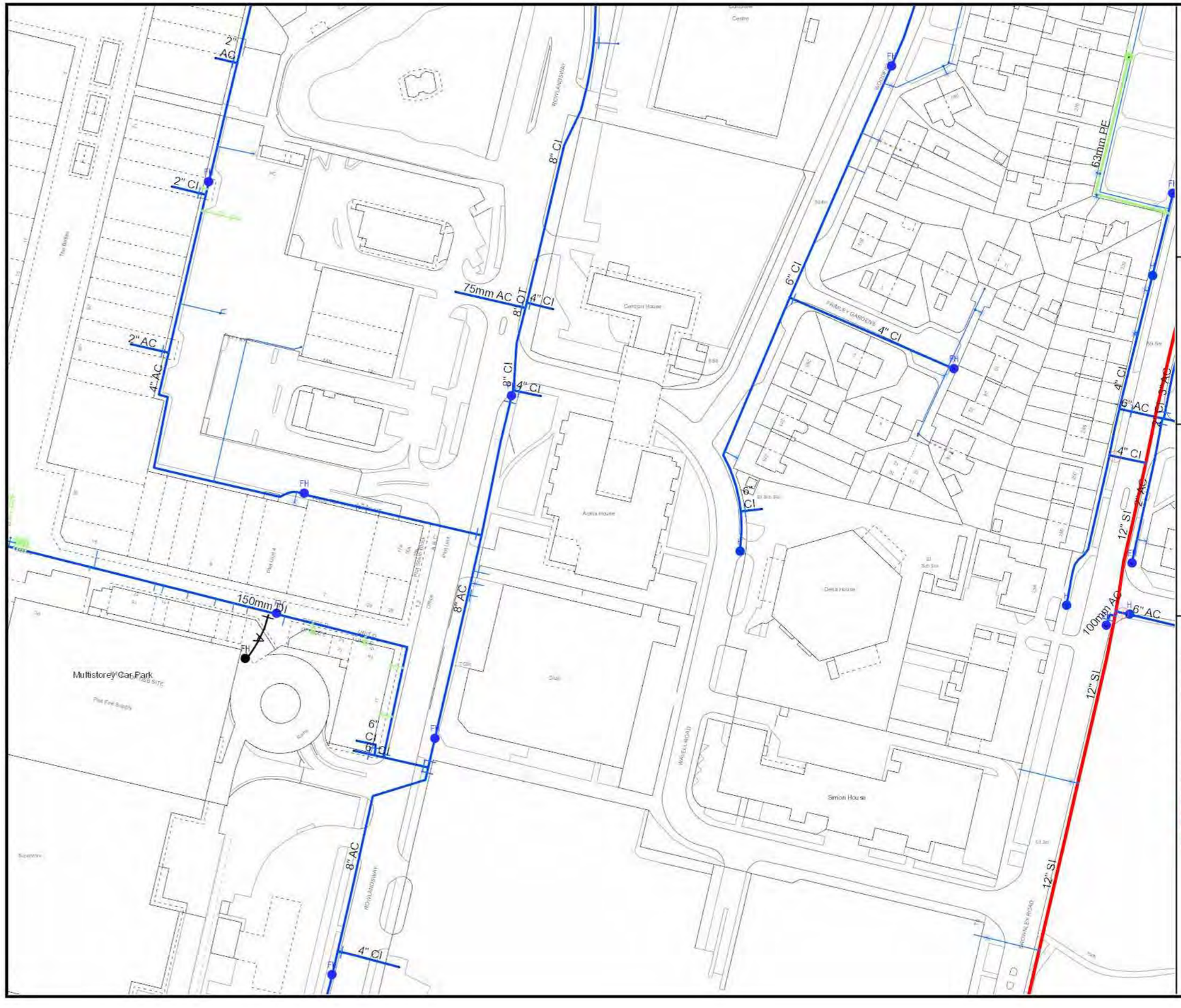
United Utilities
Water for the North West

Clean Water Symbology





Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black



United Utilities

Water for the North West

WATER MAIN RECORDS

Address or Site Reference

Alpha House,

Scale: 1:1250

Date: 13/11/2023

Printed by: Property Searches

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WASTEWATER PRE-DEVELOPMENT ENQUIRY

United Utilities Grasmere House, 2nd Floor
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

13/10/2025

Dear **John,**

Pre-Development Enquiry for **Alpha House, Wythenshawe, M22 5RG** UU Reference Number: **08225597**

We have assessed your application based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your strategy will need review by other authorities as part of the planning process. We advise conducting necessary site investigations to confirm viability of your proposals.

Modelled Flood Risk

Please see the image at the end of this letter for details

I can confirm that we have modelled flood risk within the vicinity of the proposed development.

Please note that our modelling data is indicative, and only representative of the 1:100year storm event.

Please see **comment 2** of the attached guidance sheet

Asset Protection

1. According to our public sewer records, there are public sewers located within your site boundary. This requires an easement of **3m eitherside of the centreline** If you cannot achieve the required clearance, you may wish to consider diverting and or abandoning the public sewer.

Please see **comment 3** of the attached guidance sheet and **Working Near Our Pipelines Guidance document**

WASTEWATER PRE-DEVELOPMENT ENQUIRY

Foul Water

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

Our preferred point of discharge would be to the 525mm diameter public combined sewer within your proposed development at an unrestricted rate.

Manhole reference SJ82867901, **Grid reference** 382789, 386967

Please see the images at the end of this letter for clarification

Surface Water

Follow the National Planning Policy Guidance drainage hierarchy and Provide evidence for discounting higher options before considering public sewer discharge. Consult the Lead Local Flood Authority regarding surface water concerns.

Please see comment **4** within the guidance sheet

Infiltration

Please see comment **4** within the guidance sheet

Public Sewer

United Utilities will consider a connection to the 525mm diameter public combined sewer within your proposed development at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities requests that any agreed rate does not exceed **5**/s.

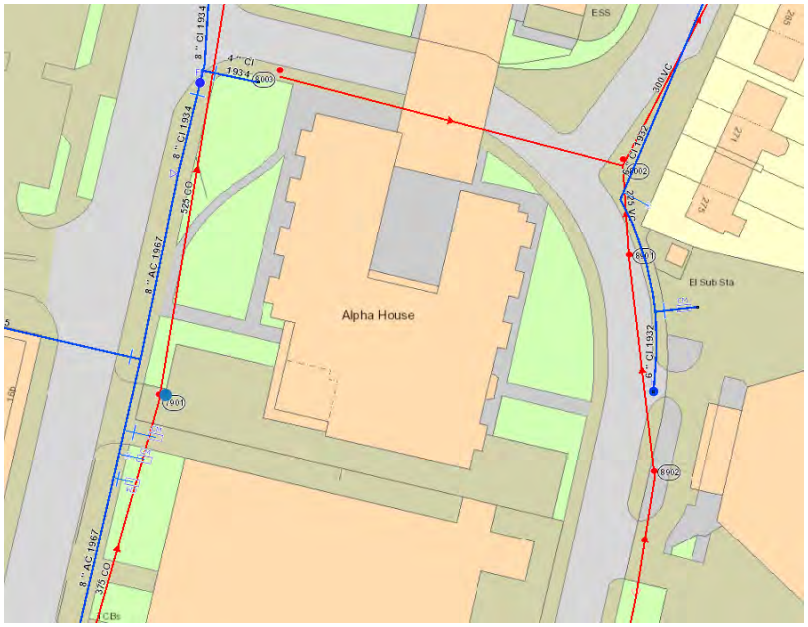
Manhole reference SJ82867901, **Grid reference** 382789, 386967

Please see images at the end of this letter for clarification

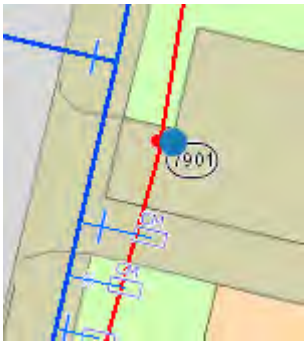
WASTEWATER PRE-DEVELOPMENT ENQUIRY

United Utilities
Water for the North West

Site Images



Connection Point



Modelling Information

Node reference – SJ82867901

Ground Level – 61.5m AOD

Max TWL 100yr – 58.687m AOD

Node reference - SJ82878003

Ground Level – 60.27m AOD

Max Flood 100yr – 354m3

Max TWL 100yr – 61.475m AOD

John Speers

From: seweradoptions@uuplc.co.uk
Sent: 29 October 2025 16:54
To: John Speers
Subject: RE: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: 224-126 - Alpha House Rolandsway Wythenshawe

Good Afternoon John,

Thank you for your email.

