

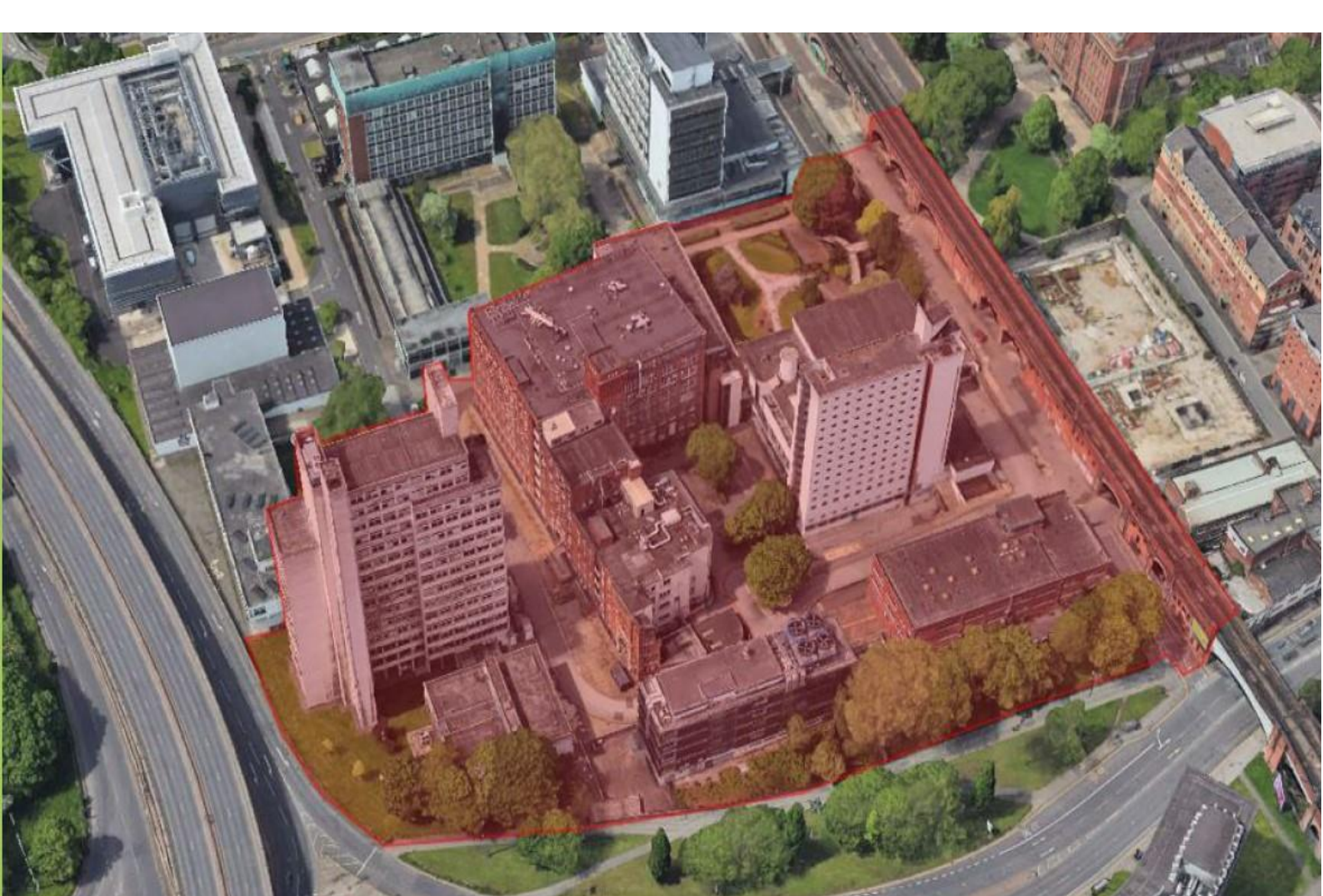
Sister – Plot C

Drainage Strategy Report

APRIL 2025

PREPARED FOR

ID Manchester Ltd. and University of Manchester



Drainage Strategy Report

Prepared By	Damianos Apostolidis IEng MICE
Reviewed By	James Fawcett MSc DIC
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CONTENTS

CONTENTS.....	1
1. Introduction.....	1
2. Site Details	2
2.1. Current Overview.....	2
2.2. Existing Site Drainage	2
2.3. Existing Watercourses and Waterbodies	3
3. Pre-Development Run-off	3
4. Post-Development Run-off and Attenuation	4
5. Drainage Hierarchy Points of Discharge	6
6. Drainage Proposals.....	8
6.1. Surface Water Drainage Strategy	8
6.2. Foul Water Drainage Strategy.....	9
7. Conclusion.....	9
Appendix A: Proposed Site Plan	10
Appendix B: Topographical Survey.....	11
Appendix C: Existing Sewer Records	12
Appendix D: Attenuation Calculations.....	13
Appendix E: Pre-Development Enquiries.....	14
Appendix F: Surface Water Drainage Strategy Plan	15
Appendix G: Foul Water Discharge Point	16

1. Introduction

Civic Engineers Ltd. has been appointed by ID Manchester Ltd. and University of Manchester to provide Civil and Structural Engineering services on Plot C of Sister. Plot C forms part of the Sister masterplan, formerly known as ID Manchester masterplan, which has been developed by ID Manchester Ltd. and University of Manchester and is located just inside the Mancunian Way motorway to the south of Manchester City Centre.

The proposals comprise the demolition of Barnes-Wallis, Wright Robinson, Manchester Meeting Place, Morton, Moffat Buildings and the construction of two office buildings (Use Class E). At the base of the building, the buildings will be connected via an open shared lobby space, which shall comprise a variety of uses, including social amenity spaces, as well as food and beverage establishments (Use Class E, Sui Generis – drinking establishment).

The proposals will also include interventions to the Hollaway Wall, incorporating it into the new commercial element. Additionally, the proposals will involve the change of use of the railway arches to retail and food and beverage uses (Use Class E and Sui Generis – drinking establishment). The proposals will also include the creation of a new public square, access and other associated works.

An extract of the proposed site plan is provided below in Figure 1 and included in Appendix A.

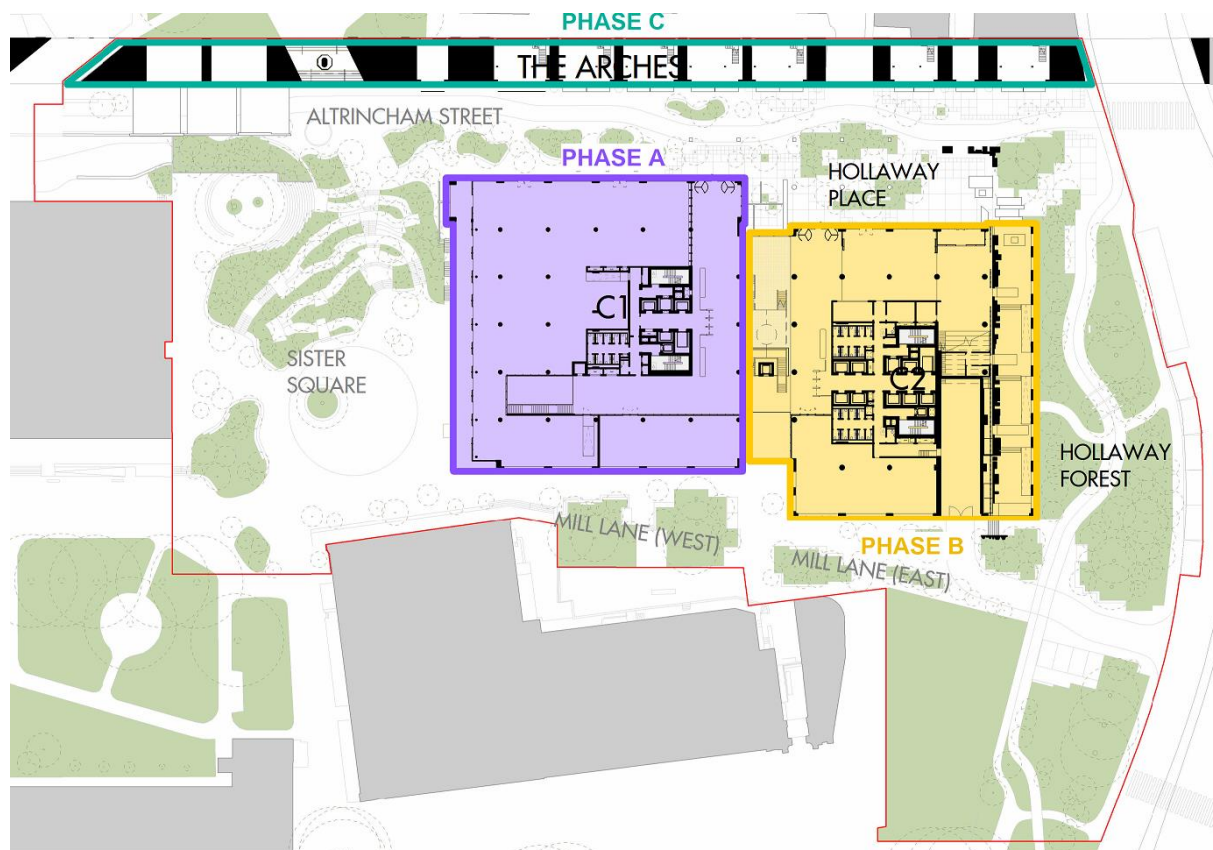


Figure 1: Proposed Site Plan

This report details the existing drainage characteristics of the site, outlines the drainage strategy for the proposed development and summarises the mitigation of any adverse impacts of the development to the surrounding area.

This report is prepared for the exclusive use of Civic Engineers Ltd. and the ID Manchester Ltd. and University of Manchester client team. All comments and conclusions in this report are based upon the assumption that the sourced data is reliable. Civic Engineers accepts no liability for any inaccurate conclusions or assumptions resulting from inaccurate information.

2. Site Details

2.1. Current Overview

The location of the proposed development is shown in Figure 2.

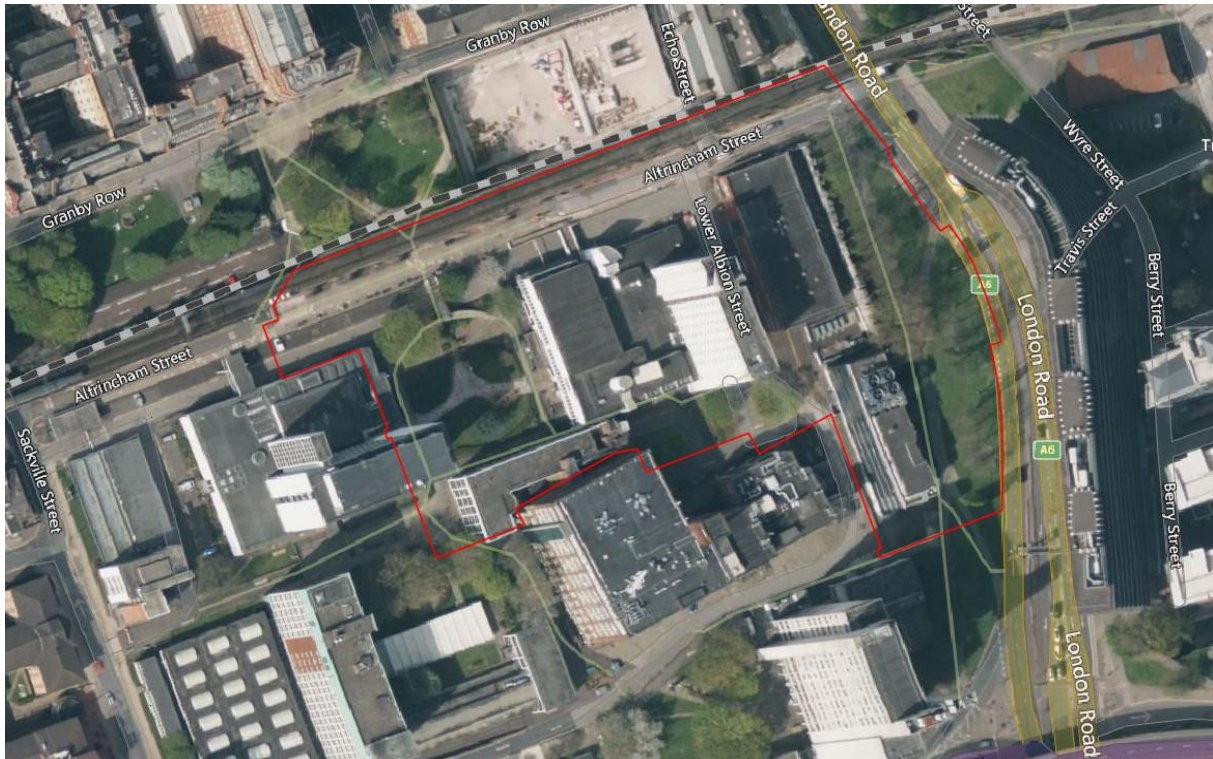


Figure 2: Site location with indicative site boundary in red

The site is located approximately 200m to the southwest of Piccadilly Station. Bounded by an elevated section of the Mancunian Way to the south, a Network Rail viaduct structure to the north, the A6 London Road to the east and Sackville Street to the west. The site has an approximate National Grid Reference 384694, 397642, and the nearest postcode is M1 3AL. The proposed site red line boundary has an area of 2.173ha, and the proposed Sister - Plot C development site is approximately 0.59ha.

Based on the topographical survey conducted by Survey & Engineering Projects in April 2022 the site is 80% impermeable.

A copy of the topographic survey is enclosed in Appendix B.

2.2. Existing Site Drainage

The United Utilities public sewer records that have been obtained indicate combined sewers on Whitworth Street, Coburg Street, Altrincham Street, London Road, Water Street, Sackville Street and Granby Row.

