



MMU Science and Engineering

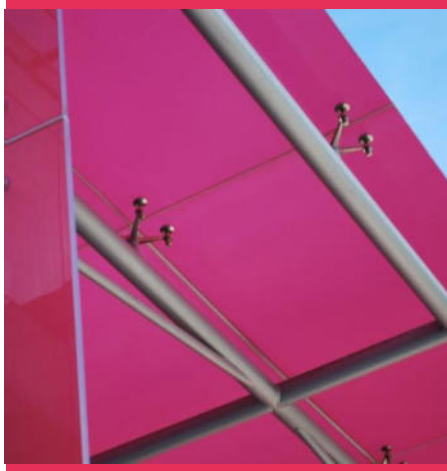
Verification Report & Drainage Maintenance Strategy

Curtins Ref: 69656-CUR-XX-XX-RE-C-0001-P01

Revision: P02

Issue Date: 06 February 2024

Client Name:	Manchester Metropolitan University
Client Address:	All Saints Building
	All Saints
	Manchester
	M15 6BH
Site Address:	John Dalton Buildings
	Chester St
	Manchester



Curtins
Merchant Exchange
17-19 Whitworth Street West
Manchester, M1 5WG
Tel: 0161 236 2394
www.curtins.com

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Control Sheet

Rev	Description	Issued by	Checked	Date
P01	Discharge Condition	JC	MW	13/10/2023
P02	Updated to LLFA Comments	ATL	MW	06/02/2024

This report has been prepared for the sole benefit, use, and information for the client. The liability of Curtins with respect to the information contained in the report will not extend to any third party.

Author	*Signature*	*Date*
Jacob Collin BEng (Hons) Graduate Civil Engineer		06 February 2024
Andrew Losty MEng (Hons) Project Engineer		06 February 2024

Reviewed	*Signature*	*Date*
Marta Wolska MEng (Hons) Senior Civil Engineer		06 February 2024

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United Utilities S185 Agreement

Appendix D

Confirmation from the contractor that drainage is built to Curtins design

1.0 Introduction

1.1 Project Background

1.1.1 Curtins was appointed by B&Kto provide a Verification and Drainage Maintenance Strategy for the proposed Manchester Metropolitan Science and Engineering Building Chester St, Manchester M1 5GD, National Grid Reference 384150E, 397200N.

1.1.2 This report is intended to give an overview of the operation and maintenance for the drainage features, included with the drainage strategy provided by Curtins in relation to as built information.

1.1.3 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.

2.0 Verification

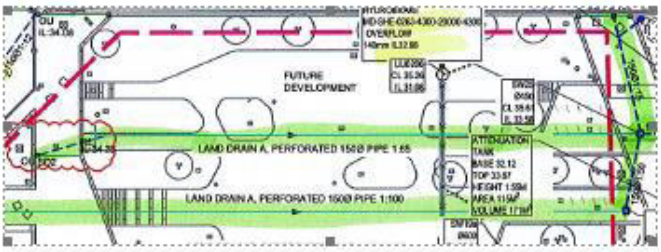
2.1.1 **T**he as-built CCTV surface and foul water drainage survey has been reviewed and indicates that drainage has been installed correctly.

2.1.2 Verification of the cleanliness of the pipework will be carried out under the final CCTV survey.

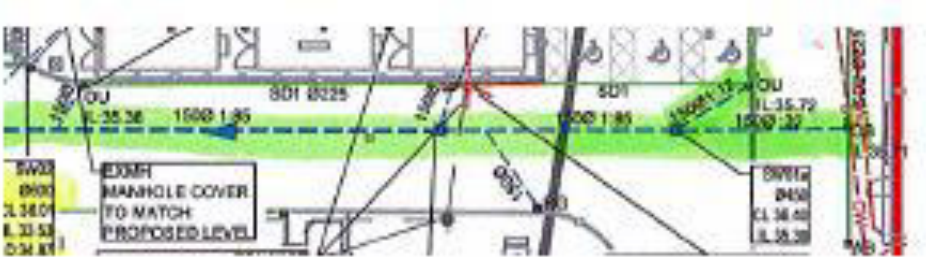
2.1.3 Contractor has confirmed belowground drainage has been built to Curtins design, email attached in Appendix D.

2.1.4 The contractor confirmed that a few pipes are required to be constructed at a later time.

- Perforated pipes in the soft landscape will be installed when welfare facilities are removed post construction.



- The surface water pipe upstream from SW02 within the road next to Greenhouse will be constructed when the existing gas is relocated and the greenhouse removed.



2.2 Diverted combined public sewer

2.2.1 The diverted combined public sewer, located within access road in the west of the site, has been accepted and inspected by United Utilities.

2.2.2 United Utilities will maintain their asset within site, the agreement attached Appendix C.

2.3 Foul water drainage

2.3.1 The private foul drainage connects to the diverted public sewer within the access road.

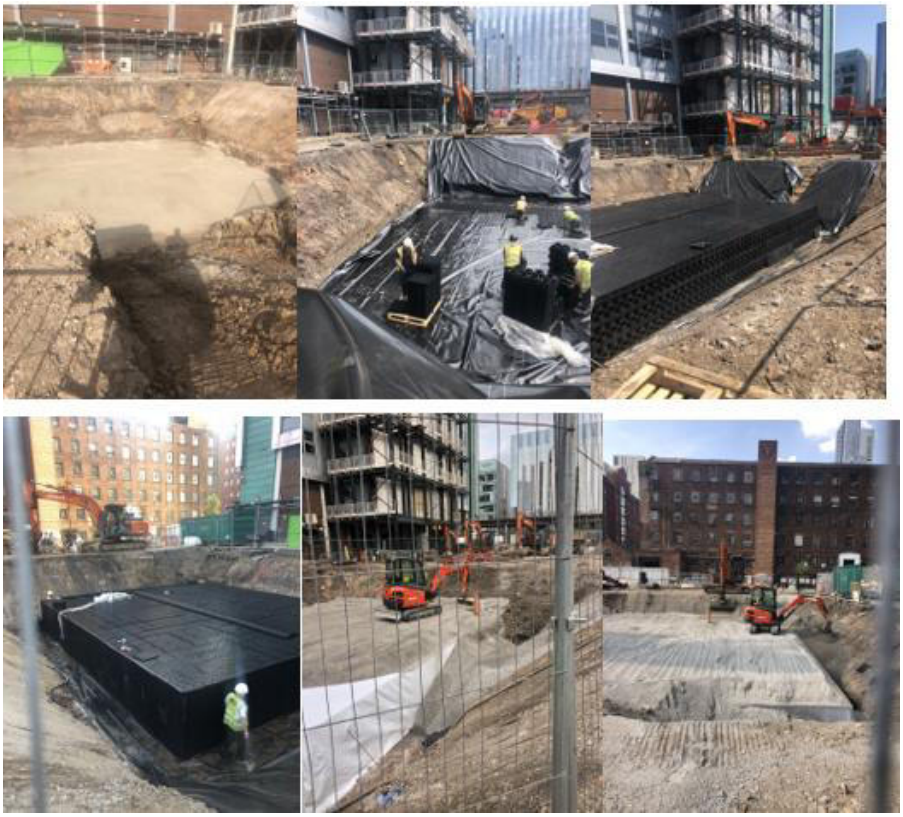
2.4 Surface water drainage

2.4.1 Surface water drainage has been designed to accommodate the flows for 1 in 100+30 Climate change.

2.4.2 Surface water connects to combined private drainage which discharges to public combined drainage within Chester Street.

2.4.3 Based on the provided photographs from the site, the tank and hydrobrake have been installed correctly and according to the design.

Attenuation tank pictures



Hydrobrake pictures



2.4.4 The tank and hydrobrake manufacturer details have been provided in Appendix B.

3.0 General Maintenance

3.1.1 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.

3.1.2 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.

3.1.3 The maintenance of the drainage works will the responsibility of Manchester Metropolitan University. They will undertake or maintenance works, or appoint contractors to do so on their behalf.

3.2 Components

3.2.1 The following components have been included within the drainage design for the proposed development:

- Inspection Chambers and Manholes
- Inspection, Manhole and Catchpit Chambers
- Pipes
- Drainage Channels and Gullies
- Attenuation Tank
- Flow Control Unit - Hydrobrake

3.2.2 The locations of the components are indicated on Curtins drainage drawings enclosed in Appendix A

3.2.3 A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

3.2.4 It is assumed that the maintenance of the private drainage network will be the responsibility of an on-site facilities management team.

3.2.5 United Utilities will maintain diverted public sewer, as it is their asset.

3.2.6 The surface water network has been designed to accommodate the 1 in 100 year storm rainfall event plus an allowance for climate change particular to the requirements of the site. It may be that the exceedance flows above the 1 in 30 year storm rainfall event are stored within the site partially above ground, on non-habitable external landscaping, parking or other space. As the flows are generally being attenuated on site and within SuDs features there will be a period of time after storm events where the network is still partially or fully surcharged and is draining down. Where this surcharging is still present after 48hrs appropriate action should be taken as noted below.

3.2.7 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.

3.2.8 Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

3.2.9 Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.

3.2.10 During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter.

3.2.11 Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

3.3 Inspection, Manhole and Catchpit Chambers

3.3.1 Access points have been located at the head of each run, at a change in direction and at a change of pipe size in accordance with Building Regulations Part H.

3.3.2 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.

3.4 Pipes

3.4.1 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 Curtins drainage specification.

3.4.2 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.

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

3.4.4 Regular inspection and maintenance is 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.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection should be provided as post construction CCTV survey.	N/A
Regular maintenance\ inspection	Inspect for evidence of poor operation via water level in chambers. If required take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required
Remedial Action	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required If above does not improve performance.

3.5 Drainage Channels and Gullies

3.5.1 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.

3.5.2 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.

3.5.3 Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the car park channels.

Maintenance Schedule	**Required Action**	**Frequency**
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection including channel outlet boxes.	Half yearly and after large storms.
Regular maintenance\ inspection	Litter and debris removal	Monthly or as required.
	Check and remove large vegetation growth near channel runs.	Monthly or as required
	Inspect for evidence of poor operation and/or weed growth. If required take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which should be reprofiled to provide a flat area or berm adjacent to the paving.	3-monthly, 48 hours after large storms.
Remedial Action	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.

3.6 Attenuation Tanks

3.6.1 The manufacturer attenuation tank details are enclosed in Appendix B.

3.6.2 The attenuation tanks are currently specified as geocellular units and are intended for storage of surface water run-off from the site up to and including the 1 in 100 year plus 30% climate change event to reduce the rate of run-off into the downstream network and to minimise flood risk.

3.6.3 The geocellular units are proprietary products and therefore manufacturer's recommendations should also be taken in to consideration.

3.6.4 Access for maintenance has been provided by an access shaft located on the tank and from the manhole chambers downstream of the tank.

3.6.5 Geocellular units are proprietary products and therefore manufacturer's recommendations should also be taken in to consideration. Additionally different manufacturers may have different connection types and arrangements which will need to be taken in to consideration.

3.6.6 Regular inspection and maintenance is 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	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets, outlets and overflows 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.	Annually (or as required after heavy rainfall events)
Remedial Actions	Repair/rehabilitation of inlets, outlets and overflows.	As required.

3.7 Flow Control Units

3.7.1 The Manufacture Hydrobrake details have been included in Appendix B.

3.7.2 The flow control units are intended for flood control and flow restriction.

3.7.3 The flow controls are specified as Hydro-brake or similar approved and are proprietary products; therefore manufacturer's recommendations should also be taken in to consideration.

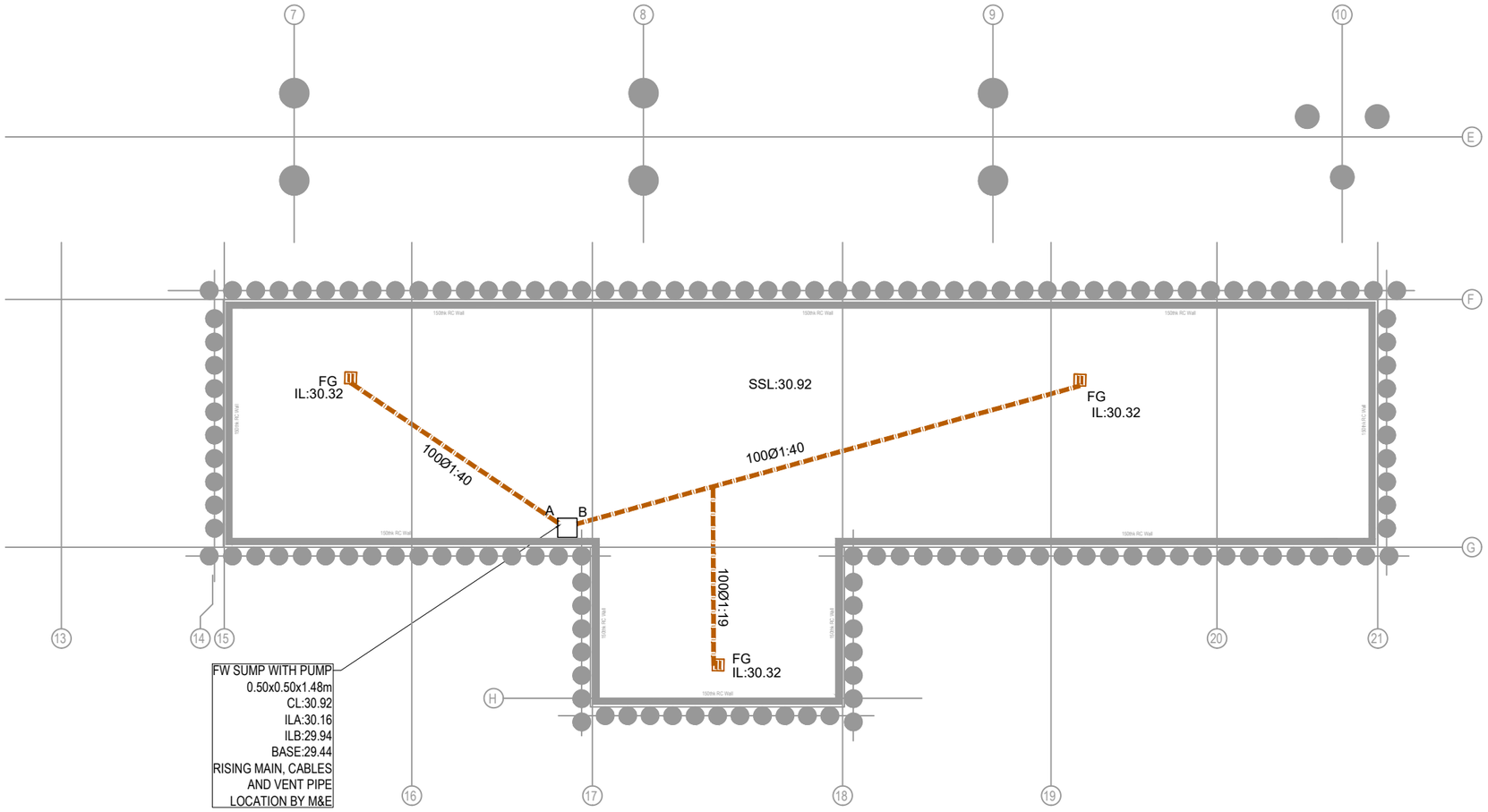
3.7.4 Access for maintenance has been provided by locating within manhole chambers.

Maintenance Schedule	**Required Action**	**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

Appendix A

Brick block basement drainage

Proposed drainage



GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.