Has a survey been undertaken on the existing sewer to confirm the line and level of the asset? We will require this information, along with the foundation details, to consider any reduction in the easement for this asset.

A saddle connection may be acceptable, provided the proposed connection is at least 150mm smaller than the existing sewer and serves no more than three properties.

Regarding the surface water separation, could you please confirm who at United Utilities you are liaising with? I'd like to ensure that our proposals are aligned with their ongoing projects.

Kind regards,

United Utilities
Water for the North West

Eireann Thompson
Developer Engineer
Developer Services & Metering
01925 429086
unitedutilities.com

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---------- Original Message ----------
From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]
Sent: 16/10/2025 11:55
To: johnspeers@ajpltd.co.uk
Subject: RE: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

Good Morning,

Your enquiry has been logged and sent to our engineer Eireann Thompson and her contact number is 01925 429086. Our service Level agreement is to respond to you within 10 working days.

Many thanks

Laura Owens
Customer Advisor Advanced
Developer Services & Metering
Customer Services
T: 0345 026 8989 option 4
unitedutilities.com

If you feel you have received a good service from myself, please can you take two minutes to fill in the survey below. This will be much appreciated

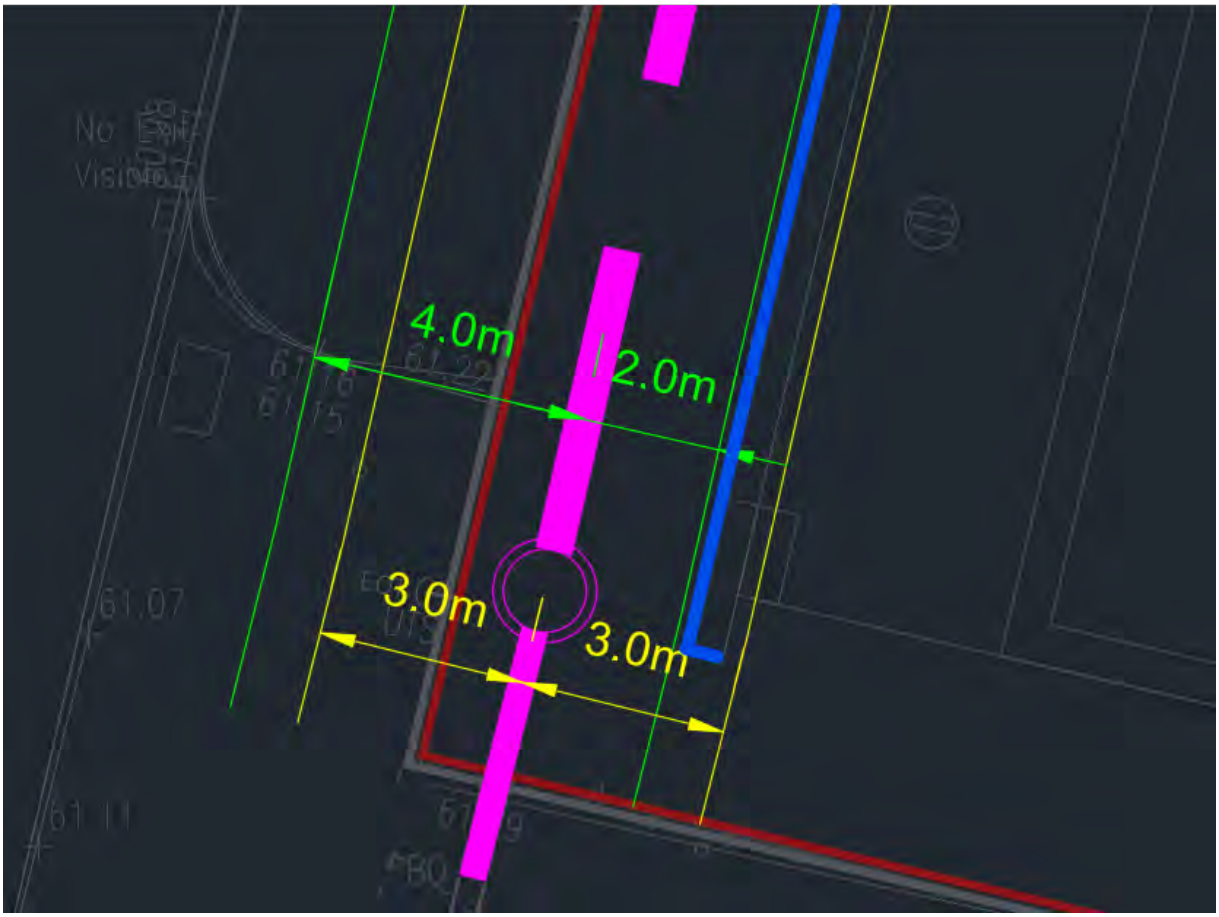
Visit: *https://unitedutilities.thewowawards.co.uk/nominate*

---------- Original Message ----------
From: John Speers [johnspeers@ajpltd.co.uk]
Sent: 16/10/2025 11:28
To: seweradoptions@uuplc.co.uk
Subject: RE: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

