

FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

20-050 Manchester Life, Back of Ancoats Phase 1 – Ancoats Mobility Hub

Prepared for: Manchester Life Strategic Development Company Limited

Date: April 2021

Revision	Description	By	Checked	Date
A	First Issue	DR	NB	09.04.2021
B	Existing sewer infrastructure and drainage strategy plan amended	DR	NB	22.04.2021
C	Updated to include UU Response & SuDS Considerations	DR	FN	27.04.2021
D	Updated to include NW SuDS proforma and LLFA Response	DR	FN	11.05.2021

Executive Summary

Description

Hill Cannon Consulting Engineers Ltd. (HCCE) were commissioned by Manchester Life Strategic Development Company Ltd (MLSDC) in April 2021 to undertake a Flood Risk Assessment (FRA) and Drainage Strategy for the development of the site known as the Ancoats Mobility Hub, Poland Street. The proposed development will deliver a mobility hub of up to 8 storeys including 150 cycle parking spaces, 408 car parking spaces, a ground floor retail unit and a delivery hub. The development is located on an existing brownfield site. This report will be provided as supporting documentation as part of a full planning application.

Site Parameters

Total Area: 0.33Ha

Greenfield: ✗

Brownfield: ✓

Mixed Green and Brownfield: ✗

Existing Runoff Location: Poland Street combined sewer

Ground Conditions: Till, Devensian - Diamicton underlying Mudstone, unsuitable for soakaway drainage.

Ground Infiltration Potential: Low

Flood Risk Assessment

Site located within Flood Zone 1

Fluvial: Low

Tidal: Low

Canals: Low

Groundwater: Low

Reservoirs: None

Sewers: Low

Pluvial: Low

Development Drainage: Low

Other sources: N/A

Sequential Test: N/A

Drainage Strategy

The preliminary surface water drainage strategy has been designed to discharge into the existing UU combined sewer west of the site within Poland Street. The connection will be made via a new manhole on the existing combined sewer line at a restricted discharge rate of **5l/s**. This rate is generally accepted as the minimum which can be achieved without an increased risk of blockages to the outlet. This discharge rate, although greater than the greenfield runoff rate, does provide a betterment of 1.2l/s to that of the existing urban rate calculated at 6.2l/s. The discharge rate is subject to approval from both United Utilities and the LLFA. A pre-planning enquiry has been issued to UU and a response received which confirms acceptance of 5l/s surface water discharge into either the existing sewer within George Leigh Street or within Poland Street. An enquiry to the LLFA has been issued and a response received confirming a 5l/s discharge rate is the maximum which would be accepted. It is also noted however that this is subject to evidence discounting discharge via infiltration and discharge at a lesser rate, without risk of blockage, being provided.

The design can accommodate up to a 1 in 100-year critical storm event plus 40% climate change without flooding due to the inclusion of onsite attenuation. Attenuation will be provided to the volume of 175m³ via an attenuation tank located below the external paved area to the west of the MSCP structure.

Surface water treatment will be provided via permeable paving included to the external areas at the east, south and west of the structure. Soft landscaping is also included where possible to minimise the area of external hardstanding.

A response from UU has been received which confirms acceptance of an unrestricted discharge of foul water flows into either the existing combined sewer within George Leigh Street or to the combined sewer within Poland Street.

Sustainable Drainage Systems (SuDS)

SuDS features which are appropriate have been included to the limited external areas in the way of permeable paving and soft landscaping at the east, south and west of the structure. Soft landscaping

is included where possible to minimise the area of external hardstanding material. The soft landscaped and permeable paved areas will provide an element of surface water treatment.

Conclusions

The proposed development will have a low to very low risk of flooding from rivers and sea, surface water, reservoirs and sewers and will discharge at a controlled, restricted rate which is agreed in principal with the LLFA.

This Flood Risk Assessment has confirmed that the proposed development is appropriate and sustainable in the terms as set out in NPPF.

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1.0 Introduction

Hill Cannon Consulting Engineers Ltd. (HCCE) were commissioned by Manchester Life Strategic Development Company Ltd (MLSDC) in April 2021 to undertake a Flood Risk Assessment (FRA) and Drainage Strategy for the development of the site known as the Ancoats Mobility Hub, Poland Street. The proposed development will deliver a mobility hub of up to 8 storeys including 150 cycle parking spaces, 408 car parking spaces, a ground floor retail unit and a delivery hub. The development is located on an existing brownfield site. This report will be provided as supporting documentation as part of a full planning application.

The objective of this FRA is to identify flooding or surface water management issues relating to the development site and identify suitable flood mitigation measures if required. The assessment will be based upon existing available information and will aim to identify if the site is affected by current or future flooding and whether the development will increase flood risk elsewhere.

The objectives of this report are as follows:

- Identify existing site drainage characteristics
- Describe and assess the proposed development
- Assess the flood risk in accordance with the Department of Communities and Local Government (DCLG) Technical Guidance and the National Planning Policy Framework (NPPF February 2019)
- Consider existing information provided through correspondence with the Environment Agency (EA), the Lead Local Flood Authority (LLFA) and United Utilities (UU) to develop a strategy for the proposed development and identify any mitigation measures required.

2.0 Existing Site Information

Site Location

The proposed development site is located at the land off Poland Street, Ancoats, approximately 790m north-east of the northern quarter of Manchester City Centre.

The subject site is a square shaped parcel of land with an approximate area of 0.33Ha and centred on National Grid Reference 385166mE 398906mN.

Please refer to the Site Location Plan in **Appendix A**.

Site Description

The proposed development site should be treated as brownfield and currently functions as part of the Poland Street Industrial estate. The site includes warehouse units and external vehicular parking. Vehicular access to the site is currently provided via a gated access to the west from Poland Street itself opposite the highway known as George Leigh Street. Poland Street is located adjacent the western boundary of the site and runs from north-west to south.

Generally, the site has a minimal fall from the central access road with a cambered fall towards the outside edges of parking bays. Aside from this minimal fall from approximately 51.40m A.O.D to 51.20m A.O.D, the site is flat at a level around 51.15m A.O.D. All boundaries of the site are within a small level range between 51.00m A.O.D and 51.30m A.O.D. The site is predominantly compromised of an external tarmac access road and parking bays with concrete pedestrian footpaths. There are also several large storage containers on site. Existing warehouse units make up the remaining area of the site.

The north of the site is bounded by a 2.00m high brick wall which separates the development area from the Crown Industrial Estate units and external parking. The levels on this boundary range from 51.00m A.O.D to 51.30m A.O.D.

The east of the site is also bounded by a 2m high brick wall in the north east and a 2m palisade fence across the remaining boundary extents. Beyond this boundary is the large public open space known as the Ancoats Green. Levels on the eastern boundary range from 51.02m A.O.D to 51.17m A.O.D.

The southern boundary of the site is formed by a 2.3m high palisade fence which runs the length of the site. Beyond this fence is another industrial estate and units which is known as the City Court trading Estate. Levels range from 51.17m A.O.D at the east down to 51.10m A.O.D at the west.

The west of the site is bounded Poland Street which falls at an approximate gradient of 1 in 155 from north to south across the extent of the development area. The levels range from 51.08m A.O.D at the north to 50.76m A.O.D at the south. Directly opposite the access into the site, located centrally on the western boundary, is the highway known as George Leigh Street.

An existing topographical survey of the site has been carried out and included within **Appendix B**.

Existing Ground Conditions

The geology of the site has been ascertained by reference to the 1:50,000 British Geological Survey (BGS) website. The bedrock formation in the site comprises of “Manchester Marls Formation” described as follows:

"*Mudstone. Sedimentary Bedrock formed approximately 252 to 272 million years ago in the Permian Period. Local environment previously dominated by lakes and lagoons*."

The superficial deposits overlying the bedrock has been ascertained by reference to the 1:50,000 British Geological Survey website. The BGS website indicates that the superficial deposits in the local area comprises of:

"*Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions*."

Further to the above, a Phase 1 Geoenvironmental Site Assessment has been undertaken by E3P for the development. This initial assessment concludes that onsite and adjacent Made Ground deposits associated with existing and historic development are considered to represent a potential source of ground contamination. This potential contamination includes heavy metal, polycyclic aromatic hydrocarbons, total petroleum hydrocarbons and asbestos containing materials. It is also noted that there are potential hazardous ground gases associated with the made ground and that aluminium composite material is likely to be present within the fabric of the existing onsite structures.

Existing Sewer Infrastructure

United Utilities (UU) sewer record plans have been obtained for the site and can be found in **Appendix C**. There is an existing public 470x600mm combined sewer located to the west of the development within the existing highway known as Poland Street. The sewer flows from north to south before changing direction and heading west within the highway known as Naval Street. A pre-planning enquiry has been issued to UU and a response received which confirms acceptance of 5l/s surface water discharge into either the existing sewer within George Leigh Street or within Poland Street. Foul water flows may also discharge here at an unrestricted rate. A copy of the pre-planning enquiry response is included within **Appendix C**.

The site currently discharges surface water unrestricted via a combined private system into the existing UU combined sewer. The rate at which surface water discharges has been calculated at 6.2l/s through the MicroDrainage Rural Runoff Calculator which is based upon the site's total hardstanding area of 0.33Ha. A plan of the confirmed existing private network has also been included within **Appendix C**.

Existing Site Hydrology

There are no watercourses present on site, however the canal known as the Rochdale Canal is located approximately 175m south of the proposed development. The Rochdale Canal flows west

and discharges into the River Irwell which ultimately discharges into the River Mersey. is located 3km south-east of the site.

3.0 Proposed Development

The proposed development will deliver a mobility hub of up to 8 storeys including 150 cycle parking spaces, 408 car parking spaces, a ground floor retail unit and a delivery hub. The proposed MSCP will provide 384 standard parking bays and 24 disabled parking bays to provide the total of 408 bays. Cycle storage is also provided with 75 double stacked racks to provide a total of 150 cycle spaces. A proposed site plan has been included within **Appendix D**.

4.0 Flood Risk Assessment

National Planning Policy Framework

The National Planning Policy Framework (NPPF) aims to avoid inappropriate development in areas at risk of flooding, directing development away from high-risk areas and avoiding increasing or reducing the risk of flooding elsewhere. This FRA has been undertaken with regards to the NPPF and with reference to the Planning Practice Guidance (PPG) in relation to ensuring that flood risk is taken into consideration to avoid inappropriate development in areas at risk of flooding.

The Environment Agency (EA) provide appropriate information on the extent of flood risk via their 'Flood Map for Planning (Rivers and Sea)' available online via the UK Government website. The flood maps for planning indicate the extent of the extreme flooding from surface water, rivers or sea and reservoirs that would occur without the presence of flood defences. The flood zones are defined and outlined as below:

Table 1: Flood Zone Definition

Flood Zone	Definition
Flood Zone 1 (Low Probability)	Less than 1 in 1,000 annual probability of river or sea flooding (<0.1%) (Area shown clear on Flood Maps – all land outside of Zones 2 and 3)
Flood Zone 2 (Medium Probability)	Between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1%-0.1%) **or** between 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5%-0.1%) in any year (Area shown light blue on Flood Maps)
Flood Zone 3a (High Probability)	1 in 100 or greater annual probability of river flooding (>1%) **or** a 1 in 200 or greater annual probability of flooding from the seas (>0.5%) in any year (Area shown dark blue on Flood Maps)
Flood Zone 3b (Functional Flood Plain)	Land where water must flow or be stored during times of flooding. Strategic Flood Risk Assessments prepared by local planning authorities should identify these areas. (Area also shown dark blue on Flood Maps)

*Flood Map areas do not take flood defences into consideration. Flood Risk increase due to climate change is not considered.

Initial review of the UK Government data indicate that the site is located within a **Flood Zone 1** (Low Probability) area in its entirety and is at no risk of flooding from rivers or sea, surface water or from reservoirs. A small area of low extent of surface water flooding is indicated offsite adjacent the eastern boundary. This is likely due to the area being the low point of the Ancoats Green however it does not affect the site itself. Sequential testing is not required to be carried out for developments within Flood Zone 1 areas and as such it should not be necessary to consider sequential testing for this scheme.

Please refer to the Environment Agency Flood Information in **Appendix E**.

The plans attached within the Appendices represent the best available current information on the extent of flood risk. It should be noted however that these maps are indicative only, are to be used as a basis of consultation and not as the sole basis for decisions on where planning policies apply. Therefore, due to such local variability and uncertainties, it is difficult to be prescriptive about the levels of risk.

Flood Risk Vulnerability Classification

Table 2: Flood Risk Vulnerability Classification

Essential Infrastructure • Essential transport infrastructure (including mass evacuation routes) which must cross the area at risk. • Essential utility infrastructure which must be in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly vulnerable • Police stations, ambulance stations, fire stations, command centres; telecommunications installations required to be operational during flooding • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as “essential infrastructure”).
More vulnerable • Hospitals.

• Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non–residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan
Less Vulnerable • Police, ambulance and fire stations which are not required to be operational during flooding. • Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill* and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
Water-compatible Development • Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

The Flood Risk Vulnerability Classification for this development site is considered to be "Less Vulnerable – Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure". It can be seen from Table 3 below that developments of this nature can be located within Flood Zones 1, 2 and 3 without the requirement of an Exception Test. It should be noted that the site falls within a **Flood Zone 1 – Low Probability** classified area and as such it should not be necessary to consider a Sequential Test.

Table 3: Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability Classification (See Table 2)	Essential Infrastructure	Water Compatibility	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	√	√	√	√	√
Zone 2	√	√	Exception Test Required	√	√
Zone 3a	Exception Test Required	√	X	Exception Test Required	√
Zone 3b functional flood plain	Exception Test Required	√	X	X	X

Key: √ - Development is appropriate

X – Development should not be permitted

Sources of Potential Flooding

Other Sources of Flood Risk:

The table below identifies the potential sources of flood risk to the development.