The sewer records are enclosed within Appendix C.

In consultation with the Lead Local Flood Authority (LLFA), an ordinary watercourse known as the Shooters Brook has been identified along the stretches of Granby Row and Sackville Street, ultimately flowing underneath the Charles Street Multistorey Carpark and connecting to the River Medlock. The route of Shooters Brook is illustrated in Figure 3.

It is recommended that a comprehensive CCTV survey of the Shooters Brook culvert be conducted during the subsequent design phase.

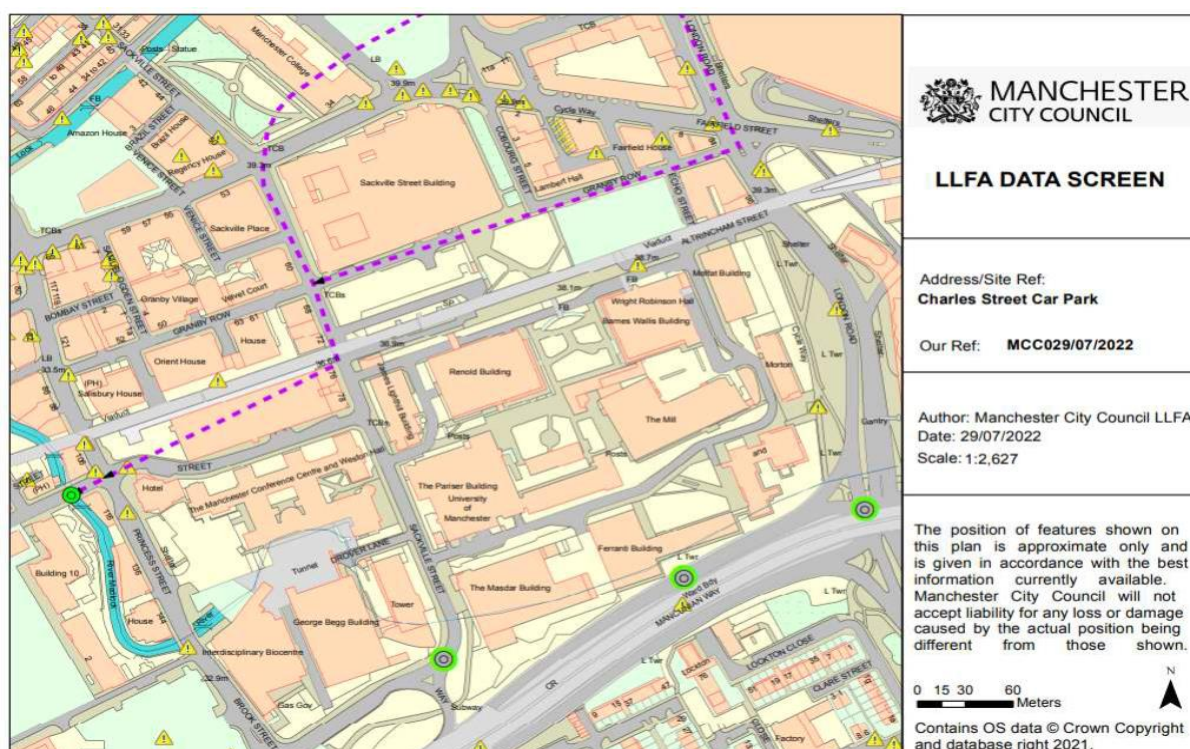


Figure 3: Shooters Brook provided from Manchester City Council LLFA map

According to United Utilities records, this culverted ordinary watercourse comprises a 900mm circular concrete culvert. Despite its presence in UU records, it has been clarified that UU does not hold ownership of this infrastructure. In the event of any discharge into this watercourse, consultation with the LLFA is imperative. Moreover, the LLFA stipulates a minimum 3m easement from the structure.

A survey of the existing utilities has been conducted by Buro Happold in March 2024, indicating the location of the existing sewers and Shooters Brook culvert.

2.3. Existing Watercourses and Waterbodies

The nearest waterbody to the site is a culverted section of River Medlock flowing from the southeast to southwest below the slip roads of the Mancunian Way and the soft landscaped areas south of the Masdar and Ferranti buildings. The culvert is a twin concrete box, each 3.7m high x 3.8m wide, with a dry flow channel in each (1.4m wide x 500mm deep). The culverted section is 536m in length and is reported to be in 'fair condition' (WML Report, August 2010).

The Masdar (GEIC) building made a connection to the culvert at 30.90m (invert level).

3. Pre-Development Run-off

The site currently features 80% impermeable surfacing in the form of concrete aprons, tarmac surfacing and buildings. The following breakdown of area was found as determined by the topographical information:

- Total existing site area: 2.17ha
- Total impermeable area: 1.69ha
- Total permeable area: 0.48ha

Pre-development run-off rates have been determined using the Rational method to predict the peak runoff.

The brownfield run-off rate calculated for the existing development is 137.89 l/s, for the ID Square and Plot C area and 24.74 l/s for the Altrincham Street area, based on 50mm/hr rainfall intensity, as determined from the measured impermeable area in its current form. A betterment will be proposed

on this run-off rate providing a restricted discharge rate to the proposed development.

4. Post-Development Run-off and Attenuation

As the site is partially hardstanding and considered brownfields with positive drainage, the surface water flow from the site is proposed to be restricted to the brownfield run-off rate calculated on the 95% impermeable area. A 50% betterment will be applied to the existing brownfield run-off rate following the recommendations as set out in the Manchester's City Council's SFRA.

Following a Pre-Development Enquiry to United Utilities, they have advised that due to the close proximity of a 900mm watercourse (Shooters Brook) located to the west of the proposed site, surface water will not be permitted to discharge to the public surface water sewer.

A Q_{bar} Greenfield rate of 13.02 l/s was determined using the HR Wallingford tool.

In February 2016, the Environment Agency released updated climate change allowances for peak rainfall intensities, which should be applied to new developments. Table 1 demonstrates the climate change allowances with central and upper-end allowances being considered.

Based on the nature of the development, a lifespan of over 60 years is anticipated. The potential climate change allowance for 2070-2115 ranges between 20% for the central allowance and 40% for the upper end allowance. As such, the design will consider an allowance of 40% climate change on peak rainfall intensity for all calculations.

Table 1: Peak Rainfall Intensity Allowance in small and urban catchments (Extract from Environment Agency Guidance

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)	Applies across all of England
Upper end	10%	20%	45%	Upper end
Central	5%	10%	20%	Central

In restricting the flows from the development site, there will be a requirement to provide attenuation to accommodate flows up to the 1 in 100-year event with a climate change allowance of 40%. The purpose of the attenuation is to maintain operation on the system during the 1 in 1yr, 1 in 30yr and the 1 in 100yr (plus climate change) storm events.

The required volume of attenuation has been calculated using Causeway Flow, assuming the proposed development has 2.17ha of positively drained area (based on the proposed Landscape Plan by SLA Architects), and Surface Water Calculations are included in Appendix D.

The attenuation required to accommodate the proposed site's impermeable area (2ha) for the critical 1 in 100 year return period, plus 40% climate change, is 1385.0m³.

In restricting the flows from the development site, there will be a requirement to provide attenuation to accommodate flows up to the 1 in 100-year event with a climate change allowance of 40%. The purpose of the attenuation is to maintain operation on the system during the 1 in 1yr, 1 in 30yr and the 1 in 100yr (plus climate change) storm events.

Any phasing proposed for the development may require temporary or staged flow restriction and attenuation.

Potential Sustainable Drainage Systems (SuDS) Features to be Considered

Section 1.1 of the SuDS Manual (Ciria C753) states the following:

"Sustainable drainage systems (SuDS) can deliver multiple benefits.

Surface water is a valuable resource and this should be reflected in the way it is managed and used in the built environment. It can add to and enhance biodiversity, beauty, tranquillity and

the natural aesthetic of buildings, places and landscapes and it can help make them more resilient to the changing climate.

The philosophy of sustainable drainage systems is about maximising the benefits and minimising the negative impacts of surface water run-off from developed areas.

The SuDS approach involves slowing down and reducing the quantity of surface water runoff from a developed area to manage downstream flood risk, and reducing the risk of that runoff causing pollution. This is achieved by harvesting, infiltrating, slowing, storing, conveying and treating runoff on site and, where possible, on the surface rather than underground. Water then becomes a much more visible and tangible part of the built environment, which can be enjoyed by everyone.”

The SuDS Manual describes the four pillars of SuDS design as Water Quality, Water Quantity, Amenity and Biodiversity as illustrated in Figure 4 below.

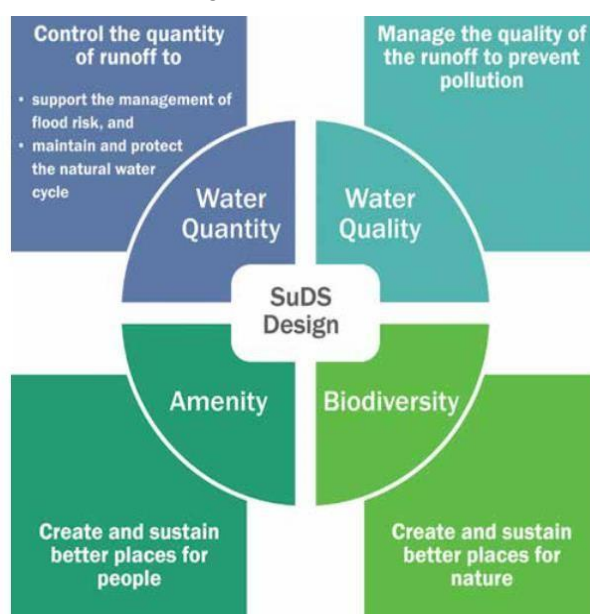


Figure 4: Sustainable Development Objectives (Representation of Figure 2.1 of The SuDS Manual)

Where possible SuDS are to be incorporated into the post-development design to provide attenuation and ensure that runoff from the site does not exceed pre-development runoff rates.

Varied SuDS methods have been summarised in the table below to assess and establish which are most feasible for the proposed post-development site.

Table 2: SuDS Suitability Assessment

SuDS Method	Feasibility, Given Site and Project
Green & Blue Roofs	<p>While green and blue roofs offer considerable environmental and financial benefits – such as enhanced thermal performance, reduced heating costs, and improved stormwater management – the proposed roof design for this project is a standard pitched roof.</p> <p>This form is typically incompatible with the structural and drainage requirements of green or blue roof systems, which are better suited to flat or low-slope roof configurations. Given that the pitched roof is a fixed element driven by architectural design intent, the integration of green or blue roof systems is not feasible. Therefore, these options have been excluded from consideration for this project.</p>
Basins and Ponds – Above Ground storage	<p>Basins and ponds enhance biodiversity and the area's amenity, provide attenuation, and improve water quality. However, this method occupies large areas of developable land and must be constructed at the lower</p>

	<p>levels of the site.</p> <p>Incorporating such features within the civic square (Sister Square), or along London Road and Holloway Forest would create significant conflicts with the design objectives for Plot C development. As a result, due to the proposed layout, dry basins and ponds have been excluded from the proposed strategy.</p>
Filter Strips, Swales and Raingardens	<p>Raingardens provide an effective method for managing surface water by reducing runoff rates, improving water quality through natural filtration, and offering limited attenuation capacity. These features can be integrated into both public and private spaces – such as street verges or landscaped areas – making them particularly suitable for urban developments.</p> <p>Within this project, raingardens are recommended where feasible as part of a SuDS approach. Their inclusion supports the site's sustainability objectives by contributing to water quality treatment prior to discharge and reducing pressure on the wider drainage infrastructure. Additionally, raingardens enhance local biodiversity and visual amenity, aligning with the placemaking ambitions for the site.</p>
Permeable Paving	<p>Permeable paving serves as an effective solution for managing runoff and facilitating surface water storage, particularly when integrated with a voided aggregate or cellular system.</p> <p>It is proposed to implement permeable paving featuring a 30% voids aggregate across suitable areas of the site, including both public and private thoroughfares, shared surfaces, and private pedestrian pathways.</p>
Infiltration Devices	<p>Infiltration into the Made Ground is not recommended as per SI report, based on the findings. Therefore, has been discounted as unsuitable for this project.</p>
Tanked/Geocellular Attenuation systems	<p>Tanked or geocellular attenuation systems are designed to hold large amounts of water and can be installed beneath roadways or landscaping areas. These geocellular storage structures are intended to enhance the water retention provided by permeable paving and rain gardens.</p> <p>Attenuation tank will be located beneath the civic square area (Sister square).</p>

The surface water run-off from the site will be from roofs and residential streets, and as such the risk of contamination and suspended silts/debris being present within surface water will be low.

Maintenance of SuDS will be the responsibility of the developer/operator of the development or adopting authority, where adopted as Highway or public sewer.

5. Drainage Hierarchy Points of Discharge

The NPPF Planning Practice Guidance Paragraph 080 states that:

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

1. *into the ground (infiltration);*
2. *to a surface water body;*
3. *to a surface water sewer, highway drain, or another drainage system;*
4. *to a combined sewer.”*

Infiltration Potential Sustainable Drainage Systems (SuDS) Features to be Considered

The British Geological Survey (BGS) geological map for the area, Sheet 85 (Manchester) 1:50,000 series Solid and Drift edition indicates that the solid geology underlying the site is the Chester Formation (formerly Chester Pebble Beds Formation, sandstone, a constituent member of the Sherwood Sandstone Group). Superficial deposits mapped comprise glacial till overlain by artificially raised ground (made ground). A greater thickness of made ground is present within the former River Medlock channel.

A ground investigation specified and undertaken by Civic Earth in 2024 confirmed the ground conditions to largely be in line with the above (refer to document, 51019-CE-02-XX-R-G-1001).