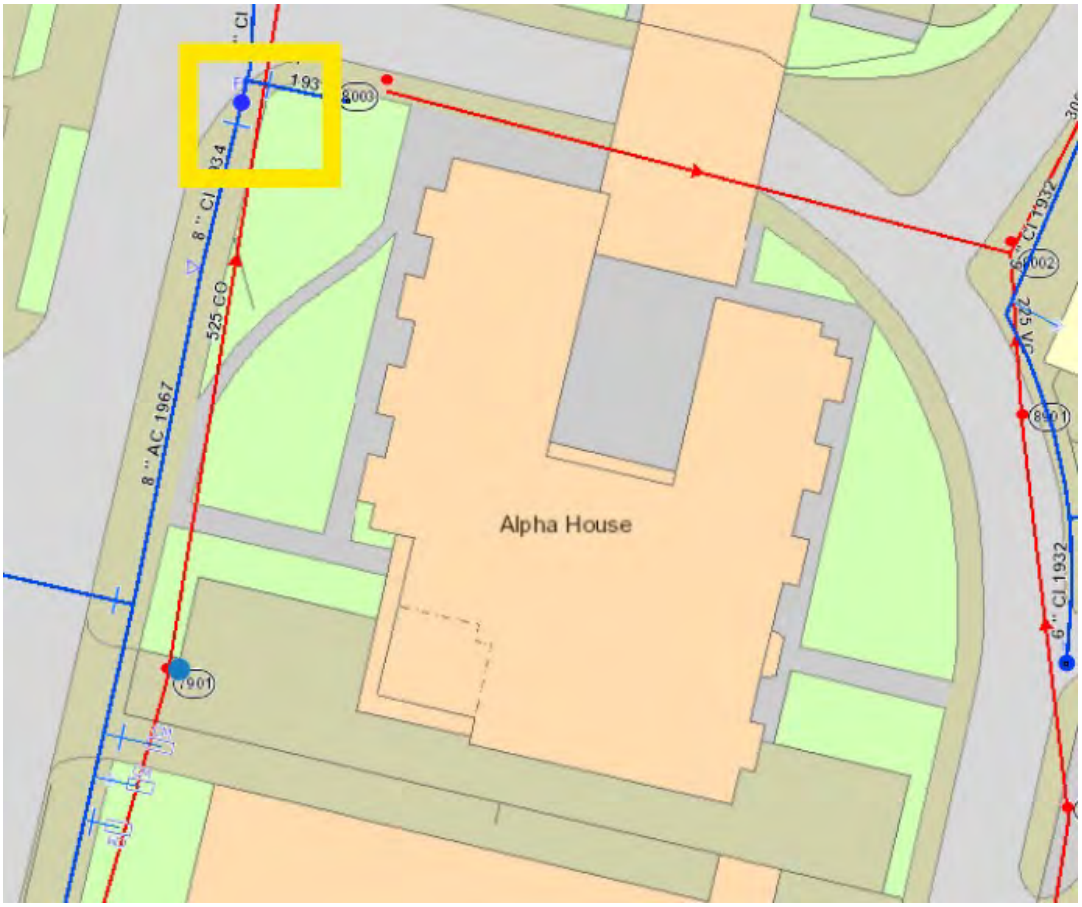
Hi Eireann,

Thanks for the pre-development enquiry response.

With regards to the 3m easement on the existing UU sewer, unfortunately, we are unable to achieve this due to the space restrictions across the site. **Can you please check with asset protection if they would be willing to accept an offset easement of 2m on the building side and 4m on the highway side?** Please see below sketch which shows the required 3m easement in yellow, the proposed offset easement in green and the proposed building extents in blue.



Also, with regards to the connection point we would be looking to connect in the north-west corner of the site rather than the south-west. This is due to the fact that the existing site topography falls from south to north. **Would United Utilities accept a junction connection to the existing 525mm diameter public combined water sewer or would they require a new manhole on the line of the existing combined water sewer?** See yellow square on the below extract for approximate location of proposed connection point to the existing UU combined sewer.



Finally, just to make you aware, we have had various discussions with UU regarding the overall Wythenshawe Town Centre masterplan and the intention to construct a new public surface water sewer along Rowlandsway, to the west of the proposed development. This is to remove as much of the surface water runoff as possible, from the public combined water sewers and will be constructed after this proposed development. With this in mind, it has been agreed that we will connect to the current UU combined water sewer to the west of the development but will provide a pipe stub from the proposed private surface water drainage to allow the private surface water drainage network to connect to the 'new' public surface water sewer when it is constructed in the future.

If you want to discuss anything, please give me a call using the details below.

Kind Regards

John

John Speers

Associate

creating balance in the built environment

0151 227 1462

07841 832 409

johnspeers@ajpltd.co.uk

1 Dale St, Liverpool, L2 2ET

From: seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>
Sent: 13 October 2025 11:59
To: John Speers <johnspeers@ajpltd.co.uk>
Subject: RE: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

Hi John,

Please see attached pre-dev response and guidance.

Kind regards,

United Utilities
Water for the North West

Eireann Thompson
Developer Engineer
Developer Services & Metering
01925 429086
unitedutilities.com

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---------- Original Message ----------
From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]

Sent: 03/10/2025 09:10
To: johnspeers@ajpltd.co.uk
Subject: RE: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

Good Morning,

PROPOSED PRE DEVELOPMENT AT Alpha House, Rowlandsway, Wythenshawe M22 5RG - UU Ref – 08225597.

Thank you for your **bacs** payment for 565.55 received 02.10.25. Your application has now been processed and passed to our Engineer.

We will respond within the next 10 working days, please feel free to contact us if you need anything.

Kind regards

United Utilities
Water for the North West

Laura Owens
Customer Advisor Advanced
Developer Services & Metering
Customer Services
T: 0345 026 8989 option 4
unitedutilities.com

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---------- Original Message ----------
From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]
Sent: 01/10/2025 09:17
To: johnspeers@ajpltd.co.uk
Subject: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

Good Morning,

PRE DEVELOPMENT APPLICATION AT: Alpha House, Rowlandsway, Wythenshawe M22 5RG – UU Ref 08225597.

Thank you for your application submitted on 30.09.25 for the above development. We have now logged this on our system under reference 08225597. Please use this reference in any future correspondence.

I have reviewed your application and attachments and can confirm we have received all necessary documents.

Before we can proceed with passing this to our Engineering Team, we kindly ask that you submit a payment of 565.55. This can be made via BACS to the account below, using reference 08225597.

NatWest Sort Code: 01-09-17
NatWest Account Number: 58934014
Account Name: UUW Sundry Debtors Receipts

Alternatively, please call us on 0345 026 8989 to make payment over the phone.

Please note that until payment is received your application will not be progressed.

If you have any questions, feel free to reach out.

Kind regards

United Utilities
Water for the North West

Laura Owens
Customer Advisor Advanced
Developer Services & Metering
Customer Services
T: 0345 026 8989 option 4
unitedutilities.com

If you feel you have received a good service from myself, please can you take two minutes to fill in the survey below. This will be much appreciated

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---------- Original Message ----------
From: [donotreply@uu-web.co.uk]
Sent: 30/09/2025 16:08
To: seweradoptions@uuplc.co.uk; webmaster@uuplc.co.uk

Subject: Wastewater Pre-Development Enquiry Submission

Question	Answer
Section 1 - Your Details	
Developer/Consultant/Land owner/Other	Consultant
Name	John Speers
Company Name	AJP
Address	4th Floor 1 Dale Street Liverpool L2 2ET
Contact Number	0151 227 1462
Email Address	johnspeers@ajpltd.co.uk
Section 2 - Development Details	
Do you intend to offer any of the sewers for adoption by United Utilities under S104?	No
Site Address	Alpha House, Rowlandsway, Wythenshawe M22 5RG
Site Postcode	#Development postcode#
Site Name	Alpha House, Wythenshawe
Grid Reference Number	382828, 386978
Development Type	Residential
Approx. Number Units	116
Total Site Area (hectares)	0.36
Does this site have planning permission?	No
Planning Reference Number	
Council Area	Manchester City Council
Have you approached us about this site previously?	No
If yes, please provide reference number	
Is the development part of a larger site that will be developed in phases?	No
Location Plan	Site Location Plan.pdf
Section 3: Previous Land Use	
Please confirm what the land was previously used for:	Brownfield
Brownfield evidence of positive drainage to the public sewer	Utilities Survey.pdf
Section 4 - Drainage Strategy	
Foul connection: How are you proposing to drain foul flows from the site?	Via a new connection to the public sewer
Via an existing connection to the public sewer?	No
Surface water connection: How are you proposing to drain your site, following the surface water hierarchy, as outlined in National Planning Policy Guidance?	Combined sewer
SuDS: Have SuDS features been considered in the surface water drainage strategy?	Yes

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Registered in England and Wales. Registered No 6559020

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John Speers

Subject: FW: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

From: seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>
Sent: 14 November 2025 13:34
To: Kenny O'Brien <kennyobrien@ajpltd.co.uk>
Subject: Re: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

Hi Kenny,

I have had a review of the proposals r.e the offset easement. In principle I have no objection but this would be subject to a build over application and approval, this process would mean you need to thoroughly survey the sewer and ensure there is no loading on the pipeline from your foundations.