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial			**X**		The River Irwell is located approximately 1.3km west of the site.
Tidal			**X**		
Canals			**X**		Rochdale Canal is located 175m south of the site
Groundwater			**X**		Till, Devensian - Diamicton with underlying Mudstone
Reservoirs				**X**	No reservoirs nearby that will affect the subject site.
Sewers			**X**		UU have not identified any historic flooding from sewers.

Pluvial			**X**		Design process will minimise risk.
Development Drainage			**X**		Design process will minimise risk.

Existing Structures Affecting Flooding

There are no known existing structures on site that may affect flooding of the site.

Sequential Test

As the proposed development is within a Flood Zone 1 – Low Probability, a sequential test is not necessary.

Flood Risk Mitigation Measures

As the site is situated entirely within Flood Zone 1 – Low Probability, there is no requirement for any mitigating measures relating to flooding from Rivers and the Sea, Surface Water or Reservoirs.

Manchester City, Salford City and Trafford Councils SFRA

The Strategic Flood Risk Assessment for the area notes that the Rochdale Canal required additional inflow assessment due to a lack of detailed information. The canal is recognised to have a low risk of surface water overtopping the walls. Detailed modelling was undertaken and only a small amount of flooding due to overtopping at Holland Street, 400m east of the site, was identified due to unusually low freeboard levels. The SFRA states:

'*There is a limited likelihood of canal overtopping in Manchester. If it does occur, it is unlikely to affect areas beyond the canal towpath. Areas around Holland Street are an exception where canal overtopping has historically been related to low bank levels.'*

The SFRA does not identify any critical drainage areas within the Ancoats area.

5.0 Surface Water Drainage

Discharge Location

Infrastructure protocol states that a designer should consider the following in order of preference before finalising a surface water design statement for the development.

• Discharge via infiltration, or where this is not reasonably practicable,

• Discharge to a watercourse, or where this is not reasonably practicable,

• Discharge to a public sewer network.

Method 1 – Discharge via infiltration

The superficial deposits overlying the bedrock has been ascertained by reference to the 1:50,000 British Geological Survey website. Due to the anticipated presence of low permeability Devensian Till deposits, the use of ground infiltration techniques will not be suitable for the discharge of surface water at this site. The Phase 1 Geoenvironmental Site Assessment undertaken by E3P also concludes that onsite and adjacent Made Ground deposits are considered to represent a potential source of ground contamination.

The above data suggests that discharge via infiltration will not be feasible however an intrusive site investigation should be undertaken to confirm this.

Method 2 – Discharge to a watercourse

There are no watercourses present on site although the Rochdale Canal is located approximately 175m south of the proposed development. It is understood that the Canal and River Trust have recently confirmed that there is no spare capacity within the Rochdale Canal to accept additional flows. Due to the existing highways and infrastructure between the site and the canal, along with capacity limitations, this is not a feasible discharge route which can be considered.

Method 3 – Discharge to a public sewer network

The UU Sewer Record Plan in **Appendix C** identifies an existing public 470x600mm combined sewer located to the west of the development within the existing highway known as Poland Street.

Therefore, based on the above it is considered that Method 3 is the most feasible discharge location. A pre-planning enquiry has been issued to UU and a response received which confirms acceptance of 5l/s surface water discharge into either the existing sewer within George Leigh Street or within Poland Street. A copy of the pre-planning enquiry response is included within **Appendix C**.

An enquiry to the LLFA has been issued and a response received confirming a 5l/s discharge rate is the maximum which would be accepted. It is also noted however that this is subject to evidence discounting discharge via infiltration and discharge at a lesser rate, without risk of blockage, being provided. A copy of the LLFA correspondence is included within **Appendix J.**

Proposed Drainage

It is proposed to provide a surface water drainage network serving the proposed development roof and external hard standing areas.

An initial greenfield runoff calculation has been undertaken for the development using the HR Wallingford method and is included within **Appendix F**. Based upon the total site area of 0.33Ha, a QBAR rate of **2.13l/s** has been determined. However, in order to provide a discharge rate which is not susceptible to blockages due to the build-up of silt, a restriction of 5l/s is generally advised. This increased rate permits a larger orifice diameter from the restriction chamber which is less likely to be blocked by silt material. As such, it is proposed that a final discharge rate of **5l/s** is implemented. It should be noted however that this is **subject to approval** from both United Utilities and the LLFA. This discharge rate, although greater than the greenfield runoff rate, does provide a betterment of 1.2l/s to that of the existing urban rate calculated at 6.2l/s.

Exceedance flows generated by the development due to the applied discharge restriction are required to be attenuated and managed on site. The drainage network is required to be designed to meet the following requirements:

• No surcharge for a 1 in 2-year return period event

• No flooding for a 1 in 30-year return period event

• No flooding of buildings or third-party land for a 1 in 100-year return period event with a 30% allowance for climate change.

A preliminary drainage strategy has been produced associated with proposed surface and foul water drainage to serve the proposed development and is included **Appendix G**.

The preliminary surface water drainage detailed on the strategy has been designed to discharge into the existing UU combined sewer west of the site within Poland Street. The connection will be made via a new manhole on the existing combined sewer line at a restricted discharge rate of **5l/s**. This rate is generally accepted as the minimum which can be achieved without an increased risk of blockages to the outlet. A pre-planning enquiry has been issued to UU and a response received which confirms acceptance of 5l/s into either the existing sewer within George Leigh Street or within Poland Street.

The surface water design can accommodate up to a 1 in 100-year critical storm event plus 40% climate change without flooding by providing onsite attenuation. The required attenuation will be provided via an attenuation tank located below the external paved area to the west of the MSCP structure. The tank will be used to attenuate excess flows for storm events up to and including the 1 in 100-year storm event with an allowance for climate change. MicroDrainage simulation calculations are included within **Appendix H** which identify the volume of attenuation required. These initial calculations indicate a required attenuation volume of between approximately 143m³

and 208m³. A conservative figure of 175m³ has been assumed for the initial drainage strategy. Maintenance of the tank will be carried out in accordance with the CIRIA C753 SuDS manual with the responsibility of maintenance being taken by MLSDC or an appointed private management team.

Surface water treatment will be provided via permeable paving included to the external areas at the east, south and west of the structure. Soft landscaping is also included where possible to minimise the area of external hardstanding. Due to the nature of the development, typical SuDS systems such as swales, basins and ponds are not feasible due to tight site constraints.

Surface water drainage will be designed in accordance with Building Regulations Part H.

Sustainable Drainage Systems (SuDS)

As stated within the National Planning Policy Framework (NPPF Feb 2019) major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate.

Due to the nature of this development, typical SuDS systems such as swales, basins and ponds are not feasible due to the tight site constraints. The proposed structure accommodates the majority of the site which results in an insufficient area to include meaningful and beneficial surface level SuDS features such as the aforementioned swales, basins and ponds.

Further to the above, due to the inclusion of extensive PV panelling to upper and lower roof levels the inclusion of green, brown or blue roofs are also unfeasible. There would be very limited benefit including green or brown roofs below the extensive PV panelling.

SuDS features which are appropriate have been included to the limited external areas in the way of permeable paving and soft landscaping at the east, south and west of the structure. Soft landscaping is included where possible to minimise the area of external hardstanding material. The soft landscaped and permeable paved areas will provide an element of surface water treatment.

Surface water attenuation is provided via an attenuation tank located below the external paved area to the west of the MSCP structure. A petrol interceptor is also included prior to discharge from site to prevent polluted water discharging into the existing UU combined system.

6.0 Foul Water Drainage

A pre-planning enquiry response from UU has been received which confirms acceptance of an unrestricted discharge of foul water flows into either the existing combined sewer within George Leigh Street or to the combined sewer within Poland Street.

A copy of the preliminary drainage strategy included within **Appendix G**.

Foul water drainage will be designed in accordance with Building Regulations Part H.

7.0 Conclusions

Hill Cannon Consulting Engineers Ltd. (HCCE) were commissioned by Manchester Life Strategic Development Company Ltd (MLSDC) in April 2021 to undertake a Flood Risk Assessment (FRA) and Drainage Strategy for the development of the site known as the Ancoats Mobility Hub, Poland Street. The proposed development will deliver a mobility hub of up to 8 storeys including 150 cycle parking spaces, 408 car parking spaces, a ground floor retail unit and a delivery hub. The development is located on an existing brownfield site. This report will be provided as supporting documentation as part of a full planning application.

Initial review of the UK Government data indicate that the site is located within a **Flood Zone 1** (Low Probability) area in its entirety and is at no risk of flooding from rivers or sea, surface water or from reservoirs. The proposed scheme is identified as a "Less Vulnerable" development and as such it should not be necessary to consider sequential testing for this scheme.

The assessment associated with appropriate surface water management has followed the order of hierarchy based on the following:

Method 1 – Discharge via infiltration

Method 2 – Discharge to a watercourse

Method 3 – Discharge to a public sewer network.

The assessment concluded that the most appropriate method for proposed surface water management associated with the residential development was Method 3, discharge to a public sewer.

The preliminary surface water drainage detailed on the strategy has been designed to discharge into the existing UU combined sewer west of the site within Poland Street. The connection will be made via a new manhole on the existing combined sewer line at a restricted discharge rate of **5l/s**.

This rate is generally accepted as the minimum which can be achieved without an increased risk of blockages to the outlet. A pre-planning enquiry has been issued and a response received from UU which confirms acceptance of 5l/s into either the existing sewer within George Leigh Street or within Poland Street. An enquiry to the LLFA has been issued and a response received confirming a 5l/s discharge rate is the maximum which would be accepted. It is also noted however that this is subject to evidence discounting discharge via infiltration and discharge at a lesser rate, without risk of blockage, being provided.

The design can accommodate up to a 1 in 100-year critical storm event plus 40% climate change without flooding including onsite attenuation. Attenuation will be provided to the volume of 175m³ via an attenuation tank located below the external paved area to the west of the MSCP structure.

SuDS features which are appropriate have been included to the limited external areas in the way of permeable paving and soft landscaping at the east, south and west of the structure. Soft landscaping is included where possible to minimise the area of external hardstanding material. The soft landscaped and permeable paved areas will provide an element of surface water treatment.

A pre-planning enquiry response from UU has been received which confirms acceptance of an unrestricted discharge of foul water flows into either the existing combined sewer within George Leigh Street or to the combined sewer within Poland Street.

The proposed development will have a low to very low risk of flooding from rivers and sea, surface water, reservoirs and sewers and will discharge at a controlled, restricted rate which has been approved in principle with the LLFA.

This Flood Risk Assessment has confirmed that the proposed development is appropriate and sustainable in the terms as set out in NPPF.

8.0 Report Conditions

The report is based on the information that has been acquired and/or made available to Hill Cannon Consulting Engineers Limited via the various searches and consultations undertaken as part of the Flood Risk Assessment. In some cases, anecdotal information has been relied upon, where documented evidence has been lacking.

The conclusions drawn in the above report are considered correct although any subsequent additional information may allow refinement of the conclusions.

All work carried out in preparing this report has utilised and is based upon Hill Cannon Consulting Engineers Limited current professional knowledge and understanding of current UK standards and codes, technology and legislation. Changes in this legislation and guidance may occur at any time in the future and cause any conclusions to become inappropriate or incorrect.

This report has been prepared using information contained in maps and documents prepared by others. Hill Cannon Consulting Engineers Limited can accept no responsibility for the accuracy of such information.

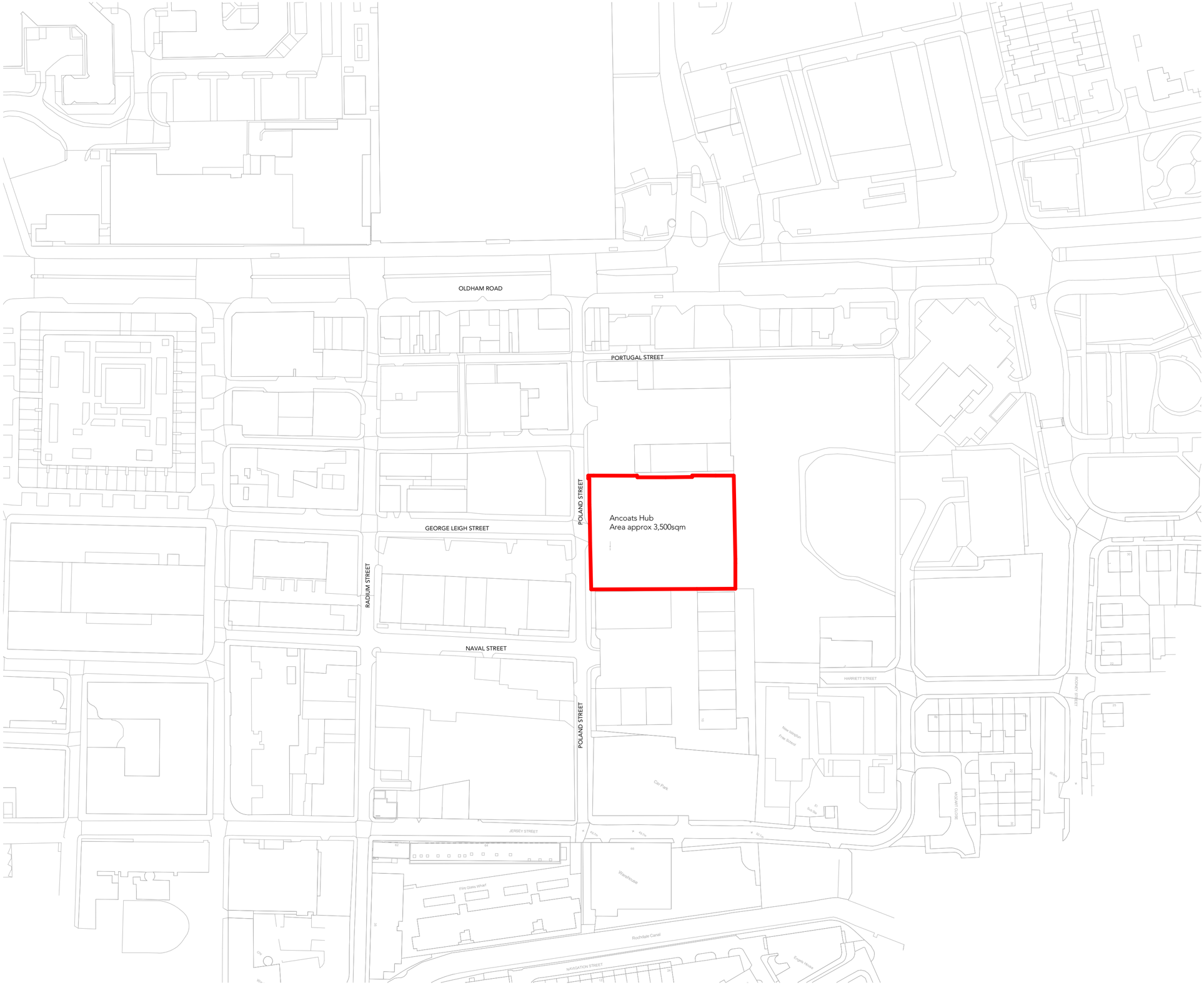
9.0 References Not Included

Department for Communities and Local Government (DCLG) Technical Guidance and the National Planning Policy Framework (NPPF February 2019) which replaces Planning Policy Statement 25 (PPS25) Development and Flood Risk – published December 2006, however retaining key elements of the aforementioned document.

