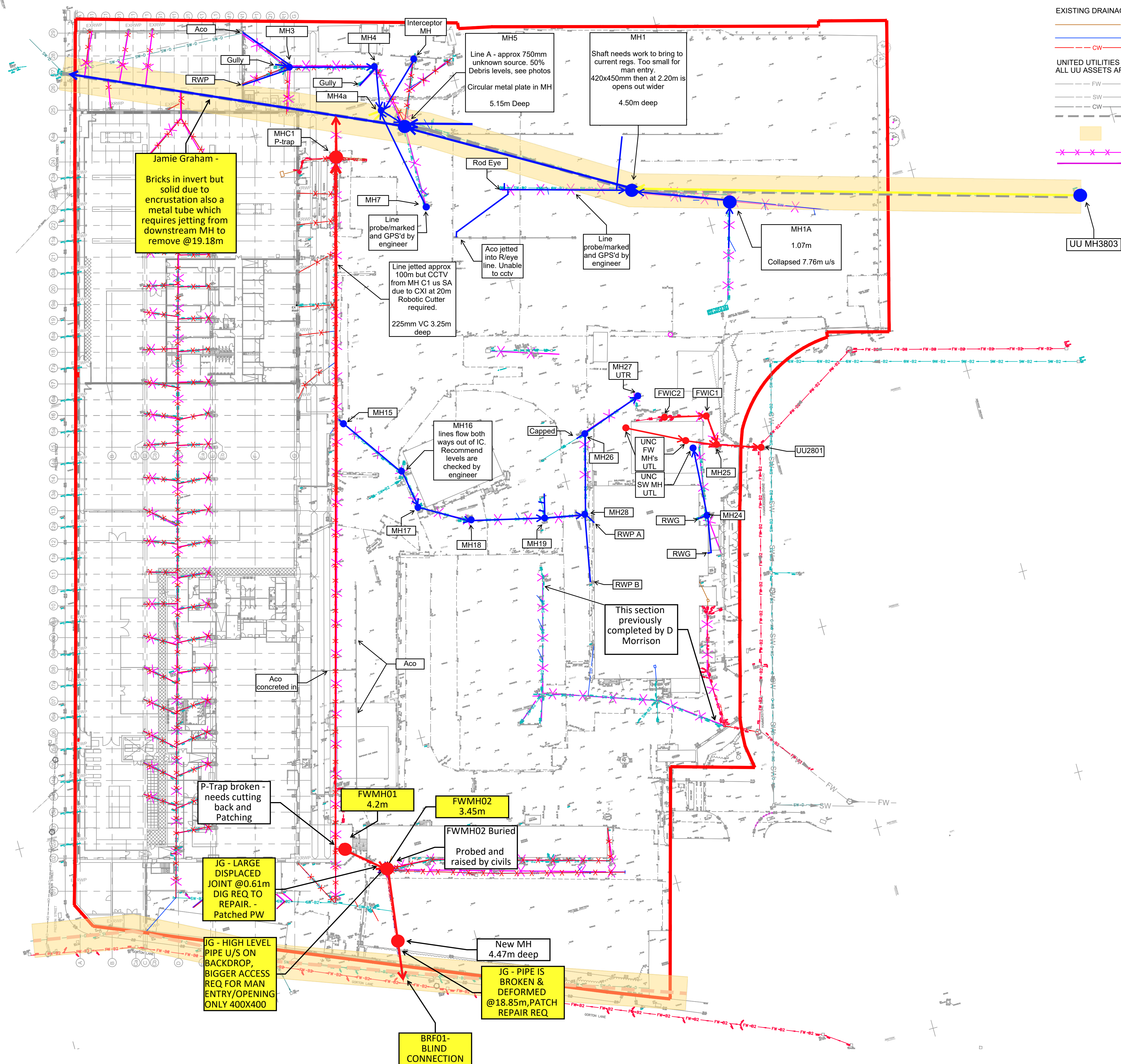




LEGEND

EXISTING SERVICES BASED ON GPR SURVEY S17480-U DEC 2018

- BT CABLE
- ELECTRICITY CABLE
- TELECOM CABLE
- UNKNOWN SERVICE
- FOUL WATER PIPE
- SURFACE WATER PIPE

EXISTING DRAINAGE BASED ON CCTV SURVEY DEC 2018

- FOUL WATER PIPE
- SURFACE WATER PIPE
- COMBINED WATER PIPE

UNITED UTILITIES RECORDS UUPS-ORD-76950
ALL UU ASSETS ARE SHOWN INDICATIVELY

- UU FOUL WATER SEWER
- UU SURFACE WATER SEWER
- UU COMBINED WATER SEWER
- WATERCOURSE
- 8M EASEMENT BASED ON SEWER FOR ADOPTION 6TH EDITION
- ABANDONED
- EXISTING DRAINAGE UNSURVEYED, ROUTE ASSUMED

GENERAL NOTES:

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- 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.

DRAWING BASED ON:
TOPOGRAPHICAL SURVEY BY SEP S15724-T
GPR SURVEY BY SEP S17480-U DEC 2018 JUNE 2018
CCTV SURVEY BY SEP DRAINAGE SURVEYS LTD DEC 2018
ADDITIONAL CCTV SURVEY AUG 2020
ADDITIONAL CCTV SURVEY DECEMBER 2021
EXISTING BUILDING SURVEY BY SEP S15724-GA JUNE 2018
UU RECORDS UUPS-ORD-76950
ARCHITECT RWP SKETCH PROVIDED 13.01.22

REQUIRED CCTV SURVEY OF WATERCOURSE,
WATERCOURSE HAS NOT BEEN PREVIOUSLY DUE TO DEBRIS

C01	CONSTRUCTION ISSUE	26.09.22	MW	MW
P02	UPDATED FOLLOWING CCTV SURVEY& RWPS POSITION PROVIDED ON ARCHITECT SKETCH	21.01.22	MW	MW
P01	STAGE 4 ISSUE	05.08.21	TH	MW
Rev:	Description:	Date:	By:	Chkd:

Curtins

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
0161 235 2384
manchester@curtins.com
www.curtins.com

Civils & Structures • Transport Planning • Environmental • Infrastructure • Geotechnical • Conservation & Heritage • Principal Designer
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Status: **STAGE 5**

Project: **HAMMERSTONE ROAD**

Orig Title: **ASSUMED EXISTING DRAINAGE AND ADDITIONAL SURVEY**

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:
068065	A1	05.08.21	TH	MW	MW
Scale:	1:500				
Project Code:	Originator:	Zone:	Level:	Type:	Discipline:
HRD - CUR - XX - 00 - DR - C - 92-514					
Rev:					
-C01					

**Project**

Project Name: DK0758 Adana Hammerstone rd Goreton Manchester 25-31 01 24

Project Date: 25/01/2024

Inspection Standard: MSCC5 Sewers & Drainage GB (SRM5 Scoring)





Table of Contents

Project Name	Project Number	Project Date
DK0758 Adana Hammerstone rd Goreton Manchester 25-31 01 24		25/01/2024

Project Information	P-1
Section Item 1: MH5 > OFFSITE (MH5X)	1
Section Item 2: MH1 > MH5 (MH1X)	3
Section Item 3: MH1A > MH1 (MH1AX)	5
Section Item 4: UUMH3803 > MH1A (UUMH3803X)	6

Project Information

Project Name	Project Number	Project Date
DK0758 Adana Hammerstone rd Goreton Manchester 25-31 01 24		25/01/2024

Client

Company: ADANA CONSTRUCTION
Description: ADANA HOUSE
Contact: 140 HIGHER HILLGATE
Department: STOCKPORT
Street: SK1 3QT



Site

Company: ADANA CONSTRUCTION
Contact: DK0758 Adana Hammerstone rd Goreton Manchester 25-



Contractor

Company: NRCWWS
Contact: Derek Kearns
Department: Director
Street: unit D. Russell Road
Town or City: Rock Ferry
County: Wirral
Post Code: CH42 1LU
Phone: 0151 643 0800
Email: derek.kearns@nrcwws.co.uk



Section Inspection - 01/02/2024 - MH5X



Item No. 1	Insp. No. 3	Date 01/02/24	Time 16:38	Client's Job Ref NRC WWS LTD	Weather No Rain Or Snow	Pre Cleaned Yes	PLR MH5X
Operator K.Graham		Vehicle PK68 XZZ		Camera Crawler	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Manchester	Inspection Direction:	Downstream	Upstream Node:	MH5
Road:	Hammerstone Rd	Inspected Length:	81.84 m	Upstream Pipe Depth:	
Location:	Property or buildings	Total Length:	81.84 m	Downstream Node:	OFFSITE
Surface Type:	Asphalt Highway	Joint Length:		Downstream Pipe Depth:	
Use:	Surface water	Pipe Shape:	Circular		
Type of Pipe:		Dia/Height:	600 mm		
Flow Control:	No flow control	Pipe Material:	Brick		
Year Constructed:	Not Specified	Lining Type:	No Lining		
Inspection Purpose:	Sample condition survey	Lining Material:	No Lining		