LEGEND

PROPOSED FOUL WATER DRAIN

FG FLOOR GULLY

DRAWING BASED ON:
FOUNDATION LAYOUT 1338B-CUR-XX-ZZ-DR-S-200101 C02
GULLIES LOCATION 1338B-5PA-NB-B1-DR-A-230011 P01

CONSTRUCTION RECORD - FINAL CONSTRUCTION

THE INFORMATION IS BASED ON CONFIRMATION FROM THE CONTRACTOR OF THE INSTALLED WORKS. THERE MAY BE VARIATIONS ON SITE WHICH ARE NOT REFLECTED ON THIS DRAWING AND HAS NOT BEEN VERIFIED BY CURTINS.

Rev:	Description:	Date:	By:	Chkd:
C02	FINAL CONSTRUCTION	13.10.23	JC	MW
C01	ISSUED FOR CONSTRUCTION	13.08.21	MW	MW
P01	ISSUE STAGE 4 -TENDER	20/04/20	MW	MW

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com
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Status:
CONSTRUCTION

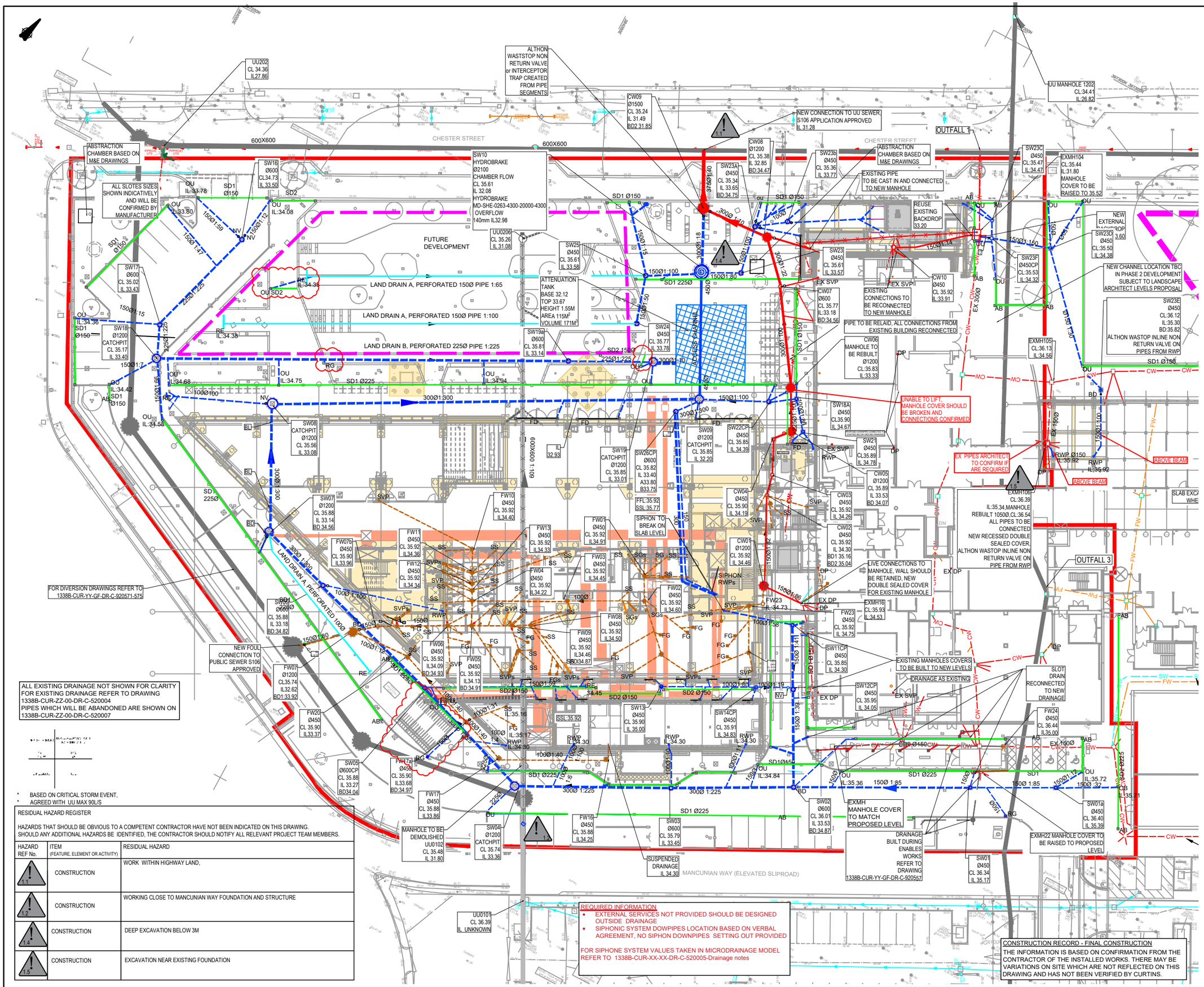
Project:
MMU SCIENCE AND ENGINEERING

Drg Title:
PROPOSED DRAINAGE LAYOUT
BASEMENT BRICK STORE

Size:	Date:	Drawn By:	Designed By:	Checked By:
A2	20/04/20	MW	MW	MW
Scale: 1:100				

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
1338B	CUR	XX	B1	DR	C	920506	C02

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RESIDUAL HAZARD REGISTER

HAZARDS THAT SHOULD BE OBVIOUS TO A COMPETENT CONTRACTOR HAVE NOT BEEN INDICATED ON THIS DRAWING. SHOULD ANY ADDITIONAL HAZARDS BE IDENTIFIED, THE CONTRACTOR SHOULD NOTIFY ALL RELEVANT PROJECT TEAM MEMBERS.

HAZARD REF No.	ITEM (FEATURE, ELEMENT OR ACTIVITY)	RESIDUAL HAZARD
1.1	CONSTRUCTION	WORK WITHIN HIGHWAY LAND,
1.2	CONSTRUCTION	WORKING CLOSE TO MANCUNIAN WAY FOUNDATION AND STRUCTURE
1.4	CONSTRUCTION	DEEP EXCAVATION BELOW 3M
1.5	CONSTRUCTION	EXCAVATION NEAR EXISTING FOUNDATION

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. FOR ALL NOTES REFER TO 1338B-CUR-YY-GR-DR-C-920503
4. NOTE ALL SLOT DRAIN SIZES ARE SHOWN INDICATIVELY AND TBC BY MANUFACTURER.

LEGEND

- PHASE 1 SITE BOUNDARY BASED ON 1338B-BDP-YY-GF-DR-A-000006
- EXTENT OF FUTURE DEVELOPMENT BASED BASED ON 2006-PLA-EE-ES-DR-L-0001 P08
- EX FOUL WATER DRAIN- GPR SURVEY
- EX COMBINED WATER SEWER- GPR SURVEY
- EXISTING UU COMBINED SEWER- UU RECORDS

BASED ON CCTV SURVEY

- FW EX FOUL WATER DRAIN
- CW EX COMBINED WATER DRAIN
- SW EX SURFACE WATER DRAIN

PROPOSED DRAINAGE

- PROPOSED FOUL WATER DRAIN
- PROPOSED SURFACE WATER DRAIN
- LAND DRAIN A- WRAPPED WITH GEOTEXTILE
- LAND DRAIN B-WRAPPED IMPERMEABLE MEMBRANE
- PROPOSED COMBINED WATER DRAIN
- PROPOSED SEWER DIVERSION
- PROPOSED INTERNAL SERVICES
- PROPOSED CELLULAR STORAGE
- UU EASEMENT EXTENT
- FOUNDATION
- SD GATIC SLOT DRAIN SD1-HEAVY VEHICLE AREA SD2 PEDESTRIAN AREA WITH MEWP OVERRUN
- FD GATIC FACADE SLOT DRAIN
- SVP SOIL VENT PIPE
- SS SUB STACK
- FG FLOOR GULLY
- RG ROAD GULLY
- SG SHOWER GULLY
- CAST IN
- DP DOWNPIPE
- EX EXISTING
- NV NON RETURN VALVE
- BD BACK DROP
- BB BELOW BEAM
- TB THROUGH BEAM
- AF ABOVE BEAM
- AB ACCESS BOX
- OU OUTLET BOX

DRAWING BASED ON:
GPR SURVEY18H083 SEPT 2018 BY SURVEY OPERATIONS
CCTV SURVEY 22977 BY SUBSCAN 05.06.2019
UU ASSET RECORDS UUPS-ORD-54585 06.09.2018
GROUND FLOOR ARCHITECT LAYOUT
1338B-5PA-NB-00-DR-A-200001 P03
1338B-5PA-NB-00-DR-A-200002 P03
FOUNDATION LAYOUT 1338B-CUR-XX-FD-DR-S-170001 C03 27.04.21
CRANE BASE 02.06.21

POPUP LOCATION AND DISCHARGE UNITS BASED ON
NB-00-DR-M-520001 21.05.21
NB-00-DR-M-520002 21.05.21
DISCHARGE UNITS MMU-NGB-00-CA-M-5001 P1 04.05.21
JD CENTER SETTING OUT 1338B-5PA-W1-00-DR-A-230075 C03

ROOF AREA
GRAVITY 1338B-NGB-NB-CA-M-520002 P2 26.05.21
SIPHONIC DRAINAGE
WES-ZZ-ZZ-DR-Y-298801T02&EMAIL12.05 FROM B&K

LANDSCAPE PLAN AND LEVELS RFM-XX-00-M2-L-0001 WORK IN PROGRESS 26.05.23

EXTERNAL SERVICES - NOT PROVIDED
INTERNAL SERVICES NB-00-DR-E-908001 P06 21.05.21

Rev:	Description:	Date:	By:	Chkd:
C10	FINAL CONSTRUCTION	13.10.23	JC	MW
C09	DRAINAGE CHANNELS AMENDED, LANDSCAPE LAYOUT AMMENDED	.	ATL	MW
C08	SLOPE TO S02 CHANGED	23.11.22	MW	MW
C07	UPDATED AS CLOUDED	20.04.22	TH	MW
C06	AS CLOUDED	19.01.22	MW	MW
C05	FOUNDATION LAYOUT UPDATED	15.11.21	TH	MW
C04	AS CLOUDED	13.08.21	MW	MW
C03	UPDATED MANHOLE DETAILS	27.07.21	TH	MW

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 236 2394
manchester@curtins.com
www.curtins.com
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Status: CONSTRUCTION

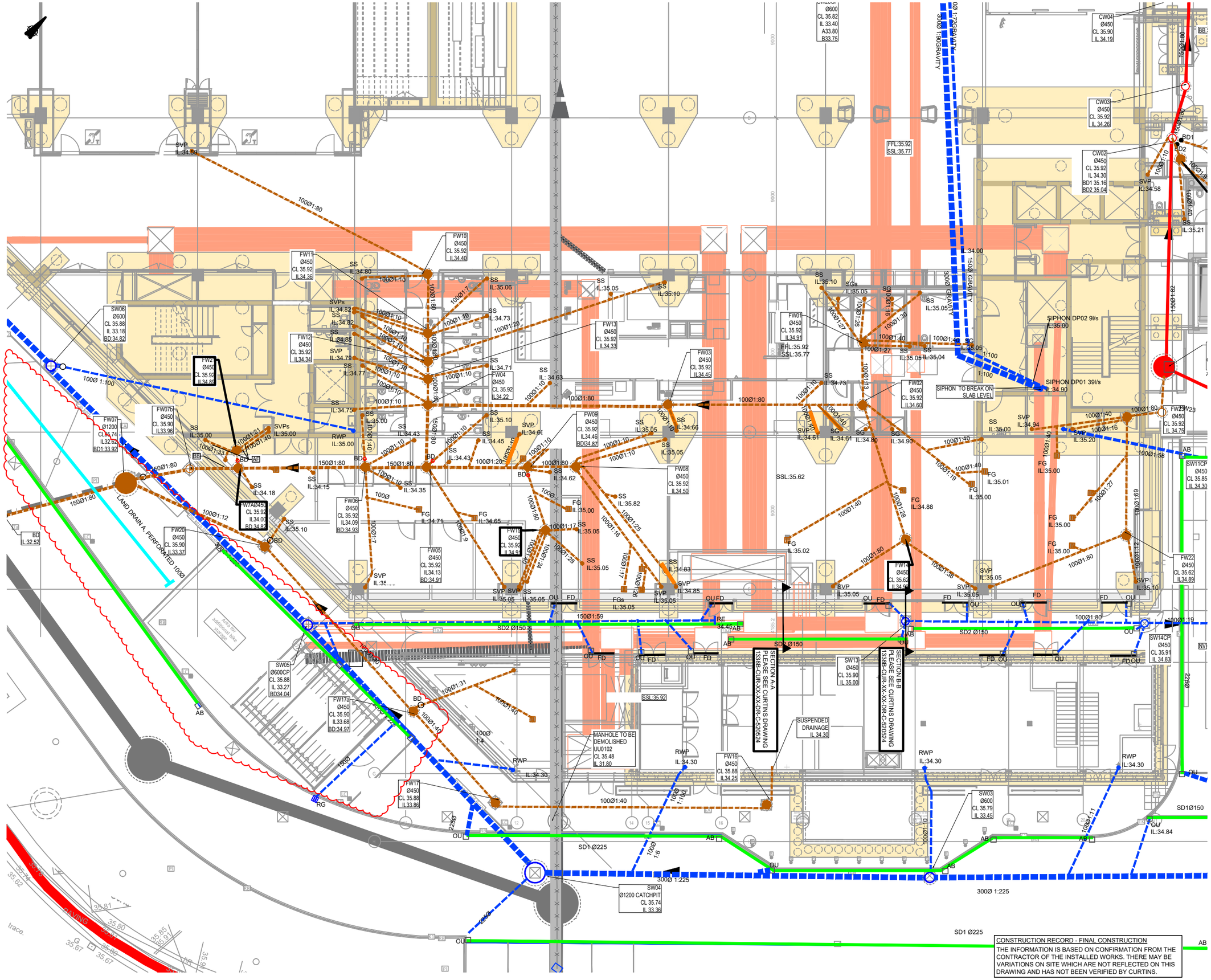
Project: MMU SCIENCE AND ENGINEERING

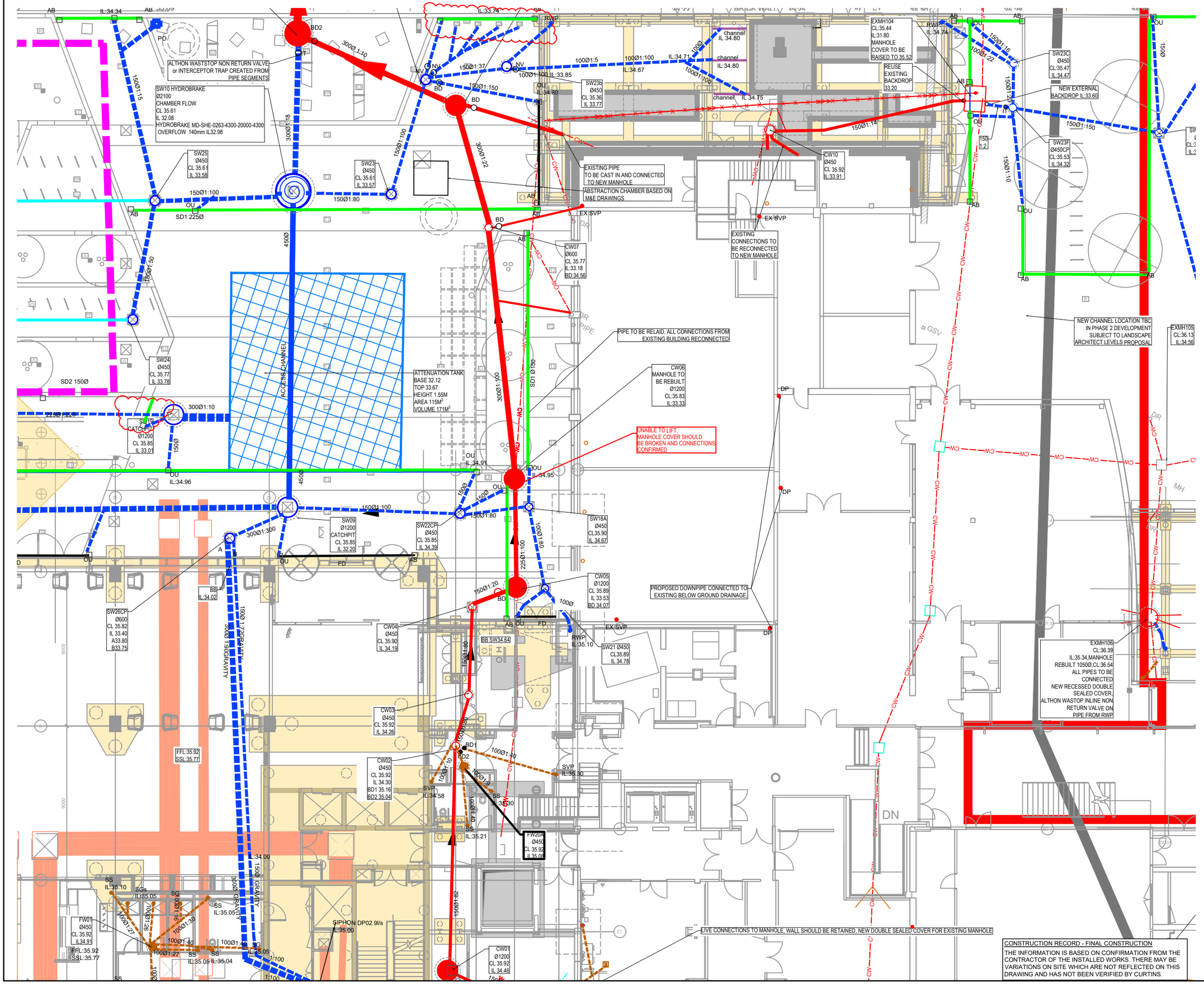
Drg Title: PROPOSED DRAINAGE LAYOUT SHEET 1