E3P 'Phase 1 Geoenvironmental Site Assessment Manchester Life, Back of Ancoats Phase 1 – Ancoats Mobility Hub Reference: 18-868-R1-1' April 2021

APPENDIX A

SITE LOCATION PLAN



Site Location Plan

1 : 1250

2 0 2 4 6 8 10 m

SCALE 1:200

Note:
Do Not Scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.

Rev	Date	Intls	Details
P3	23/03/21	AMP	Stage 3 Issue
P2	26/02/21	MWG	Stage 3 Issue
P1	04/02/21	AMP	Preliminary Issue

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Project Title	Ancoats Hub
Client	Manchester Life
Location	Poland Street Manchester
Drawing ref	Site Location Plan

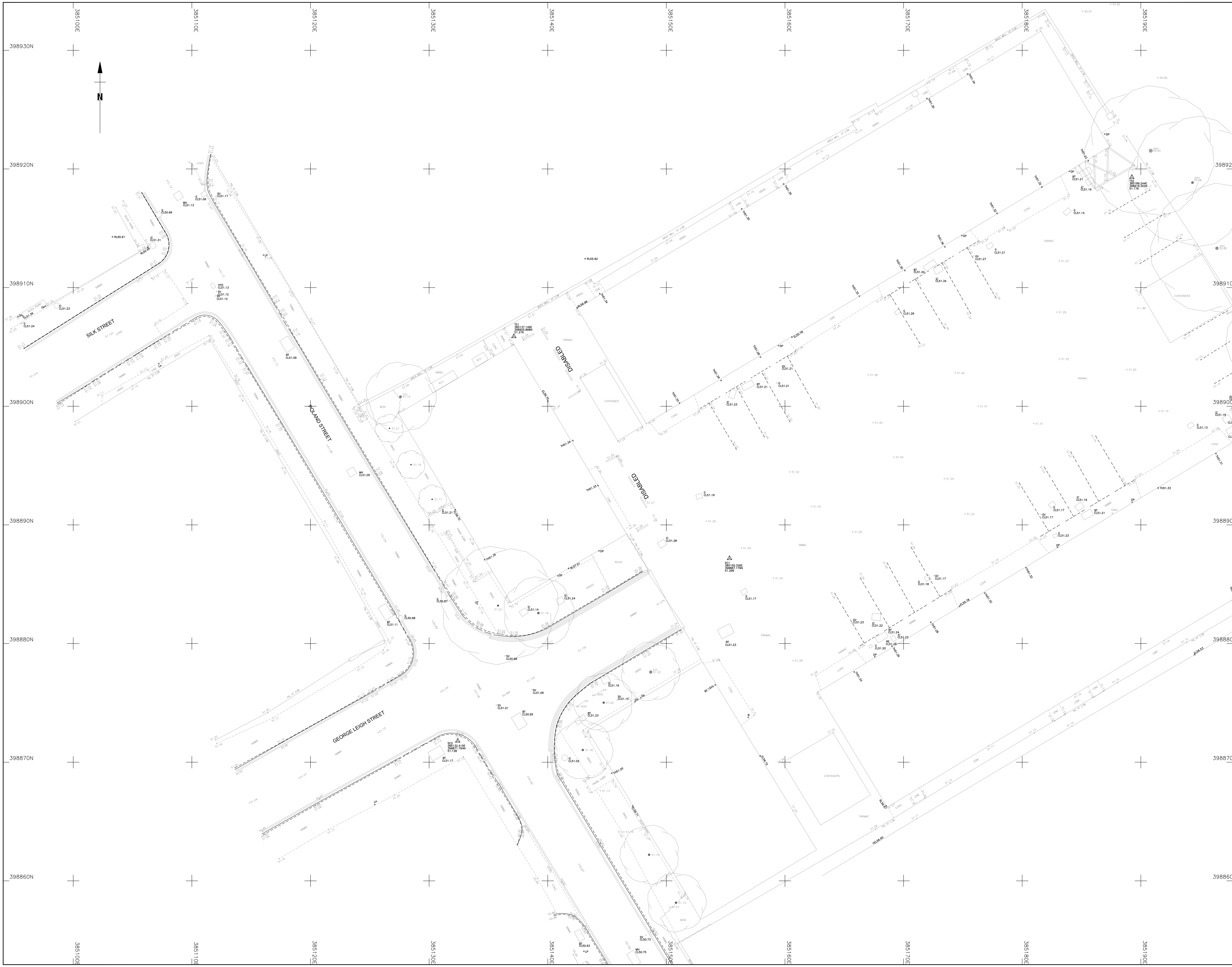
Date	23/03/2021 09:25:08	**Scale**	1 : 1250
Checker	Checker	**Orig Paper Size**	A2
Job No:	**9032**	**Status**	**STAGE 3**

Project: Origin: Zone: Level: Type: Disc: Number: Rev:

9032-BA-XX-00-DR-A- (01)000- P3

APPENDIX B

EXISTING TOPOGRAPHICAL SURVEY



Survey Notes

Grid: Local Plane Metric related to National Grid at survey control SC1

Levels: Related to OS datum from GNSS positioning, converted using the National Geoid Model OSGM15.

Notes

Topographical Survey Legend

BUILDINGS AND WALLS

Building; Building Open Sided; Ruin (RUIN); Passage; Wall with Height (Wall Ht1.3m); Retaining Wall (R/W)

FENCE STYLES AND DESCRIPTIONS

Close Boarded	C/B
Corrugated Iron	C/I
Chestnut Paling	C/P
Chainlink	C/L
Handrail	H/R
Interwoven	IWN
Iron Railings	I/R
Lattice	L/F
Miscellaneous	Misc
Palisade	PAL
Post & Chain	P/C
Post & Rail	P/R
Post & Wire	P/W
Post & Barbed Wire	B/W
Wire mesh	W/M
Stile	
Gate	
Fence linestyle	

ROADS

Kerbs; Edge of Surfacing; Pedestrian Crossing (PC); Track; Footpath (FP)

STREET FURNITURE

Belisha Beacon	BB
Bus Stop	BS
Bollard	B
Cats Eye	CE
Coal Chute	CC
Closed Circuit TV	CCTV
Drain	DR
Electricity Pole	EP
Flood Light	FL
Flag Staff	FS
Lamp Post	LP
Letter Box	LB
Name Plate (street)	NP
Mooring Ring	MR
Mile Post or Mooring Post	MP
Service Marker	MK
Mile Stone	MS
Post	P
Parking Meter	PM
Reflector Post	RP
Rodding Eye	RE
Road Sign	RS
Speed Camera	S/CAM
Information Sign	SIGN
Stay	SY
Traffic Light	TL
Telegraph Pole	TP
Traffic Light Push Button Post	TLP
Traffic Light Control	TLC/P
Control Box	C/BOX
British Telecom Box	BT BOX
Electricity Box	EL BOX
Gas Box	GAS BOX

INSPECTION CHAMBERS AND PIPES

Inspection Cover	IC
Inspection Cover (Elec)	IC/EL
Manhole	MH
British Telecom Cover	BT
Inspection Cover (Comms)	IC/COM
Cable TV	CATV
Inspection Cover Traffic Signals	IC/TL
Gully	G
Kerb Outlet	KO
Vent Pipe	VP
Down Pipe	DP
Rain Water Pipe	RWP
Soil Pipe	SVP
Gas Pipe	G-PIPE
Unable to lift cover	UTL
Stop Tap	ST
Stop Valve	SV
Lamphole	LH
Hydrant	HYD
Earth Rod	ER
Gas Valve	GV
Water Meter	WM
Washout	WO
Rodding Eye	RE

GEOTECHNICAL INFORMATION

Borehole	BH
Trial Pit	TP
Monitor Pin	MON
Probe Hole	PH
Window Sample	WS

GENERAL INFORMATION

Petrol Pump	PP
Basement Light	BL
Footbridge	FB
Dish Type Channel	D.CH
Slot Type Channel	S.CH
Grate Type Channel	G.CH
Tactile Paving	TAC
Crash Barrier	C/BR
Column	COL
Stanchion	STAN
Car Vacuum	VAC
Offset Fill	OF
Air Valve	AV
Trough	TR
Chimney	CHY
Telephone Call Box	TCB

OVERHEAD FEATURES

Electricity Pylon	E.PYLON
Electricity	ETL
Telephone	OTL

WATER FEATURES

Canal; Stream; Ditch; Weir; Culvert; Grip (Land Drain); Spring (SPR)

RELIEF AND VEGETATION

Hedge; Edge of wood/Bushes; Stump (STUMP); Individual Tree; Slopes with Height Greater than 1m; Cliff Face; Marsh; Reeds

LEVEL AND HEIGHT INFORMATION

Standard Spot Height	+ 123.45
Precision Spot Height	+ 123.456
Bed Level	+ BL23.92
Water Level	+ WL24.92
Soffit Level	+ SL25.92
Threshold Level	+ TH26.98
Cover Level	+ CL26.45
Invert Level	+ IL25.15
Pipe Soffit Level	+ PSL5.00
Floor Level	+ FL6.00
Finished Floor Level	+ FFL6.00
Top of Tank Level	+ TT7.00
Eave Level	+ EL7.00
Ridge Level	+ RL9.00
Roof Hip Level	+ RHL8.50
Flat Roof Level	+ FRL7.00
Top of Canopy Level	+ TOP/C7.00
Underside of Canopy Level	+ SOF/C6.50
Window Sill Level	+ WSL8.00
Window Head Level	+ WHL9.00
Springing Level	+ SPL8.50
Arch Level	+ AL7.00
Cable Level	+ CHT8.55
Top of Wall Level	+ TWL10.00
Underside of Beam Level	+ UBL9.55
General Height	+ HT9.00

SURVEY INFORMATION SIGNS

Permanent Ground Marker; O.S. Trig Station; O.S. Bench Mark

Sheet Index

1
2

Rev.	Date	Description

MALCOLM HUGHES
CHARTERED LAND SURVEYORS

65 Cross Street, Sale, Manchester
M33 7HF, Tel: 0161 905 1265
www.malcolmhughes.co.uk
survey@mhls.co.uk

Accreditations

RICS · THE SURVEY ASSOCIATION · chartered ices · FS 14126

Client
MANCHESTER LIFE DEVELOPMENT COMPANY LTD
UNIT 5, ROYAL MILL, 17 REDHILL STREET
MANCHESTER, M4 5BA

Project
POLAND STREET
MANCHESTER

Drawing Title
TOPOGRAPHICAL SURVEY
SHEET 1 OF 2

Drawn By	IC	17/09/20	
Checked by	ED	18/09/20	
Survey Date	SEPTEMBER 2020		
Scale	A0@1:100		
Drawing No	56176/1	Revision	

Survey Notes

Grid: Local Plane Metric related to National Grid at survey control SC1

Levels: Related to OS datum from GNSS positioning, converted using the National Geoid Model OSGM15.