Conventional soakaways into the Made Ground and/or superficial deposits are not likely to be effective. It is also noted that, given the conceptual site model, infiltration into/within the Made Ground is not recommended. Infiltration into the underlying sandstone bedrock will likely prove effective, however, infiltration will be required to confirm this, and consideration should be given to the environmental sensitivity of the aquifer in the design of any soakaways into the aquifer and agreement would be required from the Local Authority and Environment Agency.

Whilst infiltration testing was not carried out within the sandstone, recharge of the water column during groundwater sampling was noted to be good with minimal change in the water level recorded after bailing of three times the water column. PSD analysis of the sandstone indicates the material to typically comprises slightly silty, clayey, gravelly to very gravelly sands and slightly clayey, slightly gravelly silty sands, which correlates to estimated infiltration rates of low to medium permeability (1×10^{-3} to 1×10^{-7} m/s). Infiltration testing would be required to confirm infiltration rates in the sandstone.

Water Body

The point of discharge is a 900mm culverted watercourse located approximately 125m to the west of the proposed site. This offers a convenient option for surface water disposal with the absence of any ground infiltration results.

Surface Water Sewer

As indicated above United Utilities will not permit a connection to the public surface water, due to the close proximity of the site to the existing watercourse.

Combined Sewer

As discharge is proposed higher up the hierarchy, discharge to the nearby combined sewer is not required.

The surface water discharge options are summarised below in Table 3.

Table 3: Summary of Surface Water Disposal

Surface Water Disposal Method	Potential	Description
Infiltration	✓	<p>Infiltration rates are provided within the SI report. Based on data available the made ground is not considered a suitable stratum for an infiltration-based drainage system.</p> <p>The high estimated hydraulic conductivity of the made ground suggests it may be suitable for incorporation into the drainage design (e.g., for infiltration), however, given the presence of the sandstone aquifer at depth, consideration must be given to the risk posed by any such strategy to the aquifer.</p> <p>For additional information on ground conditions and contamination, refer IDM00-ARP-ZZ-ZZ-RP-ZZ-00001.</p>
Water Body	✓	The discharge will ultimately be to the 900mm culverted watercourse.
Surface Water Sewer	X	Not permitted
Combined Water Sewer	X	Not permitted

6. Drainage Proposals

6.1. Surface Water Drainage Strategy

The drainage design for this development aligns with current best practices to ensure sufficient capacity to prevent flooding during the critical 1 in 30-year storm event. Additionally, the design accommodates floodwater generated by up to the extreme 1 in 100-year storm event, inclusive of allowances for climate change, ensuring that such water is contained on-site. This approach prevents damage to buildings, essential services, adjacent developments, and infrastructure.

This strategy complies with Manchester City Council's Core Strategy Policies EN8 (Adapting to Climate Change) and EN14 (Flood Risk), as updated in the Addendum to the Core Strategy 2024. Furthermore, it aligns with Policy JP-S4 (Managing Flood Risk) of the Places for Everyone Joint Development Plan Document, adopted in March 2024.

Where possible, the proposed surface water drainage strategy seeks to utilise Sustainable Drainage Systems (SuDS), which aim to reduce flood and pollution risk through techniques such as the harvesting, infiltration, slowing, storage, conveyance, and treatment of surface water runoff on site.

Current SuDS proposals comprise the following:

- Permeable paving and associated sub-base storage
- Raingardens, to be coordinated with landscape architect

Required attenuation for the entirety of the proposed development will be achieved by utilising an appropriate void ratio within the sub-base of proposed permeable paving and filter drains and raingardens strategically located across the site.

As the site is brownfield, surface water drainage will be restricted such that it does not exceed the Pre-Development brownfield run-off rate with a 50% betterment applied.

Based on the current proposed layout from SLA Architects (Appendix A), the drainage strategy has been developed to include SuDS features as a primary method of surface water management as much as possible. The use of geocellular crates for attenuation has been incorporated within under communal areas to provide high storage capacity.

Runoff from roofs will flow through downpipes and piped through landscaped areas to then discharge into the permeable paving subgrade, via a rainwater diffuser unit (or approved equivalent). Runoff from private accesses and footpaths will combine with the roof runoff and be attenuated within the subbase and flows will be restricted at the end of each catchment via a flow control device.

All surface water runoff from the site will be discharged into the 900mm culverted watercourse located to the west of the site at an equivalent greenfield discharge rate of 13.02 l/s. This discharge is contingent upon the culvert being assessed to ensure it has an appropriate line, level, and condition to accommodate the flow effectively.

The proposed discharge rate will be subject to approval by the Lead Local Flood Authority (LLFA) through the planning process with Trafford Council, as well as the land drainage consent process with Manchester City Council (MCC). In line with best practices for flood risk management, and following engagement with MCC's Flood Risk Management team, any new connection to the existing culverted watercourse will be strictly limited to the current greenfield runoff rate. This ensures that the development does not increase the risk of flooding and complies with sustainable drainage principles.

The site's flow control devices will ensure that discharge from the site does not exceed the agreed rate.

Pre-Development enquiries have been undertaken, the responses from which are included in Appendix E. All connections to the public sewer are subject to formal agreement with United Utilities under Section 106 of the Water Industry Act 1991.

A high-level drainage strategy plan has been produced and is included in Appendix F of this report, showing the proposed drainage connection point, an indicative piped drainage network and areas of attenuation.

6.2. Foul Water Drainage Strategy

Plot C will be provided with a gravity drainage connection to a new foul sewerage network. This will drain into the existing United Utilities combined sewers and existing connection points will be maintained where possible.

No drainage pipes will be less than 100mm in diameter, and the design will ensure all velocities are over 0.75 m/s. Adequate access will be provided to ensure that maintenance activity can be carried out.

Foul water drainage will be conveyed via a new below-ground pipe network and discharged from the site to the existing foul sewer located east of the existing Morton building.

A Pre-Development enquiry has been issued to United Utilities and has been confirmed in principle, accepting to discharge foul water from the site into the sewer at an unrestricted rate.

Any connection to the public sewer is subject to formal agreement with United Utilities under Section 106 of the Water Industry Act 1991.

The foul drainage proposals are shown on the Drainage Strategy drawing in Appendix G.

7. Conclusion

Civic Engineers Ltd. has been appointed by ID Manchester Ltd. and University of Manchester to provide Civil and Structural Engineering services on Plot C of Sister. The development is to comprise a new-build plot to be brought forward which will include major new commercial developments.

The site is currently a brownfield site with an area of 2.173ha, formerly occupied by commercial developments.

A Q_{bar} Greenfield rate of 13.02 l/s was determined and it is proposed to discharge surface water from the site at a restricted rate upon agreement with MCC's LLFA approval. The attenuation required to accommodate the proposed site's impermeable area (2.173ha) for the critical 1 in 100 year return period plus 40% climate change is 1385.0m³.

Current SuDS proposals comprise the following:

- Sub-base storage
- Raingardens, to be coordinated with landscape architect.

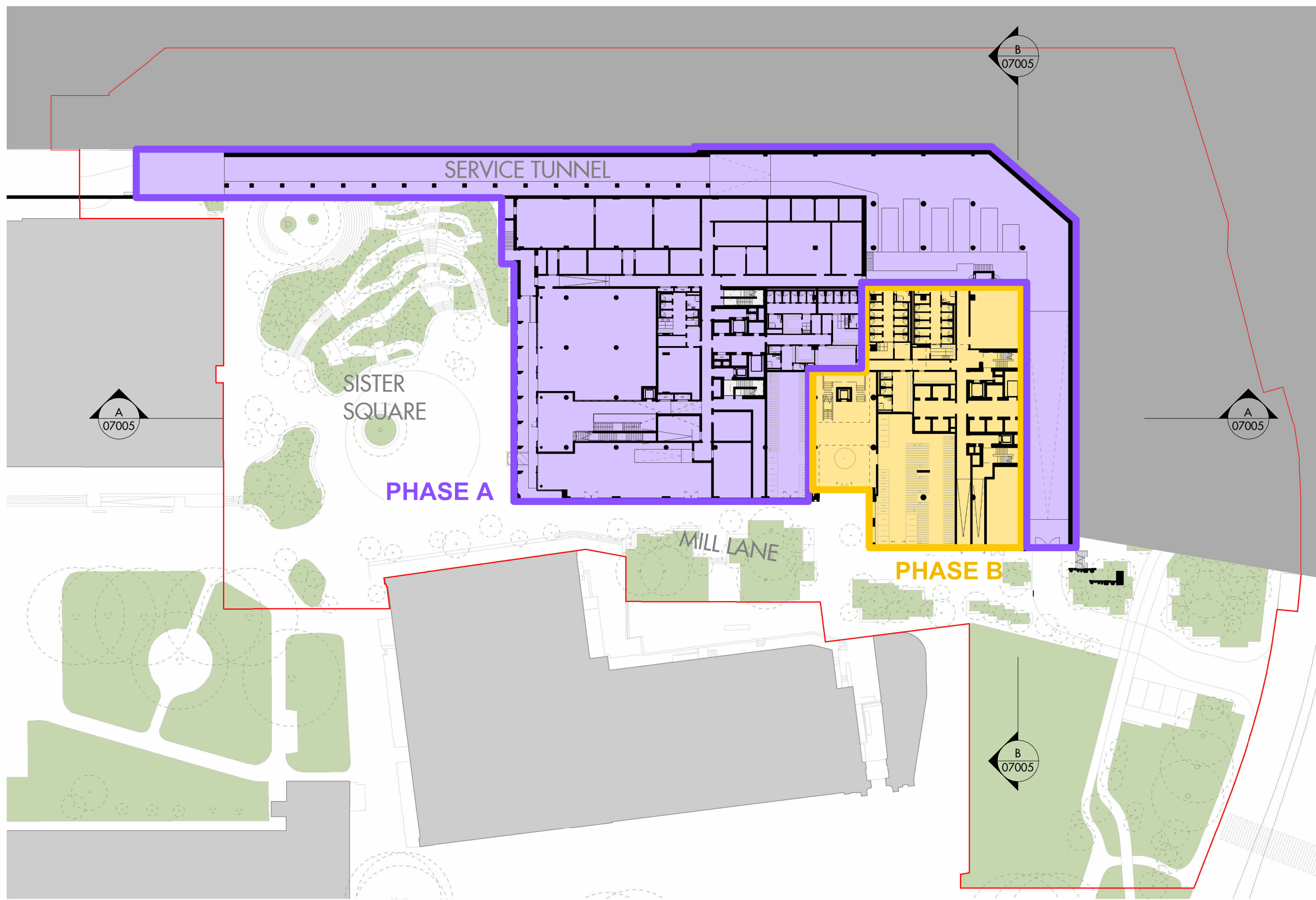
Surface water will likely be discharged into an existing culverted watercourse. With incorporation of the proposed mitigation measures, as described above, the proposed development will comply with National and Local Planning Policy 2024, Manchester City Council's Core Strategy Policies EN8 (Adapting to Climate Change) and EN14 (Flood Risk), as updated in the Addendum to the Core Strategy 2024. Furthermore, it aligns with Policy JP-S4 (Managing Flood Risk) of the Places for Everyone Joint Development Plan Document, adopted in March 2024.

The surface water connection and discharge rate will be subject to agreement with the LLFA.

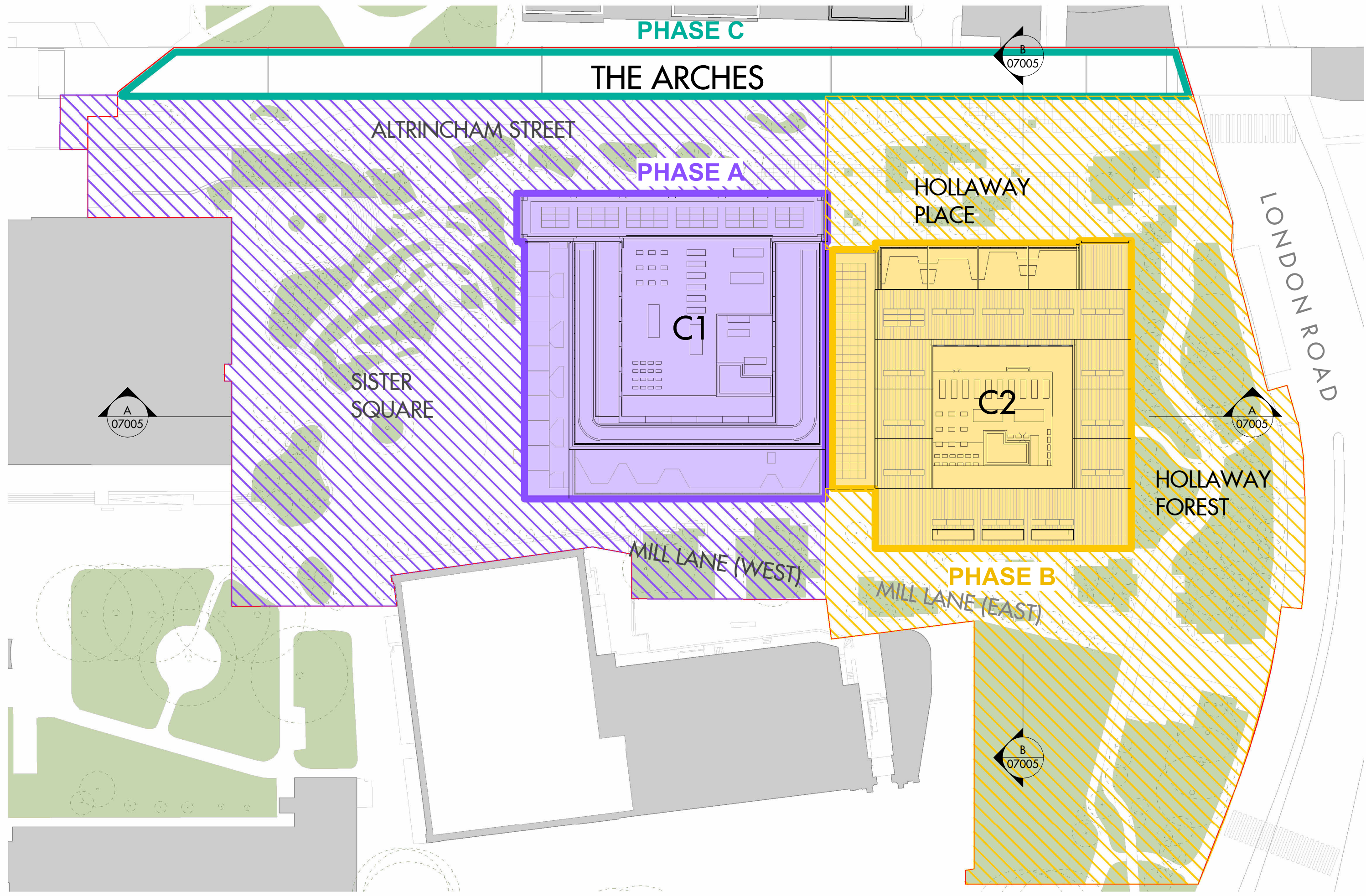
It is proposed that foul water drainage will be discharged into the existing public combined sewer located off the west of Morton building at an unrestricted rate as agreed in principle with United Utilities.