Kind regards,

United Utilities
Water for the North West

Eireann Thompson
Developer Engineer
Developer Services & Metering
01925 429086
unitedutilities.com

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---------- Original Message ----------
From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]
Sent: 14/11/2025 08:46
To: kennyobrien@ajpltd.co.uk
Subject: Re: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

Good Morning

Thanks for your email.

Your case is currently with our engineer to review. Our service level agreement for a response is 10 working days so the engineer will be issuing their response to you on or before 24/11/25.

Kind Regards,

Laura Owens
Customer Advisor Advanced
Developer Services & Metering
Customer Services
T: 0345 026 8989 option 4
unitedutilities.com

If you feel you have received a good service from myself, please can you take two minutes to fill in the survey below. This will be much appreciated

Visit: *https://unitedutilities.thewowawards.co.uk/nominate*

---------- Original Message ----------
From: Kenny O'Brien [kennyobrien@ajpltd.co.uk]
Sent: 14/11/2025 08:03
To: johnny.phillips@uuplc.co.uk; seweradoptions@uuplc.co.uk
Cc: dee.grahamslaw@uuplc.co.uk
Subject: Re: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

Hi all
Any update on this at all - we need to ideally report back into the client today.

Thanks

Regards
Kenny O'Brien
Director
Alan Johnston Partnership Ltd
Email: kennyobrien@ajpltd.co.uk
Mobile: 07809 516842
Office: 0151 2271462

Get Outlook for iOS

From: Kenny O'Brien
Sent: Tuesday, November 11, 2025 11:59:21 AM
To: Johnny.phillips@uuplc.co.uk <Johnny.phillips@uuplc.co.uk>; seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>
Cc: Dee.Grahamslaw@uuplc.co.uk <Dee.Grahamslaw@uuplc.co.uk>
Subject: REF: 08225597 - Wastewater Pre-Development Enquiry Submission - Alpha House, Rowlandsway, Wythenshawe M22 5RG

APPENDIX F – PRE & POST IMPERMEABLE AREAS



REV	DATE	DESCRIPTION	BY	CHK	APP
P01	07.11.2025	PRELIMINARY ISSUE	JC	JRS	KOB

DRAWING STATUS:

PRELIMINARY

CLIENT:

MUSE PLACES

ARCHITECT:

LEVITT BERNSTEIN

PROJECT:

ALPHA HOUSE, WYTHENSHAWE

TITLE:

PRE AND POST DEVELOPMENT IMPERMEABLE AREAS

STATUS:	PROJECT No.	PROJECT	ORIGIN	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV:
S2	224-126	18703	AJP-	XX -	ZZ -	SK -		**C -001000**	**P01**

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
N.T.S	JC	JC	JRS	KOB	NOV 2025

AJP consulting engineers
0151 227 1462 info@ajpltd.co.uk 1 Dale Street, Liverpool, L2 2ET

APPENDIX G – EXISTING BROWNFIELD RUNOFF RATES

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.381	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.230	4-8	0.033

Total Area Contributing (ha) = 0.263

Total Pipe Volume (m^3) = 0.972

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	10.000	0.101	99.0	0.088	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.001	10.000	0.101	99.0	0.088	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.002	10.000	0.101	99.0	0.087	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.17	59.650	0.088	0.0	0.0	0.0	1.01	17.8	11.9
S1.001	50.00	5.29	59.474	0.176	0.0	0.0	0.0	1.31	52.2	23.8
S1.002	50.00	5.42	59.373	0.263	0.0	0.0	0.0	1.31	52.2	35.6

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.088	0.088	0.088
1.001	-	-	100	0.088	0.088	0.088
1.002	-	-	100	0.087	0.087	0.087
				Total	Total	Total
				0.263	0.263	0.263

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.002	S	61.000	59.272	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.381		

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model		FSR M5-60 (mm) 18.000	Cv (Summer) 0.750
Region England and Wales		Ratio R 0.381	Cv (Winter) 0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
S1.000	SSW01	15 Winter	1	+0%	30/15 Summer				59.742	-0.058	0.000
S1.001	SSW02	15 Winter	1	+0%	30/15 Summer				59.582	-0.117	0.000
S1.002	SSW03	15 Winter	1	+0%	30/15 Summer				59.508	-0.090	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Level Status	Level Exceeded
S1.000	SSW01	0.67			10.7	OK	
S1.001	SSW02	0.46			19.8	OK	
S1.002	SSW03	0.67			29.0	OK	

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2 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model		FSR M5-60 (mm) 18.000	Cv (Summer) 0.750
Region England and Wales		Ratio R 0.381	Cv (Winter) 0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
S1.000	SSW01	15 Winter	2	+0%	30/15 Summer				59.760	-0.040	0.000
S1.001	SSW02	15 Winter	2	+0%	30/15 Summer				59.600	-0.099	0.000
S1.002	SSW03	15 Winter	2	+0%	30/15 Summer				59.536	-0.062	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Level Status	Level Exceeded
S1.000	SSW01	0.87			13.8	OK	
S1.001	SSW02	0.59			25.7	OK	
S1.002	SSW03	0.86			37.5	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm) 18.000	Cv (Summer) 0.750
Region	England and Wales	Ratio R 0.381	Cv (Winter) 0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
S1.000	SSW01	15 Winter	30	+0%	30/15 Summer				60.151	0.351	0.000
S1.001	SSW02	15 Winter	30	+0%	30/15 Summer				59.917	0.218	0.000
S1.002	SSW03	15 Winter	30	+0%	30/15 Summer				59.789	0.191	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SSW01	1.60			25.4	SURCHARGED	
S1.001	SSW02	1.13			49.0	SURCHARGED	
S1.002	SSW03	1.70			73.9	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 0 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model		FSR M5-60 (mm) 18.000	Cv (Summer) 0.750
Region	England and Wales	Ratio R 0.381	Cv (Winter) 0.840

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 2, 30, 100
Climate Change (%)	0, 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)
S1.000	SSW01	15 Winter	100	+0%	30/15 Summer				60.532	0.732	0.000
S1.001	SSW02	15 Winter	100	+0%	30/15 Summer				60.154	0.455	0.000
S1.002	SSW03	15 Winter	100	+0%	30/15 Summer				59.957	0.359	0.000

PN	US/MH Name	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SSW01	2.00			31.8	SURCHARGED	
S1.001	SSW02	1.40			60.9	SURCHARGED	
S1.002	SSW03	2.13			92.7	SURCHARGED	

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APPENDIX H – OUTLINE DRAINAGE STRATEGY & SURFACE WATER CALCS

PRELIMINARY SUBJECT TO CONFIRMATION OF UNITED UTILITIES AND MANCHESTER CITY COUNCIL ACCEPTANCE OF DISCHARGE CONNECTION LOCATIONS AND FLOW RATES

ALL PROPOSED DRAINAGE IS CURRENTLY PRELIMINARY SUBJECT TO EXISTING DRAINAGE SURVEYS AND DETAILED DRAINAGE DESIGN BEING COMPLETED

PROPOSED FOUL WATER POP UPS INFORMATION TAKEN FROM CIVIC DRAWING 18703-CIV-XX-00-D-P-11001_P03. FOUL POP UP INFORMATION TO BE CONFIRMED BY OTHERS

PRELIMINARY SUBJECT TO CONFIRMATION OF LANDSCAPE ARCHITECTS PROPOSED SITE LEVELS AND ALL FOUL WATER POP UP AND RAINWATER DOWNPIPE LOCATIONS AND FLOW RATES

PROPOSED DRAINAGE CONNECTION TO EXISTING PUBLIC COMBINED WATER SEWER VIA NEW MANHOLE. GRAVITY CONNECTION SUBJECT TO CONFIRMATION OF LEVELS OF EXISTING PUBLIC SEWER. PROPOSED CONNECTION IS ALSO SUBJECT TO DETAILED DRAINAGE DESIGN AND UNITED UTILITIES AND LLFA APPROVALS. **A SECTION 106 AGREEMENT WITH UNITED UTILITIES WILL BE REQUIRED TO CONFIRM UNITED UTILITIES ACCEPTANCE OF PROPOSED CONNECTION.**

