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Client

Cheshire Homes Group
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Site Address

College View
410-418 Moss Lane East
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M14 4PA

Document Title

Drainage Strategy Report

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Revision History

Issue	Date	Status	Prepared By	Signature
P01	20.06.24	First Issue	Lee Meadowcroft BSc (Hons) PgDip MScCHE CEng MIStructE MICE IHBC	
P02	14.02.25	Revised to suit latest architectural GA and site plan	Lee Meadowcroft BSc (Hons) PgDip MScCHE CEng MIStructE MICE IHBC	
P03	16.04.25	Minor revisions and updated to suit latest architectural GA and site plan	Lee Meadowcroft BSc (Hons) PgDip MScCHE CEng MIStructE MICE IHBC	

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Executive Summary

Item	Brief Description
Proposed Development	The construction of a multi-level student apartment block development on land at College View, 410-418 Moss Lane East, Manchester, M14 4PA.
Site Area	0.016ha (Redline Area)
Flood Zone Classification	Flood Zone 1 – Low Risk
Geology	The British Geological Survey (BGS) dataset would indicate the superficial deposits to comprise Till, Divensian (Silts and Clays), with the Bedrock Geology comprising the Chester Formation – Sandstone. Local boreholes from the BGS indicate shallow made ground over sandy clay. A recently completed Phase 2 site Investigation has confirmed the findings from the BGS with the underlying ground comprising shallow made ground over sandy clay to depth.
Infiltration Rate	Based on the assessment of the ground conditions, it is considered that infiltration as a means of draining the site would not be feasible.
Nearest Watercourses	There are no identified watercourses within close proximity to the development site.
Nearest Adopted Sewers and Drainage Networks	The United Utilities sewer records have been reviewed and indicate there to be no public sewers within the site boundary. Beyond the site boundary to the west there is a 300mm diameter combined sewer within Acomb street flowing south. Within Moss Lane East to the north there are a 2250mm diameter and 1050x750 brick egg combined sewer, both flowing west at depth. No surface water sewers have been identified in close proximity. The current site is fully developed, and discharge unrestricted to the combined sewer in Acomb Street.
Surface Water Drainage Strategy and SuDS Hierarchal Approach	Based on current site information, the proposed strategy is to construct a new private drainage network that outfall to the combined sewer at restricted rates.
Existing Discharge Rate	Existing site is classed as brownfield. The rates below are based on the existing impermeable area of 1,360m^2 (85% of full site area) 1 yr – 11.3l/s (30mm/hr) 30 yr – 24.5l/s (65mm/hr) 100 yr – 35.9l/s (95mm/hr)
Proposed Discharge Rate	Although the Manchester CC SuDs Policy is a 50% reduction in Brownfield rates (6.6l/s), 5l/s will be applied to satisfy the UU request following a pre development enquiry application.
Allowance for Climate Change	45% - based on a residential development with 100-year design life.

Item	Brief Description
Proposed Attenuation & SuDS Methods	Green Roof, Increased permeable areas, geocellular attenuation tank and flow controls.
Maintenance Responsibility	Management Company,
Foul Drainage Outfall	Reuse existing foul water connection to the 300mm diameter combined water sewer in Acomb Street.

Figure 1: Flood Risk and Drainage Strategy Summary

1.0 Introduction

1.1 Brennan Consult has been appointed by Cheshire Homes Group to prepare this Drainage Strategy Report to support a planning submission for construction of purpose-built student accommodation on land at College View, 410-418 Moss Lane East, Manchester, M14 4PA. The assessment has been undertaken in line with both National and Local Planning Policy along with the accompanying Technical Guidance on Flood Risk.

1.2 This Drainage Strategy Report has been commissioned by Cheshire Homes Group and is specific to their interests in the development proposals as described by the Architectural plan in Appendix A. This report may not be assigned.

1.3 The report has been commissioned to identify any drainage related issues associated with the proposed development and any likely constraints that could be imposed. The following issues have been addressed within this report.

- Determine any the current surface water drainage regime and assess any potential increase in surface water runoff as a result of the proposed development.
- Discuss Sustainable Drainage Systems (SuDS) as an option for reducing surface water flood risk and devise an outline Drainage layout.
- Devise an appropriate outline surface water drainage strategy (including calculation where appropriate) to deal with any potential increase in surface water runoff and include for climate change. Include for a reduction in predevelopment discharge rates where possible.
- Devise an appropriate outline foul water drainage strategy.

2.0 Development Description and Location

2.1 Site Location

2.1.1 The site is referenced in Figure 2, and a site location map is provided in Appendix A.

Item	Brief Description
Project name	College View
Site address and location	410-418 Moss Lane East, Manchester, M14 4PA.
Council Area	Manchester City Council (MCC)
Approximate Grid Reference	OS: 384635, 395676
General Locality	The site is located on the southern periphery of Manchester City Centre.

Figure 2 Site Referencing Information

2.2 Existing Site Description

2.2.1 The development site is largely square in plan shape and currently comprises a three-storey brown brick building comprising 19no. residential apartments.

2.2.2 Moss Lane East runs along the northern boundary with Manchester Academy High School beyond. Acombe Street is located to the west. Residential dwellings are located on the southern boundary with further student accommodation to the east.

2.2.3 The general area is predominantly residential with educational buildings nearby.

2.2.4 Figure 3 identifies the overall site location details.



Figure 3 Site Location plan.

2.3 Topography

2.3.1 A full topographical survey has been undertaken at the site. This has identified the current buildings to hold a finished floor level of 36.95m AOD. a slope then leads down to the back of footpath to Moss Lane East at 36.00m AOD. To the rear the small car park and grassed lawn hold a level of circa 36.00m AOD.

2.4 Hydrology

2.4.1 There are no identified watercourses located in close proximity.

3.0 Drainage Strategy

3.1 External Consultation

3.1.1 Brennan Consult have been in contact with United Utilities via a predevelopment drainage enquiry for the development site. Their considered response is that UU would require evidence that the SuDS Hierarchy has been assessed. Should it be proven that infiltration is not feasible then UU would allow connection to the combined water sewer in Acomb Street at a peak rate not exceeding 5l/s. Refer to Appendix D for further details.