The foul water connection will be subject to formal agreement with United Utilities under S106 of the Water Industry Act 1991.

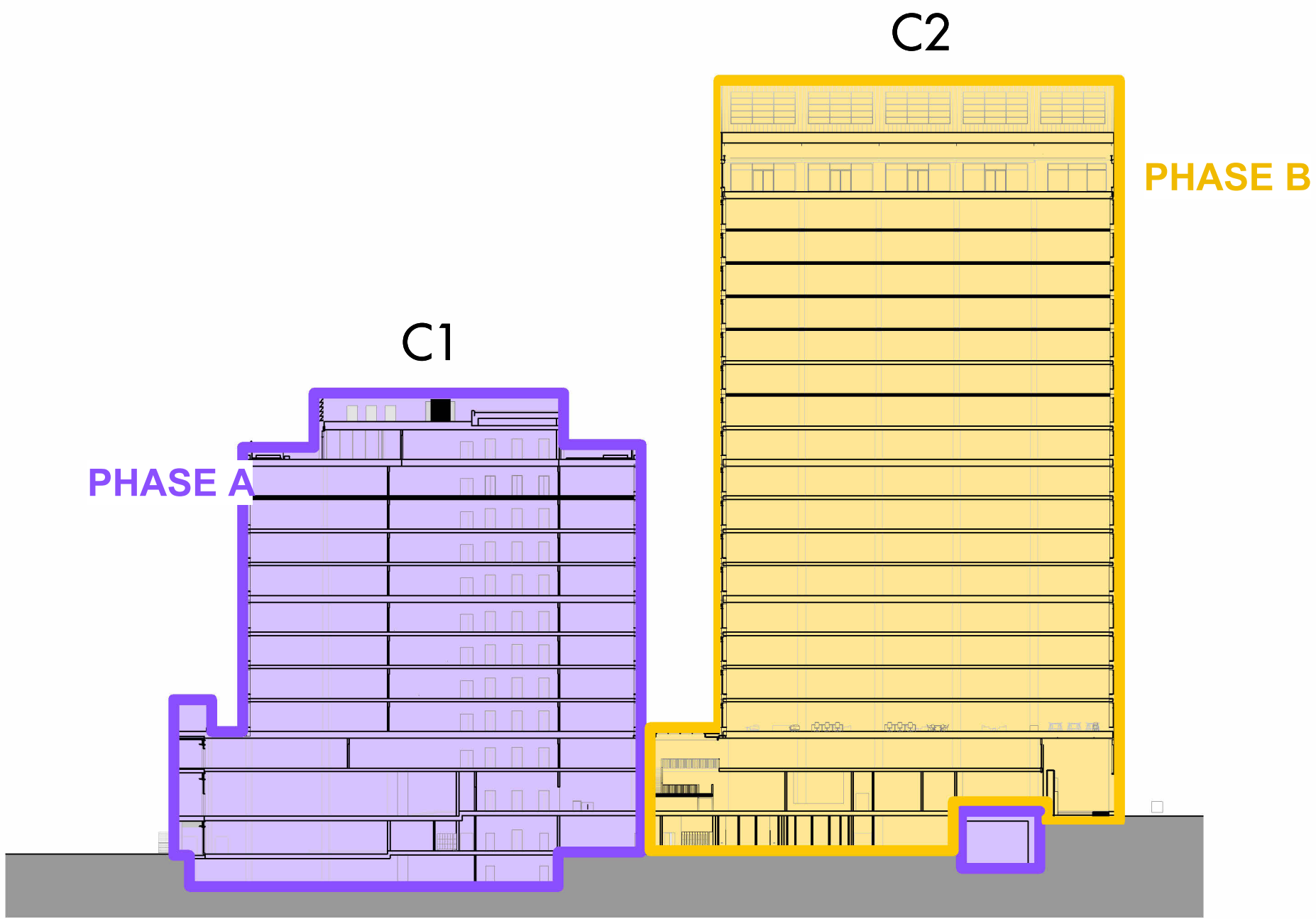
Appendix A: Proposed Site Plan



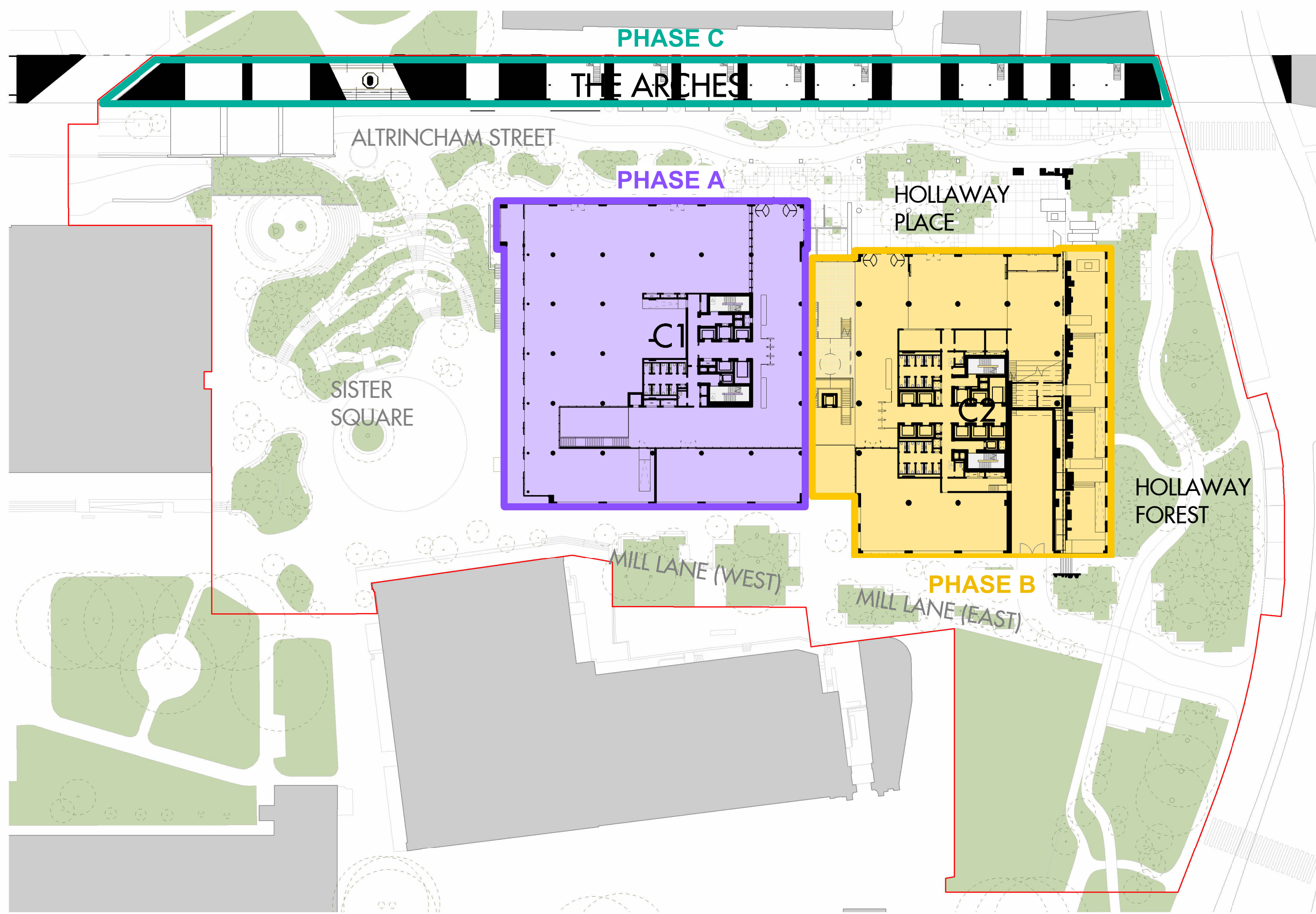
Lower Ground Floor Plan - Phasing



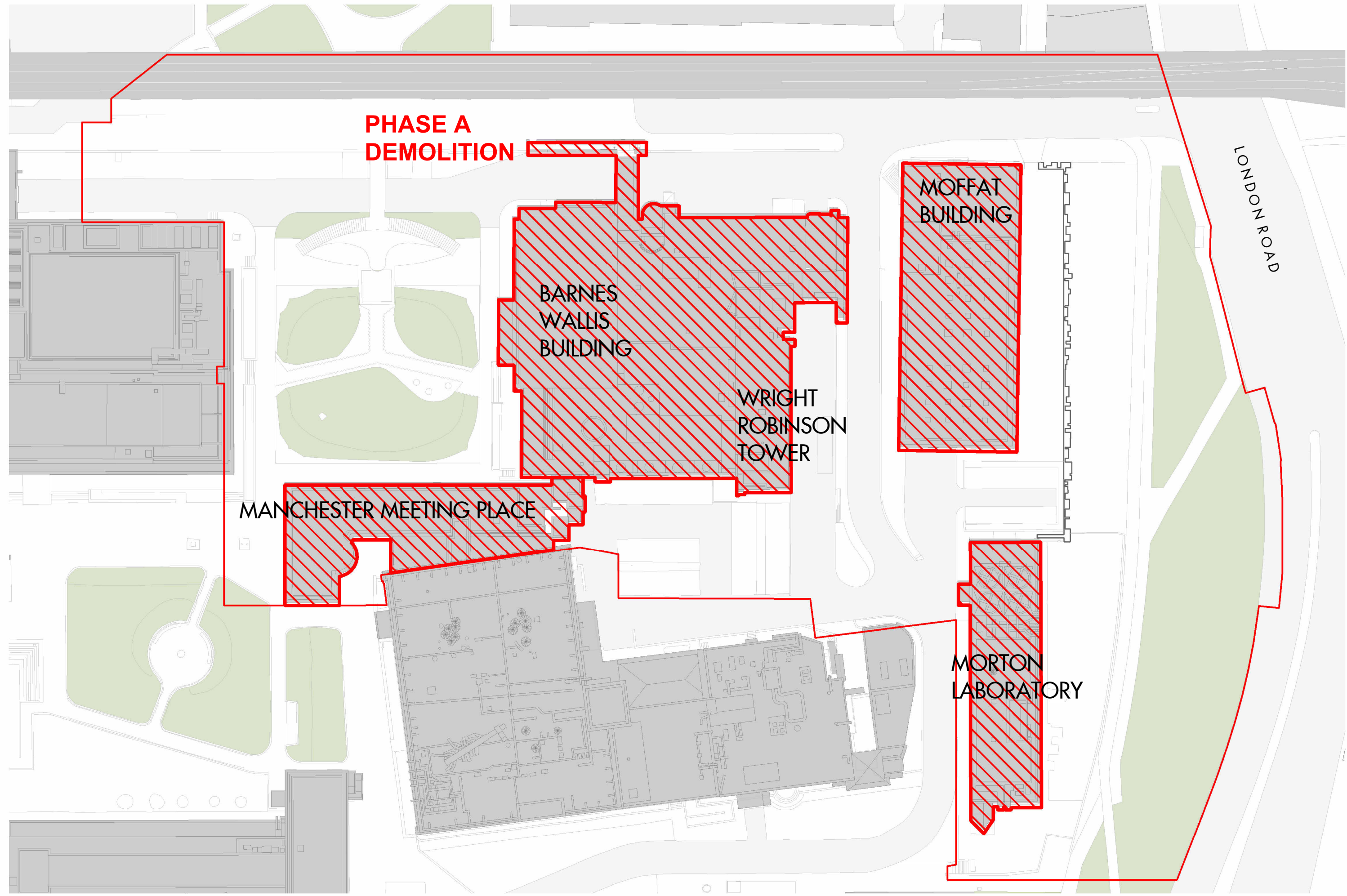
Roof Plan and Landscape - Phasing



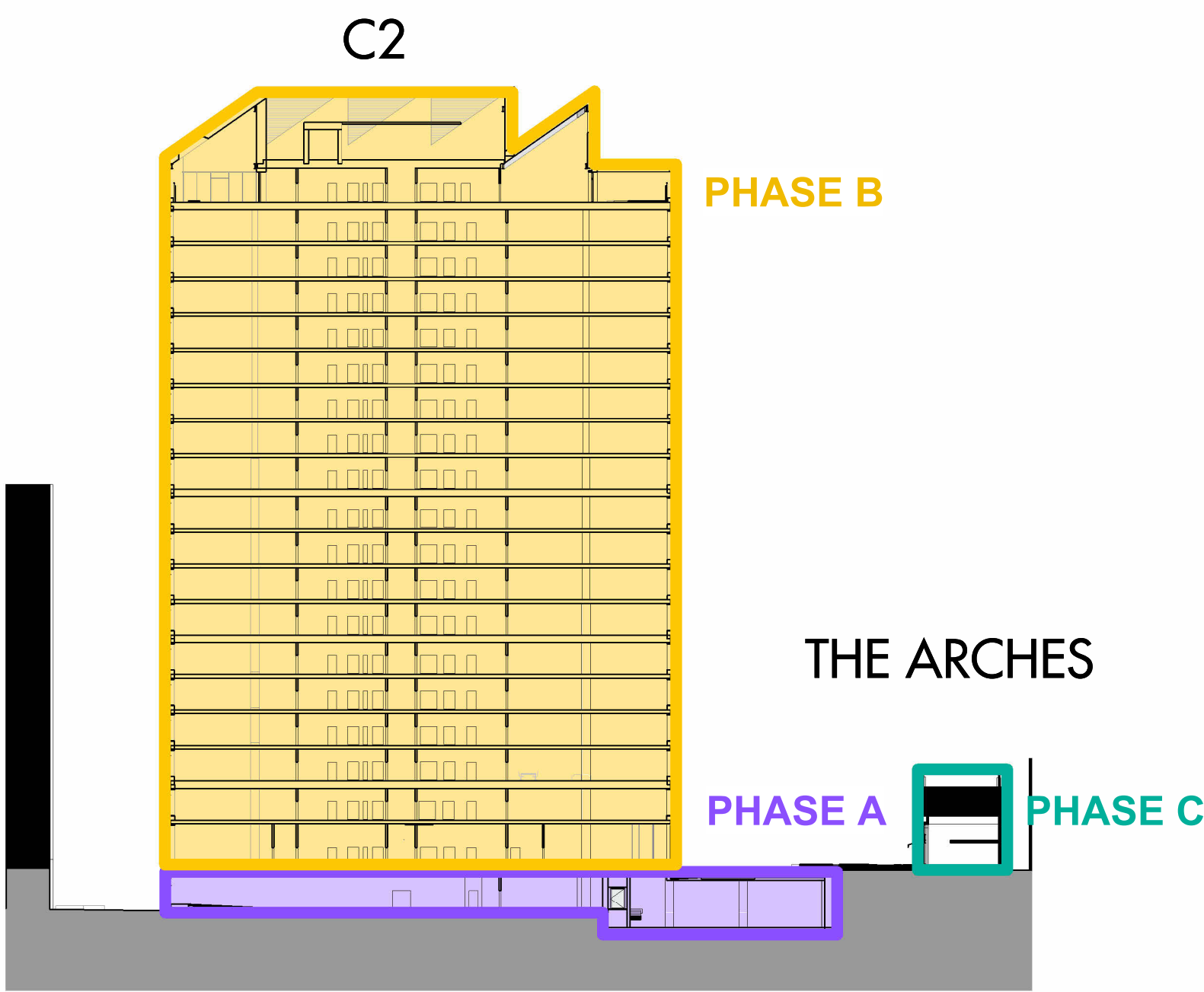
Section AA - Phasing



Upper Ground Floor Plan - Phasing

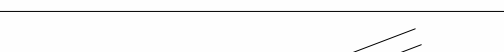


Existing Site Plan - Demolition



Section BB - Phasing

FOR PLANNING

	Figured dimensions are in millimetres unless noted otherwise. All dimensions and levels shall be verified on site before proceeding with works. Detailed site survey to be carried out to verify positions and level relationships with site features and existing survey. The Architect must be notified of any discrepancy. Boundaries are indicative only and are to be verified by others.			NOI	25/04/25	Planning Submission	DRAFT 11/04/25	JS
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- Phase A - Demolition and ground formation
- Phase A - C1 construction and service tunnel
- Phase B - C2 construction
- Phase C - Arches
- Site Boundary
- Phase A - Landscape
- Phase B - Landscape

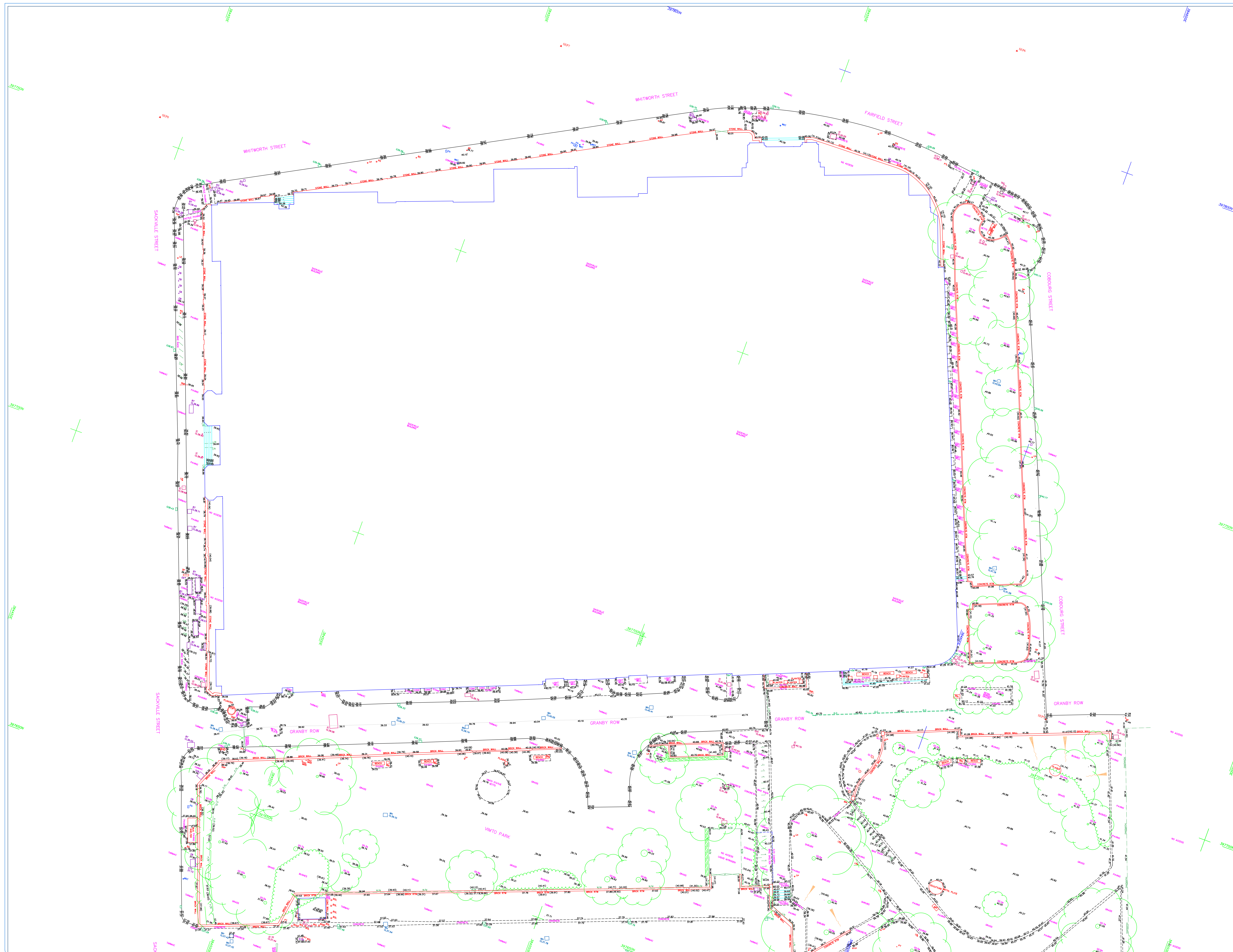
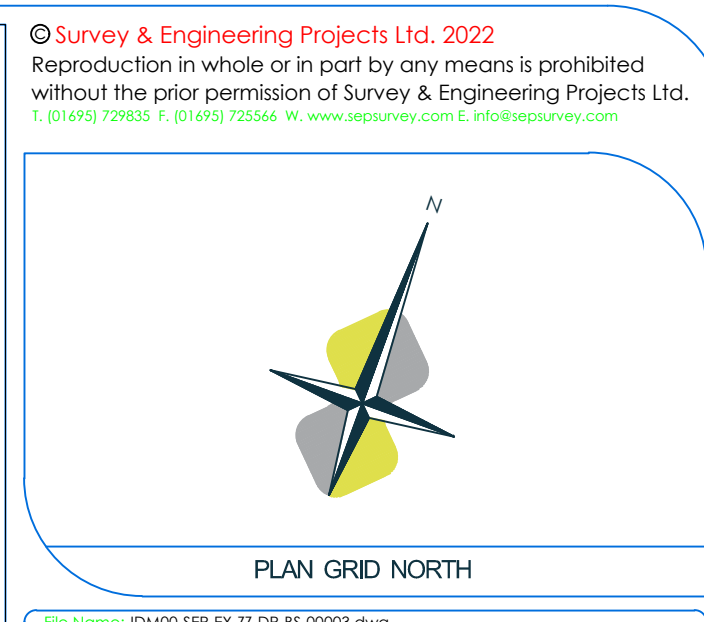
Allies and Morrison LLP
85 Southwark Street
London SE1 0HK
020 7921 0100
020 7921 0101
studio@alliesandmorrison.com

ABM JOB No: 19171_02

Sister Manchester - Plot C
Site Phasing Plans and Sections
SITE PLAN
SISCO-AAM-ZZ-ZZ-DR-AR-07005
SCALE 1 : 625 @A0 1 : 1250 @A2

S2
Status
P01
Revision

Appendix B: Topographical Survey

[illegible]

SURVEY STATIONS			
Name	Easting	Northing	Height
SEPI	364605.519	309800.429	36.711
SEPI2	364283.875	307800.809	38.783
SEPI3	364251.024	307800.809	38.783
SEPI4	364370.819	307756.464	41.843
SEPI5	364300.258	307800.809	41.843
SEPI6	364300.258	307800.809	41.843
SEPI7	364370.819	307800.809	40.407
SEPI8	364370.819	307774.747	40.407
SEPI9	364445.347	307756.464	36.667
SEPI10	364445.347	307756.464	36.667
SEPI11	364445.347	307756.464	36.667
SEPI12	364445.347	307756.464	36.667
SEPI13	364445.347	307756.464	36.667
SEPI14	364445.347	307756.464	36.667
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SEPI25	364445.347	307756.464	36.667
SEPI26	364445.347	307756.464	36.667
SEPI27	364445.347	307756.464	36.667
SEPI28	364445.347	307756.464	36.667
SEPI29	364445.347	307756.464	36.667
SEPI30	364445.347	307756.464	36.667
SEPI31	364445.347	307756.464	36.667
SEPI32	364445.347	307756.464	36.667
SEPI33	364445.347	307756.464	36.667