Notes

Topographical Survey Legend

BUILDINGS AND WALLS

Building
Building Over Dotted
Footbridge
Ruin (RUIN)
Passage
Wall with Height
Retaining Wall (R/W)

GENERAL INFORMATION

Petrol Pump (PP)
Basement Light (BL)
Footbridge (FB)
Dish Type Channel
Slot Type Channel
Grate Type Channel (Width and Direction)
Tactile Paving (TAC)
Crash Barrier (CRB)
Bollard (O C/L)
Staircase (STAIRS)
Car Vacuum (VAC)
Offset Fill (OF)
Air Valve (AV)
Trough (T/L)
Chimney (CHY)
Telephone Call Box (TCB)

FENCE STYLES AND DESCRIPTIONS

Close Boarded (C/B)
Corrugated Iron (C/I)
Chestnut Paling (C/P)
Chainlink (C/L)
Handrail (H/R)
Interwoven (WR)
Iron Railings (I/R)
Lattice (L/T)
Miscellaneous (Misc)
Palisade (PAL)
Post & Chain (P/C)
Post & Rail (P/R)
Post & Wire (P/W)
Post & Barbed Wire (B/W)
Wire mesh (W/M)
Stile
Gate
Fence Linestyle

OVERHEAD FEATURES

Electricity Pylon (ELEC PYLON)
Electricity
Telephone

ROADS

Kerbs
Edge of Surfacing
Ditch
Pedestrian Crossing (PEDESTRIAN CROSSING)
Track
Footpath (FOOTPATH)

WATER FEATURES

Canal
Stream
Ditch
Weir
Culvert
Grip (Land Drain)
Spring

STREET FURNITURE

Belisha Beacon
Bus Stop (BS)
Bollard (B)
Cats Eye (CE)
Coal Chute (CC)
Closed Circuit TV (CCTV)
Drain (DR)
Electricity Pole (EP)
Flood Light (FL)
Flag Staff (FS)
Lamp Post (LP)
Letter Box (LB)
Name Plate (street) (NP)
Mooring Ring (MR)
Mile Post or Mooring Post (MP)
Service Marker (MK)
Mile Stone (MS)
Post (P)
Parking Meter (PM)
Reflector Post (RP)
Rodding Eye (RE)
Road Sign (RS)
Speed Camera (S/CAM)
Information Sign (SIGN)
Stay (ST)
Traffic Light (TL)
Telegraph Pole (TP)
Traffic Light Push Button Post (T/LP)
Pipe Subfit Level (T/C/P)
Control Box (C/BOX)
British Telecom Box (BT BOX)
Electricity Box (EL BOX)
Gas Box (GAS BOX)

RELIEF AND VEGETATION

Hedge
Edge of wood/Bushes
Stump (STUMP)
Individual Tree
Slopes with Height Greater than 1m
Cliff Face
Marsh
Reeds

INSPECTION CHAMBERS AND PIPES

Inspection Cover (IC)
Inspection Cover (Elec) (IC/EL)
Manhole (MH)
British Telecom Cover (BT)
Inspection Cover (Comms) (IC/COM)
Cable TV (CATV)
Inspection Cover Traffic Signals (IC/TL)
Gully (G)
Kerb Outlet (KO)
Vent Pipe (vp)
Down Pipe (DP)
Rain Water Pipe (RWP)
Soil Pipe (SVP)
Gas Pipe (G-PIPE)
Unable to lift cover (UTL)
Stop Tap (ST)
Stop Valve (SV)
Lamphole (LH)
Hydrant (HYD)
Earth Rod (ER)
Gas Valve (GV)
Water Meter (WM)
Washout (WO)
Rodding Eye (RE)

LEVEL AND HEIGHT INFORMATION

Standard Spot Height (+ 123.45)
Precision Spot Height (+ 123.456)
Bed Level (+ BL23.50)
Water Level (+ WL24.32)
Soffit Level (+ SL25.32)
Threshold Level (+ TH26.98)
Cover Level (+ CL26.45)
Invert Level (+ IL25.15)
Pipe Soffit Level (+ PFSL8.00)
Floor Level (+ FL8.00)
Finished Floor Level (+ FFL8.00)
Top of Tank Level (+ TT7.00)
Eave Level (+ EL8.00)
Ridge Level (+ RL8.00)
Roof Hip Level (+ RHL8.50)
Flat Roof Level (+ FRL7.00)
Top of Canopy Level (+ TOP/C7.00)
Underside of Canopy Level (+ SOF/CNL50)
Window Sill Level (+ WSL8.00)
Window Head Level (+ WHL9.00)
Springing Level (+ SPL8.50)
Arch Level (+ AL7.00)
Cable Level (+ CHT8.50)
Top of Wall Level (+ TWL10.00)
Underside of Beam Level (+ UBL9.55)
General Height (+HT8.00)

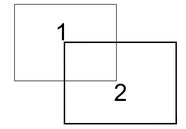
SURVEY INFORMATION SIGNS

Permanent Ground Marker (TS#)
O.S. Trig Station
O.S. Bench Mark

GEOTECHNICAL INFORMATION

Borehole (BH)
Trial Pit (TP)
Monitor Pin (+ MON)
Probe Hole (+ PH)
Window Sample (+ WS)

Sheet Index



Rev.	Date	Description

MALCOLM HUGHES
CHARTERED LAND SURVEYORS
65 Cross Street, Sale, Manchester
M33 7HF. Tel: 0161 905 1265
www.malcolmhughes.co.uk
survey@mhls.co.uk

Accreditations: RICS, The Survey Association, ICES, FIS 19156

Client
MANCHESTER LIFE DEVELOPMENT COMPANY LTD
UNIT 5, ROYAL MILL, 17 REDHILL STREET
MANCHESTER, M4 5BA

Project
POLAND STREET
MANCHESTER

Drawing Title
TOPOGRAPHICAL SURVEY
SHEET 2 OF 2

Drawn By	IC 17/09/20	Survey Date	SEPTEMBER 2020
Checked by	ED 18/09/20	Scale	A0@1:100
Drawing No	56176/2	Revision	

APPENDIX C

UNITED UTILITIES SEWER RECORD PLANS

UNITED UTILITIES PRE-PLANNING ENQUIRY RESPONSE

PRIVATE SEWER PLANS



Scale:	1:1621	**SEWER RECORDS**	United Utilities helping life flow smoothly
Date:	21/07/2020		
Address or Site Reference:	URO6751.2FM - Poland Street Manchester		
Printed by:	Property Searches		

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

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Dan Reeve

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 22 April 2021 21:26
To: Dan Reeve
Cc: Wastewater Developer Services
Subject: Pre Development Enquiry for : Poland Street, Manchester M4 6BR UU reference Number : 4200038949

Hello Dan

Pre Development Enquiry for: Ancotes Mobility Hub Poland Street, Manchester M4 6BR UU Reference Number : 4200038949

Thank you for your considered enquiry

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

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 3723223 or refer to the link below:

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

Foul Water

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

Our preferred point of discharge would be to the 508mm x 836mm diameter public combined sewer within George Leigh Street located to the west of your proposed development at an unrestricted rate.

The reason for suggesting a connection on George Leigh Street rather than on Poland Street is because the sewer on Poland Street surcharges and any connection to it could put your development at risk. Whereas the sewer on George Leigh Street does not surcharge as the connection point would be at the head of the system. I appreciate that this may be difficult to achieve because the sewer on Poland Street may block access but I have checked the levels available to me and it does appear feasible BUT this will need checking on site.

If you are unable to achieve a connection George Leigh Street then I would be willing to accept a connection on Poland Street

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

Surface Water

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

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.
This is outlined as follows, in order of priority:

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

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

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

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

Infiltration

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

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

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:
https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs

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

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

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

Public Sewer

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

Once evidence is provided as outlined above, United Utilities will consider a connection to the 508mm x 838mm diameter public combined sewer within George Leigh Street located west of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 5l/s.

Again, the reason for suggesting a connection on George Leigh Street rather than on Poland Street is because the sewer on Poland Street surcharges and any connection to it could put your development at risk. Whereas the sewer on George Leigh Street does not surcharge as the connection point would be at the head of the system. I appreciate that this may be difficult to achieve because the sewer on Poland Street may block access but I have checked the levels available to me and it does appear feasible BUT this will need checking on site.

If you are unable to achieve a connection George Leigh Street then I would be willing to accept a connection on Poland Street

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

Levels

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

Land drainage / Overland flows / track drainage

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

Existing Water Assets Crossing the Site

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

Connection Application

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

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

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

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

Kind regards,

Graham Perry

Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

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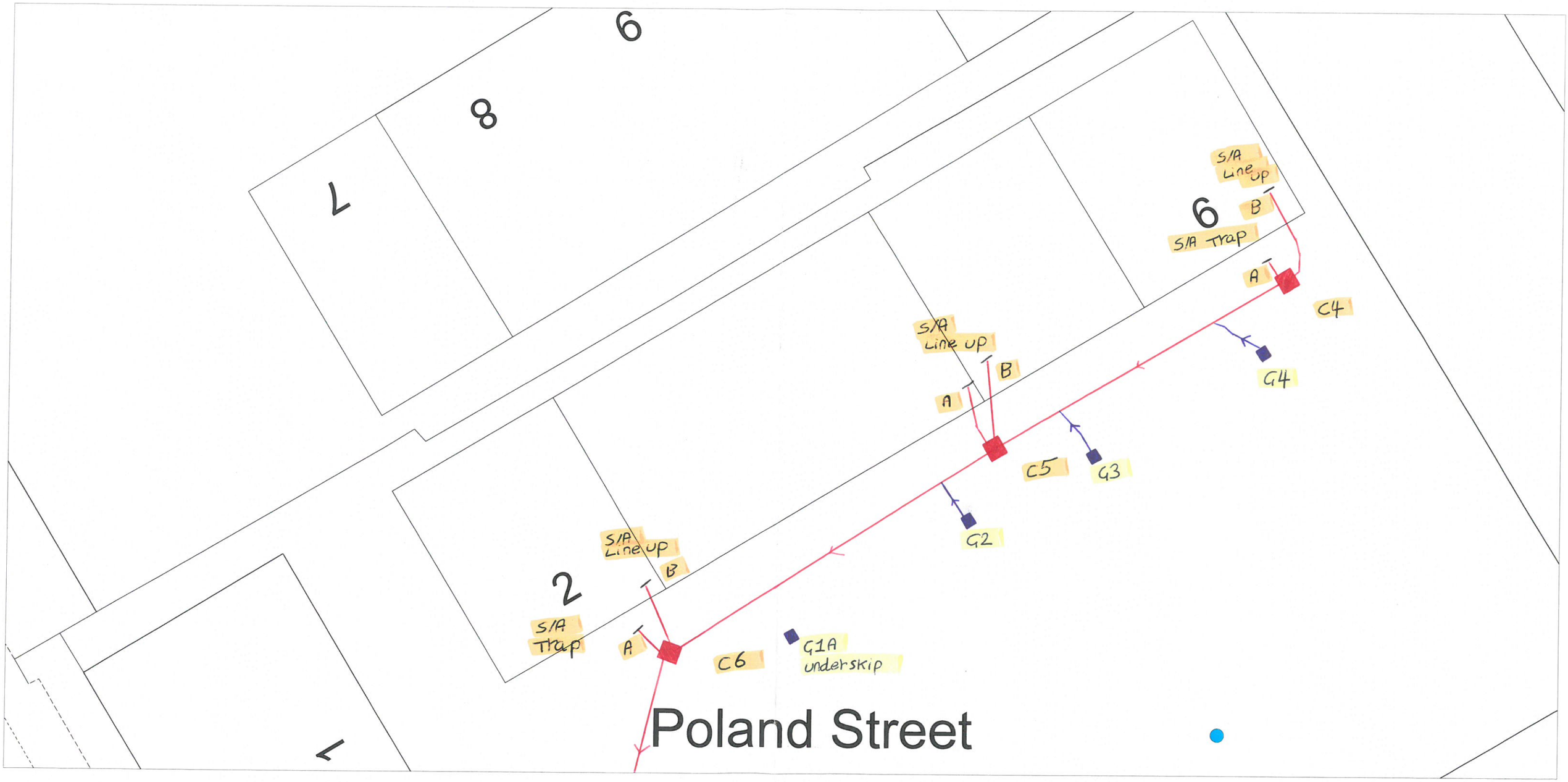
www.unitedutilities.com
www.unitedutilities.com/subsidiaries

Poland Street Industrial Estate



C10 → pipe x 225mm Drops on blind to UU Sewer.

General Utilities Northwest Limited
Unit 1, Boundary Trading Park,
Liverpool Road, Irlam, Manchester M44 6FB
tel: 0161 776 0011 *fax:* 0161 776 0044
email: generalutilities@btconnect.com
website: www.generalutilitiesnorthwest.co.uk



General Utilities Northwest Limited
Unit 1, Boundary Trading Park,
Liverpool Road, Irlam, Manchester M44 6FB
tel: 0161 776 0011 *fax:* 0161 776 0044
email: generalutilities@btconnect.com
website: www.generalutilitiesnorthwest.co.uk

APPENDIX D

PROPOSED SITE PLANS:

GROUND FLOOR GA PLAN

FIRST FLOOR GA PLAN

SECOND FLOOR – SIXTH FLOOR GA PLAN

SEVENTH FLOOR GA PLAN



Ground Floor GA Plan

1 : 200

SCALE 1:200

Note:
Do Not Scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.

NOTE:

Areas are appropriate to the current design stage and are liable to change as a result of design development.

Layouts are indicative and subject to further review.