EXISTING PUBLIC COMBINED WATER SEWER. SONDE TRACING HAS BEEN PROBED ON SITE AND CONFIRMS THE SEWER ALIGNMENT FALLS ON THE SAME LINE AS THE TFR SURVEY DATA. DIAMETER RECORDED AS 525 MM ON THE RECORD PLAN AND 600 MM IN THE CCTV REPORT; FOR DESIGN PURPOSES THE PIPE IS ASSUMED TO BE 600 MM PENDING CONFIRMATION. INVERT LEVEL HAS BEEN ESTIMATED USING A 1:350 FALL EXTRAPOLATED BETWEEN KNOWN CHAMBERS UU7001 AND UU8001, AS CCTV INDICATES CHAMBERS UU8004 AND UU8004A ARE BURIED AND DIRECT LEVEL DATA IS UNAVAILABLE. OVERALL SEWER LEVELS ARE THEREFORE ASSUMMED AND SUBJECT TO VERIFICATION.

PROPOSED NEW COMBINED WATER MANHOLE TO BE CONSTRUCTED ON THE LINE OF THE EXISTING PUBLIC UNITED UTILITIES COMBINED WATER SEWER TO ALLOW FOR COMBINED CONNECTION FROM SITE. **DISCUSSIONS WITH UNITED UTILITIES ARE CURRENTLY ONGOING TO DETERMINE IF THEY WOULD ACCEPT A SADDLE CONNECTION TO AVOID THE NEED TO CONSTRUCT A NEW MANHOLE.**

NON-RETURN VALVE IN SW10 OUTFALL PIPELINE TO PREVENT FOUL WATER SURCHARGING INTO SURFACE WATER NETWORK. ALTHON CHECK-FLEX INLINE NON-RETURN VALVE OR SIMILAR APPROVED.

1500Ø HYDROBRAKE CHAMBER
DESIGN HEAD: 1.4m
DESIGN FLOW: 5.0 L/s
UNIT REF: MD-SHE-0100-5000-1400-5000

LOCATION AND DEPTHS OF ALL EXISTING SERVICES ALONG PROPOSED OUTFALL PIPELINE TO BE IDENTIFIED AND CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY POTENTIAL CLASHES BETWEEN EXISTING SERVICES AND PROPOSED OUTFALL PIPELINE TO BE HIGHLIGHTED TO ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORKS.

PROPOSED VENT PIPE TO BE LOCATED ON SITE. ARCHITECT TO CONFIRM LOCATION. VENT TO BE INSTALLED ABOVE PODIUM LEVEL.

ALL EXTERNAL HARDSTANDING AREAS TO BE DRAIN INTO ADJACENT SOFT LANDSCAPING AND/OR FALL TOWARDS SURROUNDING HIGHWAY DRAINAGE AS PER THE CURRENT SCENARIO.

PROPOSED 150mmØ SURFACE WATER PIPE STUB TO BE CONSTRUCTED TO ALLOW FOR FUTURE CONNECTION TO NEW PUBLIC SURFACE WATER SEWER IN ROWLANDSWAY TO THE WEST OF THE SITE.

PROPOSED TEMPORARY HOIST FOOTING

PROPOSED CELLULAR ATTENUATION TANK
(19m x 3m x 0.8m DEEP x 0.95 VOID RATIO)
TOTAL VOLUME = 43.3m³
TANK INVERT LEVEL: 58.800
TOP OF TANK LEVEL: 59.600
TO PROVIDE ATTENUATION STORAGE UP TO AND INCLUDING 1 IN 100 YEAR +45% CLIMATE CHANGE RAINFALL EVENT.

PROPOSED OFFSET EASEMENT FOR EXISTING UNITED UTILITIES COMBINED WATER SEWER. UNITED UTILITIES HAVE INDICATED THAT AN OFFSET EASEMENT IS NOT ACCEPTABLE AND THAT A BUILD-OVER AGREEMENT WILL BE REQUIRED. THE BUILD-OVER AGREEMENT IS TO BE SUBMITTED ONCE THE CCTV SURVEY OF THE EXISTING UU SEWER IS COMPLETED. SHOULD UNITED UTILITIES NOT ACCEPT THE BUILD OVER AGREEMENT A PROPOSED SEWER DIVERSION WOULD BE REQUIRED VIA A SECTION 185 AGREEMENT WITH UNITED UTILITIES.

SITE BOUNDARY.

PROPOSED DRAINAGE CONNECTION TO EXISTING PUBLIC COMBINED WATER SEWER VIA EXISTING UU MANHOLE 7901. GRAVITY CONNECTION SUBJECT TO CONFIRMATION OF LEVELS OF EXISTING PUBLIC SEWER. PROPOSED CONNECTION IS ALSO SUBJECT TO DETAILED DRAINAGE DESIGN AND UNITED UTILITIES AND LLFA APPROVALS. **A SECTION 106 AGREEMENT WITH UNITED UTILITIES WILL BE REQUIRED TO CONFIRM UNITED UTILITIES ACCEPTANCE OF PROPOSED CONNECTION.**

ALL PROPOSED FOUL POP-UPS AND RAINWATER DOWNPIPES ARE TAKEN FROM CIVIC DRAWING 18703-CIV-XX-00-D-P-11001_P03. EXACT LOCATIONS AND FLOW RATES TO BE CONFIRMED BY OTHERS. ONCE ALL CONFIRMED PROPOSED BELOW GROUND DRAINAGE TO BE RE-DESIGNED TO SUIT.

ASSUMED THAT ALL EXISTING PRIVATE DRAINAGE CURRENTLY SERVING THE SITE WILL BE ABANDONED AND 'GRUBBED UP' AS PART OF THE DEMOLITION WORKS.

ALL EXTERNAL HARDSTANDING AREAS TO BE DRAIN INTO ADJACENT SOFT LANDSCAPING AND/OR FALL TOWARDS SURROUNDING HIGHWAY DRAINAGE AS PER THE CURRENT SCENARIO.

PROPOSED CRANE FOOTING LOCATION

LINE OF PROPOSED PODIUM DECK/GREEN ROOF AREA AT FIRST FLOOR LEVEL.

N

LEGEND

- PROPOSED FOUL WATER MANHOLE
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED COMBINED WATER MANHOLE
- PROPOSED FOUL WATER PPIC
- PROPOSED SURFACE WATER PPIC
- PROPOSED FOUL WATER DRAINAGE
- PROPOSED SURFACE WATER DRAINAGE
- PROPOSED COMBINED WATER DRAINAGE
- PROPOSED HYDROBRAKE CHAMBER
- PROPOSED CELLULAR ATTENUATION TANK
- PROPOSED FLOOR GULLY
- EXISTING PUBLIC COMBINED WATER DRAINAGE
- PROPOSED LINEAR DRAINAGE CHANNEL (ACO)
- PROPOSED ROAD GULLY
- PROPOSED RAINWATER DOWNPIPE
- PROPOSED FOUL POP-UP (SOIL VENT PIPE/STUB STACK)
- PROPOSED VENT PIPE FROM ATTENUATION TANK
- SITE BOUNDARY