SEPI34	364445.347	307756.464	36.667
SEPI35	364445.347	307756.464	36.667
SEPI36	364445.347	307756.464	36.667
SEPI37	364445.347	307756.464	36.667
SEPI38	364445.347	307756.464	36.667
SEPI39	364445.347	307756.464	36.667
SEPI40	364445.347	307756.464	36.667
SEPI41	364445.347	307756.464	36.667
SEPI42	364445.347	307756.464	36.667
SEPI43	364445.347	307756.464	36.667
SEPI44	364445.347	307756.464	36.667
SEPI45	364445.347	307756.464	36.667
SEPI46	364445.347	307756.464	36.667
SEPI47	364445.347	307756.464	36.667
SEPI48	364445.347	307756.464	36.667
SEPI49	364445.347	307756.464	36.667
SEPI50	364445.347	307756.464	36.667
SEPI51	364445.347	307756.464	36.667
SEPI52	364445.347	307756.464	36.667
SEPI53	364445.347	307756.464	36.667
SEPI54	364445.347	307756.464	36.667
SEPI55	364445.347	307756.464	36.667
SEPI56	364445.347	307756.464	36.667
SEPI57	364445.347	307756.464	36.667
SEPI58	364445.347	307756.464	36.667
SEPI59	364445.347	307756.464	36.667
SEPI60	364445.347	307756.464	36.667
SEPI61	364445.347	307756.464	36.667
SEPI62	364445.347	307756.464	36.667
SEPI63	364445.347	307756.464	36.667
SEPI64	364445.347	307756.464	36.667
SEPI65	364445.347	307756.464	36.667
SEPI66	364445.347	307756.464	36.667
SEPI67	364445.347	307756.464	36.667
SEPI68	364445.347	307756.464	36.667
SEPI69	364445.347	307756.464	36.667
SEPI70	364445.347	307756.464	36.667
SEPI71	364445.347	307756.464	36.667
SEPI72	364445.347	307756.464	36.667
SEPI73	364445.347	307756.464	36.667
SEPI74	364445.347	307756.464	36.667
SEPI75	364445.347	307756.464	36.667
SEPI76	364445.347	307756.464	36.667
SEPI77	364445.347	307756.464	36.667
SEPI78	364445.347	307756.464	36.667
SEPI79	364445.347	307756.464	36.667
SEPI80	364445.347	307756.464	36.667
SEPI81	364445.347	307756.464	36.667
SEPI82	364445.347	307756.464	36.667
SEPI83	364445.347	307756.464	36.667
SEPI84	364445.347	307756.464	36.667
SEPI85	364445.347	307756.464	36.667
SEPI86	364445.347	307756.464	36.667
SEPI87	364445.347	307756.464	36.667
SEPI88	364445.347	307756.464	36.667
SEPI89	364445.347	307756.464	36.667
SEPI90	364445.347	307756.464	36.667
SEPI91	364445.347	307756.464	36.667
SEPI92	364445.347	307756.464	36.667
SEPI93	364445.347	307756.464	36.667
SEPI94	364445.347	307756.464	36.667
SEPI95	364445.347	307756.464	36.667
SEPI96	364445.347	307756.464	36.667
SEPI97	364445.347	307756.464	36.667
SEPI98	364445.347	307756.464	36.667
SEPI99	364445.347	307756.464	36.667
SEPI00	364445.347	307756.464	36.667

Diagram illustrating the layout of a 16m long sheet. The sheet is divided into sections of 2m, 4m, 8m, 12m, and 16m. The 16m section is highlighted in green.