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
069656	A1	25/05/21	MW	MW	MW
	Scale: 1:250				

Project Code:	Originator:	Zone:	Level:	Type:	Discipline:	Category / Number:	Rev:
1338B	CUR	ZZ	00	DR	C	520 000	C10

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SVP IL:34.89
100Ø1:80
FW11 Ø450 CL 35.92 IL34.36
FW10 Ø450 CL 35.92 IL34.40
SW06 Ø600 CL 35.88 IL 33.18 BD 34.82
FW12 Ø450 CL 35.92 IL34.34
FW2 Ø450 CL 35.92 IL34.68
FW13 Ø450 CL 35.92 IL34.33
FW03 Ø450 CL 35.92 IL34.45
FW04 Ø450 CL 35.92 IL34.22
FW01 Ø450 CL 35.92 IL34.91
FW07 Ø1200 CL 35.74 IL32.52 BD1 33.92
FW07b Ø450 CL 35.90 IL33.96
FW09 Ø450 CL 35.92 IL34.46 BD34.87
FW08 Ø450 CL 35.92 IL34.50
FW06 Ø450 CL 35.92 IL34.09 BD34.93
FW05 Ø450 CL 35.92 IL34.13 BD34.91
FW15 Ø450 CL 35.92 IL34.91
FW20 Ø450 CL 35.90 IL33.37
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FW14 Ø450 CL 35.62 IL34.89
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FW23 Ø450 CL 35.92 IL34.75
SW05 Ø600CP CL 35.88 IL 33.27 BD34.04
SW13 Ø450 CL 35.90 IL 35.00
SW03 Ø600 CL 35.79 IL 33.45
SW04 Ø1200 CATCHPIT CL 35.74 IL 33.36
SW14CP Ø450 CL 35.91 IL 34.83
SW11CP Ø450 CL 35.85 IL 34.30
SW12CP Ø450 CL 35.91 IL 34.84
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FG IL:34.88
FG IL:35.02
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SUSPENDED DRAINAGE IL 34.30
MANHOLE TO BE DEMOLISHED UU0102 CL 35.48 IL 31.80
SIPHON DP02 9l/s IL:35.00
SIPHON DP01 39l/s IL:34.90
SIPHON TO BREAK ON SLAB LEVEL
SECTION A-A PLEASE SEE CURTINS DRAWING 1338B-CUR-XX-XX-DR-C-520524
SECTION B-B PLEASE SEE CURTINS DRAWING 1338B-CUR-XX-XX-DR-C-520524
LAND DRAIN A- PERFORATED 100Ø
Area for additional bike storage
Area for additional bike storage
150Ø GRAVITY
300Ø GRAVITY
SD2 Ø150
SD1 Ø225
SD1Ø150
300Ø 1:225
150Ø1:80
150Ø1:59
100Ø1:40
100Ø1:27
100Ø1:30
100Ø1:26
100Ø1:16
100Ø1:13
100Ø1:10
100Ø1:12
100Ø1:33
100Ø1:21
100Ø1:40
100Ø1:31
100Ø1:41
100Ø1:17
100Ø1:24
100Ø1:28
100Ø1:25
100Ø1:35
100Ø1:19
100Ø1:58
100Ø1:69
100Ø1:82
100Ø1:11
100Ø1:10
100Ø 1:100
100Ø 1:4
100Ø 1:6
100Ø 1:100
1:100
1:100
2250
2260
9000
9000
1:185.2
BD
AB
AF
OU
FD
RE
RG
TB
BB
AB
SD
FD
SVP IL:34.94
SS IL:35.00
FG IL:35.00
FG IL:35.00
FG



GENERAL NOTES:

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. FOR ALL NOTES REFER TO 1338B-CUR-YY-GR-DR-C-920503
4. NOTE ALL SLOT DRAIN SIZES ARE SHOWN INDICATIVELY AND TBC BY MANUFACTURER.

LEGEND

- PHASE 1 SITE BOUNDARY BASED ON 1338B-BDP-YY-GF-DR-A-000006
- EXTENT OF FUTURE DEVELOPMENT BASED BASED ON 2006-PLA-EE-ES-DR-L-0001 P08
- EX FOUL WATER DRAIN- GPR SURVEY
- EX COMBINED WATER SEWER- GPR SURVEY
- EX SURFACE WATER DRAIN-GPR SURVEY
- EXISTING UU COMBINED SEWER- UU RECORDS
- PROPOSED DIVERSION FOR UNKNOWN DRAIN BASED ON CCTV SURVEY
- FW EX FOUL WATER DRAIN
- CW EX COMBINED WATER DRAIN
- SW EX SURFACE WATER DRAIN

PROPOSED DRAINAGE

- PROPOSED FOUL WATER DRAIN
- PROPOSED SURFACE WATER DRAIN
- SURFACE WATER PERFORATED PIPE
- PROPOSED COMBINED WATER DRAIN
- PROPOSED INTERNAL SERVICES
- PROPOSED CELLULAR STORAGE
- UU EASEMENT EXTENT
- FOUNDATION
- SD GATIC SLOT DRAIN SD1-HEAVY VEHICLE AREA, SD2 PEDESTRIAN AREA WITH MEWP OVERRUN
- FD GATIC FACADE SLOT DRAIN
- SVP SOIL VENT PIPE
- SS SUB STACK
- FG FLOOR GULLY
- RG ROAD GULLY
- DP DOWNPIPE
- EX EXISTING
- NV NON RETURN VALVE
- BD BACK DROP
- BB BELOW BEAM
- TB THROUGH BEAM
- AF ABOVE BEAM
- AB ACCESS BOX
- OU OUTLETBOX

DRAWING BASED ON:
GPR SURVEY18H083 SEPT 2018 BY SURVEY OPERATIONS
CCTV SURVEY 22977 BY SUBSCAN 05.06.2019
UU ASSET RECORDS UUPS-ORD-54585 06.09.2018
GROUND FLOOR ARCHITECT LAYOUT
1338B-5PA-NB-00-DR-A-200001 P03
1338B-5PA-NB-00-DR-A-200002 P03
FOUNDATION LAYOUT 1338B-CUR-XX-FD-DR-S-170001 C03
27.04.21
CRANE BASE 02.06.21

POPUP LOCATION AND DISCHARGE UNITS BASED ON
NB-00-DR-M-520001 21.05.21
NB-00-DR-M-520002 21.05.21
DISCHARGE UNITS MMU-NGB-00-CA-M-5001 P1 04.05.21
JD CENTER SETTING OUT 1338B-5PA-W1-00-DR-A-230075 C03

ROOF AREA
GRAVITY 1338B-NGB-NB-CA-M-520002 P2 26.05.21
SIPHONIC DRAINAGE
WES-ZZ-ZZ-DR-Y-298801T02&EMAIL12.05 FROM B&K

LANDSCAPE PLAN 25.05.23

EXTERNAL SERVICES - NOT PROVIDED
INTERNAL SERVICES NB-00-DR-E-908001 P04 21.05.21

Rev:	Description:	Date:	By:	Chkd:
C09	FINAL CONSTRUCTION	13.10.23	JC	MW
C08	LANDSCAPE LAYOUT UPDATED, CHANNELS AMMENDED	01.06.23	MW	MW
C07	UPDATED AS CLOUDED	20.04.22	TH	MW
C06	AS CLOUDED	19.01.22	MW	MW

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manchester@curtins.com
www.curtins.com
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Status: CONSTRUCTION

Project: MMU SCIENCE AND ENGINEERING

Drg Title: PROPOSED DRAINAGE LAYOUT SHEET 3

Size:	Date:	Drawn By:	Designed By:	Checked By:
A1	25/05/21	MW	MW	MW

Scale: 1:100

Project No: | Originator: | Volume: | Level: | Type: | Role: | Category / Number: | Rev:

1338B - CUR - ZZ - 00 - DR - C - 520 002 - C09

\\mt-fs-1\Projects\909001 - 910000\909058 - MMU Science and Engineering\2MS e Production\4B Models & Drawings\02-Civils\002\Drawings\STAGE 5\

ALL EXISTING DRAINAGE HASN'T BEEN SHOWN FOR CLARITY
FOR EXISTING DRAINAGE REFER TO DRAWING 1338B-CUR-YY-GR-DR-C-920512
PIPES WHICH WILL BE ABANDONED ARE SHOWN ON 1338B-CUR-YY-GR-DR-C-920513

NEW CONNECTION TO UU SEWER S106 APPLICATION APPROVED IL 31.28
OUTFALL 1
UU MANHOLE 1202 CL:34.41 IL:26.82
CHESTER STREET
ABSTRACTION CHAMBER BASED ON M&E DRAWINGS
EXISTING PIPE TO BE CAST IN AND CONNECTED TO NEW MANHOLE
REUSE EXISTING BACKDROP 33.20
NEW EXTERNAL BACKDROP 3.60
EXMH104 CL:35.44 IL:31.80 MANHOLE COVER TO BE RAISED TO 35.52
NEW CHANNEL LOCATION TBC IN PHASE 2 DEVELOPMENT SUBJECT TO LANDSCAPE ARCHITECT LEVELS PROPOSAL
SW23E Ø450 CL:36.12 IL:35.30 BD:35.82 ALTHON WASTOP INLINE NON RETURN VALVE ON PIPES FROM RWP
ALLOW NEW RECESSED MANHOLE COVERS FOR EXISTING MANHOLES IN PAVED FOOTWAY,
ALLOW EXISTING MANHOLE COVERS RISE/LOWER TO SUITS NEW LEVELS WITHIN LANDSCAPE
EXTERNAL AREA DRAINAGE IN ABEYANCE, AWAITING TO FIXED LAYOUT & EXTERNAL LEVELS
CULVERT H770mmXW560mm
EXMH 91 CL:35.77 IL:32.28
OUTFALL 2
FUTURE DEVELOPMENT
PIPE TO BE RELAID, ALL CONNECTIONS FROM EXISTING BUILDING RECONNECTED
UNABLE TO LIFT, MANHOLE COVER SHOULD BE BROKEN AND CONNECTIONS CONFIRMED
150 dia RWPs CONNECTED TO BACK INLET GULLY
CULVERT VISIBLE ON CCTV SURVEY BUT NOT SURVEYED, UNKNOWN HOW FAR IS GOING TO THE BUILDING
EXMH 92 CL:35.97 IL:35.16
CAPPED CONNECTION
CULVERT H770XW560
REUSE EXISTING CONNECTIONS TO MANHOLE FROM GULLIES FOR NEW CONNECTION FROM CHANNEL
EX PIPE ARCHITECT TO CONFIRM IF IT IS REQUIRED
EX PIPES ARCHITECT TO CONFIRM IF ARE REQUIRED
ABOVE BEAM
SLAB EXCAVATION WITHIN JDC REQUIRED WHERE NEW DRAINAGE PROPOSED
MANHOLE TO BE REBUILT TO Ø450 ALLOW NEW CONNECTION CL:36.54
ALLOW TO REBUILT MANHOLE TO Ø1200 TO ALLOW NEW CONNECTION CL:36.54
EXMH93 CL:36.36 IL:35.36
NEW RECESSED DOUBLE SEALED COVER
EXMH94 CL:36.30 IL:35.50
EXISTING CONNECTION TO BE CAPPED/ GROUTED
EXMH106 CL:36.39 IL:35.34,MANHOLE REBUILT 1050Ø,CL:36.54 ALL PIPES TO BE CONNECTED NEW RECESSED DOUBLE SEALED COVER, ALTHON WASTOP INLINE NON RETURN VALVE ON PIPE FROM RWP
LIVE CONNECTIONS TO MANHOLE, WALL SHOULD BE RETAINED, NEW DOUBLE SEALED COVER FOR EXISTING MANHOLE
OUTFALL 3
EXISTING MANHOLES COVERS TO BE BUILT TO NEW LEVELS
DRAINAGE AS EXISTING
SLOT DRAIN RECONNECTED TO NEW DRAINAGE
ALTHON WASTOP INLINE NON RETURN VALVE ON SURFACE WATER PIPE FROM SLOT
FLUSH KERB FOR KERBS TO ALLOW SURFACE WATER FLOW TO SOFT LANDSCAPE
IT WILL FLOOD FROM CHANNELS CHANNELS FLOOD MITIGATION IS NOT PART OF THE DESIGN BY CURTINS, DRAINAGE SHOULD BE DESIGN TO MITIGATE EXISTING FLOODING ISSUES AROUND HEAVY ENGINEERING
ALTHON WASTOP INLINE NON RETURN VALVE ON SURFACE WATER PIPE FROM SLOT
CAPACITY OF EXISTING PIPES IS NOT SUFFICIENT, FLOODING ISSUES, REFER TO1338B-CUR-YY-GF-DR-C-920514
EXMH COVER TO MATCH PROPOSED LEVEL
DRAINAGE BUILT DURING ENABLES WORKS REFER TO DRAWING 1338B-CUR-YY-GF-DR-C-920557
EXMH22 MANHOLE COVER TO BE RAISED TO PROPOSED LEVEL
MANCUNIAN WAY (ELEVATED SLIPROAD)
OXFORD ROAD
FUTURE DEVELOPMENT

GENERAL NOTES:

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2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. FOR ALL NOTES REFER TO 1338B-CUR-YY-GR-DR-C-920503
4. NOTE ALL SLOT DRAIN SIZES ARE SHOWN INDICATIVELY AND TBC BY MANUFACTURER.