3.2 Existing Drainage

3.2.1 United Utilities

The United Utilities sewer records have been reviewed and indicate there to be no public sewers within the site boundary. Beyond the site boundary to the west there is a 300mm diameter combined sewer within Acomb Street flowing south. Within Moss Lane East to the north there are a 2250mm diameter and 1050x750 brick egg combined sewer, both flowing west at depth. No surface water sewers have been identified in close proximity. Refer to Figure 4 below.

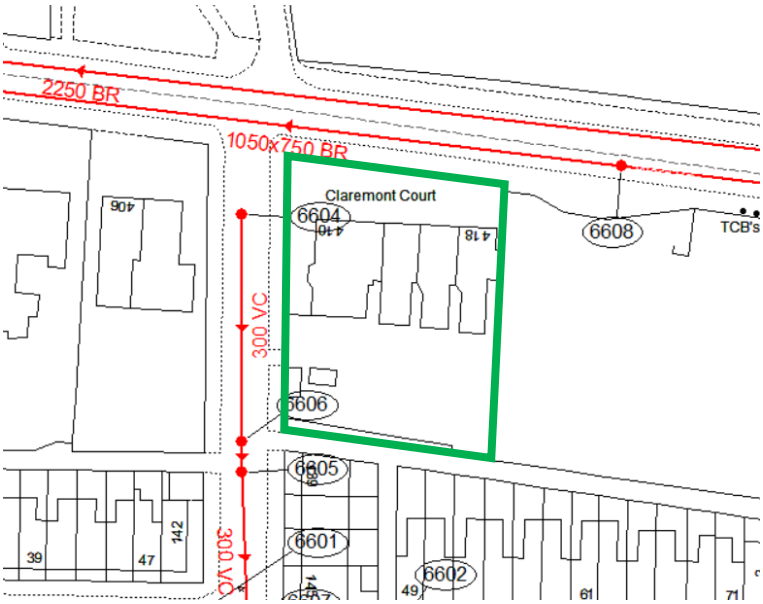


Figure 4 United Utilities Sewer Records

3.2.2 Private Drainage

The current site is fully developed, and discharge unrestricted to the combined sewer in Acomb Street.

3.3 Existing Runoff

3.3.1 The site area is predominantly impermeable with unrestricted outflows to the combined sewer network to the west of the site in Acomb Street. Figure 5 below defines the existing brownfield runoff rates based on an impermeable area of 0.136ha (85% of 0.17ha).

Existing Impermeable Area (ha)	1yr Brownfield Rate (30mm/hr)	30yr Brownfield Rate (65mm/hr)	100yr Brownfield Rate (95mm/hr)
0.136	11.3l/s	24.5l/s	35.9l/s

Figure 5 Existing Brownfield Runoff Rates

3.3.2 Although the Manchester CC SuDs Policy is a 50% reduction in Brownfield rates (6.6l/s), 5l/s will be applied to satisfy the UU request following a pre development enquiry application.

3.4 Geology

2.2 The British Geological Survey (BGS) dataset would indicate the superficial deposits to comprise Till, Divensian (Silts and Clays), with the Bedrock Geology comprising the Chester Formation – Sandstone. Local boreholes from the BGS indicate shallow made ground over sandy clay.

3.4.1 A recently completed Phase 2 site Investigation has confirmed the findings from the BGS with the underlying ground comprising shallow made ground over sandy clay to depth.

3.4.2 Based on the assessment of the ground conditions, it is considered that the underlying cohesive ground would preclude the use of infiltration as a means of draining the site.

3.5 Hydrological Assessment

3.5.1 As discussed in previous sections, a review of the topographical survey, OS Maps and Environment Agency maps would indicate there to be no watercourses in close proximity to the site.

3.6 Sustainable Drainage Systems (SuDS) Assessment

3.6.1 SuDS Objectives

Sustainable drainage developed in line with the ideals of sustainable development is collectively referred to as Sustainable Drainage Systems (SuDS). At a particular site, these systems are designed both to manage the environmental risks resulting from the urban runoff and to contribute wherever possible to environmental enhancement. SuDS objectives are therefore to minimise the impacts from the development on the quantity and quality of the runoff and maximise amenity and biodiversity opportunities (CIRIA C753, 2015).

3.6.2 SuDS Design Themes

The 'Management Train Approach' should be central to the surface water drainage strategy of the proposed site. The main objective is treatment and control of runoff as near to the source as possible protecting downstream habitats and further enhancing the amenity value of the site. This concept uses a hierarchy of drainage techniques to incrementally reduce pollution, flow rates and volumes of storm water discharge from the site, and is as follows:

i. **Prevention** – The use of good site design and housekeeping measures to prevent runoff and pollution and includes the use of rainwater reuse / harvesting.

ii. **Source Controls** – Control of runoff at source or as close to source as possible (e.g. soakaways, green roofs, pervious pavements).

iii. **Site Control** – Management of water in a local area and can include below ground storage / attenuation, detention basins, large infiltration devices.

iv. **Regional Control** – Management of water from a site or various sites and can include wetlands and balancing ponds.

3.6.3 SuDS Site Constraints

SuDS techniques are suitable for all sites; therefore, an assessment of the existing site is required so that SuDS limitations can be determined.

- *Land Use Characteristics:* The size and type of development provides the opportunity to include site control SuDS devices only.
- *Site Characteristics:* Based on the ground conditions, infiltration is not feasible.
- *Catchment Characteristics:* The site is currently fully developed and so will be classed as Brownfield.
- *Environmental and Amenity Performance:* The inclusion of SuDS within the overall development is a key driver in providing both amenity and habitat creation. SuDS will be considered where feasible. Safety to all future users is paramount and so best practice guidance will be incorporated so that these devices blend into the surrounding without the need for significant safety precautions. Maintenance plans will be prepared for all SuDS devices that are included.

3.6.4 SuDS Methods

Figures 6 and 7 on the following pages provide an assessment of various above and below ground SuDS methods that can provide water quality treatment and management of flows to reduce runoff rates and volumes and whether they can be suitably incorporated at this development site. The purpose of this assessment is to set out options to be considered at the planning stage with consideration to time constraints, viability and lifetime maintenance of the residential development.