REV	DATE	DESCRIPTION
A	05-22	Sheet layout numbers fixed.
B	06-22	Updated per client request.
C	02-24	Holloway wall to updated.
D	05-24	Driver Lane Topographical Detail Added (Sheet 5).
E	05-24	Landon Road Topographical Detail Added (Sheet 4 & 6).
F	05-24	Landon Road night wears Topographical detail added (Sheet 4 & 6).

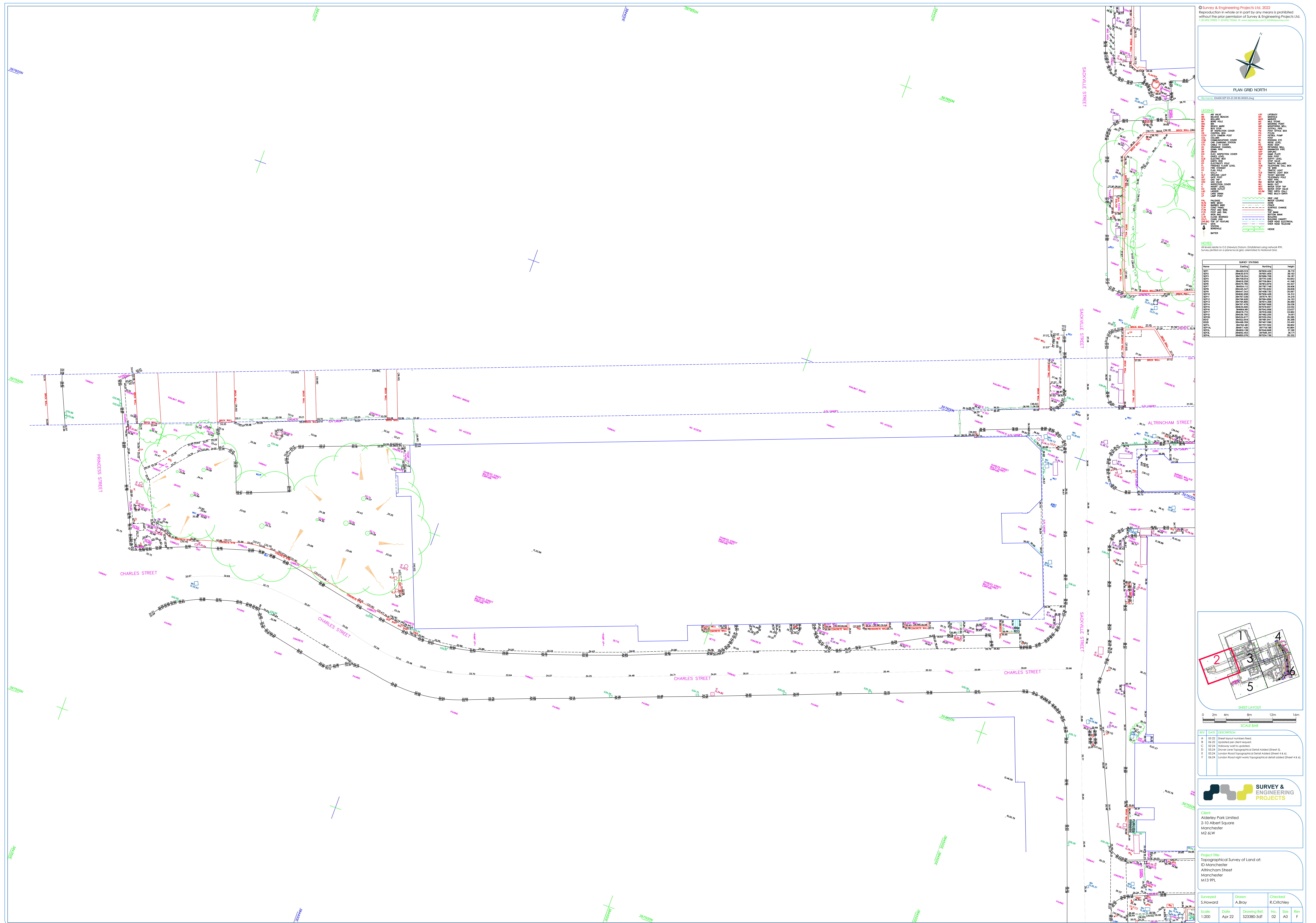


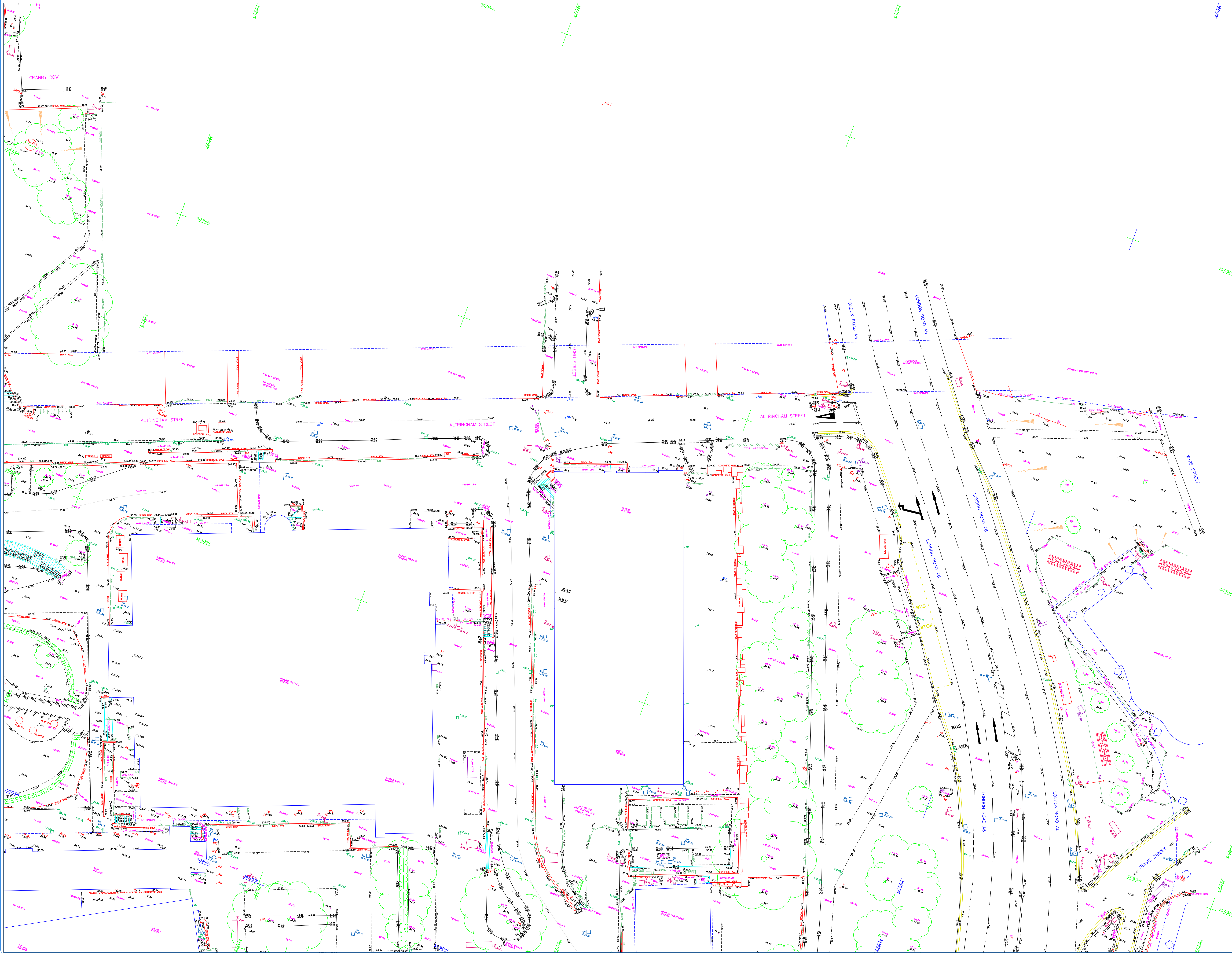
**SURVEY &
ENGINEERING
PROJECTS**

Client
Alderley Park Limited
2-10 Albert Square
Manchester
M2 6LW

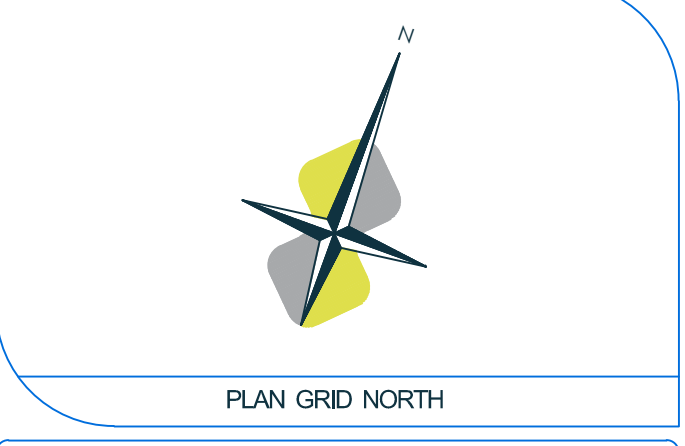
Project Title
Topographical Survey of Land at:
ID Manchester
Altrincham Street
Manchester
M13 9PL

Surveyed S.Howard		Drawn A.Bray		Checked R.Critchley		
Scale 1:200	Date Apr 22	Drawing Ref. S23380-3dI	No. 01	Size A0	Rev F	





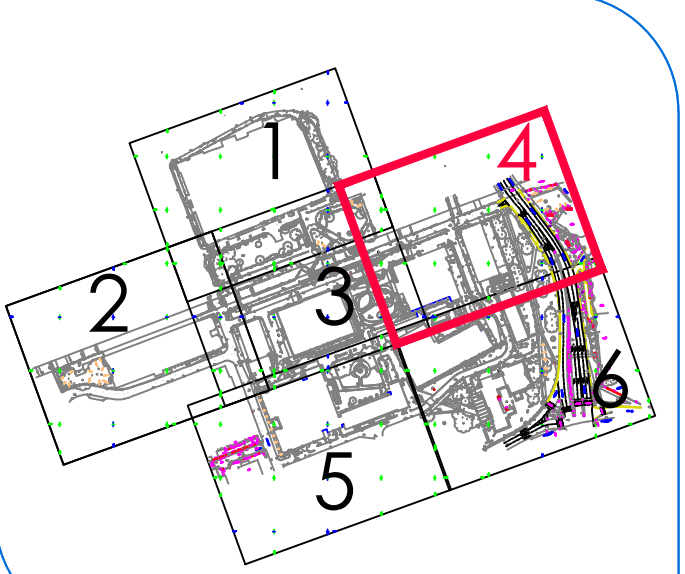
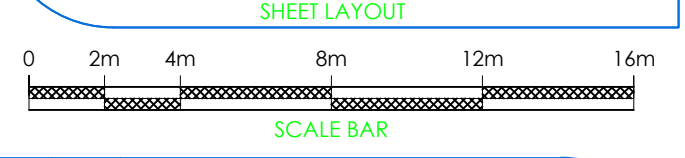
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Drawing No: SP22-01-01 Date: 10/04/2022



LEGEND	
BOUNDARY	BOUNDARY
PROPOSED WORKS	PROPOSED WORKS
EXISTING WORKS	EXISTING WORKS
PROPOSED EASEMENT	PROPOSED EASEMENT
EXISTING EASEMENT	EXISTING EASEMENT
PROPOSED FENCE	PROPOSED FENCE
EXISTING FENCE	EXISTING FENCE
PROPOSED DRIVE	PROPOSED DRIVE
EXISTING DRIVE	EXISTING DRIVE
PROPOSED PATH	PROPOSED PATH
EXISTING PATH	EXISTING PATH
PROPOSED GATE	PROPOSED GATE
EXISTING GATE	EXISTING GATE
PROPOSED WALL	PROPOSED WALL
EXISTING WALL	EXISTING WALL
PROPOSED ROOF	PROPOSED ROOF
EXISTING ROOF	EXISTING ROOF
PROPOSED FLOOR	PROPOSED FLOOR
EXISTING FLOOR	EXISTING FLOOR
PROPOSED CEILING	PROPOSED CEILING
EXISTING CEILING	EXISTING CEILING
PROPOSED DOOR	PROPOSED DOOR
EXISTING DOOR	EXISTING DOOR
PROPOSED WINDOW	PROPOSED WINDOW
EXISTING WINDOW	EXISTING WINDOW
PROPOSED STAIR	PROPOSED STAIR
EXISTING STAIR	EXISTING STAIR
PROPOSED LIFT	PROPOSED LIFT
EXISTING LIFT	EXISTING LIFT
PROPOSED CHIMNEY	PROPOSED CHIMNEY
EXISTING CHIMNEY	EXISTING CHIMNEY
PROPOSED SMOKESTACK	PROPOSED SMOKESTACK
EXISTING SMOKESTACK	EXISTING SMOKESTACK
PROPOSED ANTENNA	PROPOSED ANTENNA
EXISTING ANTENNA	EXISTING ANTENNA
PROPOSED LIGHT	PROPOSED LIGHT
EXISTING LIGHT	EXISTING LIGHT
PROPOSED SIGN	PROPOSED SIGN
EXISTING SIGN	EXISTING SIGN
PROPOSED FURNITURE	PROPOSED FURNITURE
EXISTING FURNITURE	EXISTING FURNITURE
PROPOSED PLANT	PROPOSED PLANT
EXISTING PLANT	EXISTING PLANT
PROPOSED TREE	PROPOSED TREE
EXISTING TREE	EXISTING TREE
PROPOSED HEDGE	PROPOSED HEDGE
EXISTING HEDGE	EXISTING HEDGE

NOTES:
1. All dimensions to be checked on site.
2. Survey carried out on a plane local grid, oriented to National Grid.