LEGEND

- PHASE 1 SITE BOUNDARY BASED ON 1338B-BDP-YY-GF-DR-A-000006
- EXTENT OF FUTURE DEVELOPMENT BASED BASED ON 2006-PLA-EE-ES-DR-L-0001 P08
- EX FOUL WATER DRAIN- GPR SURVEY
- EX COMBINED WATER SEWER- GPR SURVEY
- EX SURFACE WATER DRAIN-GPR SURVEY
- EXISTING UU COMBINED SEWER- UU RECORDS
- PROPOSED DIVERSION FOR UNKNOWN DRAIN BASED ON CCTV SURVEY
- FW EX FOUL WATER DRAIN
- CW EX COMBINED WATER DRAIN
- SW EX SURFACE WATER DRAIN

PROPOSED DRAINAGE

- PROPOSED FOUL WATER DRAIN
- PROPOSED SURFACE WATER DRAIN
- SURFACE WATER PERFORATED PIPE
- PROPOSED COMBINED WATER DRAIN
- PROPOSED SEWER DIVERSION
- PROPOSED CELLULAR STORAGE
- UU EASEMENT EXTENT
- FOUNDATION
- EXISTING FOUNDATION
- SD GATIC SLOT DRAIN SD1-HEAVY VEHICLE AREA, SD2 PEDESTRIAN AREA WITH MEWP OVERRUN
- FD GATIC FACADE SLOT DRAIN
- SVP SOIL VENT PIPE
- SS SUB STACK
- FG FLOOR GULLY
- RG ROAD GULLY
- SG SHOWER GULLY
- CI CAST IN
- DP DOWNPIPE
- EX EXISTING
- NV NON RETURN VALVE
- BD BACK DROP
- BB BELOW BEAM
- TB THROUGH BEAM
- AB ABOVE BEAM
- AB ACCESS BOX
- OU OUTLET BOX

DRAWING BASED ON:
GPR SURVEY18H083 SEPT 2018 BY SURVEY OPERATIONS
CCTV SURVEY 22977 BY SUBSCAN 05.06.2019
UU ASSET RECORDS UUPS-ORD-54585 06.09.2018
GROUND FLOOR ARCHITECT LAYOUT 1338B-5PA-NB-00-DR-A-200001 P03
1338B-5PA-NB-00-DR-A-200002 P03
FOUNDATION LAYOUT 1338B-CUR-XX-FD-DR-S-170001 C03 27.04.21
CRANE BASE 02.06.21

POPUP LOCATION AND DISCHARGE UNITS BASED ON NB-00-DR-M-520001 21.05.21
NB-00-DR-M-520002 21.05.21
DISCHARGE UNITS MMU-NGB-00-CA-M-5001 P1 04.05.21
JD CENTER SETTING OUT 1338B-5PA-W1-00-DR-A-230075 C03

ROOF AREA
GRAVITY 1338B-NGB-NB-CA-M-520002 P2 26.05.21
SIPHONIC DRAINAGE
WES-ZZ-ZZ-DR-Y-298801T02&EMAIL12.05 FROM B&K

LANDSCAPE PLAN AND LEVELS RFM-XX-00-M2-L-0001 WORK IN PROGRESS 22.03.22

EXTERNAL SERVICES - NOT PROVIDED
INTERNAL SERVICES NB-00-DR-E-908001 P04 21.05.21

Rev:	Description:	Date:	By:	Chkd:
C07	FINAL CONSTRUCTION	13.10.23	JC	MW
C06	LAYOUT UPDATED, CHANNEL AMMENDED	01.06.23	MW	MW
C05	SLOPE UPDATED TO S02	23.11.22	MW	MW
C04	UPDATED AS CLOUDED	20.04.22	TH	MW

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Status: CONSTRUCTION

Project: MMU SCIENCE AND ENGINEERING

Drg Title: PROPOSED DRAINAGE LAYOUT SHEET 4

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
069656	A1 Scale: 1:250	19/07/19	MW	MW	CG

Project Code: 1338B | Originator: CUR | Zone: YY | Level: 00 | Type: DR | Discipline: C | Category / Number: 520 003 | Rev: C07

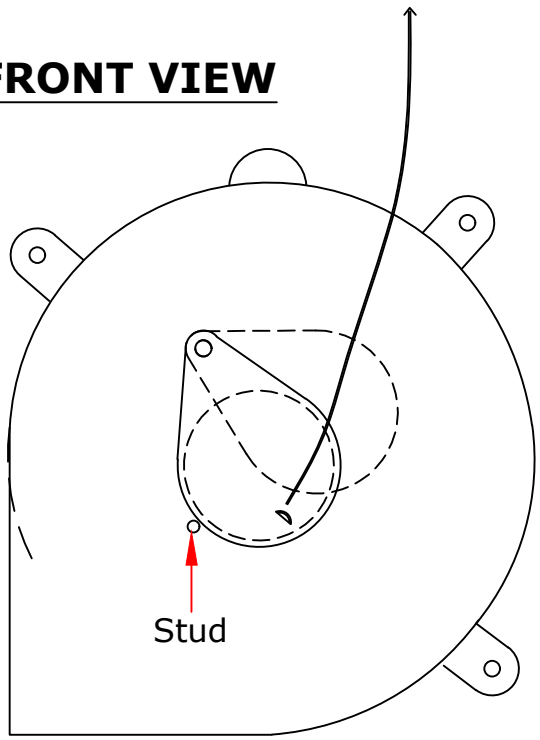
CONSTRUCTION RECORD - FINAL CONSTRUCTION
THE INFORMATION IS BASED ON CONFIRMATION FROM THE CONTRACTOR OF THE INSTALLED WORKS. THERE MAY BE VARIATIONS ON SITE WHICH ARE NOT REFLECTED ON THIS DRAWING AND HAS NOT BEEN VERIFIED BY CURTINS.

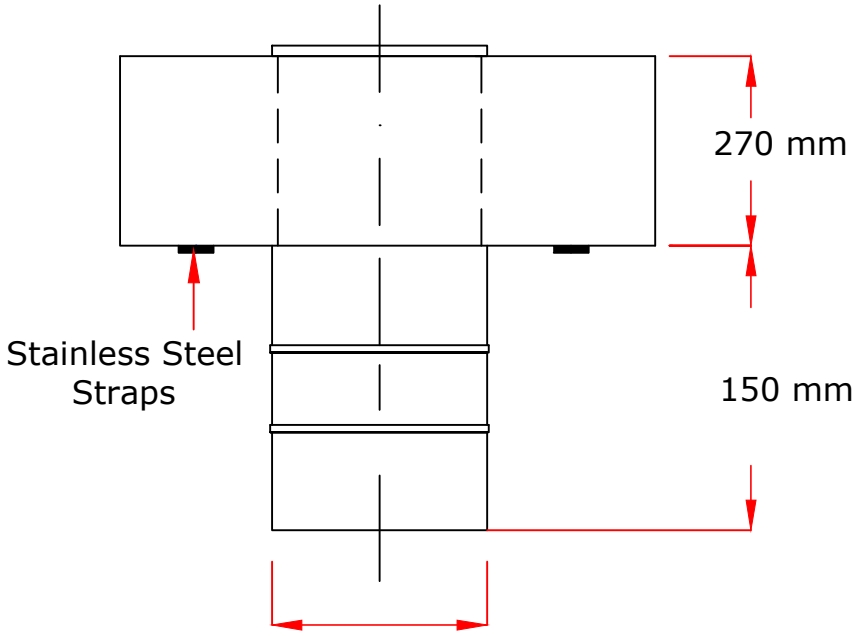
\\mm-fs-1\Projects\069001 - 070000\069656 - MMU Science and Engineering\DMS 4 Production\4B Models & Drawings\002-Civils\002-Drawings\STAGE 5\

Appendix B

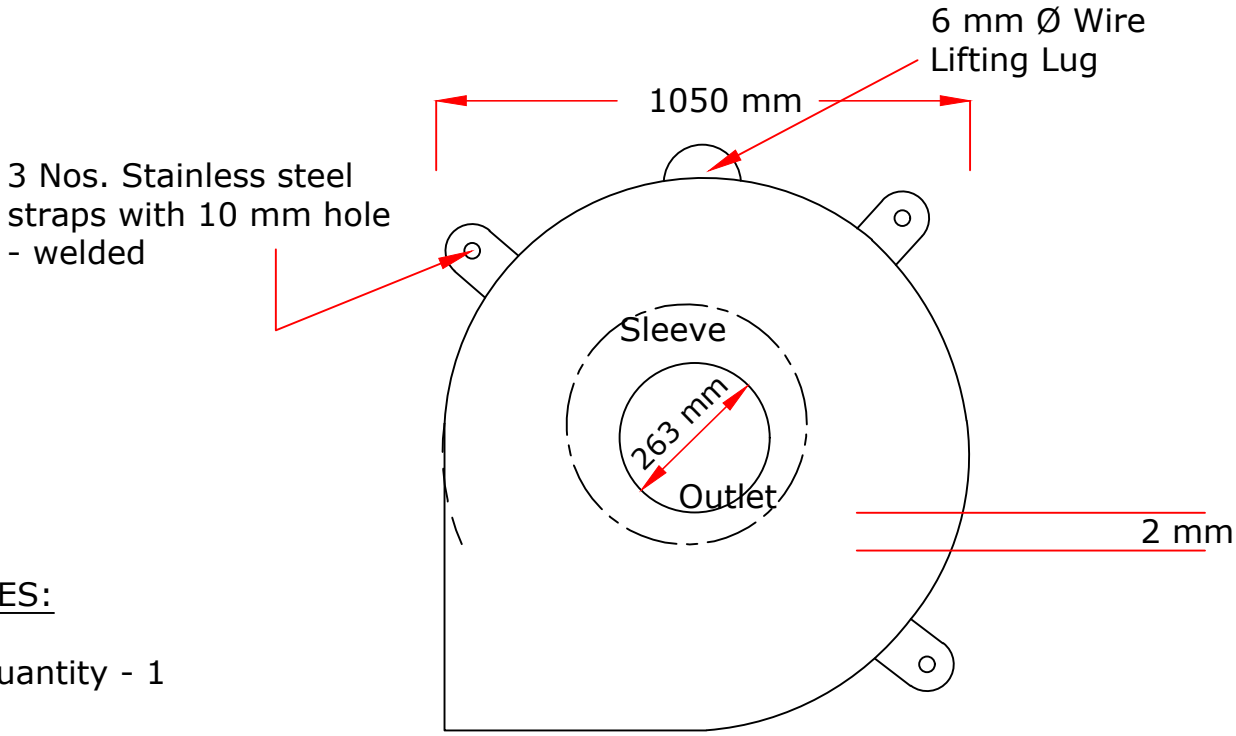
Manufacturer Attenuation Tank and Hydrobrake

FRONT VIEW





TOP VIEW



NOTES:

1. Quantity - 1

2. Outlet - 263 mm

3. All welds continuous, unless otherwise noted

SECTION VIEW

ALDERBURGH LTD
SOLUTIONS HOUSE
DANE STREET
ROCHDALE
OL11 4EZ
TEL: 01706 374416

FLUIDIC-AMP AQUABRAKE STAINLESS STEEL STRAP ATTACHMENT FABRICATION DRAWING		HEAD 2.0 m DISCHARAGE 43.0 lts/sec (TYPE3)	
DATE 13/09/2023	DRAWN MI	NAME:	
SCALE N.T.S.	CHECKED AY	JOB No.	REVISION No. R0

AquaBrake Flow Control

Project :-

Technical Information :-

AquaBrake Type : 263mm Orifice - TYPE3

Head = 2.0 mH / **Flow** = 43.0 l/s

Primary Design Point (A)

Control Points	Head (m)	Flow (l/s)
Wash-Flo (B)	0.600	43.00
Hit-Flo ©	1.400	36.20

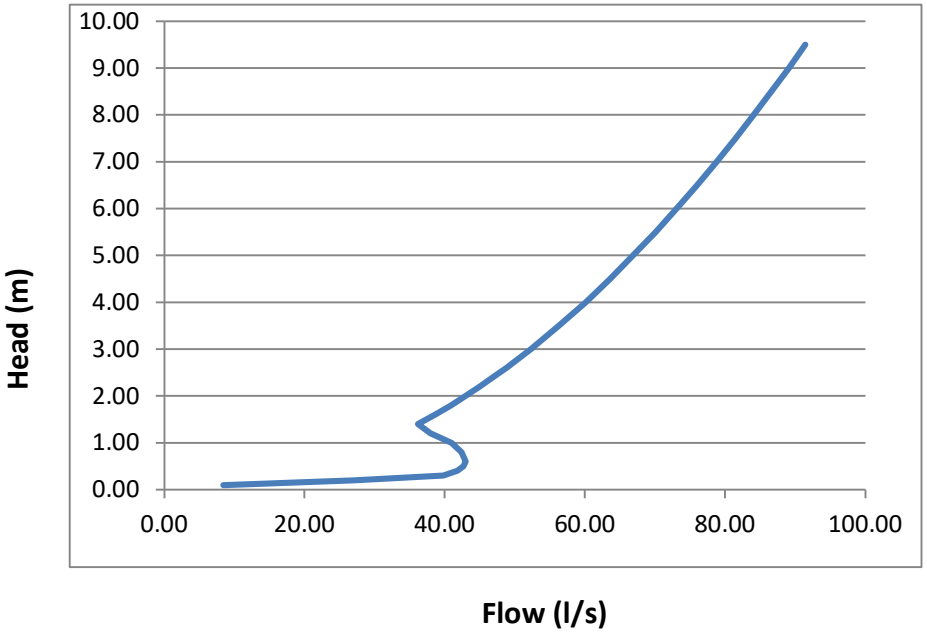
Wash-Flo (B)

The point at which the vortex begins to initiate and have a throttling effect. This point on the AquaBrake curve is usually much nearer to the maximum design flow (Design Point) than other vortex flow controls leading to more water passing through the unit during the earlier stages of a storm, thus reducing the amount of water that needs to be stored upstream.

Hit-Flo (C)

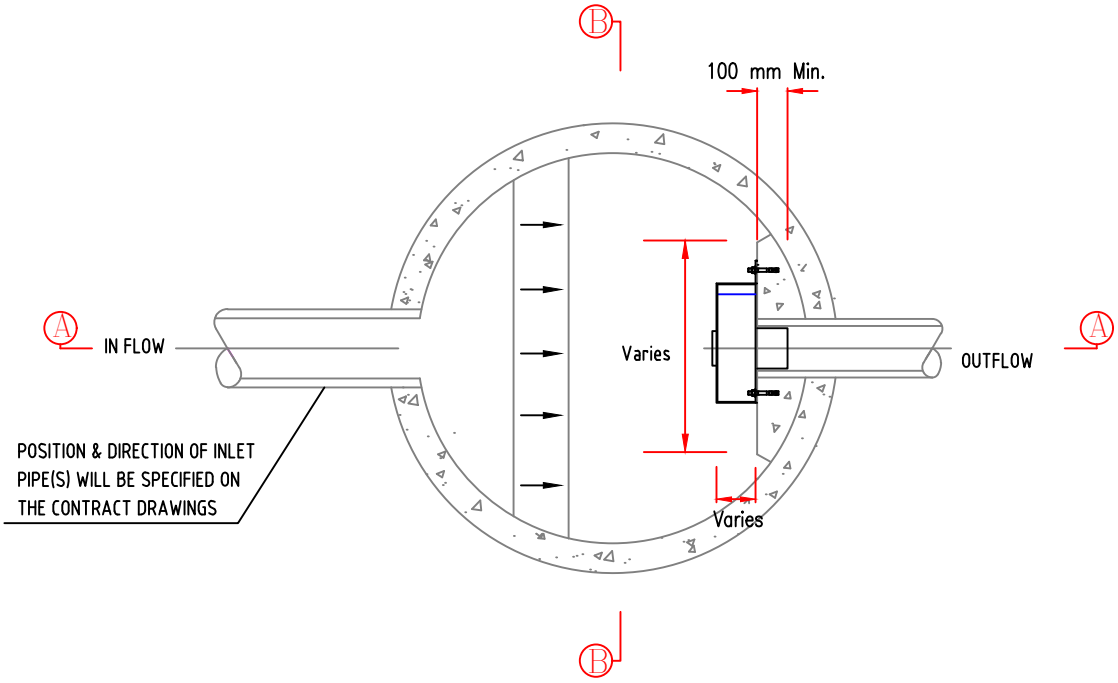
The point at which the vortex has initiated and at which the curve begins to return back to follow the orifice curve and reach the same design point or desired head / flow condition.