Comments:
Recommendations:

Scale: 1:486	Position [m]	Code	Observation	MPEG	Photo	Grade
	Depth: m MH5 0.00	MH	Start node, manhole, reference: MH5	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:05		
	4.57	S01	DEE Attached deposits, encrustation from 01 o'clock to 11 o'clock, 5% cross-sectional area loss, start	00:01:30		
	14.87	WL	Water level, 10% of the vertical dimension	00:03:01		
	17.58	JX	Junction, defective at 09 o'clock, 450mm dia: lose bricks in jnction	00:04:39		
	19.34	DEZ	Attached deposits, other from 05 o'clock to 07 o'clock, 15% cross-sectional area loss: bricks and poss concrete in invert	00:05:39		3
	20.66	DEZ	Attached deposits, other from 05 o'clock to 07 o'clock, 15% cross-sectional area loss: concrete in invert	00:06:41		3
	20.93	CN	Connection other than junction at 09 o'clock, 225mm dia	00:06:59		
	28.16	IG	Infiltration, gushing at 09 o'clock: from joint on brick work	00:09:05		
	30.03	IG	Infiltration, gushing at 08 o'clock: from joint on brick work	00:09:42		
	32.38	FL	Fracture, longitudinal at 12 o'clock	00:10:11		4 / 2
	34.40	FL	Fracture, longitudinal at 12 o'clock	00:10:37		4 / 2
	41.23	D	Deformed sewer or drain, 10%	00:11:49		
	46.73	MB	Missing bricks at 11 o'clock	00:12:54		4
	55.46	CN	Connection other than junction at 09 o'clock, 300mm dia	00:14:36		

Section Inspection - 01/02/2024 - MH5X



Item No.	Insp. No.	Date	Time	Client's Job Ref	Weather	Pre Cleaned	PLR
1	3	01/02/24	16:38	NRC WWS LTD	No Rain Or Snow	Yes	MH5X
Operator		Vehicle		Camera	Preset Length	Legal Status	Alternative ID
K.Graham		PK68 XZZ		Crawler	Not Specified	Not Specified	Not Specified

Scale:	1:486	Position [m]	Code	Observation	MPEG	Photo	Grade
		56.76	ID	Infiltration, dripping at 12 o'clock: from encrustation	00:15:02		
		60.28	JX	Junction, defective at 03 o'clock, 600mm dia: loose bricks	00:16:20		
		60.28	ID	Infiltration, dripping at 12 o'clock	00:16:28		
		62.80	F01 DEE	Attached deposits, encrustation from 1 o'clock to 11 o'clock, 5% cross-sectional area loss, finish	00:17:00		3
		62.80	S02 DEE	Attached deposits, encrustation from 12 o'clock to 05 o'clock, 5% cross-sectional area loss, start	00:17:18		
		81.84	LD	Line deviates down: sharp	00:20:16		
		81.84	CN	Connection other than junction at 09 o'clock, 225mm dia: in poss old chamber	00:20:41		
		81.84	F02 DEE	Attached deposits, encrustation from 12 o'clock to 5 o'clock, 5% cross-sectional area loss, finish	00:20:56		3
		81.84	MHF	Finish node, manhole, reference: OFFSITE: MH in view	00:21:16		

Depth: m

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	120.0	3.9	320.0	4.0	6	4.0	2.0	164.0	3.0

Section Inspection - 25/01/2024 - MH1X



Item No.	Insp. No.	Date	Time	Client's Job Ref	Weather	Pre Cleaned	PLR
2	1	25/01/24	9:17	NRC WWS LTD	No Rain Or Snow	Yes	MH1X
Operator		Vehicle		Camera	Preset Length	Legal Status	Alternative ID
K.Graham		PK68 XZZ		Crawler	Not Specified	Not Specified	Not Specified

Town or Village:	Manchester	Inspection Direction:	Upstream	Upstream Node:	MH1
Road:	Hammerstone Rd	Inspected Length:	51.87 m	Upstream Pipe Depth:	
Location:	Property or buildings	Total Length:	63.99 m	Downstream Node:	MH5
Surface Type:	Asphalt Highway	Joint Length:		Downstream Pipe Depth:	
Use:	Surface water	Pipe Shape:	Circular		
Type of Pipe:		Dia/Height:	750 mm		
Flow Control:	No flow control	Pipe Material:	Brick		
Year Constructed:	Not Specified	Lining Type:	No Lining		
Inspection Purpose:	Sample condition survey	Lining Material:	No Lining		

Comments:

Recommendations:

Scale:	1:555	Position [m]	Code	Observation	MPEG	Photo	Grade
<div><div><div>Depth: m</div><div>MH5</div><div><div>0.00</div><div>0.00</div><div>0.47</div><div>11.86</div><div>14.00</div><div>17.07</div><div>23.52</div><div>29.88</div><div>37.00</div><div>39.80</div><div>40.00</div><div>51.86</div><div>51.87</div></div><div><div>MH</div><div>WL</div><div>MCCO</div><div>LL</div><div>FLJ</div><div>CN</div><div>DEG</div><div>CN</div><div>FLJ</div><div>S02</div><div>FLJ</div><div>F02</div><div>MHF</div></div><div><div>Start node, manhole, reference: MH5</div><div>Water level, 5% of the vertical dimension</div><div>Pipe material changes to concrete at this point</div><div>Line deviates left</div><div>Fracture, longitudinal at joint at 9 o'clock</div><div>Connection other than junction at 10 o'clock, 300mm dia</div><div>Attached deposits, grease at 08 o'clock, 5% cross-sectional area loss: grease</div><div>Connection other than junction at 01 o'clock, 225mm dia</div><div>Fracture, longitudinal at joint at 8 o'clock</div><div>Fracture, longitudinal at 12 o'clock, start</div><div>Fracture, longitudinal at joint at 9 o'clock</div><div>Fracture, longitudinal at 12 o'clock, finish</div><div>Finish node, manhole, reference: MH1</div></div><div><div>00:00:00</div><div>00:00:07</div><div>00:00:28</div><div>00:01:23</div><div>00:04:10</div><div>00:02:22</div><div>00:03:13</div><div>00:03:52</div><div>00:04:23</div><div>00:02:42</div><div>00:04:38</div><div>00:02:42</div><div>00:06:21</div></div><div><div></div><div></div><div></div><div></div><div>MH1X_51f 353b9-360 a-4272-9e</div><div></div><div>MH1X_01 2cdac9-bc 28-4f1c-bf</div><div></div><div>MH1X_d8 6746ce-af 0b-49ac-bf</div><div></div><div>MH1X_cd3 83f44-f452 -42c0-b12</div><div></div><div></div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div>3</div><div></div><div></div><div></div><div></div><div></div><div>4 / 2</div><div></div></div></div></div>							

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	120.0	24.4	1560.0	4.0	2	4.0	0.3	17.0	3.0

Section Pictures - 25/01/2024 - MH1X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
2	Upstream	MH1X	NRC WWS LTD	



MH1X_51f353b9-360a-4272-9ee9-2f0bf5299c1e_20240201_1
02217_287.jpg, 00:04:10, 14.00 m
Fracture, longitudinal at joint at 9 o'clock



MH1X_012cdac9-bc28-4f1c-bf1c-46af3d245a1e_20240201_1
01857_282.jpg, 00:03:13, 23.52 m
Attached deposits, grease at 08 o'clock, 5% cross-sectional
area loss, grease



MH1X_d86746ce-af0b-49ac-bf60-ade12876c7f0_20240201_1
02241_993.jpg, 00:04:23, 37.00 m
Fracture, longitudinal at joint at 8 o'clock



MH1X_cd383f44-f452-42c0-b12e-c7d4cdfae8e6_20240201_1
02311_947.jpg, 00:04:38, 40.00 m
Fracture, longitudinal at joint at 9 o'clock