Method	Comment	Suitability for Development
Green Roofs	• Can be used on suitable low-rise buildings to provide retention, attenuation and treatment of rainwater, and promotes evaporation and local biodiversity.	*Suitable:* • Architectural proposals for the development include flat roof which enable a green roof to be incorporated.
Water Butts	• Plastic tanks placed at the base of rainwater down pipes to collect rainwater runoff from the roof areas.	*Not suitable*: • No external rainwater pipes are proposed.
Rainwater Harvesting	• Rainwater harvesting reduces the total runoff volume from the developed site and reduces treated water consumption.	*Not Suitable*: • Additional costs of installation would have severe effect on viability of the development. • Running and maintenance costs would not be acceptable to our client and future occupiers. • The ability to restrict peak flow rates and short-term peak volumes is non-existent where a critical storm event occurs.
Infiltration Options	• Reduces total run off volume from the development.	*Not Suitable*: • Underlying cohesive ground would negate infiltration options.
Permeable Surfacing (Infiltration)	• Reduces total run off volume from the development. • Can be used to enhance water quality.	*Not Suitable*: • No external areas proposed.
Permeable Surfacing (Standard)	• Can be used to enhance quality of runoff water. • Sub-base provides 'source' storage and reduces the volume of storage downstream.	*Not Suitable*: • No external areas proposed.
Swales, basins and ponds	• Provide areas for above ground surface runoff storage. • Swales also allow filtering of particulate matter, improving water quality	*Not suitable:* • No available area for attenuation pond or swales to be allocated.
Bio-Retention	• Collect and retain run-off to help improve water quality, prior to discharge in piped system on infiltration.	*Not suitable:* • Space constraints on site do not permit above ground areas for flood storage.

Figure 6 Surface SuDS Methods

Method	Comment	Suitability for Development
Geocellular Storage	• Suitable for sites with insufficient space for basins etc. • Suitable for sites where topography prevents the use of open basins etc. • Can be very effective infiltration devices subject to ground conditions.	*Suitable:* • To be incorporated as part of the attenuation measures beneath the grassed areas.
Large Diameter Pipes, Culverts or Tanks	• Suitable for sites with insufficient space for basins etc. • Provide a volume of below ground storage with a high void ratio and good man entry provision to allow for future maintenance and cleaning. • Generally, be suitable for adoption by the statutory water company (e.g. United Utilities).	*Not Suitable*: • No external areas for large, oversized pipes.

Figure 7 Sub-Surface SuDS Methods

3.6.5 SuDS Hierarchal Approach

Based on the SuDS assessment in Figure 6 and 7, plus an assessment of the local site conditions, the SuDS hierarchal approach for discharge of surface water at the development site is considered in greater detail below:

Method	Suitability	Suitability for Development
Infiltration to Ground	No	Underlying cohesive ground would negate infiltration options.
Connection to Watercourse	No	No watercourse in close proximity.
Connection to Surface Water Sewer	No	No surface water sewers in close proximity.
Connection to a Combined Sewer	Yes	Reuse existing connection to the combined sewer in Acomb street at restricted rates.

Figure 8 SuDS Hierarchal Approach

3.6.6 SuDS Design Philosophy

The SuDS philosophy for the development site is the promotion of Source Control and Site Control techniques with discharge to the combined sewer at restricted rates.

The following design philosophy is proposed:

- Increased permeable areas.
- Source control measures in the form of a green roof.
- Site control in the form of a geocellular attenuation tank and flow control to retain the peak storm events.
- Surface water treatment using the 'Management Train' approach to remove and isolate contamination at all SuDS facilities prior to conveyance to the local sewer.

3.7 Climate Change

3.7.1 In May 2022, the Environment Agency released updated climate change allowances for peak rainfall intensities which should be applied to new developments. Rather than nation wide allowances, each area will have its own peak rainfall allowances. In the case of the Manchester area, this is the Irwell Management Catchment peak rainfall allowances.

3.7.2 Based on the nature of the development, a lifespan of circa 100 years is anticipated. Therefore, the potential climate change allowance for the 2070's Upper End Allowance for residential developments is 45%, which will be included in the hydraulic calculations.

3.8 Outline Surface Water Drainage Strategy

3.8.1 Existing brownfield surface water runoff rates have been determined for the current development site (refer to section 3.3 for details). However, to comply with MCC and UU requirements a reduced peak flow rate of 5l/s will be applied.

3.8.2 The general principal of the surface water drainage strategy is to collect the runoff from the roof of the new student accommodation building and direct it to a new below ground surface water drainage network beneath the rear lawn area. The network will then outfall to the existing 300mm diameter combined water sewer in Acomb Street via an existing connection. A flow control will be located online of the network to restrict flows to 5l/s and an online geocellular tank acting as the means of attenuation behind the flow control.

3.8.3 The proposed private drainage layout for the new development site will be designed in accordance with BS EN 752: 2008, Building Regulations part H and latest guidance. This is to provide no flooding up to the 30-year storm return period criterion.

3.8.4 Although it is envisaged that Source Controls measures such as the Green Roof could be included in the final scheme, this strategy will assume for outline calculation purposes that only Site Control methods are incorporated. A fully detailed hydraulic surface water network has been simulated in the Microdrainage Design Software. This takes into account the peak flow control of 5l/s and indicates no flooding up the 1 in 100-year 45% CC event. It is noted that these rates and volumes are preliminary for this outline assessment and are likely to alter at detailed design stage when more site-specific information is made available.

3.8.5 Drawing 2967-BCL-00-XX-DR-D-0100 in Appendix C indicates the Drainage Strategy Plan based on the Architects master plan intent, with the hydraulic calculations in Appendix D.

3.9 Pollution Control

3.9.1 The development includes roof areas only that will add limited pollution to the downstream network.

3.10 Maintenance

3.10.1 This section is intended to give an overview of the operation and maintenance for the drainage features included with the drainage strategy and in relation to typical details. Where proprietary products are specified, the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints. The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.