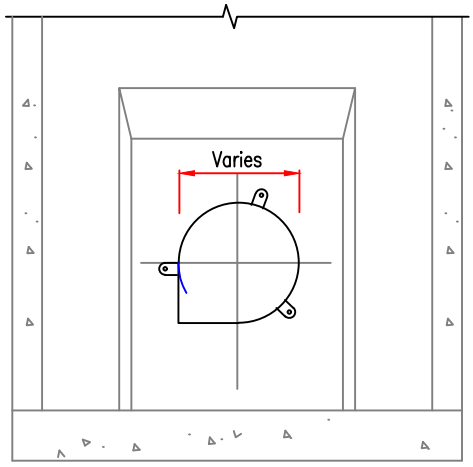
Head / Flow characteristic



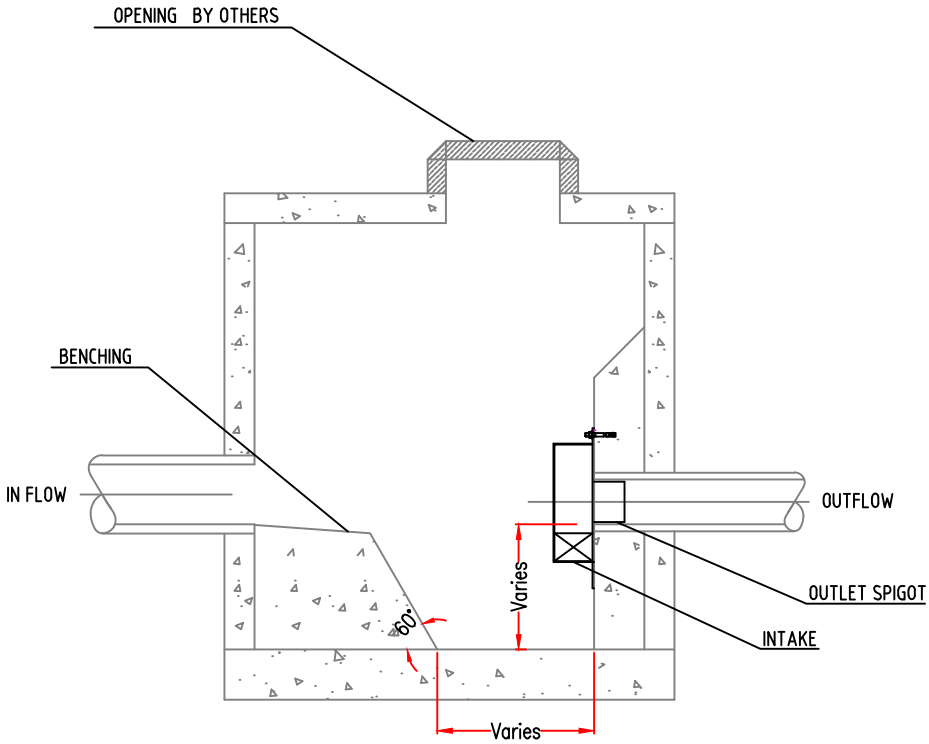
Flow (l/s)	Head (m)
8.40	0.10
27.00	0.20
39.80	0.30
41.80	0.40
42.70	0.50
43.00	0.60
42.40	0.80
41.00	1.00
38.00	1.20
36.20	1.40
38.60	1.60
40.90	1.80
43.00	2.00
45.00	2.20
46.90	2.40
48.80	2.60
52.30	3.00
56.30	3.50
60.10	4.00
63.60	4.50
66.90	5.00
70.10	5.50
73.10	6.00
76.00	6.50
78.80	7.00
81.50	7.50
84.10	8.00
86.60	8.50
89.10	9.00
91.40	9.50

Solutions House,
Dane Street,
Rochdale, OL11 4EZ
Tel: 01706 374416
Email: -
Technical@
Alderburgh.com





SECTION B–B



SECTION A–A

ENVIRONMENTAL SUSTAINABLE SOLUTIONS LTD

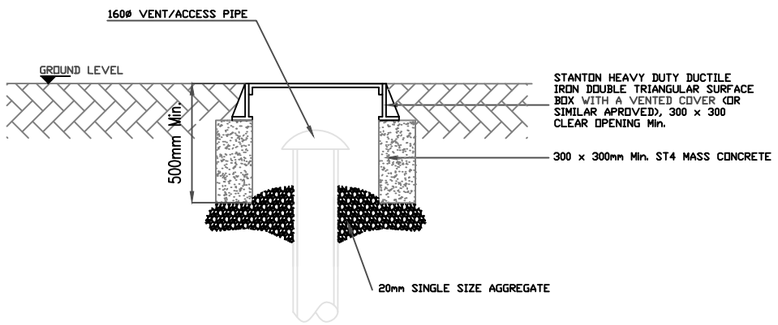
SOLUTIONS HOUSE,
DANE STREET
ROCHDALE
OL11 4EZ
TEL: 01706 374416
FAX 01706 376785

TYPICAL DETAILS FOR AQUABRAKE CHAMBER - CONCRETE

HEAD m

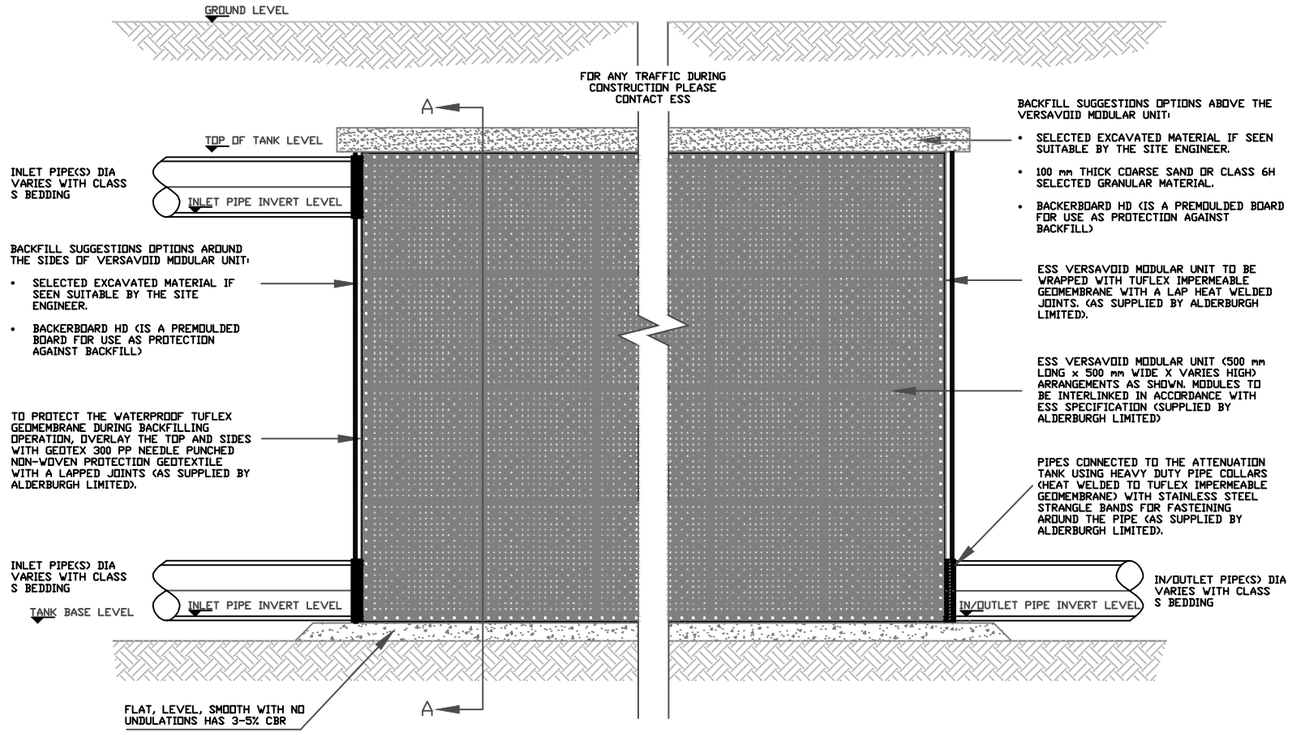
DISCHARAGE lts/sec

DATE	DRAWN	PROJECT:	
24/06/2019	VH		
SCALE	CHECKED	JOB No.	REVISION No.
N.T.S.	PD		



VENT BOX DETAIL
BY OTHERS
OPTION B

THE CONTRACTOR SHALL PROHIBIT THE MOVEMENT OF CONSTRUCTION PLANT ACROSS THE STORAGE TANK AND WHERE NECESSARY PROVIDE ADDITIONAL SUPPORT AND PROTECTION TO THE STRUCTURE. PARTICULARLY POST CONSTRUCTION. TEMPORARY FENCING CAN BE USED TO PROHIBIT TRADE STOCKS, PILLING MATERIALS, HEAVY PLANTS ETC.,



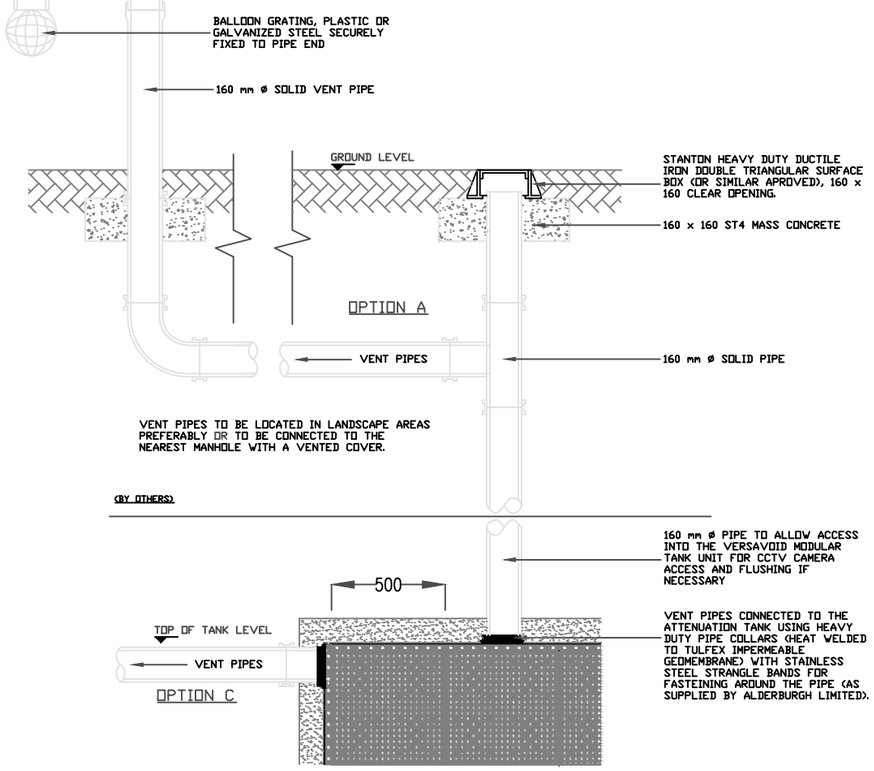
TYPICAL INLET PIPE CONNECTION

TYPICAL OUTLET PIPE CONNECTION

TYPICAL DETAILS OF ATTENUATION TANK USING VERSAVOID MODULAR UNITS

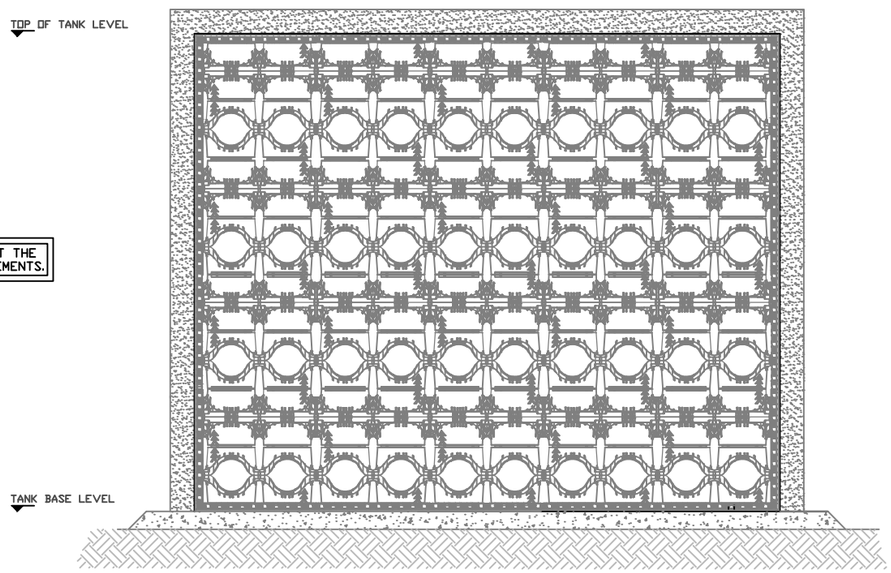
A 3 - 5% CBR HAS BEEN ASSUMED AT SUB-BASE LEVEL SHOULD THE CBR BE TESTED AND FOUND TO BE LESS THAN 3% THEN THE ENGINEER SHALL BE NOTIFIED. ALSO, ANY SOFT SPOTS FOUND AT SUB-BASE LEVEL SHALL BE REPORTED TO THE ENGINEER

INLET/OUTLET PIPES MUST BE SUPPORTED WITH CONCRETE TO PROTECT IT DURING BACKFILLING



TYPICAL 160ø VENT/ACCESS PIPE CONNECTION

VENT PIPE OPTIONS TO SUIT THE SITE AND ENGINEER REQUIREMENTS.



TYPICAL DETAILS OF ATTENUATION TANK USING VERSAVOID MODULAR UNITS
SECTION A-A

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Notes :-

1. ALL STORAGE TANK DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATIONS, METHOD STATEMENTS AND RECOMMENDATIONS OF ENVIRONMENTAL SUSTAINABLE SOLUTIONS (ESS) LIMITED, ROCHDALE.

2. THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS / SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

3. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PUBLIC UTILITIES.

4. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN-OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE-WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.

5. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

6. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN / NEAR CONFINED SPACES, DEEP EXCAVATIONS AND MACHINERY.

7. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY TO PROTECT PEDESTRIANS AND VEHICLES FROM THE WORKING AREAS.

8. TO PROTECT THE ESS VERSAVOID MODULAR ATTENUATION & FILTRATION / STORAGE TANK FROM CONSTRUCTION SITE DEBRIS, THE CONTRACTOR SHALL ENSURE THAT STOPPERS ARE SECURELY PLACED IN ALL CONNECTIONS IMMEDIATELY UPSTREAM OF THE TANK UNITS, ONLY TO BE REMOVED ONCE THE FINAL CLEANING OF THE ROADS / DRAINAGE HAS BEEN COMPLETED.

9. UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAINAGE BY JETTING, REMOVING ALL DEBRIS FROM SITE, NO DEBRIS SHALL BE PERMITTED TO ENTER THE TANK STORAGE SYSTEM.