Rev	Date	Intls	Details
P9	11/03/21	AMP	Stage 3 Issue - Dry riser inlet indicated, future battery location indicated, distance to site boundary indicated, glazing between cycle store and cafe omitted, entry column/ANPR/barrier indicated, stair core 2 (ancoats green) arrangement flipped
P8	26/02/21	MWG	Stage 3 Issue
P7	24/02/21	MWG	Stair cores updated
P6	19/02/21	AMP	Stair cores offset from main building
P5	16/02/21	MWG	Stair cores offset from main structure
P4	15/01/21	MWG	WCs, kitchen store & glazed screen/doors added to Cafe. Secondary bin store added in Delivery Hub.
P3	21/12/20	AMP	Gridline 1-2 increased to 7700mm and Gridline 6-7 increased to 7700mm
P2	11/12/20	AMP	Bin Store area, delivery hub access door added to west elevation and internal wall added to delivery hub
P1	25/11/20	MWG	Updated as Option 4 layout

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Manchester
M4 6AF

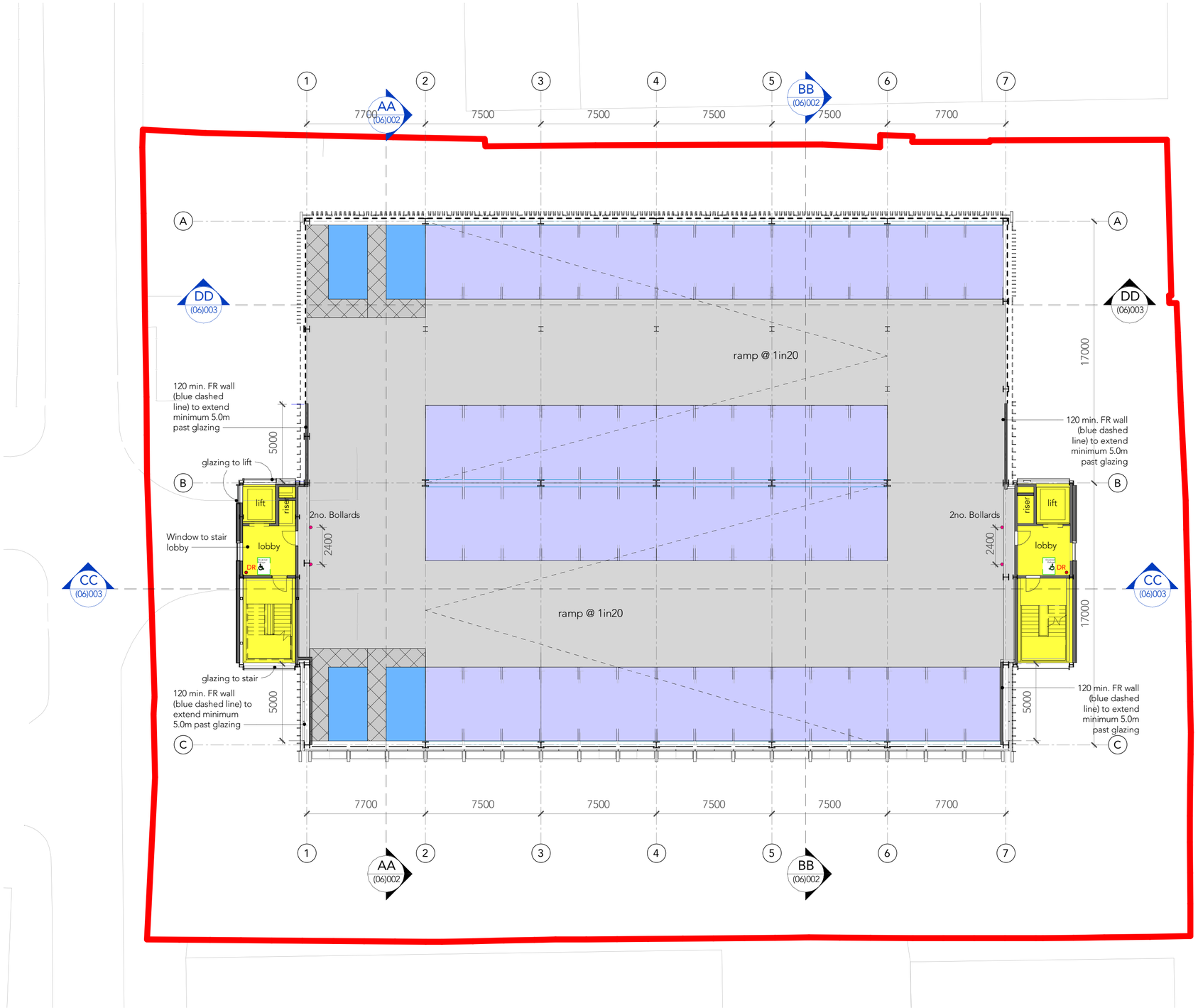
T 0161 236 3303
E contact@buttress.net
Wwww.buttress.net

Project Title	Ancoats Hub
Client	Manchester Life
Location	Poland Street Manchester
Drawing ref	Ground Floor GA Plan

Date	23/03/2021 10:53:52	**Scale**	1 : 200
Checker	Checker	**Orig Paper Size**	A2
Job No:	**9032**	**Status**	**STAGE 3**

Project: Origin: Zone: Level: Type: Disc: Number: Rev:

9032-BA-XX-00-DR-A- (04)000- P9



First Floor GA Plan

1 : 200

2 0 2 4 6 8 10 m

SCALE 1:200

Note:
Do Not Scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.

NOTE:

Areas are appropriate to the current design stage and are liable to change as a result of design development.

Layouts are indicative and subject to further review.

Rev	Date	Intls	Details
P7	11/03/21	AMP	Stage 3 Issue - Parking ramps and parking bay locations updated, 2no bollards added per stair core, dry riser indicated
P6	26/02/21	MWG	Stage 3 Issue
P5	24/02/21	MWG	Stair cores updated
P4	19/02/21	AMP	Stair cores offset from main building
P3	21/12/20	AMP	Gridline 1-2 increased to 7700mm and Gridline 6-7 increased to 7700mm
P2	11/12/20	AMP	Additional glazing to cores into lift shaft
P1	17/11/20	MWG	Preliminary issue for Design Team coordination

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Buttress

41 Bengal Street
Manchester
M4 6AF

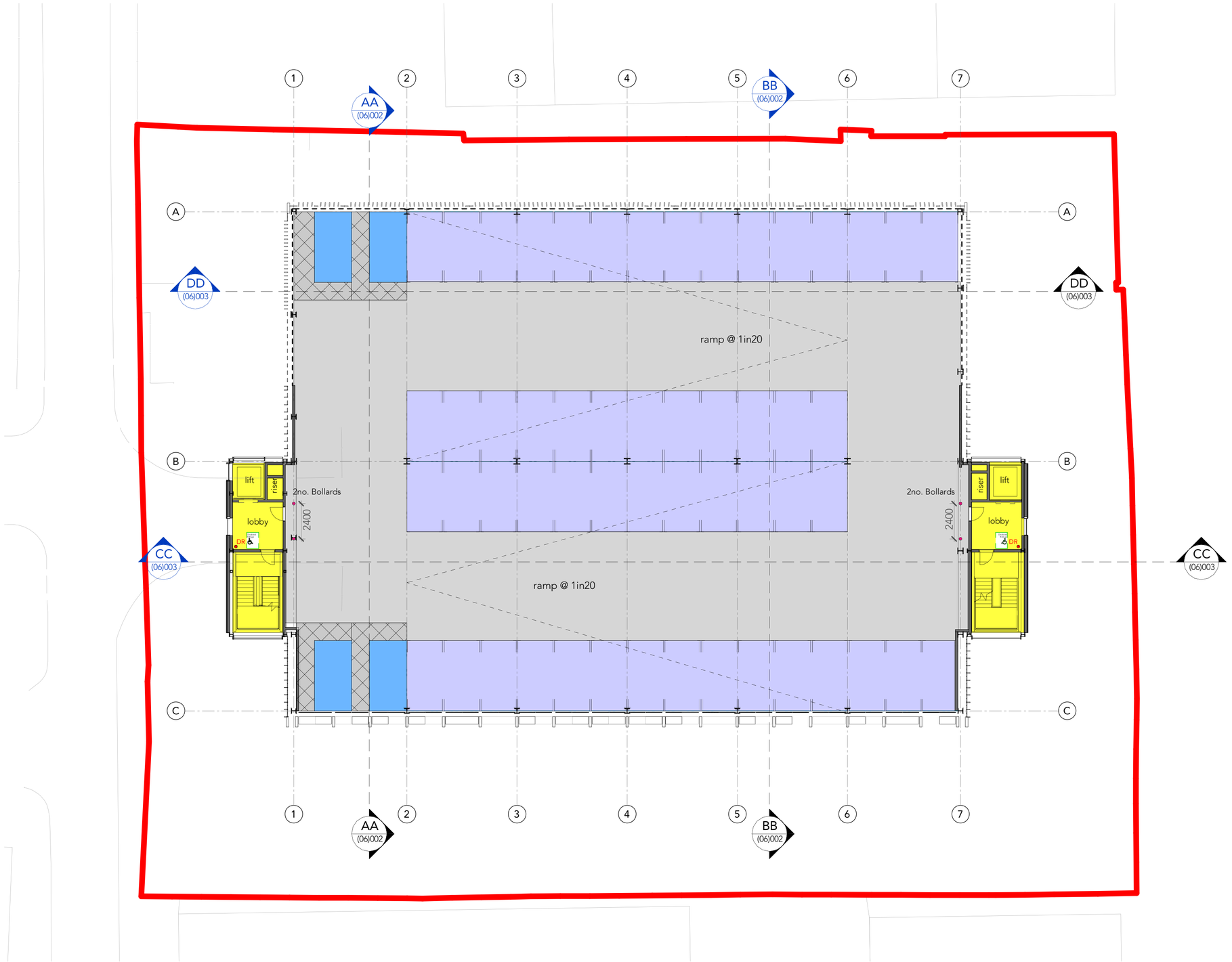
T 0161 236 3303
E contact@buttress.net
Wwww.buttress.net

Project Title	Ancoats Hub
Client	Manchester Life
Location	Poland Street Manchester
Drawing ref	First Floor GA Plan

Date	23/03/2021 11:02:48	**Scale**	1 : 200
Checker	Checker	**Orig Paper Size**	A2
Job No:	**9032**	**Status**	**STAGE 3**

Project: Origin: Zone: Level: Type: Disc: Number: Rev:

9032-BA-XX-00-DR-A- (04)001- P7



Second - Sixth Floor GA Plan

1 : 200

2 0 2 4 6 8 10 m

SCALE 1:200

Note:
Do Not Scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.

NOTE:

Areas are appropriate to the current design stage and are liable to change as a result of design development.

Layouts are indicative and subject to further review.

Rev	Date	Intls	Details
P2	11/03/21	AMP	Stage 3 Issue - Parking ramps and parking bay locations updated, 2no bollards added per stair core, dry riser indicated
P1	26/02/21	MWG	Stage 3 Issue

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Buttress

41 Bengal Street
Manchester
M4 6AF

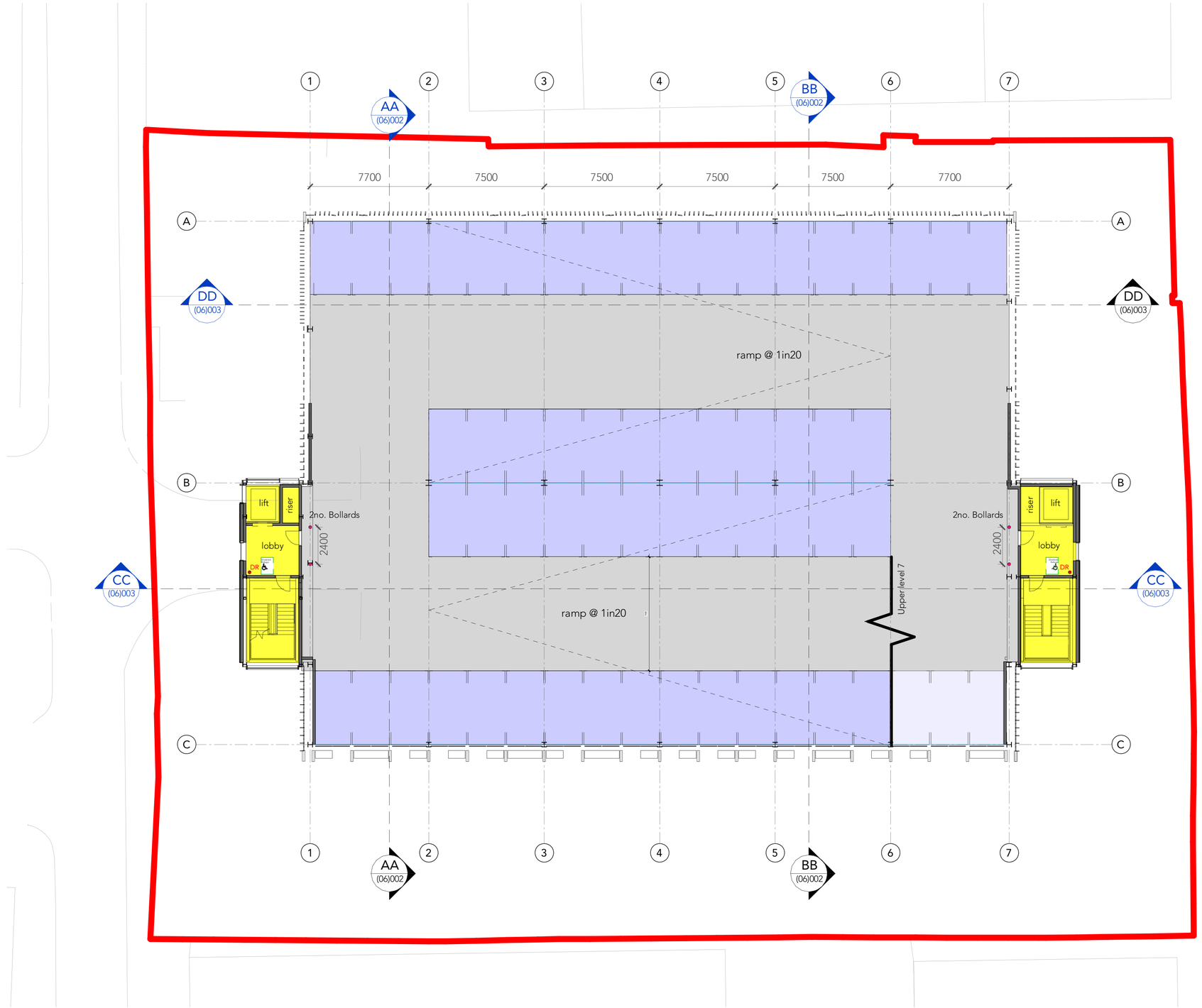
T 0161 236 3303
E contact@buttress.net
Wwww.buttress.net

Project Title	Ancoats Hub
Client	Manchester Life
Location	Poland Street Manchester
Drawing ref	Second Floor - Sixth Floor GA Plan

Date	23/03/2021 12:05:14	**Scale**	1 : 200
Checker	Checker	**Orig Paper Size**	A2
Job No:	**9032**	**Status**	**STAGE 3**

Project: Origin: Zone: Level: Type: Disc: Number: Rev:

9032-BA-XX-00-DR-A- (04)002- P2



Seventh Floor GA Plan#

1 : 200

SCALE 1:200

Note:
Do Not Scale from this drawing.
Dimensions are to be checked on site.
If in doubt please ask.