Section Inspection - 25/01/2024 - MH1AX



Item No. 3	Insp. No. 1	Date 25/01/24	Time 9:25	Client's Job Ref NRC WWS LTD	Weather No Rain Or Snow	Pre Cleaned Yes	PLR MH1AX
Operator K.Graham		Vehicle PK68 XZZ		Camera Crawler	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Manchester	Inspection Direction:	Upstream	Upstream Node:	MH1A
Road:	Hammerstone Rd	Inspected Length:	38.00 m	Upstream Pipe Depth:	
Location:	Property or buildings	Total Length:	46.53 m	Downstream Node:	MH1
Surface Type:	Asphalt Highway	Joint Length:		Downstream Pipe Depth:	
Use:	Surface water	Pipe Shape:	Circular		
Type of Pipe:		Dia/Height:	750 mm		
Flow Control:	No flow control	Pipe Material:	Brick		
Year Constructed:	Not Specified	Lining Type:	No Lining		
Inspection Purpose:	Sample condition survey	Lining Material:	No Lining		

Comments:

Recommendations:

Scale: 1:403	Position [m]	Code	Observation	MPEG	Photo	Grade
<div> <div>Depth: m</div> <div>MH1</div> <div> </div> <div> <div>20.03</div> <div>26.67</div> </div> <div> <div>↑</div> </div> <div>MH1A</div> <div>Depth: m</div> </div>						
	0.00	MH	Start node, manhole, reference: MH1	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:06		
	20.03	REM	General remark: rope running through invert	00:01:50		
	26.67	MHF	Finish node, manhole, reference: MH1A	00:02:34		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	0.0	2.6	120.0	4.0	1	0.0	0.0	1.0	1.0

Section Inspection - 25/01/2024 - UU MH3803X



Item No.	Insp. No.	Date	Time	Client's Job Ref	Weather	Pre Cleaned	PLR
4	2	25/01/24	13:24	NRC WWS LTD	No Rain Or Snow	Yes	UU MH3803X
Operator		Vehicle		Camera	Preset Length	Legal Status	Alternative ID
K.Graham		PK68 XZZ		Crawler	Not Specified	Not Specified	Not Specified

Town or Village:	Manchester	Inspection Direction:	Upstream	Upstream Node:	UU MH3803
Road:	Hammerstone Rd	Inspected Length:	10.68 m	Upstream Pipe Depth:	
Location:	Property or buildings	Total Length:	10.68 m	Downstream Node:	MH1A
Surface Type:	Asphalt Highway	Joint Length:		Downstream Pipe Depth:	
Use:	Surface water	Pipe Shape:	Circular		
Type of Pipe:		Dia/Height:	750 mm		
Flow Control:	No flow control	Pipe Material:	Brick		
Year Constructed:	Not Specified	Lining Type:	No Lining		
Inspection Purpose:	Sample condition survey	Lining Material:	No Lining		

Comments:

Recommendations:

Scale:	1:93	Position [m]	Code	Observation	MPEG	Photo	Grade
<div> <div> <div>Depth: m</div> <div>MH1A</div> <div>0.00</div> <div>0.00</div> <div>6.73</div> <div>10.68</div> <div>UU MH3803</div> <div>Depth: m</div> </div> <div> <div>MH</div> <div>WL</div> <div>H</div> <div>MHF</div> </div> <div> <div>Start node, manhole, reference: MH1A</div> <div>Water level, 5% of the vertical dimension</div> <div>Hole in drain or sewer at 12 o'clock: MISSING BRICK</div> <div>Finish node, manhole, reference: UU MH3803</div> </div> <div> <div>00:00:00</div> <div>00:00:05</div> <div>00:01:37</div> <div>00:03:11</div> </div> <div> <div></div> <div></div> <div>UU MH3803X_7de389c</div> <div></div> </div> </div>							

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 25/01/2024 - UU MH3803X

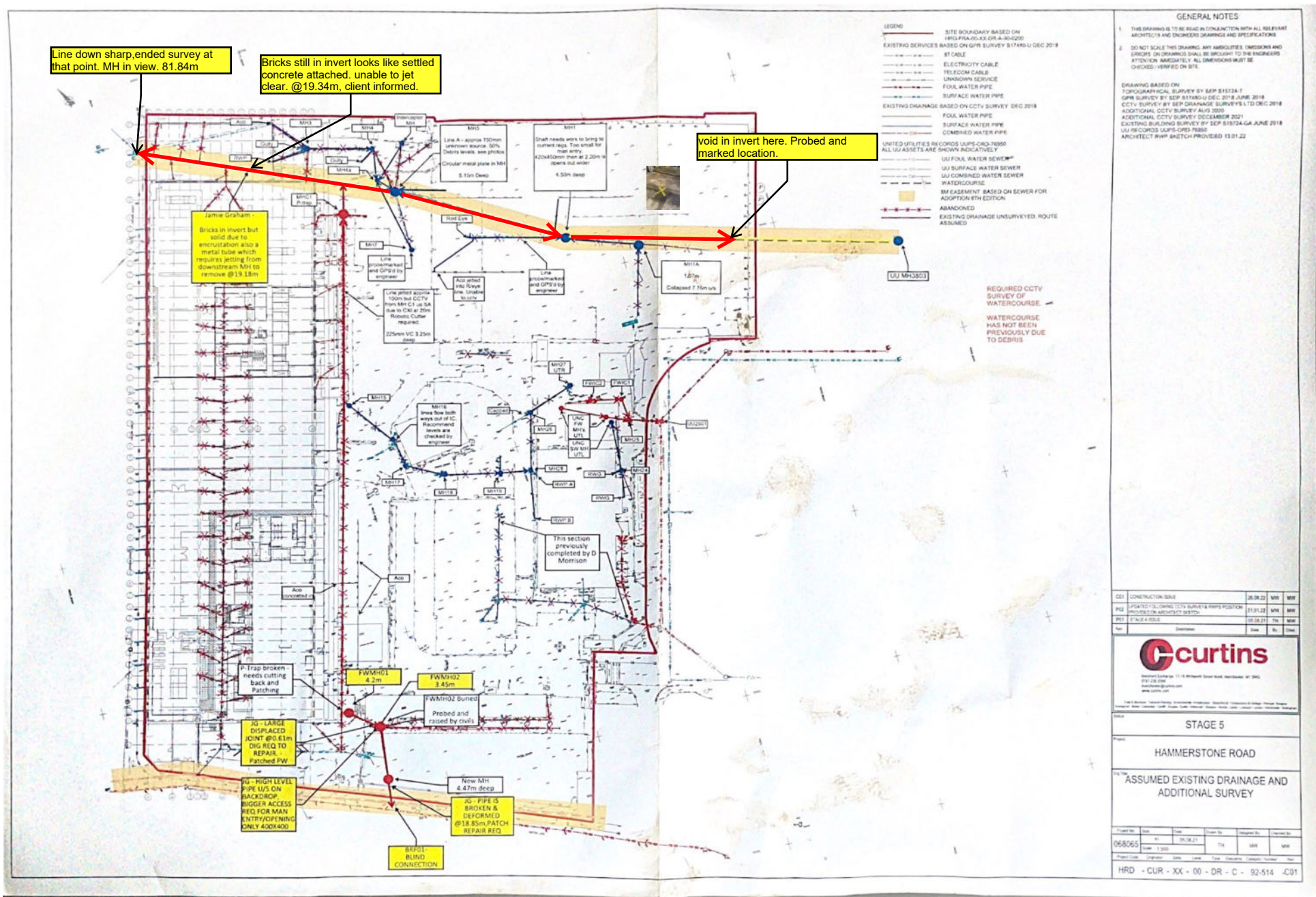
Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
4	Upstream	UU MH3803X	NRC WWS LTD	



UU

MH3803X_7de389c4-e6ec-4690-9aac-c2fc7a252f20_2024020
1_170816_726.jpg, 00:01:37, 6.73 m
Hole in drain or sewer at 12 o'clock, MISSING BRICK

APPENDIX D4 - CULVERT SURVEY PLAN

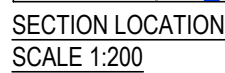
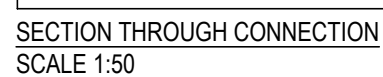