10. NUMBER OF VENT UNITS DEPENDS ON THE SIZE OF THE TANK (REFER VENT DRAWING)

11. REFER SEQUENCE OF WORK DOCUMENT FOR DETAILED INSTALLATION METHODOLOGY (CONTACT ENVIRONMENTAL SUSTAINABLE SOLUTIONS (ESS) LIMITED)

Notes :- All the Dimensions by Millimeters

ENVIRONMENTAL SUSTAINABLE SOLUTIONS (ESS) LIMITED
SOLUTIONS HOUSE, DANE ST.
ROCHDALE
OL11 4EZ
TEL: 01706 374416
FAX 01706 376785
EMAIL: TECHNICAL@Y-ESS.COM

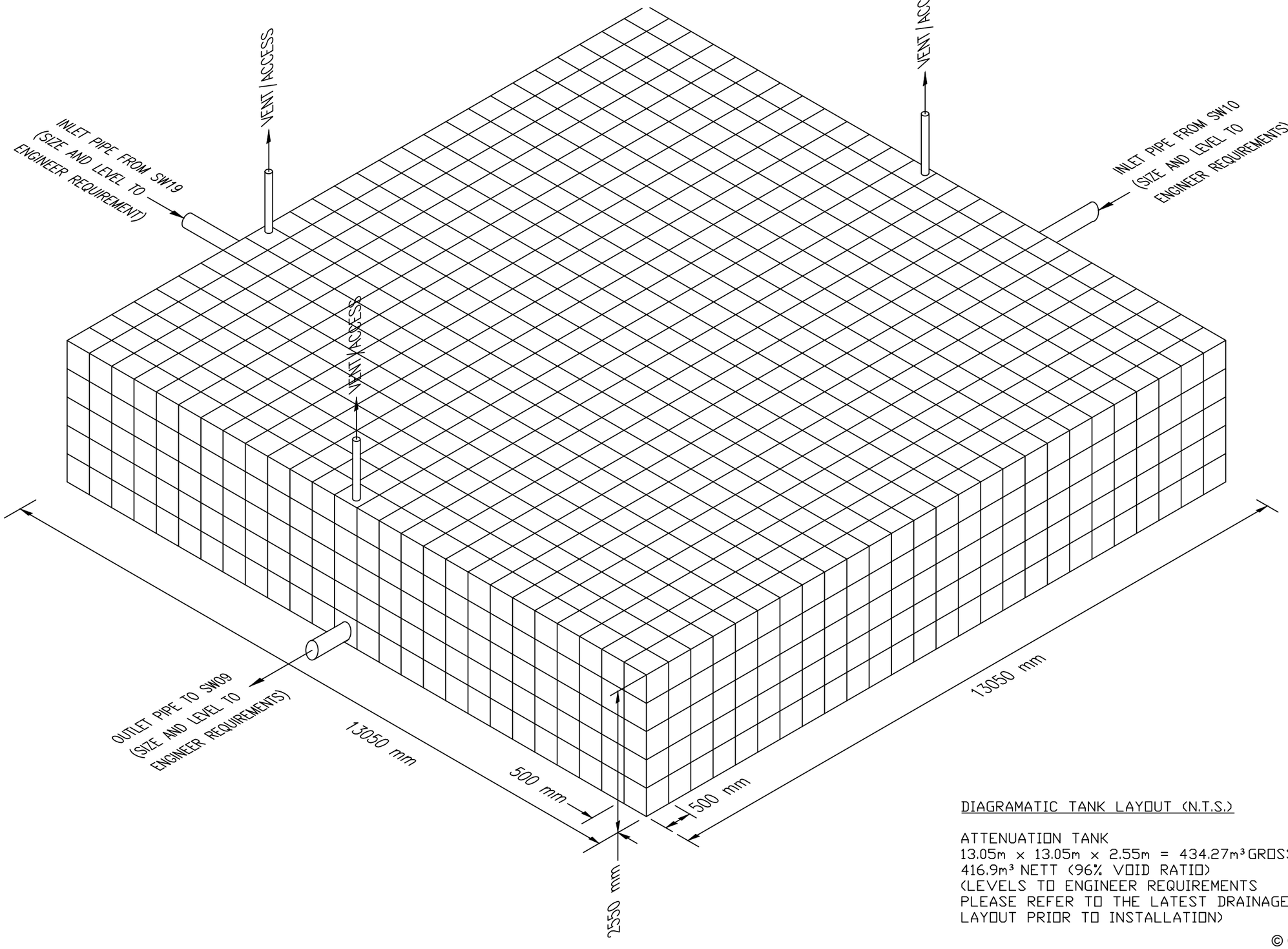
PROJECT
MMU SCIENCE & ENGINEERING BUILDING, MANCHESTER

ATTENUATION TANK - DETAILS

TITLE
ATTENUATION STORAGE TANK DETAILS USING VERSAVOID MODULAR UNITS

Scale	Drawn	Checked
NTS	AY	KD

Date	Drawing No.	Revision
13/04/2021	AQST - 5.0A Job Ref. (ST/16718)	R0



DIAGRAMATIC TANK LAYOUT (N.T.S.)

ATTENUATION TANK
13.05m x 13.05m x 2.55m = 434.27m³ GROSS/
416.9m³ NETT (96% VOID RATIO)
(LEVELS TO ENGINEER REQUIREMENTS
PLEASE REFER TO THE LATEST DRAINAGE
LAYOUT PRIOR TO INSTALLATION)

© Copyright

Notes :-

1. ALL STORAGE TANK DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE SPECIFICATIONS, METHOD STATEMENTS AND RECOMMENDATIONS OF ENVIRONMENTAL SUSTAINABLE SOLUTIONS (ESS) LIMITED, ROCHDALE.

2. THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS / SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

3. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PUBLIC UTILITIES.

4. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN-OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE-WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.

5. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

6. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN / NEAR CONFINED SPACES, DEEP EXCAVATIONS AND MACHINERY.

7. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY TO PROTECT PEDESTRIANS AND VEHICLES FROM THE WORKING AREAS.

8. TO PROTECT THE ESS VERSAVOID MODULAR ATTENUATION & FILTRATION / STORAGE TANK FROM CONSTRUCTION SITE DEBRIS, THE CONTRACTOR SHALL ENSURE THAT STOPPERS ARE SECURELY PLACED IN ALL CONNECTIONS IMMEDIATELY UPSTREAM OF THE TANK UNITS, ONLY TO BE REMOVED ONCE THE FINAL CLEANING OF THE ROADS / DRAINAGE HAS BEEN COMPLETED.

9. UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAINAGE BY JETTING, REMOVING ALL DEBRIS FROM SITE, NO DEBRIS SHALL BE PERMITTED TO ENTER THE TANK STORAGE SYSTEM.

10. NUMBER OF VENT UNITS DEPENDS ON THE SIZE OF THE TANK (REFER VENT DRAWING)

11. REFER SEQUENCE OF WORK DOCUMENT FOR DETAILED INSTALLATION METHODOLOGY (CONTACT ENVIRONMENTAL SUSTAINABLE SOLUTIONS (ESS) LIMITED)

Notes :- All the Dimensions by Millimeters

ENVIRONMENTAL SUSTAINABLE SOLUTIONS (ESS) LIMITED
SOLUTIONS HOUSE, DANE ST.
ROCHDALE
OL11 4EZ
TEL: 01706 374416
FAX 01706 376785
EMAIL: TECHNICAL@Y-ESS.COM

PROJECT
MMU SCIENCE & ENGINEERING BUILDING, MANCHESTER

ATTENUATION TANK - LAYOUT

TITLE
ATTENUATION STORAGE TANK DETAILS USING VERSAVOID MODULAR UNITS

Scale	Drawn	Checked
NTS	AY	KD

Date	Drawing No.	Revision
13/04/2021	AQST - 5.1A Job Ref. (ST/16718)	R0

Appendix C

United Utilities S185 Agreement

DATED 20th October 2020

DEED OF AGREEMENT

under Section
185 of the Water Industry Act 1991
relating to sewers at MMU Science & Engineering Building
(John Dalton Building) Chester Street Manchester
in the County of Greater Manchester

UNITED UTILITIES WATER LIMITED

-and-

THE MANCHESTER METROPOLITAN UNIVERSITY

CASH DEPOSIT AGREEMENT

United Utilities Water Limited
Legal Services
Warrington

JH/WHO11.10171

THIS DEED is made the 20th day of October two thousand and twenty

BETWEEN:

"The Developer" THE MANCHESTER METROPOLITAN UNIVERSITY (A Higher Education Corporation established under the Education Acts 1944 to 1993) of All Saints Manchester M15 6BH

"Owner" AS GIVEN ABOVE

"The Undertaker" UNITED UTILITIES WATER LIMITED (Co. Reg. No. 02366678) whose Registered Office is situate at Haweswater House Lingley Mere Business Park Lingley Green Avenue Great Sankey Warrington WA5 3LP (which expression includes any contractor or contractors, agent or agents for the time being appointed by the Undertaker to administer this Agreement)

WHEREAS:

(1) The Developer/Owner owns the freehold or the unexpired residue of not less than one hundred years of a leasehold term in respect of the Green Land.

(2) The Developer has by notice in accordance with Section 185 of the Act requested that the Undertaker alters or removes the Sewers and Accessories within the Site to the extent that is required in facilitation of proposed improvement of the Green Land and which is more particularly identified on the Layout Plan.

(3) In connection with the Developer's proposed improvement of the Green Land it is hereby agreed between the parties that the Developer shall construct the Works to serve the said improvement which Works shall include the diversion and abandonment of the existing public Sewers in pursuance of the notice served on the Undertaker under s185 of the Act.

IT IS AGREED:

1. DEFINITIONS

In this Agreement the following words or phrases shall have the following meanings:

Accessories	As defined in Section 219 of the Act
Act	The Water Industry Act 1991
Applicable Laws	Means for the time being any binding Court order judgment or decree and any law statute regulation bylaw ordinance subordinate legislation industry licence code policy guidance standard or accreditation terms enforceable by law which is in force and/or which is stipulated by any relevant regulatory authority (including any licences granted under the Water Act 1989 and/or the Act)
Business Day	Means any day other than a Saturday or a Sunday or a bank holiday; bank holiday being a Christmas Day Good Friday or day which under the Banking and Financial Dealings Act 1971 is a bank holiday in England and Wales. Any reference to a day within this Agreement shall mean a Business Day
Cash Deposit	Shall mean Eighty Seven Thousand Eight Hundred and Forty Seven Pounds and Sixty Four Pence (£87874.64)
CDM Regulations	Construction (Design and Management) Regulations 2015
Diverted Sewers	Sewers which the Developer proposes to construct to replace existing public Sewers (which existing public Sewers shall be abandoned as public Sewers upon completion of the Works and transferred automatically to the ownership of the *Developer/Owner* at no cost to the Undertaker and the Developer indemnifies the Undertaker from all liabilities arising directly or indirectly from such abandoned public sewers and at the Developer's choice the existing/abandoned public Sewers may be removed entirely from the Green Land at no cost to the Undertaker)

The Drawings	Shall mean the Layout Plan together with those drawings calculations and other design or working drawings relating to the carrying out of the Works or any part thereof which are not annexed hereto and which may be subject to alteration in accordance with clause 4 but which shall nevertheless form part of this Agreement
Estate Roads	Roads or proposed roads which are or are intended to be maintained at public expense
Final Certificate	The Certificate issued under clause 10.3
Green Land	The land situate at MMU Science and Engineering Building (John Dalton Building) Chester Street Manchester and which is shown edged green on the attached Layout Plan or Plans
Inspection Fees	Shall mean Four Thousand Six Hundred and Seventy Seven Pounds and Thirty Eight Pence
Layout Plan	The plan attached to this Agreement and numbered 1338B-CUR-YY-GF-DR-C-920571 P10
Maintenance Period	A period of 12 months from the issue of the Provisional Certificate which may be subject to extension if in the opinion of the Undertaker there are outstanding or additional remedial works required the decision of the Undertaker being final
Parties	Shall mean the Developer, the Owner (if so defined) and the Undertaker
Protected Strip	Where applicable the strip of land to the extent shown coloured yellow on the Layout Plan and being six metres wide and (unless the contrary shall be stipulated or be clear from the Drawings or the Layout Plan) the Protected Strip shall lie one half to each side of the centreline of those parts of the Works (other than any sewers which

S185 WORKS BOUNDARY EXTENDS AROUND S185 CONNECTION TO EXISTING SEWER

UUCW04
CL: 34.44
IL: 27.86
2,400 dia TYPE 2 MANHOLE PCC 3m+

EX UU MH 0202
CL: 34.45
IL: 27.95

EX UU MH 0207
CL: 34.95
IL UNKNOWN

CHESTER STREET

EXISTING BRICK SEWER 600 x 600mm

TREE EXCLUSION ZONE 7m

TREE EXCLUSION ZONE 6m

TREE EXCLUSION ZONE 3m

TREE EXCLUSION ZONE 6m

TREE EXCLUSION ZONE 7m

PLANTING TYPES TO BE IN ACCORDANCE SfA 6TH EDITION FIGURE 2.3. NO PLANTING WITHIN 1m OF CENTRELINE OF SEWER.

CAMBRIDGE STREET

CONCRETE PIPE 675mm 1:30

9.0m

6.0m

EXG Ø225

EX UU MH 0206
CL: 34.26
IL: 30.14

EXG Ø225

INTERNAL BURIED CHAMBER

EXG Ø300

EXG Ø150

INTERNAL BURIED CHAMBER

EXISTING BRICK SEWER 600 x 600mm

EXG Ø150

UUCW03
CL: 35.14
IL: 28.22
2,400 dia TYPE 2 MANHOLE PCC 3m+

PROPOSED COVER LEVELS BASED ON LANDSCAPE ARCHITECT'S LEVELS AND ARE SUBJECT TO MINOR CHANGES

6.0m

4.8m

CONCRETE PIPE 675mm 1:30

SURVEY HAS BEEN CARRIED OUT AND CONFIRMED THAT ALL CONNECTIONS ARE PRIVATE.

BASED ON EXISTING CCTV SURVEY OTHER BUILDINGS HAVE THEIR OWN DRAINAGE AND IT IS NOT EXPECTED THAT EXISTING CONNECTIONS TO EXISTING UU SEWER ARE OUTSIDE JDW AREA.

THE PRIVATE CONNECTIONS WITHIN BUILDING AND EXTERNALS WILL BE DEMOLISHED AND A NEW DRAINAGE PROPOSED FOR A NEW DEVELOPMENT.

ALL PIPES CURRENTLY CONNECTED INTO ANY SEWERS TO BE ABANDONED ARE TO BE INVESTIGATED AND THE SOURCE OF THESE CONNECTIONS CONFIRMED PRIOR TO ABANDONMENT.

ANY LIVE CONNECTIONS FOUND ON SITE ARE TO BE RECONNECTED INTO THE NEW S185 SEWER DIVERSION.