NOTE:

Areas are appropriate to the current design stage and are liable to change as a result of design development.

Layouts are indicative and subject to further review.

Rev	Date	Intls	Details
P1	11/03/21	AMP	Stage 3 Issue

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Project Title	Ancoats Hub
Client	Manchester Life
Location	Poland Street Manchester
Drawing ref	Seventh Floor GA Plan

Date	23/03/2021 12:05:20	**Scale**	1 : 200
Checker	Checker	**Orig Paper Size**	A2
Job No:	**9032**	**Status**	**STAGE 3**

Project: Origin: Zone: Level: Type: Disc: Number: Rev:

9032-BA-XX-00-DR-A- (04)006- P1

APPENDIX E

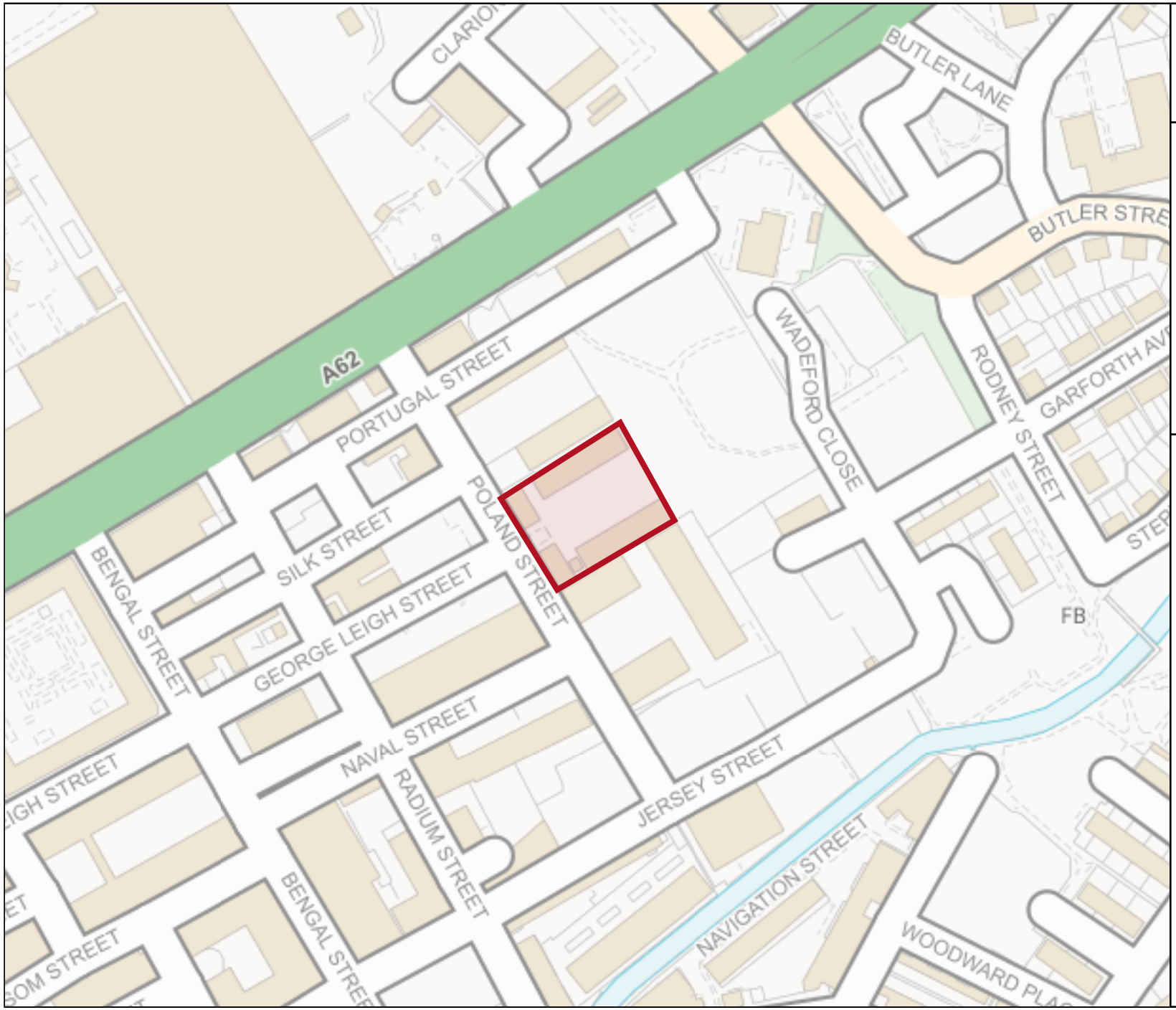
ENVIRONMENT AGENCY FLOOD INFORMATION:

FLOOD MAP FOR PLANNING

EXTENT OF FLOODING FROM RIVERS OR THE SEA

EXTENT OF FLOODING FROM SURFACE WATER

EXTENT OF FLOODING FROM RESERVOIRS



Environment Agency

Flood map for planning

Your reference
20-050Ancoats

Location (easting/northing)
385169/398896

Scale
1:2500

Created
8 Apr 2021 22:25

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

0 20 40 60m

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Extent of flooding from rivers or the sea

High Medium Low Very low



Extent of flooding from surface water

High Medium Low Very low



Extent of flooding from reservoirs

Maximum extent of flooding

APPENDIX F

GREENFIELD RUNOFF CALCULATION

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Dan Reeve
Site name:	Ancoats
Site location:	Manchester

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	53.48680° N
Longitude:	2.22514° W
Reference:	1068790132
Date:	Apr 27 2021 10:50

Runoff estimation approach

IH124

Site characteristics

Total site area (ha): 0.33

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	898	898
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	2.13	2.13
1 in 1 year (l/s):	1.86	1.86
1 in 30 years (l/s):	3.62	3.62
1 in 100 year (l/s):	4.44	4.44
1 in 200 years (l/s):	5.05	5.05

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

APPENDIX G

PRELIMINARY DRAINAGE STRATEGY

NOTE

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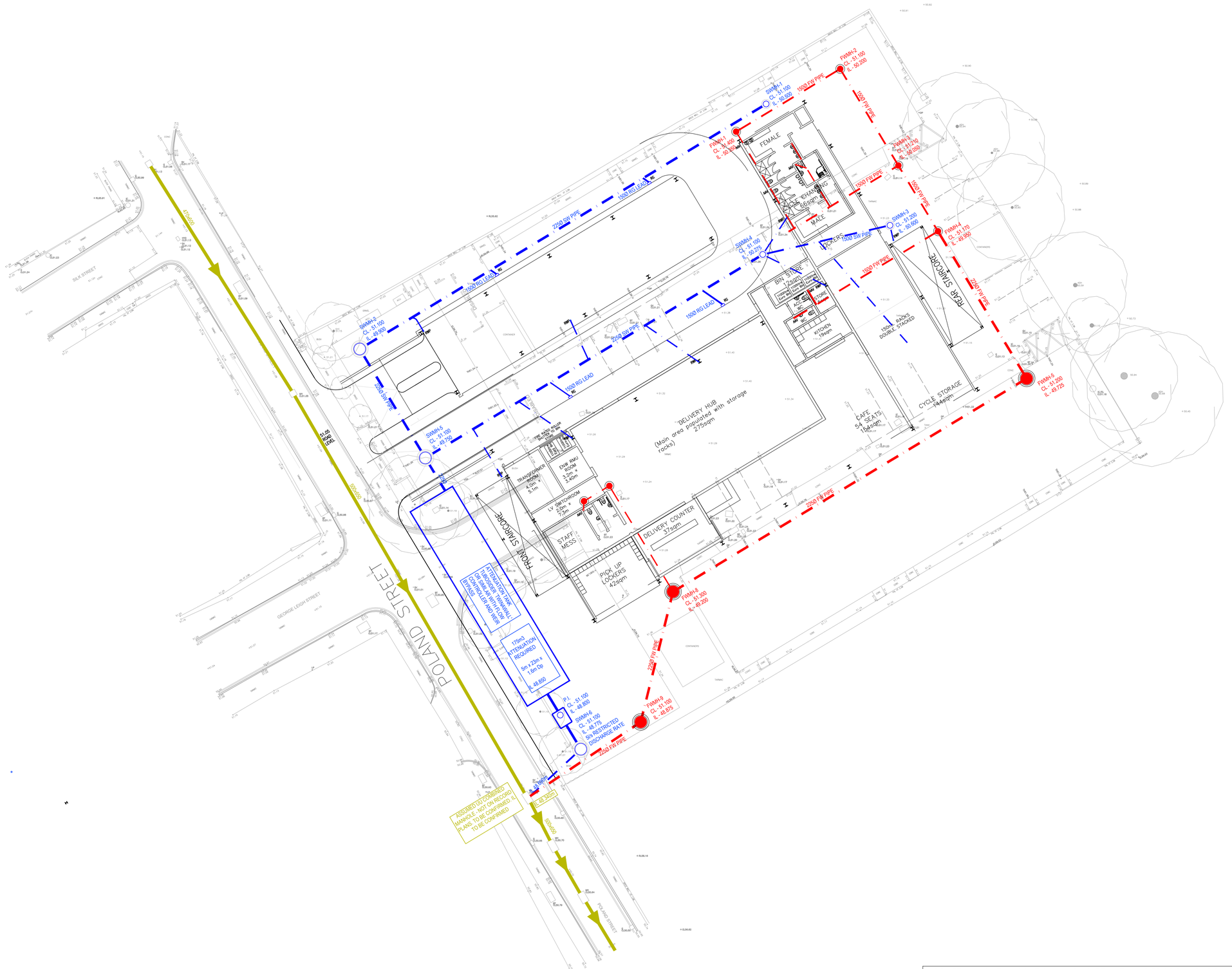
DO NOT take digital dimensions off this drawing.

NOTES

SURFACE WATER DRAINAGE (100mmØ UNO)

FOUL WATER DRAINAGE (100mmØ UNO)

EXISTING UU COMBINED DRAINAGE



DRAFT LAYOUT. LOCATION AND SIZE OF UNDERGROUND DRAINAGE DEPENDANT ON FINAL CONNECTION LOCATION AND LEVEL

Approved By:

REV	AMENDMENT	BY	CKD	DATE
P2	LAYOUT AMENDED FOLLOWING RECEIPT OF CCTV SURVEY	DR	FN	22.04.21
P1	PRELIMINARY ISSUE	ND	FN	23.02.21

Client

MANCHESTER LIFE

Project

ANCOATS MSCP
MANCHESTER

Drawing Title

DRAINAGE LAYOUT
GROUND LEVEL

HILL CANNON

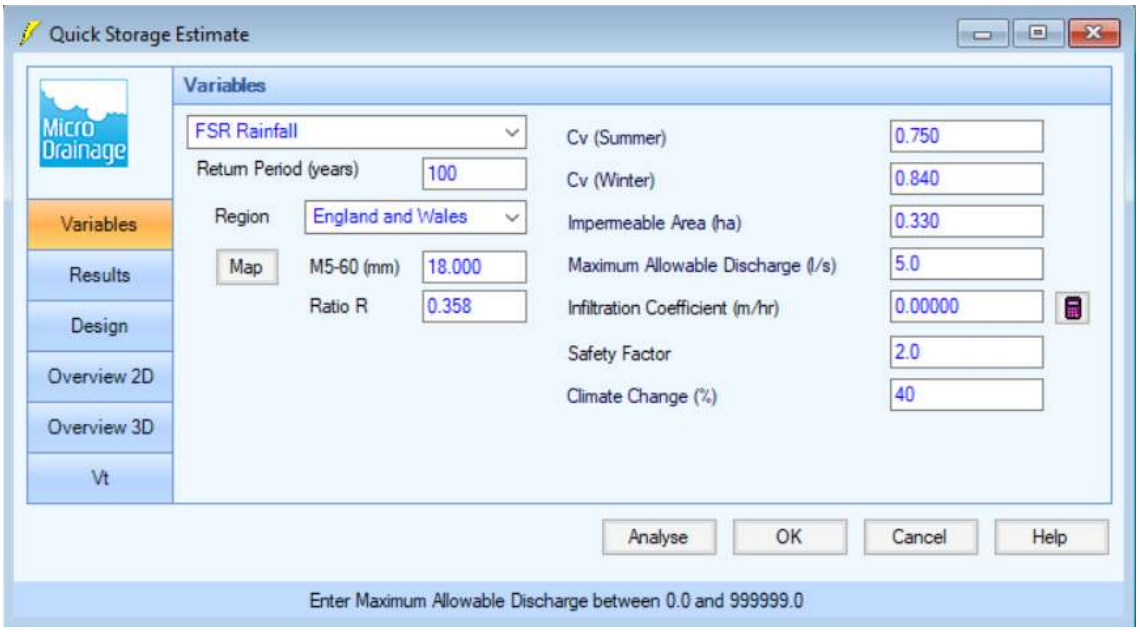
HILL CANNON CONSULTING ENGINEERS, THE WHITE HOUSE, CRAVEN LODGE, 37 VICTORIA AVENUE, HARROGATE HG1 5PX
Tel: 01423 674 474 Email:harrogate@hillcannon.com