Appendix E

Section Through Tank Connections

Attenuation Tank Details

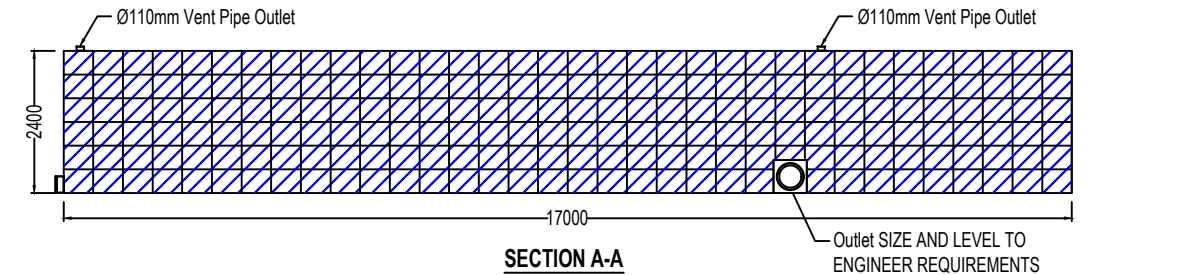
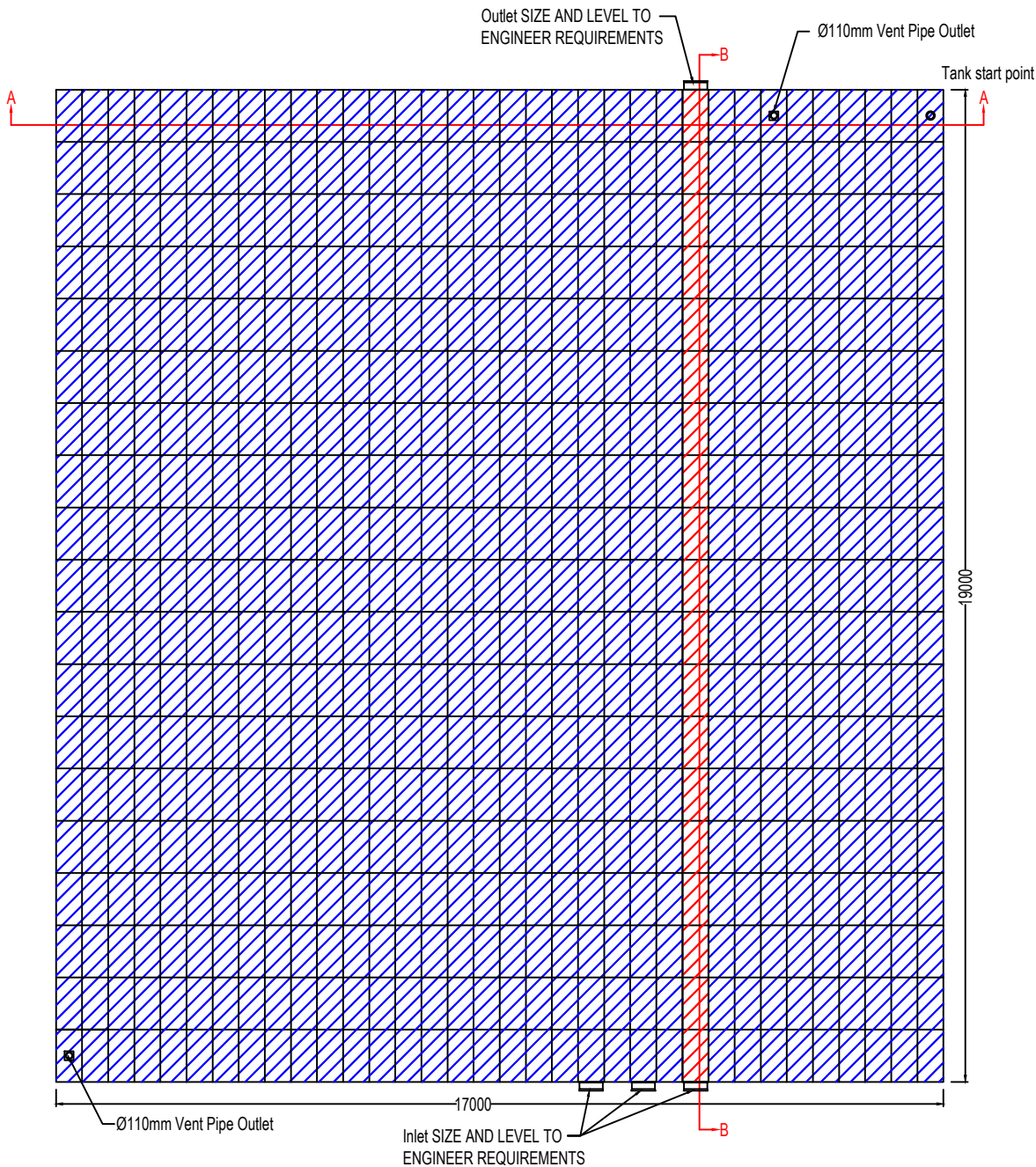
Rainwater Harvesting Tank Information



Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
HRD	- CUR	- XX	- 00	- DR	- C	- 92540	- P01

ma-fs-1\Projects\068001 - 069000\068065 - Hammersbone Road Depot\QMS 4 Production\4B Models & Drawings\ Civil\CICAD\92\

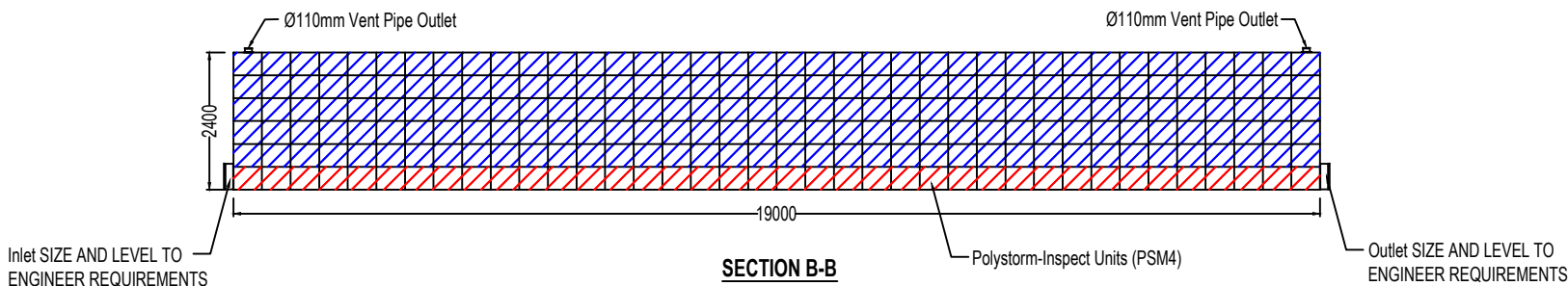
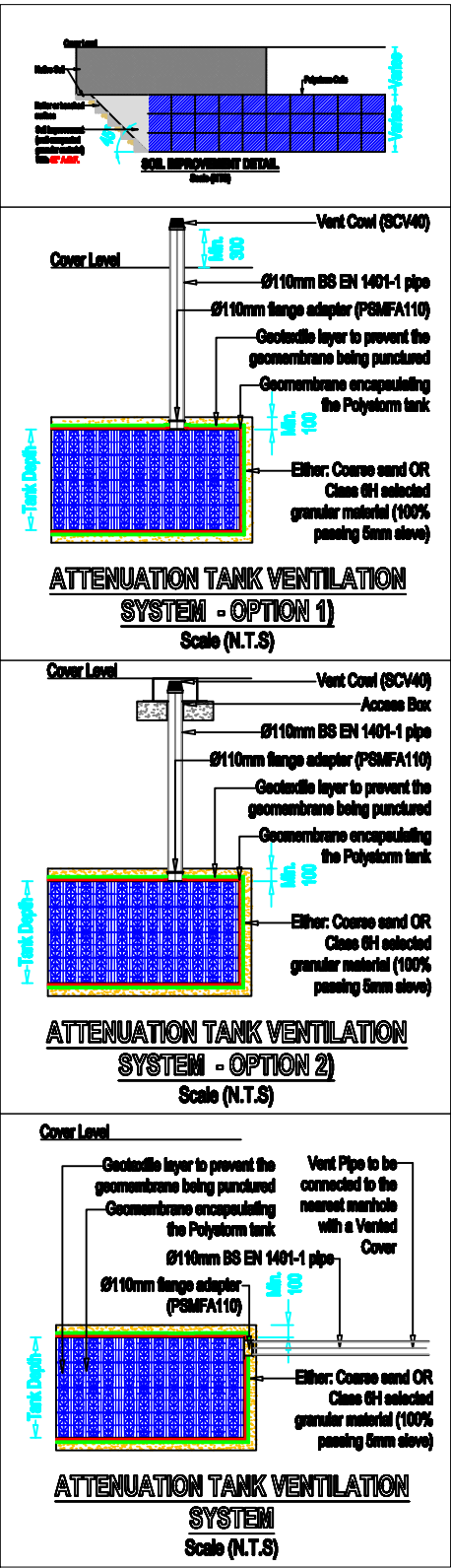
APPENDIX E2 - ATTENUATION TANK 1 DETAILS