GENERAL NOTES

1. SETTING OUT SHALL BE UNDERTAKEN USING ONLY THE INFORMATION GIVEN. DISTANCES SHOULD NOT BE SCALED FROM THIS DRAWING.
2. ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DESIGN & CONSTRUCTION GUIDANCE & UNITED UTILITIES CONSTRUCTION GUIDANCE.
3. THE MINIMUM GRAVITY PIPE DIAMETER UNDER ADOPTABLE HIGHWAYS SHALL BE 150mm
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION GIVEN WITH REGARDS TO EXISTING SERVICES AND DRAINAGE CONNECTIONS ETC. PRIOR TO COMMENCING THE WORKS. THE RATES SHALL INCLUDE FOR HAND DIG AROUND SERVICES WHERE NECESSARY. THE CONTRACTOR SHALL ADHERE TO THE CDM REGULATIONS AT ALL TIMES
5. THE OUTSIDES OF ALL SEWERS SHALL BE A MINIMUM OF 1.0m FROM KERB LINES AND THE OUTSIDE OF MANHOLES SHALL BE A MINIMUM OF 0.5m FROM KERB LINES
6. EXISTING FLOWS IN WATERCOURSES, SEWERS AND LAND DRAINS SHALL BE MAINTAINED AT ALL TIMES
7. ONLY TRAINED PERSONNEL SHALL BE PERMITTED TO ENTER CONFINED SPACES
8. ALL METERIALS TO BEAR THE RELEVANT B.S. KITEMARK AND COMPLY FULLY WITH THE SPECIFICATIONS. ALL CONCRETE & CONCRETE PRODUCTS MUST USE SULPHATE RESISTANT CEMENT (UNLESS THE SITE INVESTIGATION REPORT PROVES THAT SULPHATE ATTACK FROM SOILS AND GROUNDWATER WILL NOT OCCUR TO WITHSTAND A CLASS
9. ALL OPENING NOTICES ETC. AS REQUIRED UNDER HIGHWAYS ACTS ETC. ARE TO BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS. ALL WORKS ARE TO BE INSPECTED BY L.A., NHBC OR THE NETWORK OPERATOR AS APPLICABLE.
10. WHERE "ULTRA RIB" UPVC PIPES (OR SIMILAR APPROVED) ARE USED IN ADOPTABLE DRAINAGE THEY SHALL STILL BE HANDLED AND LAID IN ACCORDANCE WITH THE SPECIFICATION AND GUIDANCE ISSUED BY THE HIGH PERFORMANCE PIPE ASSOCIATION.
11. A CLASS S BED AND SURROUND MUST BE USED FOR SUCH PIPES. TRENCH BACKFILL IN HIGHWAYS TO WITHIN 1M OF HIGHWAY SHALL, AS DIRECTED BY THE HIGHWAY AUTHORITY BE A SUITABLE GRANULAR MATERIAL ALL IN ACCORDANCE WITH SEWERS FOR ADOPTION CL. 4.3.4.
12. SLAB LEVELS SHALL NOT BE VARIED WITHOUT REFERENCE TO THE ENGINEER FOR GUIDANCE
13. DOMESTIC DRAINAGE SHALL BE TO BUILDING REGULATIONS APPROVED DOCUMENT H. 110mm U.P.V.C. PIPES LAID TO THE FOLLOWING MINIMUM FALLS UNLESS OTHERWISE SHOWN.

	FOUL	S.W.
HEAD RUN	1 IN 40	1 IN 60
ELSEWHERE	1 IN 80	1 IN 100

14. ALL HIGHWAY GULLY CONNECTIONS TO BE 150mm VITRIFIED CLAY UNLESS NOTED OTHERWISE
15. ALL PRIVATE GULLY CONNECTIONS TO BE 100mm VITRIFIED CLAY UNLESS NOTED OTHERWISE
16. MINIMUM COVER TO DRAINAGE SOFFIT LEVEL & ACCESS CHAMBERS ;

LANDSCAPING	TRAFFICKED AREAS	HIGHWAYS
0.600m	0.900m	1.200m

17. CLASS 'S' BEDDING AND SURROUND TO BE USED WHERE MINIMUM COVER IS ACHIEVED.
18. WHERE MINIMUM COVER IS NOT ACHIEVED CLASS 'Z' BEDDING AND SURROUND (CONCRETE ENCASEMENT) IS TO BE USED.
19. FOUNDATIONS WITHIN CLOSE PROXIMITY TO PROPOSED DRAINAGE WILL NEED TO BE AT THE SAME DEPTH AS DRAINAGE TO AVOID THE POTENTIAL FOR UNDERMINING.
20. TOP OF FOUNDATIONS ARE TO BE A MIN 750mm FROM FINISHED EXTERNAL LEVELS.
21. ALL SURFACE / FOUL WATER CONNECTIONS ARE TO HAVE RODDABLE ACCESS FROM ABOVE GROUND
22. ALL POP-UP AND RWP SETTING OUT IS TO BE PROVIDED BY THE ARCHITECT
23. FINAL POP UP LOCATIONS SUBJECT TO ARCHITECT / M&E CO-ORDINATION

REV	DATE	DESCRIPTION	BY	CHK	APP
P07	10.08.2026	RIBA STAGE 4 - UPDATED TO SUIT LATEST LAYOUT	JLJ	JRS	KOB
P06	15.07.2026	RIBA STAGE 4	JC	JRS	KOB
P05	28.04.2026	DRAWING AMENDED FOLLOWING LATEST CCTV SURVEY	JC	JRS	KOB
P04	09.02.2026	DRAWING AMENDED FOLLOWING RIBA STAGE 3 ISSUE & REVIEW	JLJ	JRS	KOB
P03	30.01.2026	RIBA STAGE 3 ISSUE	JLJ	JRS	KOB
P02	25.11.2025	PRELIMINARY ISSUE - UPDATED TO SUIT DESIGN TEAM COMMENTS	JC	JRS	KOB
P01	07.11.2025	PRELIMINARY ISSUE	JC	JRS	KOB