3.10.2 There are three types of maintenance activities associated with surface water drainage systems. The SuDS Manual, CIRIA C753, defines these as:

- Regular Maintenance – 'basic tasks undertaken on a frequent and predictable schedule' including vegetation management, litter and debris removal, and inspections.'
- Occasional Maintenance – 'tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example.'
- Remedial Maintenance – 'intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.'

3.10.3 Specific maintenance needs should be monitored, and maintenance schedules adjusted to suit the location and condition of the drainage feature in question.

Operation and Maintenance Activity	SuDS Component		
	Piped Network / Inspection Chambers	Flow Control	Attenuation Storage Tanks
Regular Maintenance			
Inspection	■	■	■
Litter and debris removal	■	■	
Occasional Maintenance			
Sediment management[1]	■	■	■
Remedial Maintenance			
Structure rehabilitation / repair	□	□	□

■ Will be required □ May be required

[1] Sediment should be collected and managed in pre-treatment systems, upstream of the main device.

Figure 9: Extract from The SuDS Manual Table 32.1: Typical key SuDS components operation and maintenance activities.

Inspection, Manhole and Catchpit Chambers

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

3.10.5 Pipes are proprietary products, and the materials can vary across the site and as such where used the manufacture's recommendations should be followed. Regardless of the product used, the pipes will be fully compliant with the drainage specification.

3.10.6 Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.

3.10.7 Access for maintenance is provided through access chambers and manholes.

3.10.8 Regular inspection and maintenance are important to identify areas which may have been obstructed / clogged and may not be drainage correctly thus exposing the development to a greater level of flood risk.

Channels & Gullies

3.10.9 Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel

units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.

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

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Remove manhole and chamber covers to sewers and flow control on network– inspect to ensure water is flowing freely and that the water flow route is unobstructed. Remove debris and silt as required.	Half Yearly Undertake one of these inspections after leaf fall in autumn
Occasional Maintenance	None required	
Remedial Actions	Re-line or replace pipework if unable to clear blockages by jetting.	As required
Monitoring	Inspect chambers for build-up of silt and debris	Half yearly

Figure 10 – Operation & maintenance requirements for pipe network, manholes & inspection chambers, drainage channels & gullies.

Geocellular Attenuation Tank

3.10.11 Geocellular tanks are modular storage systems made with plastic units. These units can be assembled to achieve the required volume and usually on multiple layers. Generally, the units have 95% of voids content and are used to create an efficient below ground structure to store surface water.

3.10.12 The geocellular units and geotextile are proprietary products and therefore manufacturer's recommendations should also be taken into consideration.

3.10.13 Access for maintenance should be provided by an access shaft located on the tank and from the manhole chambers downstream of the tank.

3.10.14 Regular inspection and maintenance are important for the effective operation of attenuation tanks as designed. As the feature is buried, a regular inspection regime is very important to ensure the correction functionality of the surface water drainage network.

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

Figure 11 – Operation & maintenance requirements for attenuation storage tanks - Based on CIRIA SuDS Manual 2015

Flow Control Units

3.10.15 Flow control units are located in catchpit chambers to act as the means of controlling the downstream flow rate. The are constructed in Stainless steel with no moving parts. The vortex is sized to suit the required flow rate which will vary depending on the head of water that backs up behind.

3.10.16 The control units are proprietary products and therefore manufacturer's recommendations should also be taken into consideration.

Maintenance Schedule	Required Action	Typical Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.
Regular maintenance\ inspection	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly.
	Debris removal from catchment surface (where may cause risks to performance).	Monthly
	Remove sediment from pre-treatment structures and flow control chambers.	Annually (or as required after heavy rainfall events)
Remedial Actions	Repair/rehabilitation of inlets.	As required.

Figure 12 – Operation & maintenance requirements for Flow Controls - Based on CIRIA SuDS Manual 2015

3.11 Foul Water Strategy

3.11.1 The foul water drainage strategy is to construct a new network within the rear lawned area that will merge with the controlled surface water network and outfall to the existing 300mm diameter combined water sewer in Acomb Street.

3.11.2 The proposed private drainage layout for the new development site will be designed in accordance with BS EN 752: 2017, Building Regulations Part H.

3.11.3 An indicative foul water drainage layout can be found on the drainage strategy drawing in Appendix C.

Appendix A – Architects Drawings



STATUS	DESCRIPTION	DATE	CHECKED BY
Rev A	Planning drawings for coordination	17.12.24	SL
Rev B	Final planning drawings	25.03.25	SL

CLIENT. Cheshire Home Limited

PROJECT. Moss Lane East Manchester

DRAWING. Site plan - Existing

STAGE. Information NO. MLE-TOD-10-ZZ-DR-A-10002

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Rev A	Planning drawings for coordination	17.12.24	SL
Rev B	Final planning drawings	25.03.25	SL