PROPOSED POLYSTORM STRUCTURE	
Plan Area	323m ²
Tank Volume	775.2m ³
Storage	736.44m ³
Polystorm-R Units	3857 (PSM1A)
Polystorm-Inspect Units	19 (PSM4)

LEGEND:

	Polystorm-R Units (PSM1A)
	Polystorm-Inspect Units (PSM4)



- NOTES:-
- THIS DRAWING DETAILS A PROPOSED POLYPIPE CIVILS & GREEN URBANISATION PRODUCT GENERAL ARRANGEMENT, REFLECTING OUR INTERPRETATION OF THE INFORMATION PROVIDED.
 - POLYPIPE CIVILS & GREEN URBANISATION (PCGU) PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH PCGU RECOMMENDATIONS (REFER TO PCGU TECHNICAL GUIDANCE FOR FURTHER INFORMATION), GIVING DUE CONSIDERATION TO THE SITE SPECIFIC CONDITIONS AND REQUIREMENTS, IN ADDITION TO ANY REQUIREMENTS MANDATED BY THE RELEVANT APPROVING AND ULTIMATE OWNER ORGANISATIONS).
 - DO NOT SCALE, REFER TO FIGURED DIMENSIONS ONLY.
 - ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE STATED.
 - ALL DIMENSIONS ARE NOMINAL AND MAY VARY WITHIN MANUFACTURING OR CONSTRUCTION TOLERANCES.
 - ALL SITE TEMPORARY AND ENABLING WORKS BY OTHERS.
 - THIS DRAWING IS INTENDED FOR GUIDANCE ONLY. CONFIRMATION OF THE INFORMATION CONTAINED WITHIN THIS DOCUMENT SHOULD BE SOUGHT FROM THE OVERSEEING ENGINEER(S) PRIOR TO THE COMMENCEMENT OF FINAL DESIGN OR CONSTRUCTION ACTIVITIES.
 - PLEASE REFER TO POLYSTORM & POLYSTORM LITE TECHNICAL GUIDE.
 - THE PROPOSED POLYSTORM STRUCTURE GENERAL ARRANGEMENT HAS BEEN BASED ON PROVIDING THE MINIMUM STRUCTURE VOLUME STATED ONLY. NO STRUCTURAL OR HYDRAULIC ASSESSMENT HAS BEEN MADE OF THE SUITABILITY OF THE PROPOSED POLYSTORM STRUCTURE FOR THE PROPOSED APPLICATION, NOR HOW IT WILL INTEGRATES INTO THE PROPOSED DRAINAGE SYSTEM.
 - ALL MEMBRANE JOINTS TO BE WELDED RATHER THAN GLUED.

R1 06/09/24 INLET PIPE CONNECTION LOCATION HAS CHANGED TO SUIT.

Notes :- All the Dimensions by Millimeters

KEYTEC
INSTALLATION SERVICES

KEYTEC INSTALLATION SERVICES
ROYLE HOUSE
COWM TOP BUSINESS PARK
COWM TOP LANE
OL11 2PU
TEL: 01706 374416
EMAIL: TECHNICAL@KEYTEC.CO.UK

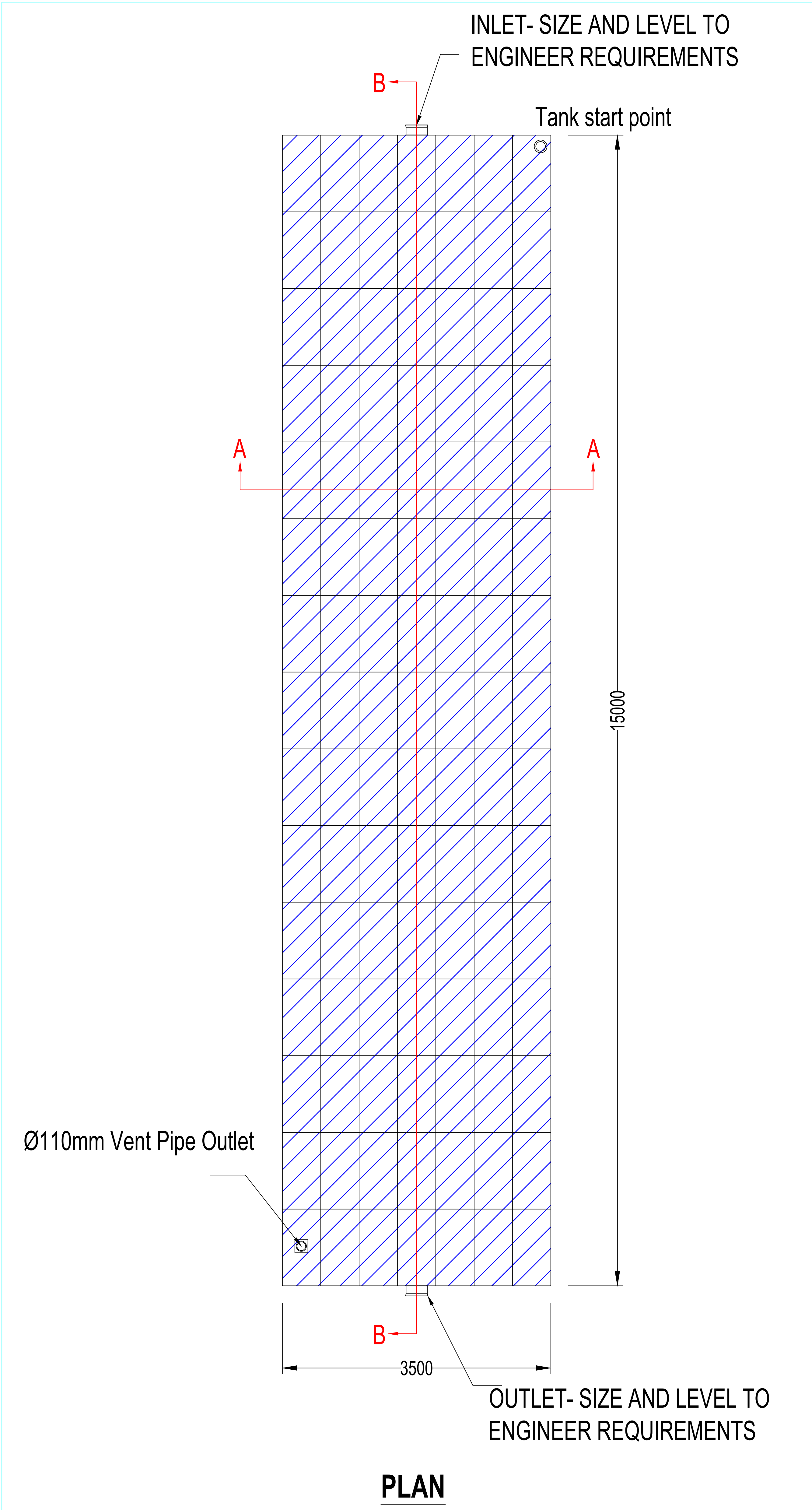
PROJECT
HAMMERSTONE ROAD DEPOT
ATTENUATION TANK

TITLE
DETAILS OF ATTENUATION/STORAGE TANK DETAILS USING POLYSTORM PSMIA UNITS.