DRAWING STATUS:
STAGE 4

CLIENT:
WYTHENSHAWE COMMUNITY HOUSING GROUP AND MUSE PLACES

ARCHITECT:
BOWKER SADLER

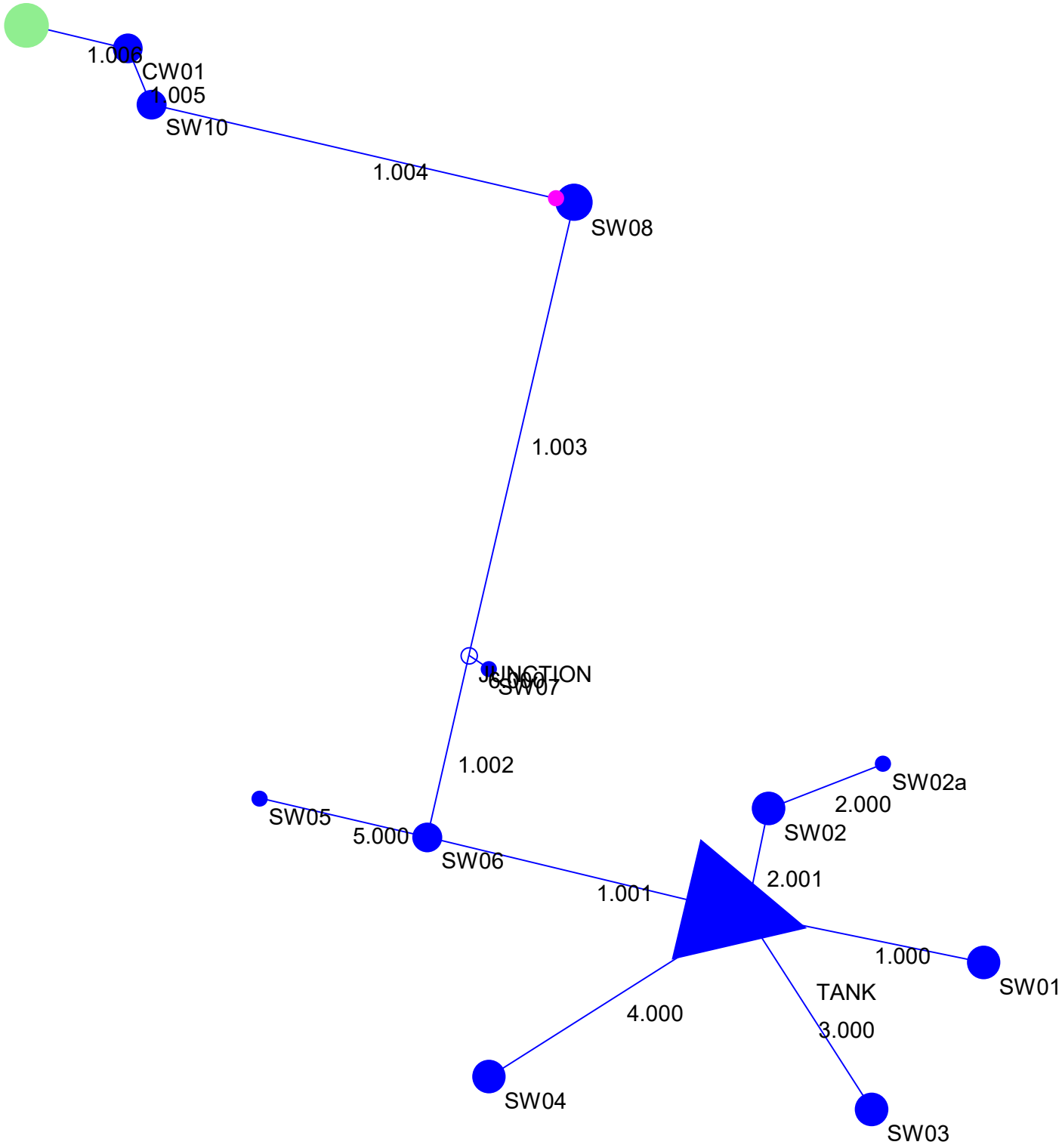
PROJECT:
ALPHA HOUSE, WYTHENSHAWE

TITLE:
BELOW GROUND DRAINAGE
OUTLINE DRAINAGE STRATEGY

STATUS:	PROJECT No.	PROJECT	ORIGIN	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV:
S3	224-126	18703	AJP	XX	ZZ	D	C	000900	P07

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:200	JC	JC	JRS	KOB	NOV 2025

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1.006
CW01
1.005
SW10
1.004
SW08
1.003
JUNCTION
SW07
1.002
SW05
5.000
SW06
1.001
SW02a
2.000
SW02
2.001
1.000
SW01
TANK
4.000
3.000
SW04
SW03

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	30	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.378	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	9.749	0.015	649.9	0.039	5.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	4.940	0.249	19.8	0.023	5.00	0.0	0.600	o	150	Pipe/Conduit	
2.001	4.336	0.135	32.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
3.000	9.353	0.150	62.4	0.037	5.00	0.0	0.600	o	150	Pipe/Conduit	
4.000	12.272	0.265	46.3	0.032	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	13.217	0.025	528.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
5.000	6.932	0.295	23.5	0.062	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	7.507	0.075	100.1	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
6.000	0.952	0.050	19.2	0.025	5.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.32	58.815	0.039	0.0	0.0	0.0	0.51	20.1	5.3
2.000	50.00	5.04	59.585	0.023	0.0	0.0	0.0	2.27	40.1	3.1
2.001	50.00	5.08	59.335	0.023	0.0	0.0	0.0	1.78	31.5	3.1
3.000	50.00	5.12	59.350	0.037	0.0	0.0	0.0	1.28	22.5	5.0
4.000	50.00	5.14	59.065	0.032	0.0	0.0	0.0	1.48	26.2	4.3
1.001	50.00	5.71	58.800	0.131	0.0	0.0	0.0	0.56	22.3	17.7
5.000	50.00	5.06	59.145	0.062	0.0	0.0	0.0	2.09	36.9	8.4
1.002	50.00	5.81	58.775	0.193	0.0	0.0	0.0	1.31	52.0	26.1
6.000	50.00	5.01	58.825	0.025	0.0	0.0	0.0	2.31	40.8	3.4

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Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.003	18.746	0.190	98.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.004	17.461	0.235	74.2	0.004	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.005	2.459	0.119	20.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.006	4.190	0.041	102.2	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.003	50.00	6.05	58.700	0.218	0.0	0.0	0.0	1.32	52.3	29.5
1.004	50.00	6.30	58.510	0.222	0.0	0.0	0.0	1.17	20.6«	30.1
1.005	50.00	6.31	58.275	0.222	0.0	0.0	0.0	2.23	39.3	30.1
1.006	50.00	6.37	58.081	0.222	0.0	0.0	0.0	1.29	51.4	30.1

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Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
SW01	60.500	1.685	Open Manhole	1350	1.000	58.815	225				
SW02a	60.500	0.915	Open Manhole	600	2.000	59.585	150				
SW02	60.500	1.165	Open Manhole	1350	2.001	59.335	150	2.000	59.336	150	1
SW03	60.500	1.150	Open Manhole	1350	3.000	59.350	150				
SW04	60.500	1.435	Open Manhole	1350	4.000	59.065	150				
TANK	60.500	1.700	Open Manhole	1200	1.001	58.800	225	1.000	58.800	225	
								2.001	59.200	150	325
								3.000	59.200	150	325
								4.000	58.800	150	
SW05	60.500	1.355	Open Manhole	600	5.000	59.145	150				
SW06	60.500	1.725	Open Manhole	1200	1.002	58.775	225	1.001	58.775	225	
								5.000	58.850	150	
SW07	60.500	1.675	Open Manhole	600	6.000	58.825	150				
JUNCTION	60.500	1.800	Junction		1.003	58.700	225	1.002	58.700	225	
								6.000	58.775	150	
SW08	60.350	1.840	Open Manhole	1500	1.004	58.510	150	1.003	58.510	225	
SW10	60.350	2.075	Open Manhole	1200	1.005	58.275	150	1.004	58.275	150	
CW01	60.330	2.249	Open Manhole	1200	1.006	58.081	225	1.005	58.156	150	
	60.330	2.290	Open Manhole	1800		OUTFALL		1.006	58.040	225	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SW01	382836.120	386978.301	382836.120	386978.301	Required	
SW02a	382832.062	386986.303	382832.062	386986.303	Required	
SW02	382827.460	386984.506	382827.460	386984.506	Required	
SW03	382831.609	386972.382	382831.609	386972.382	Required	
SW04	382816.198	386973.703	382816.198	386973.703	Required	
TANK	382826.570	386980.262	382826.570	386980.262	Required	
SW05	382806.962	386984.897	382806.962	386984.897	Required	
SW06	382813.716	386983.335	382813.716	386983.335	Required	
SW07	382816.194	386990.116	382816.194	386990.116	Required	

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Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
JUNCTION	382815.405	386990.650			No Entry	
SW08	382819.628	387008.914	382819.628	387008.914	Required	
SW10	382802.616	387012.847	382802.616	387012.847	Required	
CW01	382801.660	387015.113	382801.660	387015.113	Required	
	382797.574	387016.040			No Entry	