CLIENT. Cheshire Home Limited

PROJECT. Moss Lane East Manchester

DRAWING. Site plan - Proposed

STAGE. Information NO. MLE-TOD-10-ZZ-DR-A-10003

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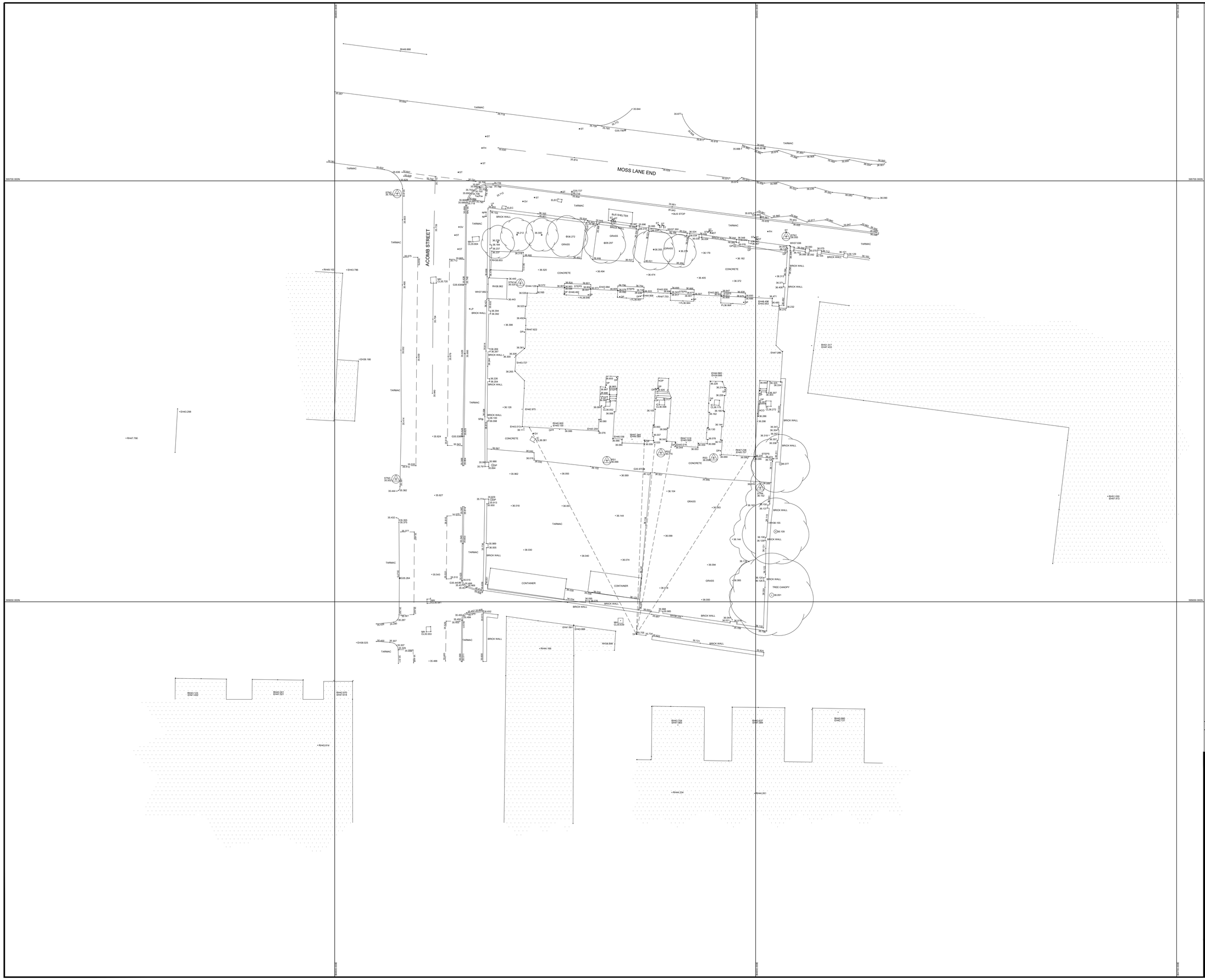
Rev no:	Date:	Amendment:	Drwn by:	Chk'd by:
P06	25.03.25	Planning issue	WA	SL

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Status:	Information
Date:	08.01.25
Drwn by:	WA
Chk'd by:	SL
Scale:	1:100
Page:	A1
Client:	Cheshire Homes Limited
Project Name:	Moss Lane East Manchester
Drawing Title:	Proposed ground floor plan
Drawing No:	MLE-TOD-20-00-DR-A-20002
Revision:	P06

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Appendix B – Topographical Survey



Topographical Survey Legend

Bin	Litter bin	**TL**	Tie line
BH	Bore Hole	**TP**	Telegraph pole
Bol	Bollard	**TPS**	Tactile paving slabs
BS	Bus stop	**TS**	Traffic signal light
BT	British telecom ic	**TV**	Television cover
CPS	Concrete paving slabs	**VP**	Vent pipe
DR	Drain	**WM**	Water meter
Elec	Electrical ic	**WO**	Wash Out
EP	Elec. pole	**UTL**	Unable to lift
ER	Earth rod		Fence annotation
FH	Fire Hydrant	**B/W**	Barbed wire
FP	Flagpole	**C/B**	Closed boarded
FT	Floodlight	**C/I**	Corrugated iron
G	Gully	**C/L**	Chain link
GP	Gate post	**C/P**	Concrete panel
GV	Gas valve	**H/R**	Hand rail
IC	Inspection cover	**I/R**	Iron railings
JB	Junction box	**O/B**	Open boarded
KO	Kerb outlet	**P/C**	Post & chain
LB	Letter box	**P/R**	Post & rail
LP	Lamp post	**P/W**	Post & wire
Mkr	Utility marker	**W/M**	Wire mesh
MP	Mile post	Level prefix descriptions	
MW	Monitoring Well	**AL**	Arch level
NP	Name plate	**BL**	Bed level
P	Post	**CL**	Cover level
PM	Parking meter	**EH**	Eaves level
RE	Rodding eye	**FL**	Floor level
RS	Road sign	**IL**	Invert level
rwp	Rain water pipe	**PL**	Parapet level
SP	Sign post	**RH**	Roof/ridge level
ST	Stop tap	**SL**	Soffit level
SB	Service Box	**Spr**	Arch springing level
SV	Stop valve	**Top**	Top of pipe/culvert
TCB	Telephone call box	**WH**	Wall height
TH	Trial Hole	**WL**	Water level

BENCH MARK INFORMATION

All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.

NOTES

ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN

DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED WITH LOCAL AUTHORITY RECORDS PRIOR TO WORK COMMENCING

Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE THE AVERAGE SPREAD. THE DRIP LINE LAYER DENOTES THE TREES EXTREMITY

SURVEY STATIONS			
STN1	384653.629	395693.390	36.055
STN1A	384622.053	395687.847	36.525
STN2	384607.428	395698.479	35.705
STN3	384607.278	395664.583	35.502
STN4	384650.546	395663.532	36.152
RS1	384632.335	395666.769	36.066
RS2	384638.747	395667.697	36.015
RS3	384645.013	395667.091	36.059

REVISIONS

REV	DESCRIPTION	SURVEYED	DRAWN	DATE

JLP Surveying

JLP Surveying Consultants Ltd,
Suite 45 Rodney House,
King Street,
Wigan
WN1 1BT
Tel - 01942 243313
Fax - 01942 492230
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EMAIL:- peterhouston@jlpsurveys.com