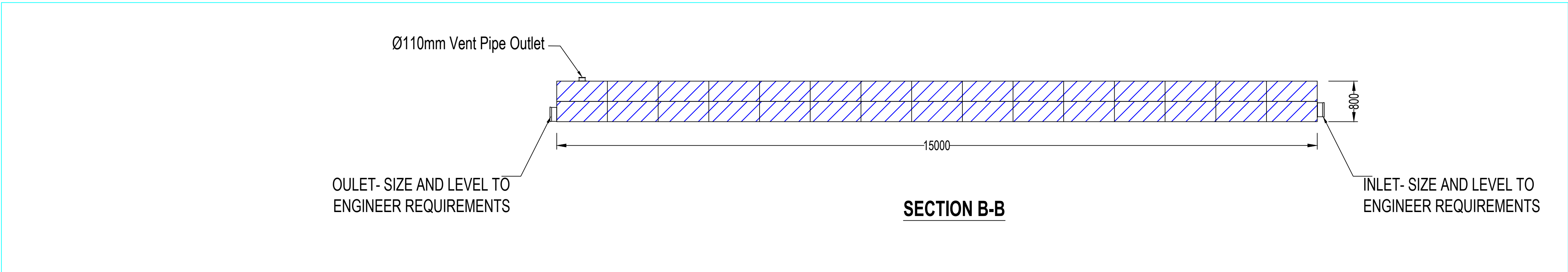
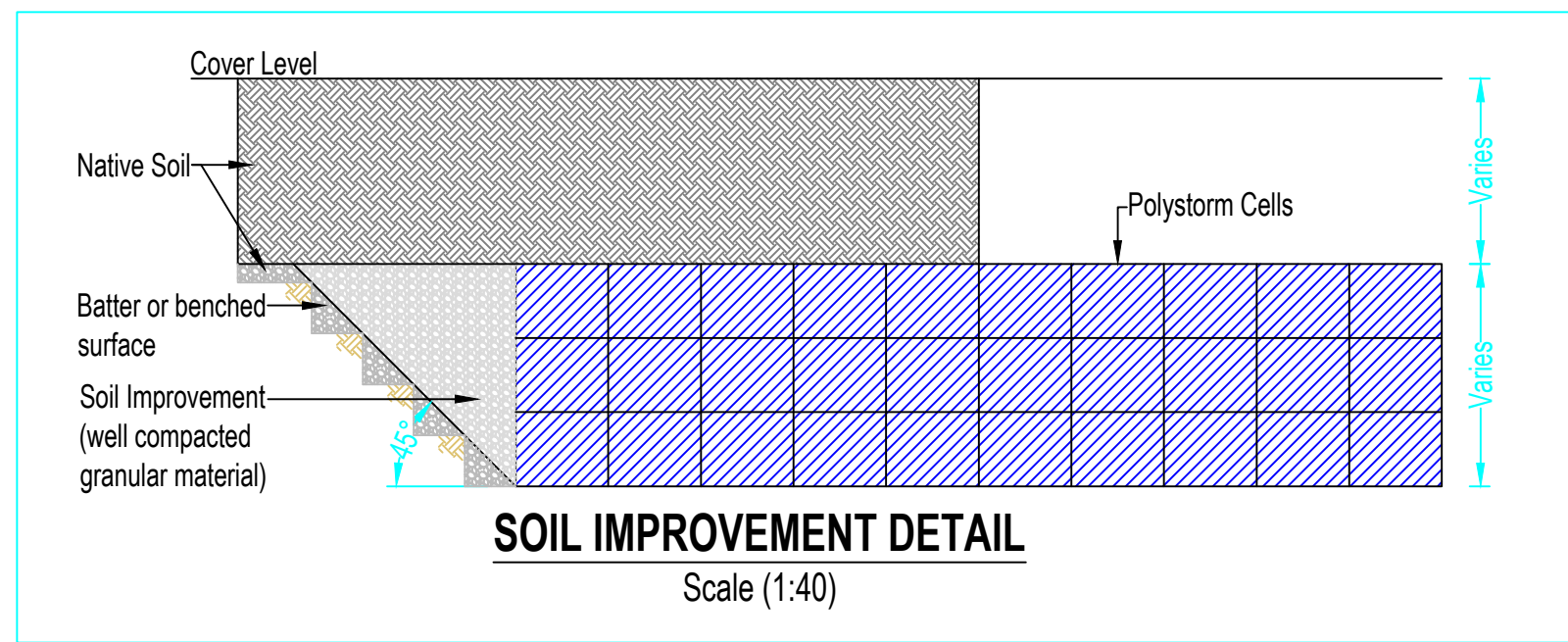
Scale N.T.S.	Drawn AY	Checked KD
Date 14/06/2024	Drawing No. PSM - 6.0	Revision R1

SCALE: 1:30

APPENDIX E3 - ATTENUATION TANK 2 DETAILS



SCALE 1:50



NOTES - PE STUB PIPE ADAPTERS	
Ø160mm SDR26 PE - Ø150mm Polysewer	PIPE ADAPTOR PS689
Ø250mm SDR26 PE - Ø225mm Polysewer	PS1089
Ø315mm SDR41 PE - Ø300mm Polysewer	PS1289
Ø450mm SDR17 PE - Ø400mm Rigidsewer	see note below*
Ø600mm SDR17 PE - Ø450mm Rigidsewer	see note below*
Ø660mm SDR17 PE - Ø500mm Rigidsewer	see note below*
Ø630mm SDR33 PE - Ø600mm Rigidsewer	see note below*

* - For this transition, Flexseals are required, please refer to your website

LIFTING POINTS - UNSUITABLE FOR LIFTING

1. Fabricated chamber supplied to site without direct means of lifting incorporated. The lift supervisor must assess and plan the lift, in the circumstances of the lift, and provide slings and / or other controls as deemed necessary to ensure a safe lift.

POLYSTORM NOTES

2. This drawing needs to be read in conjunction with all relevant Architects, Engineers and specialist drawings.
3. Stormwater Attenuation / Infiltration system shall be Polypropylene (PP) pre-formed geocellular system, with minimum 94% void volume. The system shall be installed using recommended principles to maintain rigidity and minimise deflection.
4. Multi-layered Polypropylene tank configurations shall be fixed with proprietary shear connectors between each vertical layer to maintain rigidity and minimise lateral displacement.
5. The system shall be read in conjunction with the supporting structural calculations, which are illustrative and should be verified by a suitably qualified Engineer, or similar.
6. For Field conditions, bacfill should be placed and compacted in layers to greater than 300mm and for trafficked areas, bacfill should be placed and compacted in layers to greater than 150mm.
7. The installer shall ensure that all expected temporary construction transient loads have been considered as part of the structural design and a minimum of 300mm bacfill should be placed prior to installation.
8. Polypropylene Tanks should be installed in accordance with Polypropylene Manufacturers' recommendations (refer to technical guidance for further information).

COVER SLAB THICKNESS

1. Where cover slabs are applicable, the slab thickness (shown in red) has been assumed and therefore needs to be confirmed by others.

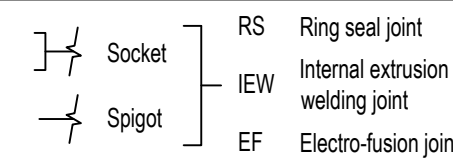
STANDARD TOLERANCES

ALL DIMENSIONS IN MILLIMETRES, UNLESS OTHERWISE STATED

Benching Slope 1:10 to 1:30 (1.9° - 5.7°)
Angles +/- 1.5°
All Dimensions +50mm / -30mm
STANDARD SPIGOTS IN ACCORDANCE WITH SPEC. ES23.