PRIVATE CONNECTIONS TO BE REMOVED

PROPOSED BUILDING FFL 35.87

UUCW05
CL: 35.47
IL: 30.55
BD:31.83
2,700 dia TYPE 2 MANHOLE PCC 3m+

NEW FOUL CONNECTION FROM PROPOSED SITE.
FOUL FLOW 11.0 L/S BASED ON DISCHARGE UNIT METHOD.
REFER TO DRAWING
1338B-HOL-XX-GF-DR-P-520001
REV P01

BD

CCTV SURVEY REF MH9A
CL: 35.63
IL: 31.80

EX Ø150 COLLAPSED NOT IN USE

CAPPED

EXG Ø600

EXG Ø225

INTERNAL BURIED PRIVATE CHAMBER

UU MH 0102
CL: 35.48
IL: 31.92

CW

UUCW02
CL: 35.54
IL: 31.1
2,400 dia TYPE 2 MANHOLE PCC 3m+

5.0m

5.0m

CONCRETE PIPE 675mm 1:30

5.0m

5.0m

5.87m

MANCUNIAN WAY (ELEVATED)

EXISTING BRICK SEWER 600 x 600mm

UUCW01
CL: 35.73
IL: 31.95
2,400 dia TYPE 2 MANHOLE PCC 3m+

GENERAL NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. NO WORK SHOULD COMMENCE ON SITE UNTIL WRITTEN APPROVAL IS RECEIVED FROM THE ADOPTING HIGHWAY AUTHORITY, ADOPTING SEWERAGE UNDERTAKERS, ENVIRONMENT AGENCY AND/OR ANY OTHER RELEVANT AUTHORITY. WORKS UNDERTAKEN PRIOR TO APPROVAL ARE AT THE DEVELOPER'S RISK AND CURTINS CONSULTING LIMITED WILL NOT BE HELD RESPONSIBLE FOR SUBSEQUENT DELAYS IN APPROVALS, REMEDIAL COSTS OR DELAYS.
4. TO BE BUILT IN ACCORDANCE WITH UNITED UTILITIES DRAINAGE CONSTRUCTION STANDARD DETAILS.

EXISTING DRAINAGE INFRASTRUCTURE

5. EXISTING SEWERAGE INFRASTRUCTURE, GROUND FLOOR PENETRATION AND FLOW RATES ADVISED BY OTHERS. NO GUARANTEE CAN BE GIVEN AS TO ACCURACY OR COMPLETENESS.
6. INVERT LEVELS, DIMENSIONS AND LOCATIONS OF EXISTING SEWERS AND MANHOLES AFFECTING THE WORKS TO BE VERIFIED AND ASSESSED FOR SUITABILITY PRIOR TO COMMENCEMENT, PARTICULARLY AT POINTS OF CONNECTION.
7. FLOWS AND LEVELS IN EXISTING SEWERS, LAND DRAINS AND WATERCOURSES TO BE MAINTAINED THROUGHOUT THE CONTRACT.
8. NO EXISTING SEWERS TO BE ABANDONED WITHOUT ENGINEER'S APPROVAL.
9. EXISTING SEWERS TO BE ABANDONED ARE TO BE 'GRUBBED UP' IN ACCORDANCE WITH THE SPECIFICATION.
10. IF APPLICABLE, SURFACE WATER DRAINAGE INFRASTRUCTURE DESIGNED TO ACCOMMODATE TEMPORARY DIVERSIONS (COMBINED DRAINAGE) TO BE CLEANED AND MADE SUITABLE FOR SURFACE WATER ONLY AFTER TEMPORARY DIVERSIONS ARE ABANDONED.

PIPES AND MANHOLES

11. ALL INVERT LEVELS OF EXISTING COMBINED WATER SYSTEMS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY ON SITE DRAINAGE WORKS. ANY DISCREPANCY IN LEVELS IS TO BE REPORTED IMMEDIATELY TO CURTINS CONSULTING LIMITED
12. FIRST PIPE OUT OF MANHOLES TO BE AS SHORT AS PRACTICABLE SO AS TO PROVIDE A FLEXIBLE JOINT AS CLOSE AS POSSIBLE TO THE OUTSIDE
13. ALL BRANCH CONNECTIONS TO BE MADE WITH SWEPT BENDS IN THE DIRECTION OF FLOW IN THE MAIN SEWER.
14. ALL MANHOLE COVERS AND FRAMES TO BE LOCKABLE.
15. MANHOLE COVERS AND FRAMES TO BE BS EN 124, SIZES AND GRADES AS INDICATED ON MANHOLE SCHEDULE.
16. ALL PIPES TO HAVE CLASS 'S' GRANULAR BED AND SURROUND UNLESS OTHERWISE STATED. BEDDING AND BACKFILL MATERIALS TO CONFORM TO THE REQUIREMENTS OF WIS 4-08-02 (TABLE A2).
17. ALL SEWER TRENCHES AND BRANCH CONNECTIONS TO BE BACKFILLED WITH SUITABLE MATERIAL IN LAYERS NOT EXCEEDING 225MM UNCONSOLIDATED THICKNESS THEN FULLY COMPACTED.
18. ADOPTABLE SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.
19. ALL EXISTING DRAINS/SEWERS TO BE ABANDONED SHALL BE EITHER GRUBBED OR GROUTED UP. GROUTING TO BE PERFORMED BY CAPPING ALL ENDS/CONNECTIONS AND FILLING THE RETAINING VOID WITH GROUT, IN ACCORDANCE WITH CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7TH EDITION (CESWI) 7TH EDITION.

KEY:

- SITE BOUNDARY
- OWNERSHIP BOUNDARY
- PROPOSED 750Ø DIVERTED COMBINED SEWER
- PROPOSED MANHOLE
- EXISTING PUBLIC COMBINED SEWER TO REMAIN
- EXISTING PUBLIC COMBINED SEWER TO BE ABANDONED
- PROPOSED FUTURE FOUL WATER CONNECTION
- PROPOSED SEWER EASEMENT
- EXISTING PRIVATE DRAINAGE
- PROPOSED BUILDING FOOTPRINT

IGM. MSP

12405

AUTHORISED

SIGNATORY

Rev.	Description	Date:	By:	Chkd:
P10	TEXT AMENDED	09.07.20	ATL	MW
P09	NOTE UPDATED TO UU COMMENTS 06.07.20	08.07.20	ATL	ATL
P08	UPDATED DESIGN FOLLOWING CCTV SURVEY	18.06.20	MW	MW
P07	CW05 RELOCATED,PRIVATE CONNECTION CONNECTED TO CW06	05.05.20	MW	MW
P06	UPDATED IN LINE WITH UU COMMENTS	06.3.20	ATL	MW
P05	UPDATED IN LINE WITH UU COMMENTS	25.02.20	ATL	MW
P04	UPDATED IN LINE WITH UU COMMENTS	05.02.20	ATL	MW
P03	UPDATED IN LINE WITH UU COMMENTS	28.11.19	ATL	MW
P02	ISSUED FOR UU APPROVAL	09.09.19	MW	MW
P01	ISSUED FOR APPROVAL	09.08.19	ATL	MW

curtins
Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 238 9394
manchester@curtins.com
www.curtins.com
Civil & Structural · Transport Planning · Environmental · Infrastructure · Geotechnical · Construction & Heritage · Principal Designer
Birmingham · Bristol · Cambridge · Cardiff · Dublin · Edinburgh · Glasgow · Kendal · Leeds · Liverpool · London · Manchester · Nottingham

Status: APPROVAL

Project: MMU SCIENCE AND ENGINEERING

Drg Title: S185 SEWER DIVERSION PROPOSED LAYOUT

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
069656	A1	09/09/19	ATL	ATL	MW
	Scale: 1:250				

Project Code: Originator: Zone: Level: Type: Discipline: Category/Number: Rev.

1338B - CUR - YY - GR - DR - C - 920571 -P10

	may be abandoned pursuant to this Agreement) as are shown on the Drawings and which do not fall within Estate Roads or public open space
Provisional Certificate	The certificate issued under clause 10.1
Sewer(s)	As defined in Section 219 of the Act
Site	Shall comprise the Green Land and other land (if any) on under in or through which the Works are proposed to be executed
Specification	The Civil Engineering Specification (shown at Part 5 of the Sixth Edition of "Sewers for Adoption") (or the corresponding Part of whichever edition thereof is current if subsequent to the Sixth Edition) and any appendices provided by the Undertaker
Works	Shall mean all and any part of those Sewers Diverted Sewers and Accessories as shown on the Drawings subject to any alteration in accordance with clause 4 and shall include valve chambers overflow chambers outfall structures (where appropriate) balancing facilities
WRA	Means the Water Resources Act 1991

2. INTERPRETATION

2.1 References to gender shall include either gender or a corporate identity and the singular shall include the plural.

2.2 The Interpretation Act 1978 shall apply for the interpretation of this Agreement as it applies to the interpretation of an Act of Parliament.

2.3 If there is more than one person named as one of the parties then any covenants agreements liabilities or statements made by that party shall be deemed to be made by those persons jointly and severally.

2.4 If there are no details shown against any one of the party definitions then this Agreement shall be interpreted as if there was no such party.

2.5 The provisions of this Agreement are personal to the parties hereto save on the reconstruction or amalgamation of the Developer.

2.6 The words **including, such as, for instance, for example** and any other similar expressions shall be construed without implying limitation, and without prejudice to the generality of the provisions to which they relate.

2.6 Any reference to any Law, code, standard, direction or guidance is a reference to such Law, code, standard, direction or guidance as modified, re-enacted, replaced or extended from time to time, whether before or after the date of this agreement, and any reference to any legislation includes reference to any legislation, code, standard, direction or guidance made under it, whether before or after the date of this agreement.

3 Construction of Works

3.1 Prior to commencement of the construction of the Works the Developer shall provide a method statement for acceptance by the Undertaker.

3.2 The Developer shall at its own expense properly construct and complete the Works so that the Works are:

3.2.1 fit for their intended purpose;

3.2.2 to the satisfaction of the Undertaker;

3.2.3 in accordance with the provisions of this Agreement the Drawings and the Specification; and

3.2.4 comply with all Applicable Laws relating to the Works and the construction thereof.

3.3 If and in so far as the Works are to be constructed within 3 metres of any public right of way the Developer shall make arrangements as necessary with any Local Authority and any other interested party for the temporary closure of the said public right of way during the construction of the Sewer.

3.4 In accordance with s8 of the CDM Regulations the Developer elects for the purposes of the regulations to be treated as the sole client and further confirms: -

3.4.1 the Developer understands those duties and obligations owed by it under the CDM Regulations and has the necessary competence and resource to fulfil them;

3.4.2 in the case of a notifiable project the Developer will notify the Works to the Health and Safety Executive identifying itself as the client and appending a copy of this election and further that it will provide a copy of such notification to the Undertaker prior to the commencement of the Works;

3.4.3 the Developer will supply to the Undertaker copies of any Reports on Inspection compiled in accordance with s31-33 of the CDM Regulations within 14 days of such reports being complete; and

3.4.4 on completion of the Works the Developer will furnish the Undertaker with a complete copy of the Health and Safety file.

4 Variations

The Developer shall not vary the Works nor make any additional connections not shown on the Drawings without first obtaining the Undertaker's written consent.

5 Consent to discharge

5.1 In the case of a discharge from any part of the Works to controlled waters as defined by s104 of the WRA the Developer shall:

5.1.1 before the commencement of any Works make an application for and obtain any necessary consent to such discharge from the pollution control authority and, if appropriate, the land drainage authority and comply with the conditions relating to their consent PROVIDED however that the Developer shall not agree to conditions without the prior approval of the Undertaker (which approval shall not be unreasonably withheld or delayed) and shall if required by the

Undertaker appeal against the same or any of them within the period provided within the WRA for the lodging of an appeal; and

5.1.2 transfer the consent to discharge referred to in clause 5.1.1 to the Undertaker immediately prior to the issue of the Final Certificate.

5.2 If any part of the Works is intended to discharge into any waterway which is owned by or comprises part of the undertaking of a navigation authority (as defined by s221(1) the WRA) (otherwise than a natural watercourse and whether the same is navigable or not) the Developer shall before the commencement of any of the Works which would drain to such waterway obtain the consent of the navigation authority to such discharge but shall not agree to any conditions relative to such consent without the prior approval of the Undertaker.

5.3 In the case of a discharge to an estuary or coastal waters the Developer shall before the commencement of any of the Works obtain requisite consents or approvals.

5.4 If the Works are to discharge to land (including any watercourse) owned by any of the Undertakings listed in Schedule 13 Part 1 of the Act the conditions referred to in clause 5.2 above shall (so far as the context admits) apply to the Works.

6 Maintenance Arrangements

Prior to the execution of this Agreement and as a condition precedent to this Agreement coming into force the Developer shall grant and provide without charge all easements rights and covenants required by the Undertaker in respect of the Protected Strip (if any) on such terms as the Undertaker may reasonably require. In the event that the Developer does not provide the easements and covenants in accordance with this clause 5 the Undertaker may notify the Developer that this Agreement will never take effect.

7 Notification of Intended Commencement

7.1 The Developer must seek written approval from the Undertaker prior to commencing any of the Works.

7.2 Once written approval for the Works has been granted by the Undertaker the Developer shall give the Undertaker not less than seven days' prior written notice of the date on which it intends to commence the Works

8 Building Over

The Developer *and/or the Owner* shall not build plant or place anything over or within three metres measured horizontally from the centreline of any sewer (or such other distance as may be specified by the Undertaker) without the written consent of the Undertaker PROVIDED THAT consent shall be deemed to be refused if not given within ten days and PROVIDED ALSO THAT this condition shall not apply to anything shown on the Drawings or the Layout Plan within any Protected Strip which shall be deemed to have been previously approved by the Undertaker.

9 Backfilling

9.1 The Developer shall notify the Undertaker before covering up any part of the Works.

9.2 Upon receiving such notice the Undertaker shall if it thinks fit arrange with the Developer to inspect the Works.

9.3 In the event that the Developer fails to give notice under clause 9.1 or fails to comply with the arrangements under clause 9.2 notwithstanding that the Works may be constructed in compliance with this Agreement it shall be liable for the full cost of reopening the Works the amount of any such expenditure being that certified by the Undertaker whose decision shall be final and which the Undertaker shall be entitled to recover directly and set off from the Cash Deposit.

9.4 Provided that notice is given by the Developer in accordance with clause 9.1 above if the Undertaker does not inspect the works within 5 days (unless the Undertaker is prevented

from so doing due to circumstances beyond its control) the Developer may cover up the Works.

9.5 Without prejudice to clauses 9.1 – 9.4 inclusive the Developer shall at any time if requested to do so by the Undertaker in writing, open up the Works for inspection.

9.6 If the Developer shall fail to comply within the specified time limit to any request made by the Undertaker under this clause 9 the Undertaker may open up the Works and provided that any part of the Works are found not to comply with the terms of this Agreement the Developer shall repay to the Undertaker all costs incurred in connection with the opening up and re-covering of the Works but in any other case and provided due notice has been served the cost of opening up and re-covering the Works shall be borne by the Undertaker.

9.7 For the avoidance of doubt the provisions of clause 12 (relating to access to the Works) are to be read in conjunction with this clause.

10 Provisional and Final Certificate

10.1 When the Undertaker is satisfied that the Works have been completed it shall issue a Provisional Certificate to the Developer to that effect.

10.2 The Works shall be deemed completed when:

10.2.1 they have been constructed in accordance with this Agreement;

10.2.2 the Developer has supplied to the Undertaker:

(a) a full set of as constructed drawings and sections showing the completed Works and Sewers by those lines colours and symbols as are in accordance with Appendix VI of the Sixth Edition of 'Sewers for Adoption' in such format as the Undertaker may reasonably require; and

(a) transfer of consent to discharge (if required).

10.3 The Undertaker will issue a Final Certificate as soon as reasonably practicable at the request of the Developer upon the expiry of the Maintenance Period (inclusive of any extension thereto).

10.4 Upon the issue of the Provisional Certificate in accordance with clause 10.1 above the Diverted Sewers shall in pursuance of the powers conferred on the Undertaker by s179(2) of the Act vest in the Undertaker as public Sewers PROVIDED THAT the diversion of flows from the existing public Sewers into the Diverted Sewers shall not be permitted until the Developer submitted an application to the Undertaker which has been formally accepted by the Undertaker in writing and the decision of the Undertaker in this respect shall be final and conclusive.