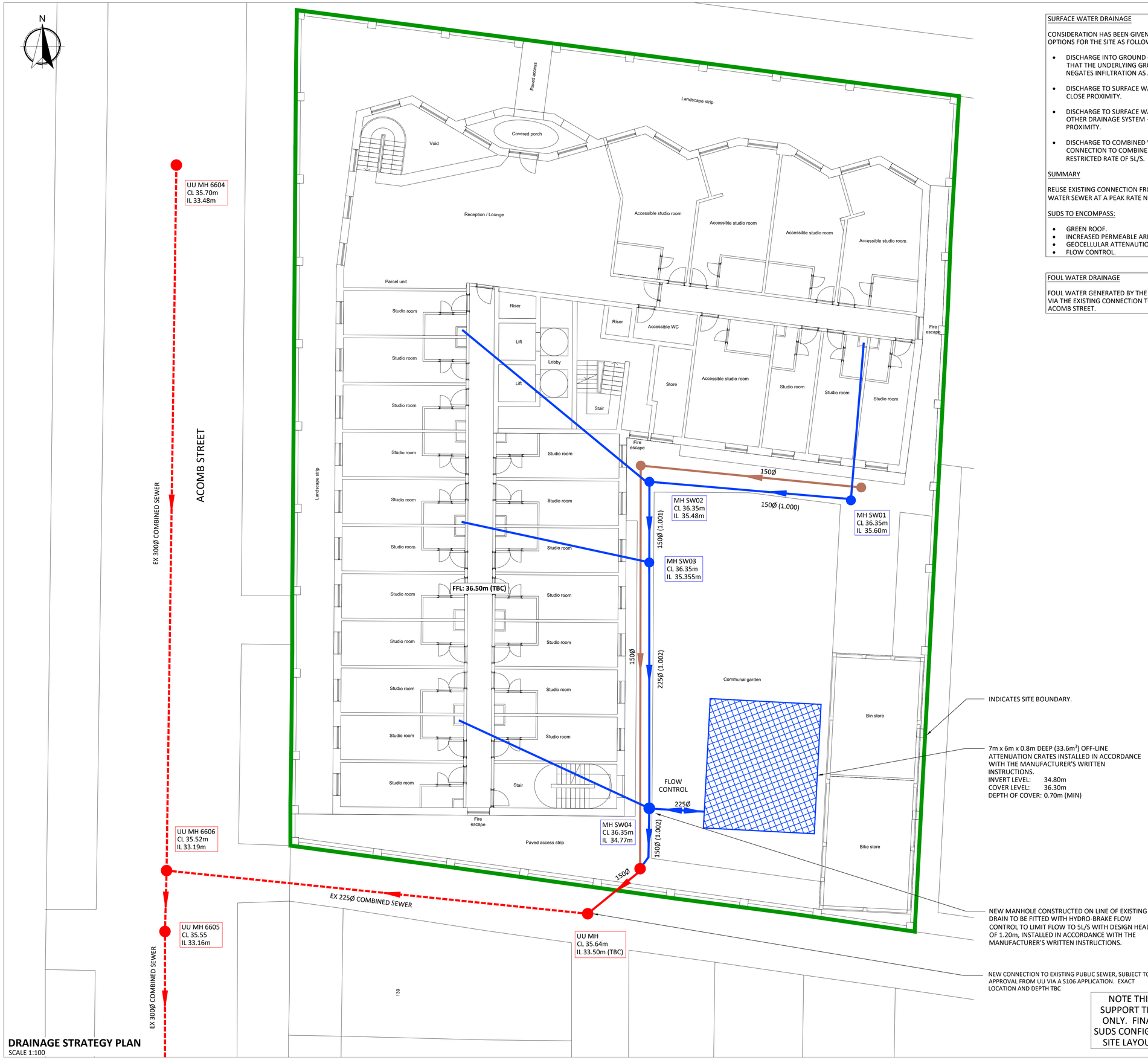
PROJECT
Moss End Lane
Manchester

DRAWING TITLE
Topographical Land Survey

SCALE	SHEET SIZE	No. of SHEETS	DATE	REVISION
1 : 200	A1	1	08.04.2024	

DRAWING NUMBER
S24-0270

Appendix C – Brennan Consult Drawings



DRAINAGE STRATEGY PLAN
SCALE 1:100

NOTE THIS DRAWING IS ISSUED TO SUPPORT THE PLANNING APPLICATION ONLY. FINAL DRAINAGE LAYOUT AND SUDS CONFIGURATION SUBJECT TO FINAL SITE LAYOUT AND DETAILED DESIGN

SURFACE WATER DRAINAGE

CONSIDERATION HAS BEEN GIVEN TO THE HIERARCHY OF DRAINAGE OPTIONS FOR THE SITE AS FOLLOWS:

- DISCHARGE INTO GROUND - INVESTIGATIONS HAVE CONFRIMED THAT THE UNDERLYING GROUND IS COHESIVE AND THEREFORE NEGATES INFILTRATION AS A MEANS OF DRAINING THE SITE.
- DISCHARGE TO SURFACE WATER BODY - NO WATERCOURSE IN CLOSE PROXIMITY.
- DISCHARGE TO SURFACE WATER SEWER, HIGHWAY DRAIN OR OTHER DRAINAGE SYSTEM - NO SURFACE WATER SEWER IN COSE PROXIMITY.
- DISCHARGE TO COMBINED WATER SEWER - REUSE EXISTING CONNECTION TO COMBINED SEWER IN ACOMB STREET AT RESTRICTED RATE OF 5L/S.

SUMMARY

REUSE EXISTING CONNECTION FROM DEVELOPMENT SITE TO COMBINED WATER SEWER AT A PEAK RATE NOT TO EXCEED 5L/S.

SUDS TO ENCOMPASS:

- GREEN ROOF.
- INCREASED PERMEABLE AREAS.
- GEOCELLULAR ATTENAUTION CRATES.
- FLOW CONTROL.

FOUL WATER DRAINAGE

FOUL WATER GENERATED BY THE NEW DEVELOPMENT WILL DISCHARGE VIA THE EXISTING CONNECTION TO THE COMBINED PUBLIC SEWER IN ACOMB STREET.