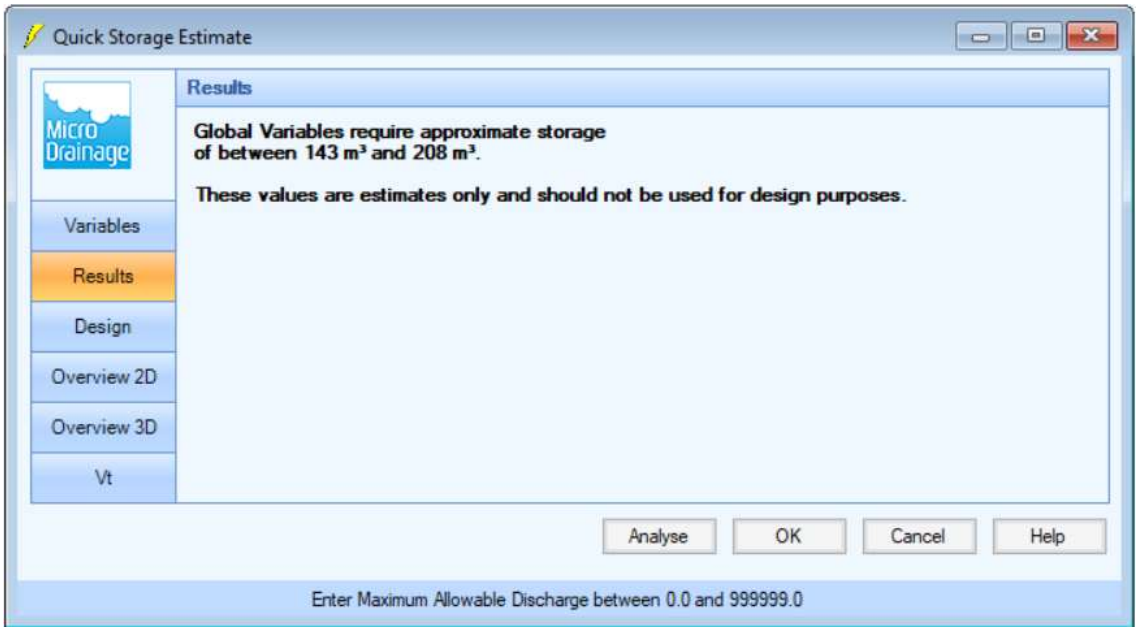
Scale	By	Checked	Date
1:200 @A1	ND	FN	FEB '21

Status	Drawing No.	Revision
P	20-50(52)005	P2

APPENDIX H

PRELIMINARY MICRODRAINAGE CALCULATIONS


Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Variables
FSR Rainfall
Return Period (years) 100
Region England and Wales
Map
M5-60 (mm) 18.000
Ratio R 0.358
Cv (Summer) 0.750
Cv (Winter) 0.840
Impermeable Area (ha) 0.330
Maximum Allowable Discharge (l/s) 5.0
Infiltration Coefficient (m/hr) 0.00000
Safety Factor 2.0
Climate Change (%) 40
Analyse
OK
Cancel
Help
Enter Maximum Allowable Discharge between 0.0 and 999999.0


Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Results
Global Variables require approximate storage
of between 143 m³ and 208 m³.
These values are estimates only and should not be used for design purposes.
Analyse
OK
Cancel
Help
Enter Maximum Allowable Discharge between 0.0 and 999999.0

APPENDIX I

NORTH WEST SuDS PRO-FORMA

NORTH WEST SuDS PRO-FORMA

This pro-forma is a requirement for any planning application for major development[1].

It supports applicants in summarising and confirming how surface water from a development will be managed sustainably under current and future conditions.

Your sustainable drainage system should be designed in accordance with **CIRIA The SuDS Manual C753** and any necessary adoption standards.

HOW TO COMPLETE

Blue Box	Instruction/ Question
Orange Box	Evidence Required
White Box	To be completed by Developer / Consultant

1. Complete ALL white boxes
2. Submit this pro-forma to the Local Planning Authority, along with:

- Sustainable Drainage Strategy
- Site Specific Flood Risk Assessment (if required)
- Minimum supporting evidence, as indicated in orange boxes of this pro-forma.

GUIDANCE TO SUPPORT YOU

The pro-forma should be completed in conjunction with 'Completing your SuDS Pro Forma Guide.'

The pro-forma can be completed using freely available tools such as **Tools for Sustainable Drainage Systems** or approved industry standard surface water management design software.

[1] *as defined in Section 2 of **Statutory Instrument 2015 No. 595** or on sites of 0.5 hectares in Critical Drainage Areas.*

SECTION 1. APPLICATION & DEVELOPMENT DETAILS

Planning Application Reference *(if available)*		
State type of planning application *i.e. Pre-application, Outline, Full, Hybrid, Reserved Matters* *Information only required if drainage is to be considered as part of reserved matters application*	Full Planning Application	
Developer(s) Name:	Manchester Life Strategic Development Company Ltd	
Consultant(s) Name:	Hill Cannon Consulting Engineers Limited	
Development Address *(including postcode)*	Poland Street, Ancoats, Collyhurst, Manchester, M4 6BR	
Development Grid Reference *(Eastings/Northings)*	385166mE 398906mN	
Total Development Site Area (Ha)	0.33Ha	
Drained Area (Ha)* of Development	0.33Ha	
Please indicate the flood zone that your development is in. Tick all that apply. *Based on the Environment Agency Flood Map for Planning and the relevant Local Authority Strategic Flood Risk Assessment (to identify Flood Zones 3a/3b).*	Flood Zone 1 ☒ Flood Zone 2 ☐ Flood Zone 3a ☐ Flood Zone 3b ☐	
What is the surface water risk of the site? Tick all that apply. *Based on the Environment Agency Surface Water Flood Map.*	High ☐ Medium ☐ Low ☒	
Have you submitted a Site Specific Flood Risk Assessment (FRA)? *See separate guidance notes for clarification on when a FRA is required*	Yes ☒ No ☐	
Have you submitted a Sustainable Drainage Strategy?	Yes ☒ No ☐	
Does your drainage proposal provide multi-functional benefits via SuDS?	Yes ☐ No ☒	
Expected Lifetime of Development *(years)* *Refer to Planning Practice Guidance "Flood Risk and Coastal Change" Paragraph 026*	50 Years	
Development Type:		**State Proposed Number of Units**
Greenfield Site • *Site is wholly undeveloped, and a new drainage system will be installed*	☐	
Previously Developed/ Brownfield Site • *Site is already developed, and the entirety of the existing surface water drainage system will be used to serve the new development (evidence must be provided to prove existing surface water drainage system is reusable);* ***OR*** • *Where records of the previously developed system are not available so that the hydraulic characteristics of the system cannot be determined or where the drainage system is not in reasonable working order i.e. broken, blocked or no longer operational for other reasons, then one of the approaches outlined in Section 24.5 of The SuDS Manual (C753) should be adopted.*	☒	
Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 1.	Flood Risk Assessment & Drainage Strategy **Appendix C**	

SECTION 2: IMPERMEABLE AREA AND EXISTING DRAINAGE

	Existing (E)	Proposed (P)	Change (P – E)
State Impermeable Area (Ha)	0.33Ha	0.33Ha	0.00Ha
Evidence Required: Plans showing development layout of site with existing and proposed impermeable areas.			☒

Are there existing sewers, watercourses, water bodies, highway drains, soakaways or filter drains on the site?	Yes ☒ No ☐ Don't Know ☐
Evidence Required: Plan(s) showing existing layout to include all: • Watercourses, open and culverted • Water bodies – ponds, swales etc. • Sewers, including manholes • Highway drains, include manholes, gullies etc. • Infiltration features - soakaways, filter drains etc.	☒ Flood Risk Assessment & Drainage Strategy **Appendix C** includes UU Sewer Reord Plans & on-site recorded sewers

Drainage Design *Outline planning applications should be able to demonstrate that a suitable drainage system is achievable.* *All other type of planning application should provide full details or reference to previous planning application where drainage details have been submitted or approved.*	
Select which design approach you are taking to manage water quantity *(refer to Section 3.3 SuDS Manual)* **Approach 1 – Volume control / Long Term Storage (Technical Standards S2/3, S4/5)** • *The attenuated runoff volume for the 1 in 100 year 6 hour event (plus climate change allowance) is limited to the greenfield runoff volume for the 1 in 100 year 6 hour event, with any additional runoff volume utilising long term storage and either infiltrated or released at 2 l/s/ha* • *The discharge rate for the critical duration 1 in 1 year event is restricted to the 1 in 1 year greenfield runoff rate* • *The discharge rate for the critical duration 1 in 100 year event (plus climate change allowance) is restricted to the 1 in 100 year greenfield runoff rate* **Approach 2 – Qbar (Technical Standards S6)** • *Justification has been provided that the provision of volume control/long term storage is not appropriate and an attenuation only approach is proposed. All events up to the critical duration 1 in 100 year event (plus climate change allowance) are limited to Qbar (1 in 2 year greenfield rate) or 2 l/s/ha, whichever is greater.*	☐ ☒
Evidence Required: Plans showing: • Existing flow routes and flood risks • Modified flow routes • Contributing and impermeable areas • Current (if any) and proposed 'source control' and 'management train' locations of sustainable drainage components (C753 Chapter 7) • Details of drainage ownership • Details of exceedance routes (Technical Standards S9) • Topographic survey • Locations and number of existing and proposed discharge points *Note consideration should be given to manage surface water from both impermeable and permeable surfaces (including gardens and verges) likely to enter the drainage system.*	☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 2.	**Flood Risk Assessment & Drainage Strategy (Rev D)** and Hill Cannon drawing Reference 20-050 (52) 005 (Rev P2) Included within **Appendix G** of report.

SECTION 3: PEAK RUNOFF RATES – TECHNICAL STANDARDS S2, S3 AND S6 (UNLESS S1 APPLIES)

Rainfall Event	Existing Rate (l/s)	Greenfield Rate (l/s)	Proposed Rate (l/s) *Previously developed sites - In line with S3 should be equivalent to Greenfield runoff rates – discuss with LLFA if this is not achievable pre-application*
Qbar *(Approach 2)*	6.2l/s (Urban Rate)	2.13l/s	5l/s to be agreed with LLFA
1 in 1 Year Event *(Approach 1)*			
1 in 30 Year Event			
1 in 100 Year Event* *(Approach 1)*			
** Total discharge at the 1 in 100 year rate should be restricted to the greenfield runoff volume for the 1 in 100 Year 6 hour event with additional volumes (long-term storage volume) released at a rate no greater than 2 l/s/ha where infiltration is not possible. The climate change allowance should only be applied to the proposed rate and not the existing or greenfield rate.*			

Evidence Required: Methodology used to calculate peak runoff rate clearly stated and justified.	☒
Impermeable areas plan, supported by topographical survey confirming positive drainage.	☒
Hydraulic calculations and details of software used.	☒

State the hydraulic method used in your calculations *(Refer to Table 24.1 of The SuDS Manual)*	Modified Rational Method - HR Wallingford

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 3.	**Flood Risk Assessment & Drainage Strategy (Rev D) Appendix F**

SECTION 4: DISCHARGE VOLUME – TECHNICAL STANDARDS S4, S5 AND S6 (UNLESS S1 APPLIES)

Rainfall Event	**Existing Volume (m^3)**	**Greenfield Volume (m^3)**	**Proposed Volume (m^3)**
1 in 100 Year 6 Hour Event *(Approach 1)*	142^3	106^3	
Does the below statement apply to your development proposal? Long term storage is not achievable on this site and, in accordance with S6 of the Non Statutory Technical Standards for SuDS, the surface water discharge rates for events up to and including the 1 in 100 year critical event are limited to Qbar (Approach 2)			Yes ☐ No ☒
Evidence Required: Approach to managing the quantity of surface water leaving the site clearly stated and justified			☒
Methodology used to calculate discharge volume clearly stated and justified.			☒
Hydraulic calculations and details of software used.			☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 4.	**Flood Risk Assessment & Drainage Strategy (Rev D)**

SECTION 5: STORAGE – TECHNICAL STANDARDS S7 AND S8

State climate change allowance used (%)	40
State housing density (houses per ha)	N/A
State urban creep allowance used (%)	0 (Full site area to be hard standing with no room for future increase)
Evidence Required: State / used in approved industry standard surface water management design software.	☒

State storage volume required (m^3) *(excluding non-void spaces)* *Must include an allowance for climate change and urban creep*	175m^3
Have you incorporated interception into your design? *(Refer to Chapter 24 of The SuDS Manual C753)* *Where possible, infiltration or other techniques are to be used to try and achieve zero discharge to receiving waters for rainfall depths up to 5mm.*	Yes ☒ No ☐
Evidence Required: Drainage plans showing location of attenuation and all flow control devices and supporting calculations.	☒

Summarise how storage will be provided for 1 in 30 year event on site. *Storage must be designed to ensure that at no flooding occurs onsite in a 1 in 30 year event except in designed areas **and** no flooding occurs offsite in a 1 in 100 year (plus climate change allowance) event.*	Attenuation will be provided to the volume of 175m^3 via an attenuation tank located below the external paved area to the west of the MSCP structure.
Summarise how storage will be provided for 1 in 100 year (plus climate change) event on site. *Where storage above the 1 in 30 year rainfall event is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by calculations used in approved industry standard surface water management design software. It is important to run a range of duration events to ensure the worst case condition is found for each drainage element on the site*	Attenuation will be provided to the volume of 175m^3 via an attenuation tank located below the external paved area to the west of the MSCP structure.
Evidence Required: Plans showing size and location of storage and supporting calculations. Where there is controlled flooding, extents and depths must be indicated.	☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 5.	**Flood Risk Assessment & Drainage Strategy (Rev D)** and Hill Cannon drawing Reference 20-050 (52) 005 (Rev P2) Included within **Appendix G** of report.

SECTION 6: WATER QUALITY PROTECTION

Contaminated surface water run-off can have negative impacts on the quality of receiving water bodies. The potential level of contamination will influence final the design of an appropriate treatment train as part of your sustainable drainage system.