Team Leader inspection points identified by: 1 2 3

JOINTING KEY

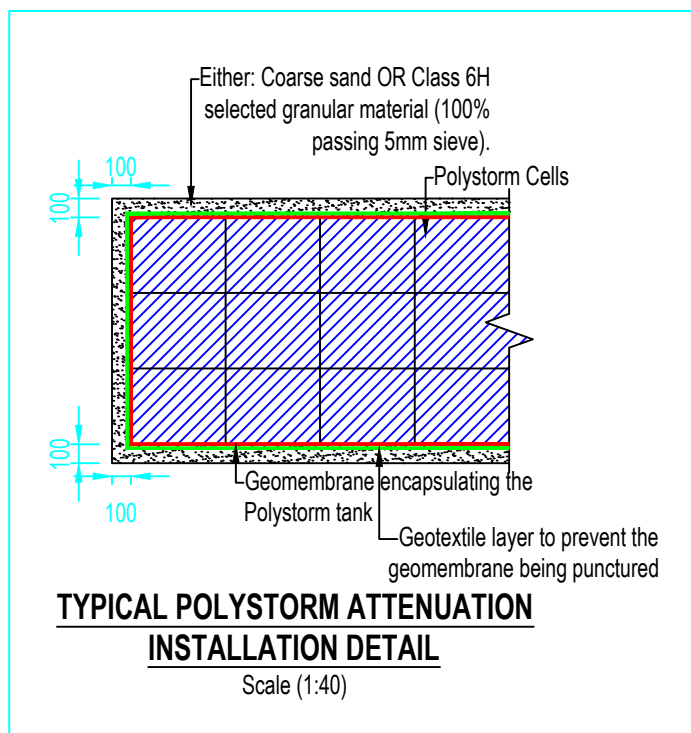
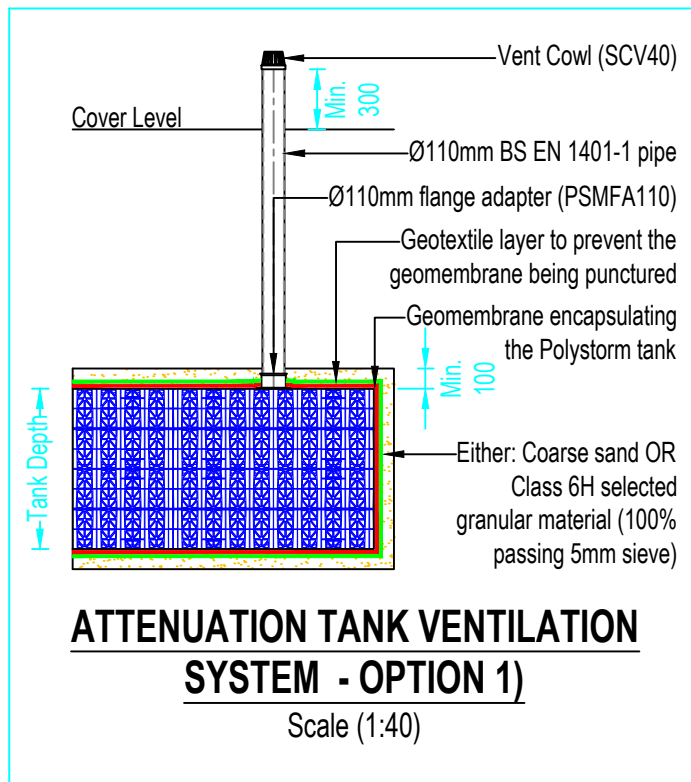
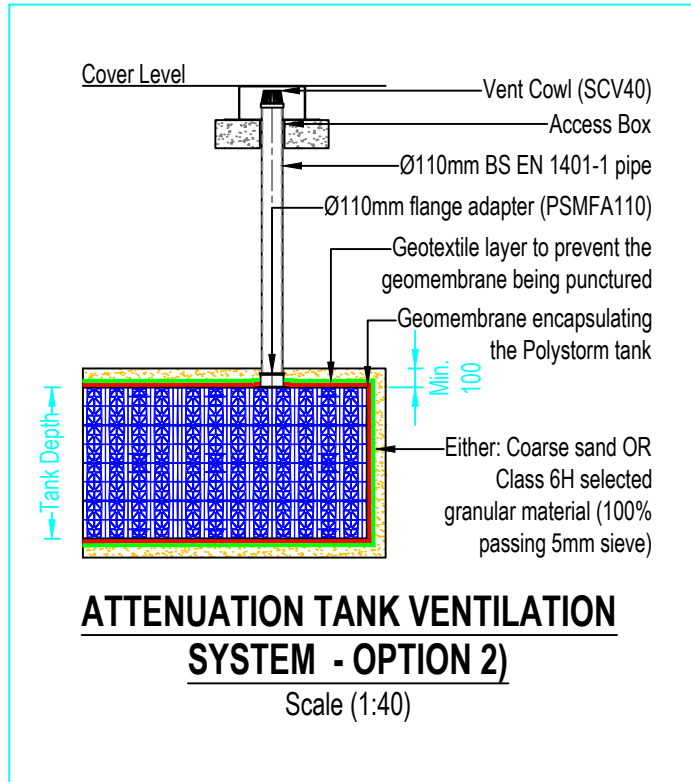
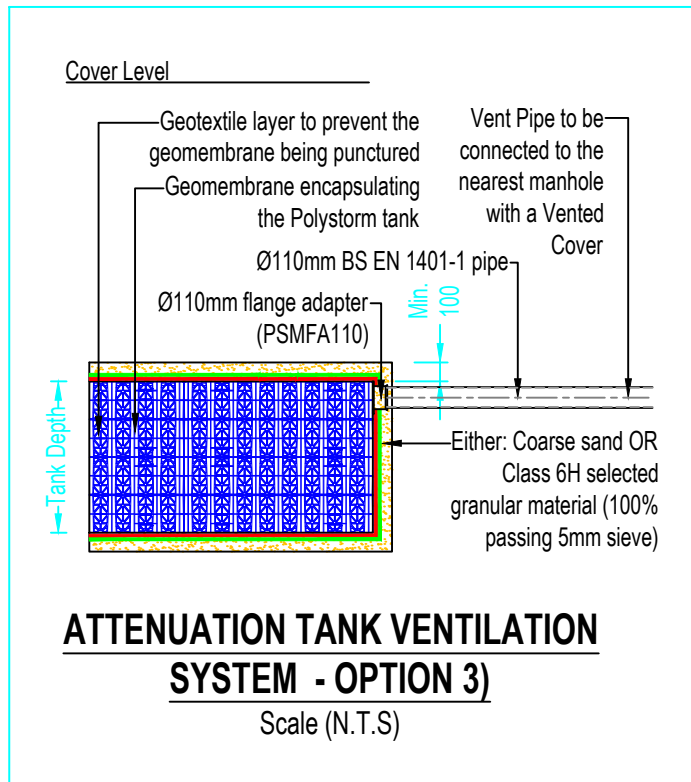
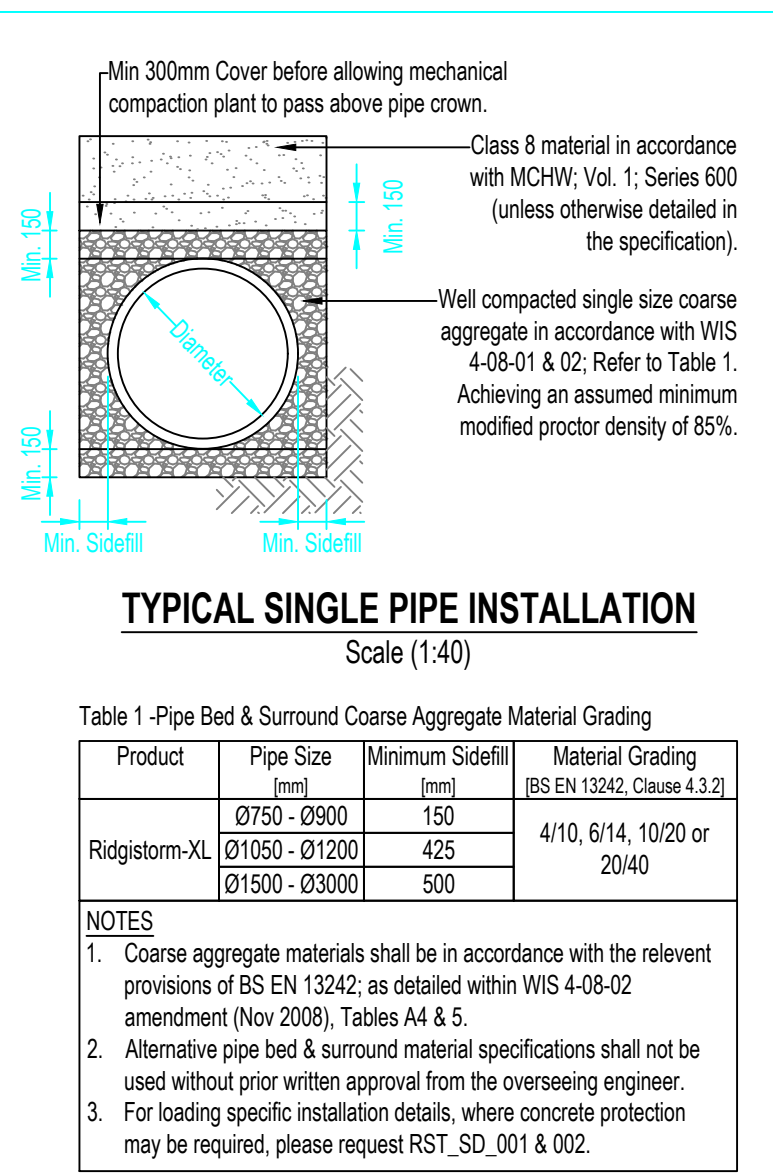


GENERAL NOTES

1. This drawing details Polytype Civilis proposed offering, reflecting our interpretation of the information provided.
2. Polytype bespoke Ridgistorm-XL chambers are complete pre-formed units.
3. Polytype products to be installed in accordance with Polytype Civilis recommendations (refer to Polytype technical guidance for further information), giving due consideration to the requirements of the organisation who will take ultimate ownership of the installation.
4. Site conditions may require specific installation requirements. The installer should verify that the proposed installation method is acceptable, giving due consideration to the requirements of the relevant authority and adopting authorities, before construction activities commence.
5. Advice on any system requirements specific to the proposed Ridgistorm-XL system should be sought from Polytype Civilis.
6. All PE stub connections will require adaptors (to be supplied by Contractor / Developer).

DRAWING NOTES

1. Drawings should not be scaled, refer to figured dimensions only.
2. All dimensions in millimetres, unless otherwise stated.
3. All dimensions are nominal and may vary within manufacturing and construction tolerances.
4. All site temporary and enabling works by others.
5. This drawing is intended for guidance only. Confirmation of the information contained within this document should be sought from the consulting engineers before final design or construction activities commence.