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GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ASSOCIATED DRAWINGS. ANY DISCREPANCY TO BE RAISED PRIOR TO CONSTRUCTION. ANY CONSTRUCTION WORKS WHICH COMMENCE BEFORE THESE DRAWINGS ARE APPROVED ARE AT THE RISK OF THE BUILDING CONTRACTOR.
2. ALL DIMENSIONS ARE IN MILLIMETERS (mm). DO NOT SCALE FROM THIS DRAWING, WORK TO STATED DIMENSIONS ONLY.
3. BUILDING CONTRACTOR TO ENSURE ALL WORKS COMPLY WITH THE CURRENT EDITION OF THE BUILDING REGULATIONS. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH APPROVED DOCUMENT REGULATION 7.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, FABRICATION, ERECTION AND REMOVAL OF ALL TEMPORARY WORKS AND SHALL PROVIDE ALL TEMPORARY BRACING AS NECESSARY TO MAINTAIN STRUCTURAL STABILITY DURING CONSTRUCTION.
5. IF THE CONTRACTOR CONSIDERS THAT HE DOES NOT HAVE SUFFICIENT INFORMATION TO SAFELY COMPLETE THE WORKS DETAILED ON THIS DRAWING, HE SHOULD CONTACT THE ENGINEER.

DRAINAGE LEGEND

INDICATES NEW FW DRAINAGE

INDICATES EXISTING CW SEWER

INDICATES NEW SW DRAINAGE

INDICATES NEW CW DRAINAGE

SITE BOUNDARY

CDM DESIGNER'S RISK ASSESSMENT

BRENNANCONSULT ASSUME THAT THE CONTRACTOR IS COMPETENT IN MATTERS OF HEALTH & SAFETY AND IS AWARE OF ALL THE NORMAL RISKS ASSOCIATED WITH CONSTRUCTION OF THE TYPE SHOWN ON THIS DRAWING. REMAINING UNUSUAL RISKS ARE:-

CONSTRUCTION	CHK'D.
NO UNUSUAL RISKS	CB
MAINTENANCE / CLEANING	
NO UNUSUAL RISKS	CB
DECOMMISSIONING / DEMOLITION	
NO UNUSUAL RISKS	CB

REV	REVISION DESCRIPTION	BY	DATE	CHECKED
P02	PRELIMINARY ISSUE	SD	14.02.25	LM
P01	PRELIMINARY ISSUE	PG	20.06.24	LM

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MOSS LANE EAST, MANCHESTER, M14 4PQ

RESIDENTIAL DEVELOPMENT
DRAINAGE STRATEGY PLAN

Status: PRELIMINARY

Project No.	Originator	Zone	Level	Type	Role	Drawing No.	Revision
2967	BCL	00	XX	DR	D	0100	P02

Scale	Size	Drawn	Date	Checked	Passed
1:100	A1	PG	JUNE 24	LM	CB

Appendix D – Hydraulic Calculations

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	150	SW01	36.350	35.600	0.600	Open Manhole	450
1.001	o	150	SW02	36.350	35.480	0.720	Open Manhole	450
1.002	o	225	SW03	36.350	35.355	0.770	Open Manhole	600
2.000	o	225	TANK	36.300	34.800	1.275	Open Manhole	100
1.003	o	150	SW04	36.350	34.770	1.430	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	9.500	79.2	SW02	36.350	35.480	0.720	Open Manhole	450
1.001	4.000	80.0	SW03	36.350	35.430	0.770	Open Manhole	600
1.002	14.000	87.5	SW04	36.350	35.195	0.930	Open Manhole	1200
2.000	3.000	100.0	SW04	36.350	34.770	1.355	Open Manhole	1200
1.003	3.000	100.0	CW Drain	35.600	34.740	0.710	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.003	CW Drain	35.600	34.740	34.000	0	0

Simulation Criteria for Storm

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

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

Synthetic Rainfall Details

Rainfall Model	FSR	Region	England and Wales
Return Period (years)	6	M5-60 (mm)	18.000

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Synthetic Rainfall Details

Ratio R	0.366	Cv (Winter)	0.840
Profile Type	Summer	Storm Duration (mins)	30
Cv (Summer)	0.750		

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: SW04, DS/PN: 1.003, Volume (m³): 2.4

Unit Reference	MD-SHE-0103-5000-1200-5000
Design Head (m)	1.200
Design Flow (l/s)	5.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	103
Invert Level (m)	34.770
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	5.0
Flush-Flo™	0.354	5.0
Kick-Flo®	0.745	4.0
Mean Flow over Head Range	-	4.4

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.4	1.200	5.0	3.000	7.7	7.000	11.5
0.200	4.7	1.400	5.4	3.500	8.3	7.500	11.8
0.300	5.0	1.600	5.7	4.000	8.8	8.000	12.2
0.400	5.0	1.800	6.0	4.500	9.3	8.500	12.6
0.500	4.9	2.000	6.3	5.000	9.8	9.000	12.9
0.600	4.7	2.200	6.6	5.500	10.2	9.500	13.3
0.800	4.1	2.400	6.9	6.000	10.7		
1.000	4.6	2.600	7.2	6.500	11.1		

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Storage Structures for Storm

Cellular Storage Manhole: TANK, DS/PN: 2.000

Invert Level (m) 34.800 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	42.0	42.0	5.200	0.0	62.8
0.400	42.0	52.4	5.600	0.0	62.8
0.800	42.0	62.7	6.000	0.0	62.8
0.801	0.0	62.8	6.400	0.0	62.8
1.600	0.0	62.8	6.800	0.0	62.8
2.000	0.0	62.8	7.200	0.0	62.8
2.400	0.0	62.8	7.600	0.0	62.8
2.800	0.0	62.8	8.000	0.0	62.8
3.200	0.0	62.8	8.400	0.0	62.8
3.600	0.0	62.8	8.800	0.0	62.8
4.000	0.0	62.8	9.200	0.0	62.8
4.400	0.0	62.8	9.600	0.0	62.8
4.800	0.0	62.8	10.000	0.0	62.8