Point	Easting	Northing	Height
SP1	384000.12	567000.42	24.71
SP2	384000.15	567000.45	24.72
SP3	384000.18	567000.48	24.73
SP4	384000.21	567000.51	24.74
SP5	384000.24	567000.54	24.75
SP6	384000.27	567000.57	24.76
SP7	384000.30	567000.60	24.77
SP8	384000.33	567000.63	24.78
SP9	384000.36	567000.66	24.79
SP10	384000.39	567000.69	24.80
SP11	384000.42	567000.72	24.81
SP12	384000.45	567000.75	24.82
SP13	384000.48	567000.78	24.83
SP14	384000.51	567000.81	24.84
SP15	384000.54	567000.84	24.85
SP16	384000.57	567000.87	24.86
SP17	384000.60	567000.90	24.87
SP18	384000.63	567000.93	24.88
SP19	384000.66	567000.96	24.89
SP20	384000.69	567000.99	24.90
SP21	384000.72	567001.02	24.91
SP22	384000.75	567001.05	24.92
SP23	384000.78	567001.08	24.93
SP24	384000.81	567001.11	24.94
SP25	384000.84	567001.14	24.95
SP26	384000.87	567001.17	24.96
SP27	384000.90	567001.20	24.97
SP28	384000.93	567001.23	24.98
SP29	384000.96	567001.26	24.99
SP30	384000.99	567001.29	25.00



REV	DATE	DESCRIPTION
A	05/22	Sheet layout numbers fixed
B	06/22	Updated client request
C	07/22	Highway note to updated
D	08/22	Client request to updated
E	09/22	London Road Topographical Detail Added (Sheet 4 & 5)
F	10/22	London Road right works Topographical detail added (Sheet 4 & 5)



Client:
Alderley Park Limited
2-10 Albert Square
Manchester
M2 6LW

Project Title:
Topographical Survey of Land at:
ID Manchester
Altrincham Street
Manchester
M13 9PL

Surveyed	Drawn	Checked
S.Howard	A.Bry	R.Crilly
Scale	Date	Drawing Ref.
1:200	Apr 22	S23380-3dfl
No.	Size	Rev
04	A0	F



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PLAN GRID NOR

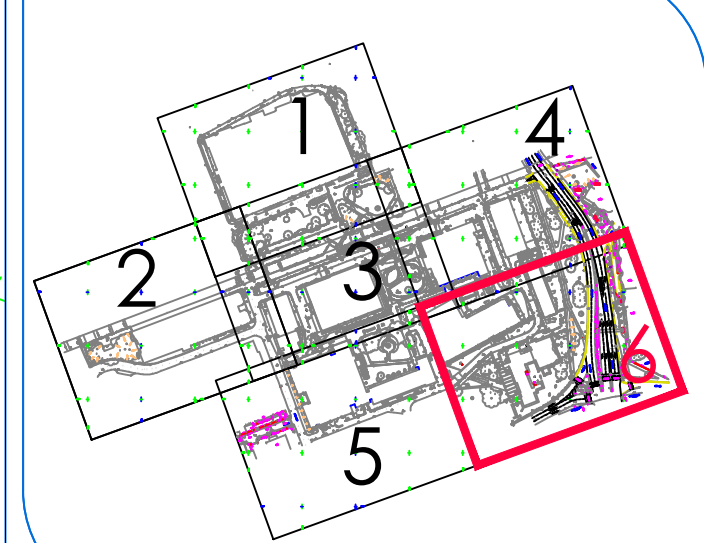
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LEGEND

[illegible]

NOTES:
All levels relate to O.S. (Newlyn Datum, Established using network RTK,
from sea level at 40 m. or above as a reference point, unless otherwise stated)

SURVEY STATIONS			
Name	Easting	Northing	Height
SP1	364405.510	703020.420	38.711
SP2	364433.975	703070.950	38.193
SP3	364520.624	703095.970	38.193
SP4	367000.010	707740.460	40.143
SP5	367000.010	707740.460	40.143
SP6	364433.975	703070.950	40.407
SP7	364433.975	703070.950	40.407
SP8	364445.347	703175.832	39.687
SP9	364445.347	703175.832	39.687
SP10	364692.950	705920.420	34.212
SP11	367075.539	705920.420	34.212
SP12	367075.539	705920.420	34.212
SP13	367075.539	705920.420	34.212
SP14	367075.539	705920.420	34.212
SP15	367075.539	705920.420	34.212
SP16	367075.539	705920.420	34.212
SP17	367075.539	705920.420	34.212
SP18	367075.539	705920.420	34.212
SP19	367075.539	705920.420	34.212
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SP24	367075.539	705920.420	34.212
SP25	367075.539	705920.420	34.212
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SP33	367075.539	705920.420	34.212
SP34	367075.539	705920.420	34.212
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SP93	367075.539	705920.420	34.212
SP94	367075.539	705920.420	34.212
SP95	367075.539	705920.420	34.212
SP96	367075.539	705920.420	34.212
SP97	367075.539	705920.420	34.212
SP98	367075.539	705920.420	34.212
SP99	367075.539	705920.420	34.212
SP100	367075.539	705920.420	34.212



A horizontal scale bar labeled 'SCALE BAR' below it. The bar is divided into segments of 2m each, with labels '0', '2m', '4m', '8m', '12m', and '16m' above it. The bar is shaded with a cross-hatch pattern.

REV	DATE	DESCRIPTION
A	05/22	Sheet layout numbers fixed.
B	06/22	Updated per client request.
C	02/24	Holloway wall to updated.
D	05/24	Driver Lane Topographical Detail Added (Sheet 5).
E	05/24	Landon Road Topographical Detail Added (Sheet 4 & 6).
F	06/24	Landon Road night work Topographical detail added (Sheet 4 & 6).



Client
Alderley Park Limited
2-10 Albert Square
Manchester
M2 6LW

Project Title
Topographical Survey of Land at:
ID Manchester
Altrincham Street
Manchester
M13 9PL

Surveyed S.Howard		Drawn A.Bray		Checked R.Critchley		
Scale 1:200	Date Apr 22	Drawing Ref. S23380-3dI	No. 06	Size A0	Rev F	

Appendix C: Existing Sewer Records



MANCHESTER
CITY COUNCIL

LLFA DATA SCREEN

Address/Site Ref:
Charles Street Car Park

Our Ref: **MCC029/07/2022**

Author: Manchester City Council LLFA

Date: 29/07/2022

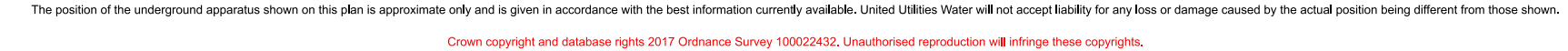
Scale: 1:2,627

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

0 15 30 60
Meters



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SEWER RECORDS  United Utilities

Storage Estimate

Return Period (years)

100

OK

Climate Change (%)

40

Cancel

Impermeable Area (ha)

2.173

Update

Peak Discharge (l/s)

13.020

Infiltration Coefficient (m/hr)
(leave blank if no infiltration)

Calc

Required Storage (m³)

Calc

from

1393

to

1876

With infiltration (m³)

from

to

Appendix D: Attenuation Calculations

Storage Estimate

Return Period (years)

100

OK

Climate Change (%)

40

Cancel

Impermeable Area (ha)

2.173

Update

Peak Discharge (l/s)

13.020

Infiltration Coefficient (m/hr)
(leave blank if no infiltration)

Calc

Required Storage (m³)

Calc

from

1393

to

1876

With infiltration (m³)

from

to

Appendix E: Pre-Development Enquiries

Wyatt-Smith, Josh

From: Damian Apostolidis
Sent: 18 October 2024 11:53
To: floodriskmanagement@manchester.gov.uk
Cc: James Fawcett
Subject: ID Manchester - Pre-development enquiry
Attachments: 2750-01-CIV-XX-ZZ-D-C-30001_PROPOSED SW DRAINAGE STRATEGY SHEET 1.pdf;
2750-01-CIV-XX-ZZ-D-C-30002_PROPOSED SW DRAINAGE STRATEGY SHEET 2.pdf;
ID Manchester - Site Location.jpg; Shooters Brook - LLFA Data Screen.jpg

Categories: Filed by Newforma

Good morning,

We are currently working on a project in Manchester, approximately 200m to the southwest of Piccadilly Station (ID Square) with the approximate postcode M1 3AL.

It is intended to include SuDS features throughout the proposed development. These will take the form of rain gardens and infiltration techniques within the landscaping to handle more extreme storm events. However, it is expected that this method alone cannot be relied upon for surface water disposal.

The existing site covers approximately 2.10 hectares of the redline boundary as shown in the outline surface water drainage strategy drawings.

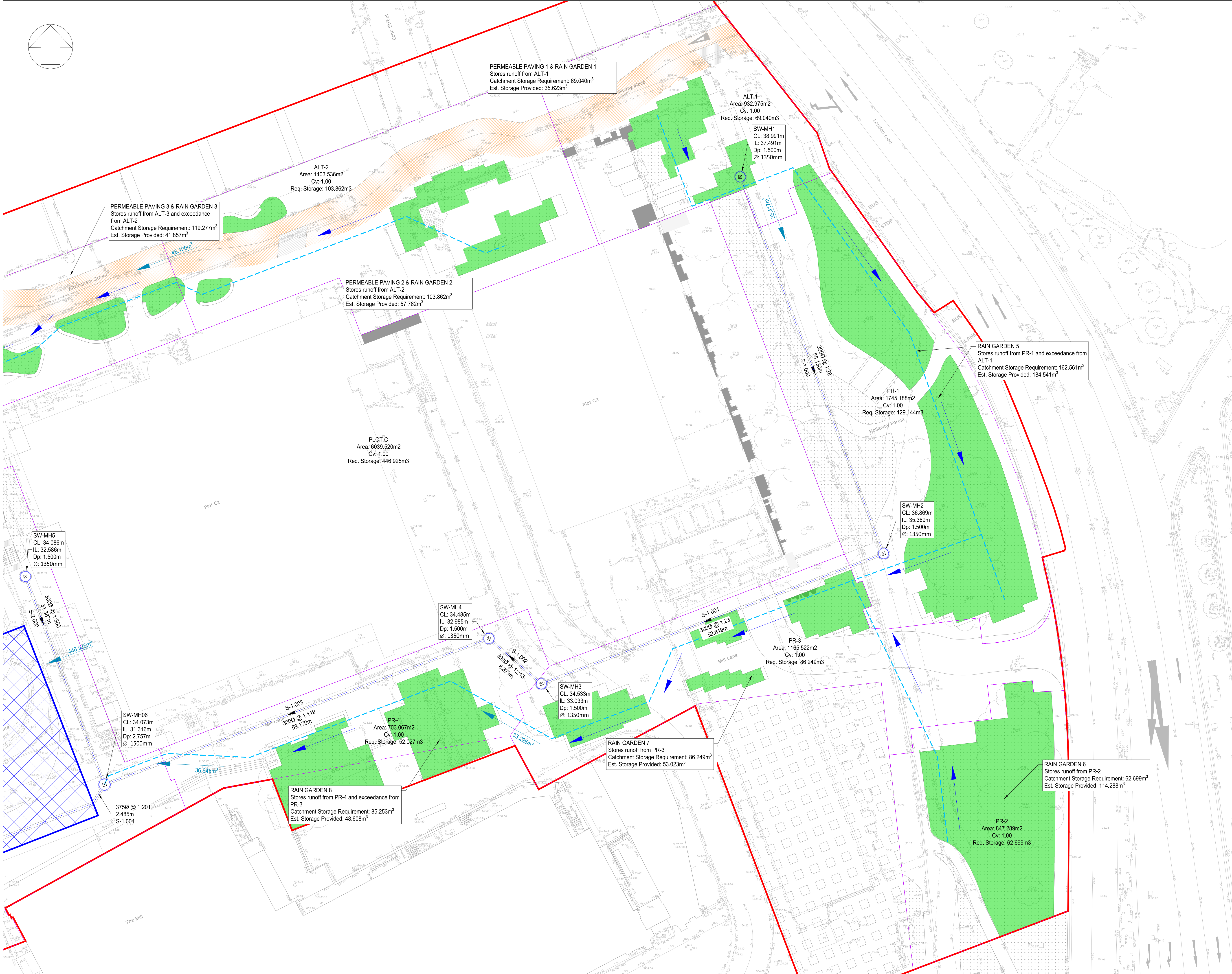
We would like to request your guidance on whether MCC, as LLFA, has responsibility for this watercourse. We also need to understand the process required to confirm the proposed discharge rate and eventually the physical connection details.

Could you kindly provide the above at your earliest convenience?

Kind regards,

Appendix F: Surface Water Drainage Strategy Plan

FILE LOCATION PATH: W:\S01\PROJECTS DRIVE\PROJECTS HOT\2750-01 ID MANCHESTER - PHASE 2 PLOT C004 BIM\CIVIL\DRAWINGS\ISO-CV-XX-XX-DR-CV-30001_PROPOSED SW DRAINAGE STRATEGY SHEET 1.DWG



STANDARD NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS AND THE SPECIFICATIONS.
- THIS DRAWING SHOULD NOT BE SCALED.
- ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE.
- ALL DISCREPANCIES SHOULD BE REPORTED TO C.A./E.A. PRIOR TO THE COMMENCEMENT OF WORKS.