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Online Controls for Storm

Hydro-Brake® Optimum Manhole: SW08, DS/PN: 1.004, Volume (m³): 4.0

Unit Reference	MD-SHE-0100-5000-1400-5000
Design Head (m)	1.400
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	100
Invert Level (m)	58.510
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.400	5.0	Kick-Flo®	0.855	4.0
Flush-Flo™	0.416	5.0	Mean Flow over Head Range	-	4.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.3	0.800	4.3	2.000	5.9	4.000	8.2	7.000	10.7
0.200	4.6	1.000	4.3	2.200	6.2	4.500	8.6	7.500	11.0
0.300	4.9	1.200	4.7	2.400	6.4	5.000	9.1	8.000	11.4
0.400	5.0	1.400	5.0	2.600	6.7	5.500	9.5	8.500	11.7
0.500	5.0	1.600	5.3	3.000	7.1	6.000	9.9	9.000	12.0
0.600	4.9	1.800	5.6	3.500	7.7	6.500	10.3	9.500	12.3

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Storage Structures for Storm

Cellular Storage Manhole: TANK, DS/PN: 1.001

Invert Level (m) 58.800 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	57.0	0.0	0.800	57.0	0.0	0.801	0.0	0.0

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Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 4
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm) 18.000	Cv (Summer) 0.750
Region	England and Wales	Ratio R 0.378	Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

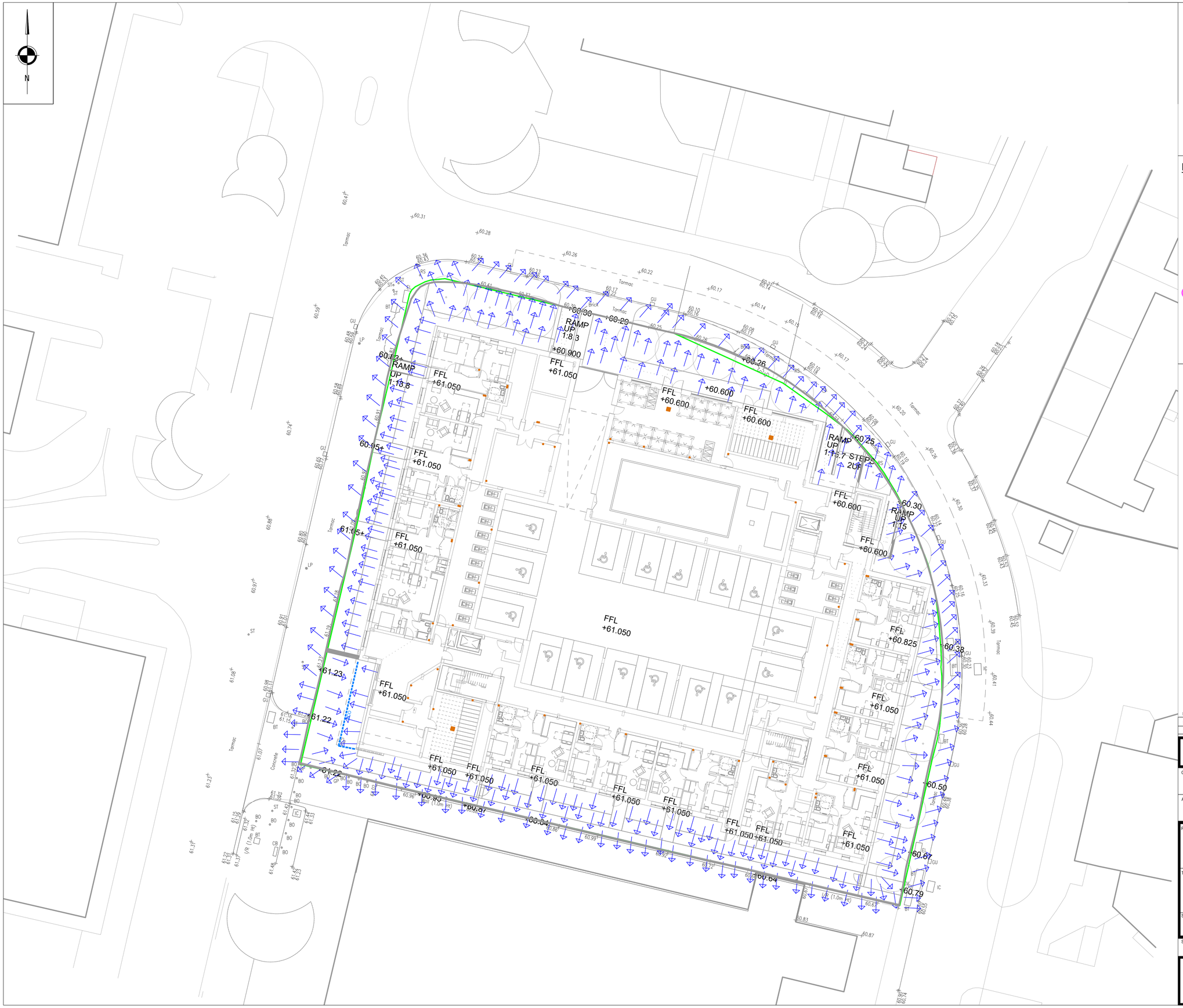
Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
1.000	SW01	120 Winter	100	+45%	30/60 Winter				59.597	0.557
2.000	SW02a	30 Winter	100	+45%					59.613	-0.122
2.001	SW02	120 Winter	100	+45%	100/60 Winter				59.597	0.112
3.000	SW03	120 Winter	100	+45%	100/60 Winter				59.598	0.098
4.000	SW04	120 Winter	100	+45%	100/30 Summer				59.599	0.384
1.001	TANK	120 Winter	100	+45%	30/60 Winter				59.595	0.570
5.000	SW05	480 Winter	100	+45%	100/15 Summer				59.677	0.382
1.002	SW06	480 Winter	100	+45%	30/15 Summer				59.701	0.701
6.000	SW07	480 Winter	100	+45%	30/15 Summer				59.926	0.951
1.003	JUNCTION	15 Winter	30	+0%					58.925	0.000
1.004	SW08	480 Winter	100	+45%	1/15 Summer				60.036	1.376
1.005	SW10	480 Winter	100	+45%					58.324	-0.101
1.006	CW01	360 Winter	100	+45%					58.142	-0.164

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	SW01	0.000	0.43			6.6	SURCHARGED	
2.000	SW02a	0.000	0.08			2.4	OK	
2.001	SW02	0.000	0.08			1.9	SURCHARGED	
3.000	SW03	0.000	0.09			1.9	SURCHARGED	
4.000	SW04	0.000	0.06			1.5	SURCHARGED	
1.001	TANK	0.000	0.34		128	4.9	SURCHARGED	
5.000	SW05	0.000	0.13			4.1	SURCHARGED	
1.002	SW06	0.000	0.19			7.4	SURCHARGED	
6.000	SW07	0.000	0.08			1.0	SURCHARGED	
1.003	JUNCTION	0.000	0.20			10.7	SURCHARGED*	
1.004	SW08	0.000	0.26			5.0	SURCHARGED	
1.005	SW10	0.000	0.23			5.0	OK	
1.006	CW01	0.000	0.17			5.0	OK	

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APPENDIX I – EXCEEDANCE FLOW PATHS DRAWING



REV	DATE	DESCRIPTION	BY	CHK	APP
P02	09.09.2026	ACO shown to SW corner	JLJ	JRS	KOB
P01	21.01.2026	PRELIMINARY ISSUE	JLJ	JRS	KOB

DRAWING STATUS:

PRELIMINARY

CLIENT:

MUSE PLACES

ARCHITECT:

LEVITT BERNSTEIN

PROJECT:

ALPHA HOUSE, WYTHENSHAWE

TITLE:

EXCEEDANCE FLOW PATHS

STATUS:	PROJECT No.	PROJECT	ORIGIN	FUNCT.	SPACIAL	FORM	DISC.	DRAWING No.	REV:
S2	224-126	18703	AJP-	XX -	ZZ -	D	-	**C - 002000**	**P02**

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
1:200	JLJ	JLJ	JRS	KOB	JAN 2026

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