Is the proposal site known to be or potentially contaminated?	Yes ☒ No☐
• *If the site is contaminated, it should be demonstrated that the sustainable drainage system will not increase the risk of pollution to controlled waters though the mobilisation of contaminants and/or creation of new pollution pathways.*	

Confirm the *Pollution Hazard Level* of the proposed development - Tick ALL that apply

Refer to Pollution Hazard Indices for different Land Use Classifications in Table 26.2 of The SuDS Manual C753 for further guidance.

Pollution Hazard Level *Tick ALL that apply*		**Surface water run-off from the proposed development will drain from:**
VERY LOW	☐	• Residential roofs
LOW	☒	• Other roofs (typically commercial/industrial roofs) • Individual property driveways, residential car parks, low traffic roads (e.g. cul de sacs, home-zones and general access roads) • Non-residential car parking with infrequent change (e.g. schools, offices) i.e. < 300 traffic movements/day
MEDIUM	☒	• Commercial yard and delivery areas • Non-residential car parking with frequent change (e.g. hospitals, retail) • All roads except low traffic roads and trunk roads/motorways[2]
HIGH	☐	• Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites) • Sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured • Industrial sites • Trunk roads and motorways[1]

If the development's Pollution Hazard Level is 'Very Low' or 'Low', has the sustainable drainage design been risk assessed and appropriate mitigation measures included?	Yes ☒ No☐
• *If the proposed development has a very low or low polluting potential, you should design your sustainable drainage system to include an appropriate treatment train in accordance with The SuDS Manual (C753).*	

If the development's Pollution Hazard Level is 'Medium' or 'High', is the application supported by a detailed water quality risk assessment?	Yes ☐ No☒
• *If the proposed development has a high polluting potential, a detailed risk assessment will be required to identify an appropriate SuDS treatment train and ensure compliance with Paragraph 170 of the National Planning Policy Framework.* • *If the proposed development has a medium polluting potential, a detailed risk assessment may be required depending on the nature, scale and location of the development.*	

Has pre-application advice on water quality been obtained from the Environment Agency?	Yes ☐ No☒
If YES, provide details:	

[2] Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2009).

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 6.	**Flood Risk Assessment & Drainage Strategy (Rev D)**

SECTION 7: DETAILS OF YOUR SUSTAINABLE DRAINAGE SYSTEM

a) Function of your Sustainable Drainage System

Do your proposals store rainwater for later use (as a resource)?	Yes ☐ No ☒
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	

Do your proposals promote source control to manage rainfall close to where it falls? (e.g. promoting natural losses through soakage, infiltration and evapotranspiration)	Yes ☒ No ☐
Evidence Required: Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	Minimal external areas to include permeable paving as outlined in **Flood Risk Assessment & Drainage Strategy (Rev D)**

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7a.	**Flood Risk Assessment & Drainage Strategy (Rev D)**

b) Hierarchy of Drainage Options – Planning Practice Guidance

The proposed method of discharge are set out within order of priority. Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

Proposed method of surface water discharge		**Is this proposed?**	
Hierarchy Level 1: Into the ground (via infiltration)		Yes ☐ No ☒	
If YES - Evidence Required		**If NO – Evidence Required** **Tick ALL that apply**	
☐	**A.** Completed Infiltration Checklist from The SuDS Manual (C753) Appendix B *An editable version of this form is available on SusDrain website.*	☐	A. Site investigation to demonstrate that the ground is not free draining. Test results to be provided in accordance with: • The methodology within BRE 365 (2016), ***OR*** • Falling head permeability tests BS EN ISO 22282-2: 2012
☐	**B.** British Geological Survey (BGS) Infiltration SuDS Map	☐	B. NOTE: where an applicant is unable to access a site to undertake testing, e.g. where unable to access a site for an outline application, they can submit a *SuDS GeoReport or similar*.
☐	**C.** Infiltration testing to BRE 365 (2016) or falling head permeability tests to BS EN ISO 2228-2: 2012 ***(optional for outline)***	☒	C. Evidence to confirm that infiltration to ground would result in a risk of deterioration to ground water quality.
☐	'Plan B' sustainable drainage plan and statement of approach with an alternative discharge method, in case infiltration proposals are proven not feasible upon further site specific ground investigation	☐	D. Geotechnical advice from a competent person* which determines that infiltration of water to ground would pose an unacceptable risk of geohazards to the site and/or local area.

	e.g. to consider seasonal variations to groundwater.		**Note: Competent person may include a Chartered Engineer, Chartered Geologists, Registered Ground Engineering Professionals (RoGEP).*

Proposed method of surface water discharge		**Is this proposed?**	
Hierarchy Level 2: To a surface water body *(select type)* ***NOTE:** Consent from LLFA or Permit from Environment Agency may be required – refer to guidance*		Yes ☐ No ☒ N/A ☐	
		☐ Main river ☐ Ordinary watercourse	☐ Canal ☐ Other water body
If YES - Evidence Required		**If NO – Evidence Required** **Tick ALL that apply**	
☐	Surface water body / watercourse survey and report	☒	Plan showing nearby watercourses and waterbodies **AND** Statement providing justification in your Sustainable Drainage Strategy ***Note:** Where third party land is cited as a barrier, you should provide visibility of discussions held to date with the riparian landowner of the waterbody.*

Proposed method of surface water discharge		**Is this proposed?**	
Hierarchy Level 3: To a surface water sewer or highway drain *(select type)*		Yes ☐ No ☒ N/A ☐	
		☐ Surface water sewer	☐ Highway drain
If YES - Evidence Required		**If NO – Evidence Required** **Tick ALL that apply**	
☐	Written correspondence from Water and Sewerage Company/ Highway Authority regarding proposed connection.	☒	Plan showing nearby sewers and highway drains **AND** Statement providing justification in your Sustainable Drainage Strategy

Proposed method of surface water discharge		**Is this proposed?**
Hierarchy Level 4: To combined sewer		Yes ☒ No ☐ N/A ☐
If YES - Evidence Required		**If NO – Evidence Required**
☒	Written correspondence from Water and Sewerage Company	N/A

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7b.	**Flood Risk Assessment & Drainage Strategy (Rev D) Appendix C UU Planning Enquiry Response**

c) Proposed SuDS Component Types

	Tick ALL that apply				
Within property boundary	☐ Rainwater harvesting	☐ Green/ blue roofs	☐ Pervious pavements *[**Type:** A ☐ B ☐ C ☐]*	☐ Soakaway	☐ Bio retention systems

	Tick ALL that apply				
Within development site boundary *(not property)*	☐ Infiltration system *[**Type:** ☐ Surface level ☐ Below ground]*		☐ Filter strips	☐ Filter drains	☐ Swales
	☐ Bio retention system	☐ Detention basins	☐ Ponds and wetlands	☐ Attenuation tanks/ Oversized pipes	☐ Other (state below)
	If 'Other' please state: Pervious Pavements (Type C)				

Off site *(not within the boundary of the proposed development)*	***Please state:***

I confirm that the above selected components have been designed in accordance with The SuDS Manual (C753).	I confirm ☒
I confirm that the management of flows resulting from rainfall in excess of a 1 in 100 year plus climate change rainfall event, and their exceedance route(s), has been fully considered in order to minimise the risks to people, property (new and existing) and infrastructure.	I confirm ☒

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7c.	

SECTION 8: OPERATION AND MAINTENANCE – TECHNICAL STANDARD S12 AND NATIONAL PLANNING POLICY FRAMEWORK

The applicant is responsible to ensure that ALL components selected in Section 7 can be maintained for the design life of the development. This information is required so the Local Planning Authority can ensure the maintenance and management of the sustainable drainage system. The Local Planning Authority will discuss how this will be secured (e.g. via planning condition or planning obligation).

	Information Provided?
Management Plan	Yes ☐ No ☒
Evidence Required: **Plan/ drawing provided to show the position of the different SuDS components with:** • Key included to identify any of the adopting bodies that you will be offering your sustainable drainage components for adoption *(relates to maintenance and management arrangements below).* • Plan/ drawing to identify any areas where certain activities are prohibited, detailing reasons why. **Action plan for accidental pollutant spillages.**	☐ ☐

	Information Provided?
Maintenance Schedule	Yes ☐ No ☒
Evidence Required: A copy of the maintenance schedule including: 1. **Proactive and preventative maintenance** Detailing regular, occasional and remedial maintenance activities including recommendations for inspection and monitoring. This should include recommended frequencies, advice on plant/ machinery required and an explanation of the objectives for the maintenance proposed and potential implications of not meeting them. 2. **Reactive and corrective maintenance** (e.g. product repair and replacement). Including advice on excavations, or similar works, in locations that could affect the SuDS components/ adjacent structures.	☐

	Information Provided?
Maintenance and Management Arrangements	Yes ☐ No ☒
Evidence Required: Evidence of formal agreement with the party responsible for undertaking maintenance. Please select any of the adopting bodies that you will be offering your sustainable drainage components for adoption. Tick all that apply. ☐ **Water and Sewerage Company** *Section 104 agreement (Water Industry Act 1991)* ☐ **Highway Authority** *Section 278/38 agreement (Highways Act 1980)* ☐ **Local Authority Public Open Space** *[Refer to Local Authority Policy]* Please select the arrangement(s) for all non-adopted sustainable drainage components. Tick all that apply. ☐ **Management Company** ☐ **Property Owner** *(for SuDS components within property boundary only)* ☐ **Other** (please state)	☐

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 8.	

DECLARATION AND SUBMISSION

This pro-forma has been completed using evidence from information which has been submitted with the planning application.

The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.

Submitter Details			
Completed by	Dan Reeve	**Email Address**	dan.reeve@hillcannon.com
		Telephone Number(s)	0191 603 1533
Signed off by	Farzad Neysari	**Accreditation(s) and/or Qualification(s) of Signatory**	BSc(Hons) Civ Eng CEng MIStructE Eur Ing Pg Dip Law
Date *(dd/mm/yyyy)*	11/05/2021	**Company**	Hill Cannon

Client Details			
Name	Ian Knight	**Company**	Manchester Life Strategic Development Company Ltd

APPENDIX J

LLFA CORRESPONDENCE

Dan Reeve

From: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Sent: 30 April 2021 09:59
To: Dan Reeve
Subject: RE: 20-050 Ancoats Mobility Hub - Wastewater Pre-Development Enquiry

Good Morning Mr. Reeve,

Thank you for your enquiry below and subsequent enquiries 21 & 23 April 2021.
Please be advised Zorica is no longer in-post.

With regards to the proposed discharge from your site, the LLFA will need to see evidence-based progression through the drainage hierarchy, including with regards to infiltration, before discharge to the public sewer can be considered. Discounting infiltration will need to be supported by Site Investigation-derived evidence.

If evidence allows progression down-hierarchy to the public sewer, the submission should contain details of surface water attenuation that offers a reduction in surface water runoff rate in line with the Manchester Trafford and Salford Strategic Flood Risk Assessment: provide at least a 50% reduction in runoff rate compared to the existing rates, as the site is located within Conurbation Core Critical Drainage Area.
If your calculated 50% betterment is below 5l/s, the acceptable flow will be no greater than 5l/s, however we would want to see the strategy include an appraisal of whether alternative flow controls to orifice controls could be used to reduce flows below 5l/s, e.g. vortex control. This should be combined with an assessment of blockage risk, and whether the scheme could safely achieve lower flows if anti-blockage design was embedded. Please evidence your conclusions on selection of appropriate flow control and achievable discharge rate. We would also note the recommended discharge point from UU (within your previously attached correspondence) and would advise that the advice is followed to minimise flood risk to the proposed development.

We would note in your attached strategy that 30% & 40% CC are mentioned; please ensure the climate change selection is appropriate for the lifetime of your proposed development (this is typically 40% unless provable that the development will be decommissioned in a shorter time).

We would encourage maximised use of green SuDS components where practicable. Appropriate options for this site may include green roofs, green walls etc.

Should you have any further queries, please do not hesitate to contact us.

Kind Regards,
Laura

From: Dan Reeve <dan.reeve@hillcannon.com>
Sent: 19 April 2021 10:36
To: Flood Risk Management <floodriskmanagement@manchester.gov.uk>
Subject: 20-050 Ancoats Mobility Hub - Wastewater Pre-Development Enquiry

Dear Sir/Madam,

Please find attached copies of design information for our scheme at Poland Street, Ancoats, which is for the construction of a new multi-storey car park with ground floor cafe.

Also attached is an extract from our Flood Risk Assessment and Drainage Strategy Report which details the drainage strategy with particular reference to the discharge rates and location.

Whilst initial greenfield runoff calculations confirm a QBar rate of 2.26l/s for the surface water, due to the small rate there is concern of an increased risk to blockages to the smaller diameter outfall orifice. As such, we would like to request a discharge rate of 5l/s (we appreciate that the capacity of the existing combined system needs to be taken into consideration and a pre-development enquiry has been issued to UU). The site currently discharges surface water unrestricted into this existing combined sewer at a calculated rate of 6.5l/s through the MicroDrainage Rural Runoff Calculator based upon the site's total hardstanding area of 0.35Ha. The desired rate of 5l/s would therefore offer an improvement of 1.5l/s.

Whilst we appreciate that greenfield runoff rates are desired for brownfield sites, given the concerns of blockages (and therefore increased risk of flooding) on this occasion we would request that an increased rate be considered. A flood risk assessment and drainage strategy has been produced and is due to be submitted as part of a detailed planning application at the start of May. Prior to submission of this, we are looking to confirm the main drainage principals as outlined above.

I trust the above and attached is sufficient, however should you wish to discuss anything further or require any additional information please do not hesitate to get in touch.

Kind Regards,

Dan

Dan Reeve
Senior Civil Engineer

Mobile 07581 098202

HILL CANNON

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