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MINIMAP:

KEY

- RED LINE BOUNDARY
- PIPED CONVEYANCE
- OVERLAND CONVEYANCE
- PROPOSED SW MANHOLE
- PROPOSED SW SEWER
- PERFORATED PIPE
- CATCHMENT
- EXISTING CULVERTED WATERCOURSE
- PROPOSED RAIN GARDEN
300mm DEPTH POROUS SUB-BASE, FREEBOARD 100-300mm (VARIES)
- PROPOSED PERMEABLE PAVING
350mm DEPTH POROUS SUB-BASE

SURFACE WATER ATTENUATION REQUIREMENTS	
	VOLUME (m³)
1 IN 100 YEAR EVENT + 40% CLIMATE CHANGE	1385.0 m³
SUDS ELEMENTS (RAINGARDENS, PERMEABLE PAVING)	656.0 m³
STORAGE TANK	729.0 m³

DATE	REV	DESCRIPTION	DRAWN	CHKD
22.04.25	P03	UPDATED TO LATEST RED LINE BOUNDARY	DA	JF
15.04.25	P02	UPDATED TO LATEST LANDSCAPE LAYOUT	DA	JF
05.03.25	P01	INTERIM STAGE 2 RE-DESIGN	DA	JF

CIVIC ENGINEERS

civicingengineers.com

PROJECT

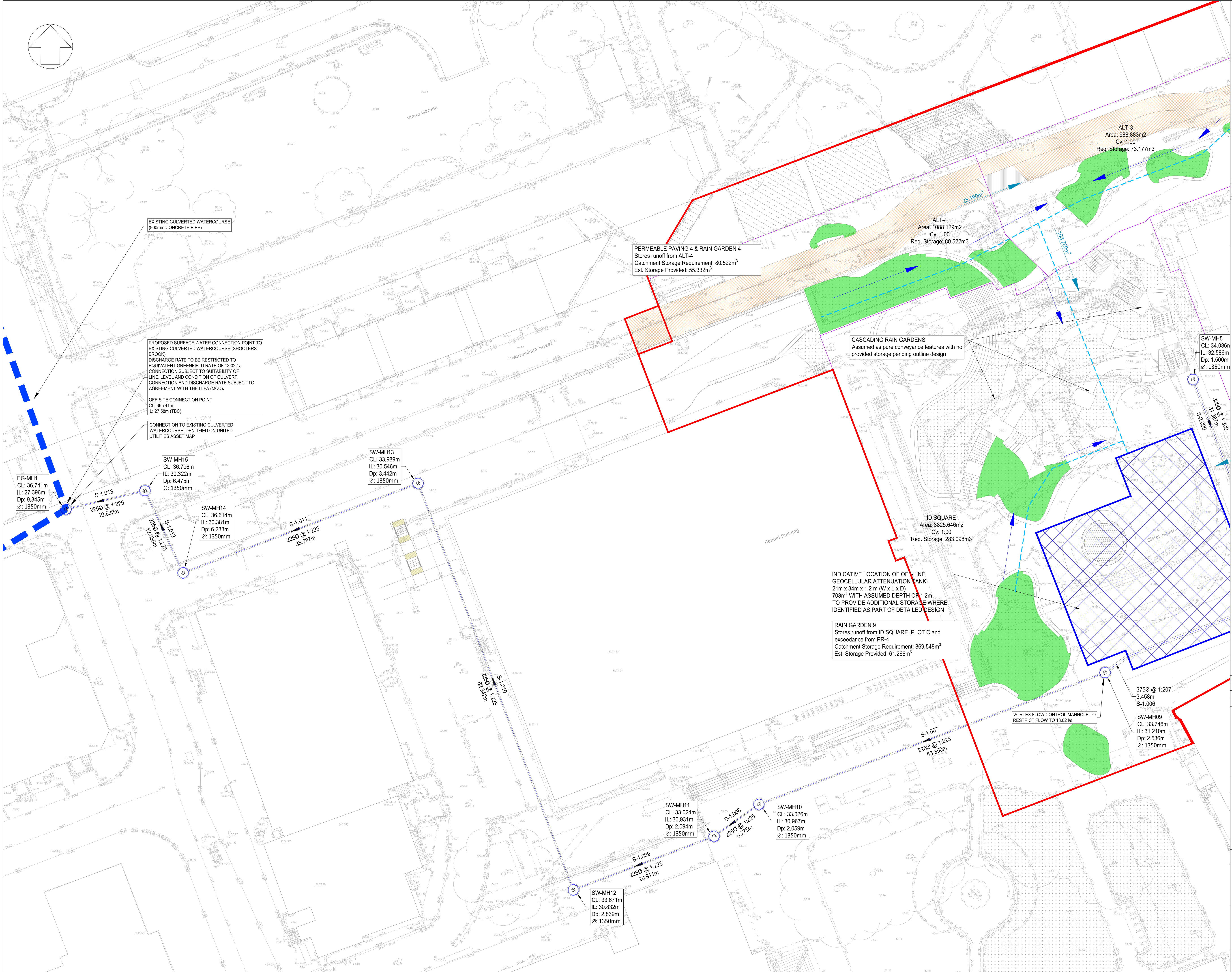
SISTER - PLOT C
MANCHESTER

TITLE

PROPOSED SURFACE WATER
DRAINAGE STRATEGY
SHEET 1

DRAWING STATUS					STATUS CODE	
STAGE 2					S5	
CE PROJECT No.	SCALE @ A1	DATE CREATED	DRAWN	CHECKED		
2750	1:250	FEB 25	DA	JF		
DRAWING No.					REV	
SISC0-CIV-XX-XX-DR-CV-30001						P03

FILE LOCATION PATH: \\FS01\PROJECTS\DRIVE\PROJECTS\HOT\2750-01 ID MANCHESTER - PHASE 2 PLOT C04 BIM\CIVIL\DRAWINGS\ISOC-CIV-XX-XX-DR-CV-30002_PROPOSED SW DRAINAGE STRATEGY SHEET 2.DWG



STANDARD NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS AND THE SPECIFICATIONS.
- THIS DRAWING SHOULD NOT BE SCALED.
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- ALL DISCREPANCIES SHOULD BE REPORTED TO C.A./E.A. PRIOR TO THE COMMENCEMENT OF WORKS.

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MINIMAP:

SHEET 2

SHEET 1

KEY

- RED LINE BOUNDARY
- PIPED CONVEYANCE
- OVERLAND CONVEYANCE
- PROPOSED SW MANHOLE
- PROPOSED SW SEWER
- PERFORATED PIPE
- CATCHMENT
- EXISTING CULVERTED WATERCOURSE
- PROPOSED RAIN GARDEN
300mm DEPTH POROUS SUB-BASE, FREEBOARD 100-300mm (VARIES)
- PROPOSED PERMEABLE PAVING
350mm DEPTH POROUS SUB-BASE

SURFACE WATER ATTENUATION REQUIREMENTS	
	VOLUME (m³)
1 IN 100 YEAR EVENT + 40% CLIMATE CHANGE	1385.0 m³
SUDS ELEMENTS (RAINGARDENS, PERMEABLE PAVING)	656.0 m³
STORAGE TANK	729.0 m³

DATE	REV	DESCRIPTION	DRAWN	CHKD
22.04.25	P03	UPDATED TO LATEST RED LINE BOUNDARY	DA	JF
15.04.25	P02	UPDATED TO LATEST LANDSCAPE LAYOUT	DA	JF
05.03.25	P01	INTERIM STAGE 2 RE-DESIGN	DA	JF

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PROJECT

SISTER - PLOT C
MANCHESTER

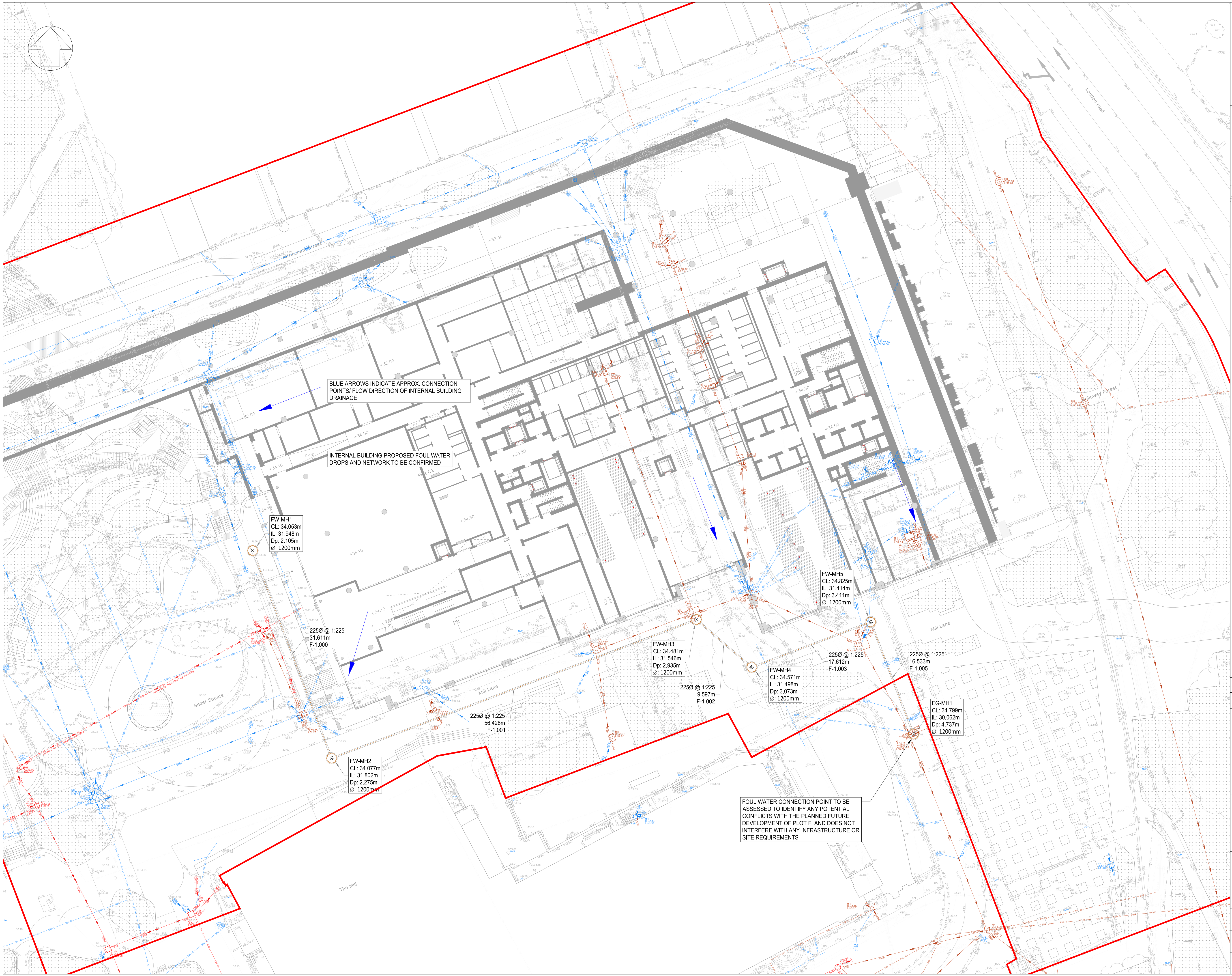
TITLE

PROPOSED SURFACE WATER
DRAINAGE STRATEGY
SHEET 2

DRAWING STATUS					STATUS CODE
STAGE 2					S5
CE PROJECT No.	SCALE @ A1	DATE CREATED	DRAWN	CHECKED	
2750	1:250	FEB 25	DA	JF	
DRAWING No.					REV
SISC0-CIV-XX-XX-DR-CV-30002					P03

Appendix G: Foul Water Discharge Point

FILE LOCATION PATH: WFS01\PROJECTS DRIVE\PROJECTS HOT\2750-01 ID MANCHESTER - PHASE 2 PLOT C004 BIM\CIVIL\DRAWINGS\SISO-CIV-XX-XX-DR-CV-30003_PROPOSED FW DRAINAGE STRATEGY.DWG



BLUE ARROWS INDICATE APPROX. CONNECTION POINTS/ FLOW DIRECTION OF INTERNAL BUILDING DRAINAGE

INTERNAL BUILDING PROPOSED FOUL WATER DROPS AND NETWORK TO BE CONFIRMED

FOUL WATER CONNECTION POINT TO BE ASSESSED TO IDENTIFY ANY POTENTIAL CONFLICTS WITH THE PLANNED FUTURE DEVELOPMENT OF PLOT F, AND DOES NOT INTERFERE WITH ANY INFRASTRUCTURE OR SITE REQUIREMENTS

STANDARD NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS AND THE SPECIFICATIONS.

2. THIS DRAWING SHOULD NOT BE SCALED.

3. ALL DIMENSIONS ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE.

4. ALL DISCREPANCIES SHOULD BE REPORTED TO C.A./E.A. PRIOR TO THE COMMENCEMENT OF WORKS.

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MINIMAP:

KEY

PROPOSED FW MANHOLE

PROPOSED FW SEWER

22.04.25	P03	UPDATED TO LATEST RED LINE BOUNDARY	DA	JF
15.04.25	P02	UPDATED TO LATEST LANDSCAPE LAYOUT	DA	JF
05.03.25	P01	INTERIM STAGE 2 RE-DESIGN	DA	JF
DATE	REV	DESCRIPTION	DRAWN	CHKD

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PROJECT

SISTER - PLOT C
MANCHESTER

TITLE

PROPOSED FOUL WATER
DRAINAGE STRATEGY

DRAWING STATUS		STATUS CODE	
STAGE 2		S5	
CE PROJECT No.	SCALE @ A1	DATE CREATED	DRAWN
2750	1:250	FEB 25	DA
DRAWING No.		REV	
SISCO-CIV-XX-XX-DR-CV-30003			P03

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