10.4 Until the issue of the Final Certificate if by reason or in consequence of the construction or failure of the Diverted Sewers or any subsidence resulting from any of the Works any damage shall be caused to any land or property or there is any interruption in any service provided by the Undertaker the Developer shall repay the cost reasonably incurred by the Undertaker in making good such damage or restoring the service and shall:

10.5.1 make reasonable compensation to the Undertaker for any consequential loss sustained by it; and

10.5.2 indemnify the Undertaker against all claims demands proceedings costs damages expenses which may be made or taken against or recovered from or incurred by the Undertaker by reason or in consequence of any such damage or interruption.

10.6 Upon the issue of the Provisional Certificate the use of the existing public Sewers as replaced by the Diverted Sewers shall be abandoned in accordance with the method statement referred to at clause 3.1 and discontinued and prohibited in accordance with Section 116 of the Act.

11 Maintenance Period

Subject to clause 13 during the Maintenance Period the Developer shall at its own expense maintain repair and otherwise keep the Works in good working order and repair to the satisfaction of the

Undertaker and in the event that the Undertaker shall declare any maintenance and/or repair an emergency the Developer shall carry out the said maintenance or repair immediately.

12 Access to the Works

The Developer hereby grants to and shall arrange for the Undertaker such access to the Works and the Site as it shall require at all reasonable times and in particular shall, at its own cost, provide all relevant plant equipment (including safety equipment) signing guarding lighting and personnel whilst the Undertaker is on the Site for the purpose of carrying out inspections under this Agreement and in the exercise of its rights under clause 13 below.

13 Undertaker's right to repair

If at any time the Developer shall fail to construct and maintain the Works in accordance with this Agreement the Undertaker shall be entitled at its entire discretion to construct complete make good and maintain such part or parts of the Works as may be necessary in the opinion of the Undertaker after first giving not less than ten days' notice in writing to the Developer (UNLESS the Undertaker declares that any required construction and/or maintenance is an emergency in which case the Undertaker may carry out the said construction and/or maintenance immediately) of such intention and the Developer shall be responsible to the Undertaker in respect of all costs losses damages or liabilities thereby incurred the amount of which expenditure shall be that certified by the Undertaker whose decision shall be final and which the Undertaker shall be entitled to recover directly and set off from the Cash Deposit.

14 No duty to Developer

Nothing in this Agreement shall imply any obligation on the part of the Undertaker to the Developer or to any other person to ensure that the Works or any part or parts of the same are properly constructed under or in accordance with this Agreement and the Developer shall be liable in all respects for the proper construction of the Works.

15 Indemnity to Undertaker by Developer

15.1 The Developer shall be liable for and shall indemnify keep indemnified and hold harmless the Undertaker and each of its group companies against any cost expense liability loss claim or proceedings arising out of or relating to any act, omission, negligence and/or breach of duty (including statutory duty) or breach of this Agreement by the Developer or any sub-contractor and/or any person for whom the Developer is responsible.

15.2 The indemnity above shall extend to any expenses of and occasioned by any legal proceedings or criminal prosecution associated with any of the matters mentioned (including all costs of defending).

15.3 The Developer shall promptly notify the Undertaker (with details) upon its becoming aware of and shall promptly provide all information and/or assistance reasonably required by the Undertaker in dealing with any complaint or claim or potential complaint or claim concerning or relating in some way to the performance or non-performance by the Developer of any of its duties and obligations under or in connection with this Agreement.

16 Insurance

16.1 Subject to clause 16.4 the Developer shall maintain at its own cost insurances sufficient to cover its entire liability as set out in this Agreement or otherwise required by Law; subject to the following minimum levels.

Cover	Maximum Excess	Limit of Indemnity
Professional indemnity insurance	£25,000.00	£1,000,000 for any one claim or series of claims arising from any one occurrence and in the aggregate
Public Liability	£25,000.00	£5,000,000 for any one claim or series of claims arising from any one occurrence and in the aggregate
Contractors All Risks	£25,000.00	Full reinstatement value
Employers Liability For the Works	Nil	£10,000.00 for any one claim

16.2 The Developer shall in relation to all of the insurances, save for the Professional Indemnity insurance which shall be dealt with by the Developer's sub-contractor, provide to the Undertaker on request:

16.2.1 documentation evidencing such insurances are in place including any amendment, extension or variation to such insurances); and

16.2.2 evidence that the premiums payable under all policies have been satisfied and that the insurances are in full force and effect.

16.3 In the event of breach of this condition the Undertaker may itself procure such insurances. In such case, the Developer, or the Developer's sub-contractor in relation to the Professional Indemnity insurance, shall be responsible to the Undertaker in respect of all costs thereby incurred which the Undertaker shall be entitled to recover directly from the Cash Deposit

16.4 The Developer's sub-contractor will be responsible for the Professional Indemnity insurance and shall maintain at its own cost insurances sufficient to cover its entire liability as set out in this Agreement or otherwise required by Law; subject to the minimum level referred to in clause 16.1

17 Termination Rights

17.1 The Undertaker may (without prejudice to its other rights remedies and powers against the Developer including but not limited to those contained in this Agreement) in the event of:

17.1.1 any material breach by the Developer of all or any of its obligations under this Agreement; or

17.1.2 in the event that the Developer shall be adjudicated bankrupt or go into receivership voluntary liquidation or otherwise or upon the execution of a deed of assignment or arrangement for the benefit of or otherwise compound with its creditors (except for the purpose of re-construction or amalgamation) terminate this Agreement by written notice served on the Developer.

17.2 Any termination of this Agreement is without prejudice to the exercise of the Undertaker's rights contained in clause 13 of this Agreement and recovery of monies in accordance with the provisions of clause 19.2 and the Undertaker shall make arrangements to repay the

balance, if any, of the Cash Deposit as soon as reasonably practicable upon completion of the Works by the Undertaker.

17.3 The Developer may terminate this Agreement by written notice served on the Undertaker which notice is to be sent via registered post addressed to The Legal Manager United Utilities Water Limited Legal Department (Property) 1st Floor Grasmere House Lingley Mere Business Park Lingley Mere Great Sankey Warrington WA5 3LP and copied to the Company Secretary PROVIDED THAT such notice is served not less than 20 Business Days before the commencement of construction of the Works and the Developer provides the Undertaker with formal written withdrawal of the request made under s185 of the Act. The Undertaker hereby agrees that upon receipt of a valid notice of termination the Undertaker shall make arrangements as soon as reasonably practicable to repay the Cash Deposit in full to the Developer.

18 Sub-Contracting

18.1 The Developer shall not appoint a sub-contractor to perform the whole or any part of its obligations pursuant to this Agreement unless it has first obtained the prior written consent of the Undertaker specifically in relation to such nominated sub-contractor. If so requested by the Undertaker, the Developer shall promptly provide the Undertaker with copies of any sub-contractors, policies of insurance of such sub-contractor and any other relevant documentation which the Undertaker may reasonably require in order to satisfy itself as to the appropriateness of any such proposed sub-contractor.

18.2 Notwithstanding the provision contained within clause 18.1 the Developer shall remain primarily liable and responsible for the acts and omissions of its sub-contractors as though they were its own.

19 Cash Deposit

19.1 The Developer shall prior to the execution of this Agreement and as a condition precedent to this Agreement coming into force deposit with the Undertaker the Cash Deposit in

cleared funds as security for payment of the sums due from the Developer to the Undertaker under this Agreement and the Undertaker will immediately lodge the whole of the Cash Deposit with a Bank or Building Society in an interest bearing account. In the event such cash deposit is not provided in accordance with this clause 19.1 the Undertaker may notify the Developer *and the Owner* that this Agreement will never take effect.

19.2 The Developer hereby agrees that after the Undertaker shall have served written notice on the Developer for all or any of the sums due under this Agreement the Undertaker may recover or set off such sums directly from the Cash Deposit and in the event of any shortfall the Undertaker may recover any additional and outstanding sums from the Developer as a debt payable within 30 days of the written demand subject to interest in the event of late payment which shall become payable at a rate of four per cent above the base rate of National Westminster Bank Plc from the due date until the date at which payment is received.

19.3 The Undertaker shall upon the issue of the Provisional Certificate repay to the Developer eighty per cent of the Cash Deposit or eighty per cent of such amount thereof, if any, as may be remaining after any set off or appropriation by the Undertaker together with interest accrued thereon.

19.4 The Undertaker shall upon the issue of the Final Certificate repay to the Developer the remaining twenty per cent of the Cash Deposit or such amount thereof, if any, as may remain after any set off or appropriation by the Undertaker together with interest accrued thereon.

20 Disputes

In the event of any dispute or difference arising from the construction of the Works or application of this Agreement the same may first be referred to the senior managers of the Undertaker and the Developer for discussion and resolution. Failing resolution within 20 Business Days the dispute or difference may be referred to the respective directors of the Undertaker and the Developer for

discussion and resolution. In the event the respective directors of the parties are unable to resolve any dispute to their satisfaction the same shall be resolved by the High Court of Justice which shall have exclusive jurisdiction in relation to the same (save for the purposes of enforcement of any judgment of the courts in any other jurisdiction).

21 Notices

Except where this Agreement specifies otherwise any notice to be served on or Drawings to be supplied or submitted to the Undertaker shall be delivered or posted to the Undertaker's registered office or other address as may be notified from time to time and any notices to be served on the Developer shall be delivered or posted to the Developer's registered office and notice shall be deemed to be served at 9am on the second Business Day after posting.

22 Fees

22.1 The Undertaker acknowledges receipt of the following sums:

22.1.1. the cost of the preparation and completion of this Agreement and appropriate copies thereof; and

22.1.2 the Inspection Fees being the fees incurred by the Undertaker for the technical examination and processing of any submission by the Developer of plans drawings and other design or working Drawings whereby the Works are proposed to be constructed and for inspection by the Undertaker of the execution of the Works.

22.2 The Developer shall on demand pay to the Undertaker:

22.2.1 any additional fees arising from CCTV resurveys associated sewer cleansing and site visits essential to recheck sub-standard work;

22.2.2 any other fees and disbursements incurred pursuant to this Agreement;

22.2.3 VAT upon any payments referred to in this Agreement if the same is properly payable thereon.

23 Boilerplate

23.1 No statutory or common law rights and powers of the Undertaker shall be affected by this Agreement.

23.2 No failure or delay by the Undertaker to:

23.2.1 insist upon strict performance of any terms or conditions of this agreement; or

23.2.2 exercise any rights or remedies whether under this Agreement and/or at law or otherwise,

shall modify, release, diminish, or in any other way affect, any of the duties, liabilities, obligations and/or warranties of the Developer, or be deemed to constitute a waiver of any of the Undertaker's rights or remedies; nor shall any such failure or delay affect the validity of this Agreement or any part or parts hereof or the right of the Undertaker to enforce any provision in accordance with its terms.

23.3 The Developer shall not be entitled to assign, charge and/or otherwise transfer the benefit of this Agreement or any part, share or interest in any of them without the prior written consent of the Undertaker (which consent shall be within the Undertaker's entire discretion). Any consent to an assignment, charge and/or other transfer given by the Undertaker shall not in any way derogate from or lessen the Developer's obligations under, pursuant to or arising from this Agreement.

23.4 If any provision of this Agreement proves to be invalid or illegal, or any right arising in connection with this agreement proves to be unenforceable, the remaining provisions shall continue in full force and effect.

23.5 This Agreement constitutes the entire agreement between the Parties. This Agreement supersedes all prior agreements, understandings and arrangements between the Parties, and all representations by them (whether oral or written), relating to the subject matter of this Agreement. Neither Party shall have any claim for any innocent or negligent

misrepresentation not contained in this Agreement. Nothing in this provision shall limit (or exclude) any liability for fraud.

23.6 The Contracts (Rights of Third Parties) Act 1999 shall not apply to this Agreement and no other person other than the parties hereto shall have any rights under it nor shall it be enforceable by any other.

23.7 This Agreement shall be governed by and construed in accordance with English law and in respect of all matters arising under this Agreement the parties shall submit to the jurisdiction of the Court of England.

EXECUTED AS A DEED by)
THE MANCHESTER METROPOLITAN UNIVERSITY)
by affixing its common seal)
in the presence of:)

Authorised Signatory

Authorised Signatory

EXECUTED AS A DEED by affixing)
THE COMMON SEAL of UNITED)
UTILITIES WATER LIMITED)
in the presence of:-)

Authorised Signatory

12105

Appendix D

Confirmation from the contractor that drainage is built to Curtins design

Marta Wolska

From: Andrew Flannery <A.Flannery@bandk.co.uk>
Sent: 14 September 2023 13:53
To: Marta Wolska
Cc: Jacob Collin
Subject: RE: MMU - Planning Condition 12 Sustainable Drainage Management
Attachments: Section 106 Inspection Notice for MMU Science and Engineering Building Chester Street - Connection status Satisfactory_.pdf

Hi Marta,

Sewer diversion - Section 106 approval attached.

Surface water CCTV survey will be completed Tuesday 19th of September.

The Hydro - brake information will be with me tomorrow; I will send the information over as soon as receive it together with photos of the attenuation tank installation.

Curtin's Drawing 1338B-CUR-ZZ-00-DR-C-520 00-C09 reflects the "as -built" drainage information as provided and confirmed as as-built by QED.

The Foul CCTV survey is far too large to send despite attempting to zip, as the report contains a video of each run – I have a USB on my desk if you would like this?

Kind regards,

Andrew Flannery
Senior Contracts Manager

Tel: +44 (0)161 493 1880(x4255) | Mob: 07917 804791
North West Regional Office, 1st Floor, Altitude, Atlas Business Park, Manchester, M22 5PR

Email | Website

BOWMER + KIRKLAND

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From: Marta Wolska <marta.wolska@curtins.com>
Sent: Thursday, September 14, 2023 1:23 PM
To: Andrew Flannery <A.Flannery@bandk.co.uk>
Cc: Jacob Collin <Jacob.Collin@curtins.com>
Subject: RE: MMU - Planning Condition 12 Sustainable Drainage Management
Importance: High

Hi Andrew
Could you please let me know when we can expect outstanding information?

Our Locations

Birmingham
2 The Wharf
Bridge Street
Birmingham
B1 2JS
T. 0121 643 4694
birmingham@curtins.com

Bristol
Quayside
40-58 Hotwell Road
Bristol
BS8 4UQ
T. 0117 302 7560
bristol@curtins.com

Cardiff
3 Cwrt-y-Parc
Earlswood Road
Cardiff
CF14 5GH
T. 029 2068 0900
cardiff@curtins.com

Douglas
Varley House
29-31 Duke Street
Douglas
Isle of Man
IM1 2AZ
T. 01624 624 585
douglas@curtins.com

Dublin
39 Fitzwilliam Square
Dublin 2
Ireland
T. 00353 1 507 9447
dublin@curtins.com

Edinburgh
1a Belford Road
Edinburgh
EH4 3BL
T. 0131 225 2175
edinburgh@curtins.com

Glasgow
Queens House
29 St Vincent Place
Glasgow
G1 2DT
T. 0141 319 8777
glasgow@curtins.com

Kendal
28 Lowther Street
Kendal
Cumbria
LA9 4DH
T. 01539 724 823
kendal@curtins.com

Leeds
Rose Wharf
Ground Floor
Leeds
L29 8EE
T. 0113 274 8509
leeds@curtins.com

Liverpool
Curtin House
Columbus Quay
Riverside Drive
Liverpool
L3 4DB
T. 0151 726 2000
liverpool@curtins.com

London
40 Compton Street
London
EC1V 0BD
T. 020 7324 2240
london@curtins.com

Manchester
Merchant Exchange
17-19 Whitworth Street West
Manchester
M1 5WG
T. 0161 236 2394
manchester@curtins.com

Nottingham
56 The Ropewalk
Nottingham
NG1 5DW
T. 0115 941 5551
nottingham@curtins.com

Registered in England and Wales number: 2054159
Registered office: Curtin House, Columbus Quay, Riverside Drive, Liverpool L3 4DB