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.366
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.000	Cv (Winter)	0.840

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	SW01	15 Winter	1	+0%	100/15 Summer				35.638
1.001	SW02	15 Winter	1	+0%	30/15 Summer				35.550
1.002	SW03	15 Winter	1	+0%	100/15 Summer				35.424
2.000	TANK	30 Winter	1	+0%	30/15 Winter				34.865
1.003	SW04	15 Winter	1	+0%	1/15 Summer				34.976

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	SW01	-0.112	0.000	0.15		2.6	OK	
1.001	SW02	-0.080	0.000	0.44		6.2	OK	
1.002	SW03	-0.156	0.000	0.20		9.7	OK	
2.000	TANK	-0.160	0.000	0.06		1.9	OK	
1.003	SW04	0.056	0.000	0.44		4.8	SURCHARGED	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model		FSR	Ratio R 0.366
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.000	Cv (Winter)	0.840

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	SW01	15 Summer	30	+0%	100/15 Summer				35.675
1.001	SW02	15 Summer	30	+0%	30/15 Summer				35.652
1.002	SW03	15 Summer	30	+0%	100/15 Summer				35.480
2.000	TANK	30 Winter	30	+0%	30/15 Winter				35.089
1.003	SW04	30 Winter	30	+0%	1/15 Summer				35.090

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	SW01	-0.075	0.000	0.36		6.4	OK	
1.001	SW02	0.022	0.000	1.25		17.4	SURCHARGED	
1.002	SW03	-0.100	0.000	0.58		28.4	OK	
2.000	TANK	0.064	0.000	0.16		4.8	SURCHARGED	
1.003	SW04	0.170	0.000	0.46		5.0	SURCHARGED	

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

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.366
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.000	Cv (Winter)	0.840

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

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	SW01	15 Winter	100	+45%	100/15 Summer				35.923
1.001	SW02	15 Winter	100	+45%	30/15 Summer				35.869
1.002	SW03	15 Winter	100	+45%	100/15 Summer				35.601
2.000	TANK	60 Winter	100	+45%	30/15 Winter				35.570
1.003	SW04	60 Winter	100	+45%	1/15 Summer				35.570

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	SW01	0.173	0.000	0.65		11.6	SURCHARGED	
1.001	SW02	0.239	0.000	2.25		31.6	SURCHARGED	
1.002	SW03	0.021	0.000	1.07		51.9	SURCHARGED	
2.000	TANK	0.545	0.000	0.16		4.8	SURCHARGED	
1.003	SW04	0.650	0.000	0.46		5.0	SURCHARGED	

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STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	6	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.366	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.101	4-8	0.007

Total Area Contributing (ha) = 0.108

Total Pipe Volume (m³) = 0.968

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	9.500	0.120	79.2	0.020	4.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	4.000	0.050	80.0	0.035	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	14.000	0.160	87.5	0.035	0.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	3.000	0.030	100.0	0.000	4.00	0.0	0.600	o	225	Pipe/Conduit	
1.003	3.000	0.030	100.0	0.018	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	4.14	35.600	0.020	0.0	0.0	0.0	1.13	20.0	2.7
1.001	50.00	4.20	35.480	0.055	0.0	0.0	0.0	1.12	19.9	7.4
1.002	50.00	4.37	35.355	0.090	0.0	0.0	0.0	1.40	55.6	12.2
2.000	50.00	4.04	34.800	0.000	0.0	0.0	0.0	1.31	52.0	0.0
1.003	50.00	4.42	34.770	0.108	0.0	0.0	0.0	1.00	17.8	14.6

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Appendix E – UU Pre Development Enquiry Response

Paul Graveney

From: seweradoptions@uuplc.co.uk
Sent: 21 May 2024 13:37
To: Paul Graveney
Subject: UU REF 05763143 – WW PDE – Moss Court, Moss Lane East, Manchester

Good Afternoon Paul,

Thank you for your Wastewater Pre Development Enquiry, please see our response below:

UU REF 05763143 – WW PDE – Moss Court, Moss Lane East, Manchester

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

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

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

Foul Water:

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

Our preferred point of discharge would be to either of the large diameter combined sewers within Moss Lane East

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:

- into the ground (infiltration);
- to a surface waterbody;
- to a surface water sewer or highway drain;
- 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.

Should the above be exhausted and a connection to the public sewer is required I can confirm a maximum pass forward flow rate of 5 l/s would be permitted to either of the large diameter sewers.

Regards

Anthony

United Utilities
Water for the North West

Anthony Laithwaite
Ww Engineer
Developer Services & Metering
Customer Services

M: 07880 298897
unitedutilities.com

---------- Original Message ----------
From: wastewaterdeveloperservices@uuplc.co.uk [wastewaterdeveloperservices@uuplc.co.uk]
Sent: 21/05/2024 12:24
To: pgraveney@brennanconsult.com
Subject: 05763143 - Pre Development Enquiry - Moss Lane East, Manchester

Good Afternoon

Please accept this email as receipt of your application received on 20/05/2024 for the above development. This has now been logged on our system and the job reference is 05763143 we would ask that you quote this reference in all future correspondence.

I have reviewed your application (and attachments) and can confirm this is suitable to be passed to Anthony Laithwaite for technical assessment. You will receive their response within 10 working days.

Kind regards

United Utilities
Water for the North West

Lois Williams
Developer Services Assistant
Developer Services & Metering
Customer Services
unitedutilities.com
Tel: 0345 072 6067 Option 2 for Wastewater Services)
Direct Tel:

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

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

---------- Original Message ----------
From: Paul Graveney [pgraveney@brennanconsult.com]
Sent: 20/05/2024 18:09
To: wastewaterdeveloperservices@uuplc.co.uk
Subject: Pre Development Enquiry - Moss Lane East, Manchester

Good Evening,

Please find attached our pre development wastewater enquiry for a proposed multi level student bed development on Moss Lane East, Manchester.

Regards

Paul

Paul Graveney

Civil Engineer for

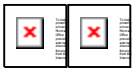
[Image is no longer available]

Signatories to the Engineer's Climate & Biodiversity Emergency declaration #engineersdeclare

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