R1 14/01/2025 TANK SHAPE/SIZE REVISED BY CUSTOMER



KEYTEC INSTALLATION SERVICES
ROYLE HOUSE
COWM TOP BUSINESS PARK
COWM TOP LANE
OL11 2PU
TEL: 01706 374416
EMAIL: TECHNICAL@KEYTEC.CO.UK

PROJECT

HAMMERSTONE ROAD
ATTENUATION TANK

TITLE

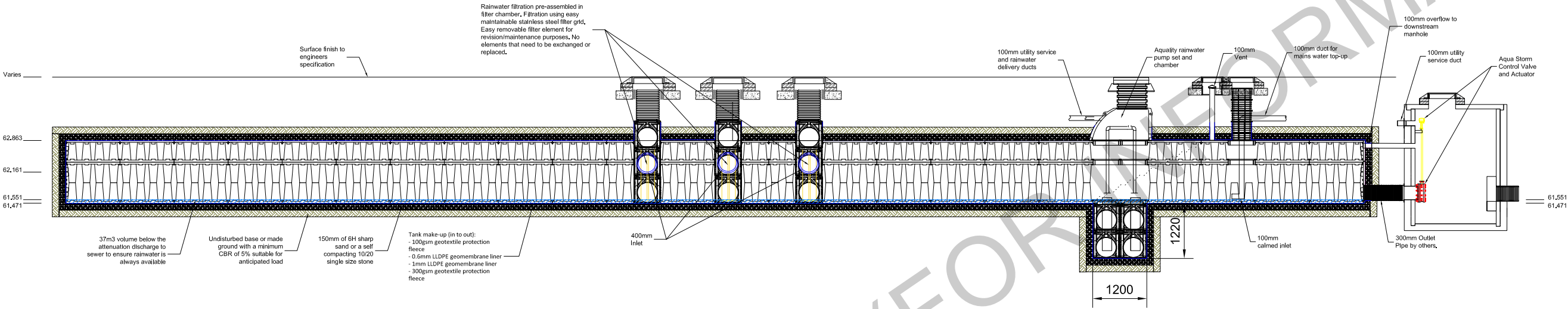
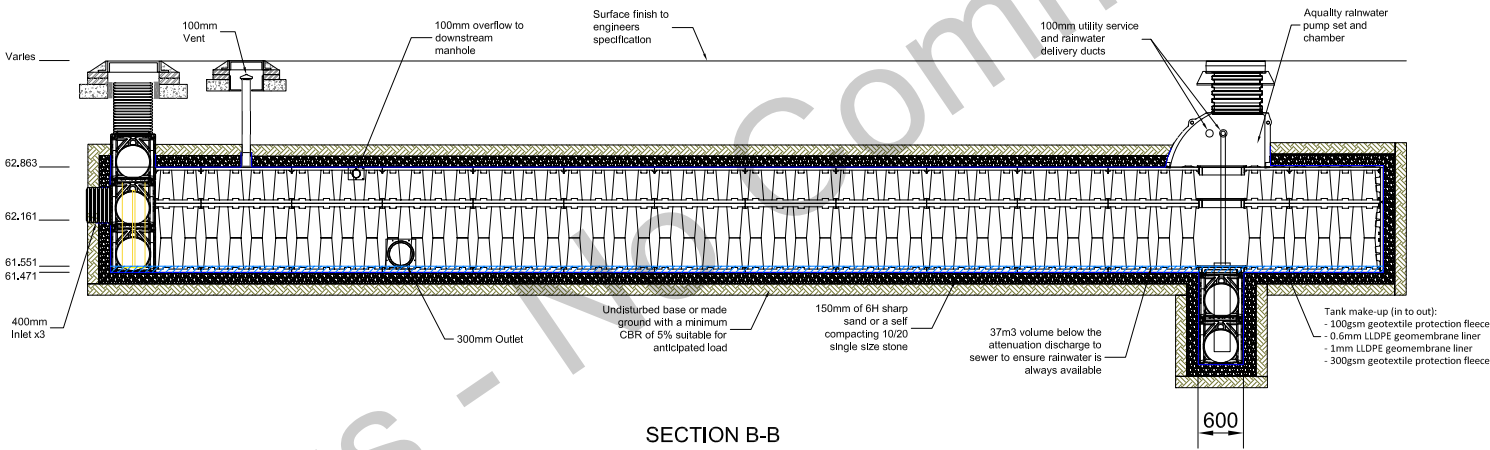
DETAILS OF ATTENUATION/STORAGE TANK DETAILS USING POLYSTORM PAM1A UNITS

<u>Scale</u>	<u>Drawn</u>	<u>Checked</u>
AS SHOWN	FA	KD
<u>Date</u>	<u>Drawing No.</u>	<u>Revision</u>
16/01/2025	PSM - 2.0	R0



Aquality Trading & Consulting Ltd
6 Wadsworth Road
London UB6 7JJ
www.aqua-lity.co.uk
Tel.: +44 (0)20 8991 3725

APPENDIX E5 - ATTENUATION TANK 4 DETAILS

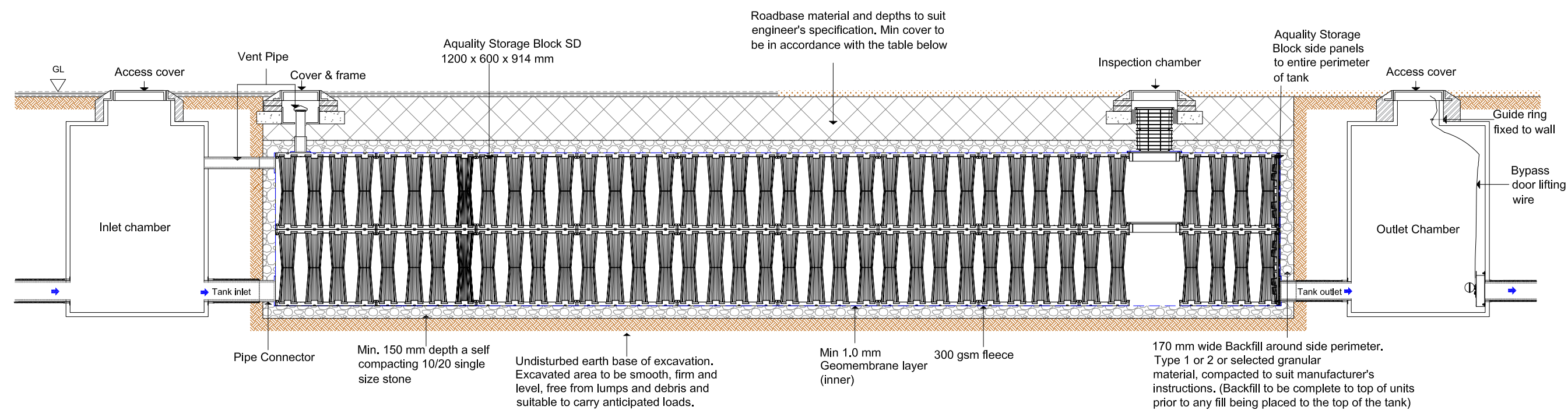


Project: Manchester - Hammerstone Road	
Title: Tank Layout	
System: Geocellular Tank made from Aquacity Storage Block SD 28.8m x 16.8m x 1.392m	
Project-No: HRD-ABE-ZZ-ZZ-DR-M-5032	
Project state: S2	Date: 23/11/2023
Scale: NTS @A3	Revision: P03
Drawn by: AR	Checked by: CF

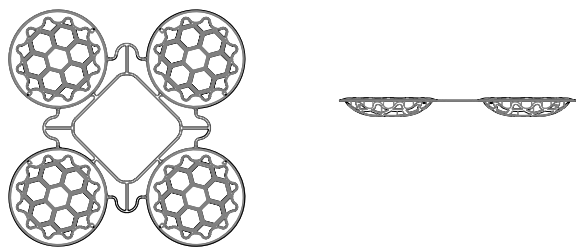


Aquacity Trading & Consulting Ltd
6 Wadsworth Road
London UB6 7JJ
www.aquacity.co.uk
Tel.: +44 (0)20 8991 3725

APPENDIX E6 - ATTENUATION TANK 4 DETAILS



Note:
Top cover shown below to be installed on top layer of AQUALITY Modules only.



Minimum cover depths (1) over the top of AQUALITY Geocellular	
Location	Minimum cover depth (m) (4)
Non-Trafficked areas i.e. Landscaping	0.5
Car parks, vehicle up to 2500kg gross mass	0.6
Car parks, occasional vehicle greater than 2500kg (3) gross mass	Please contact AQUALITY
Occasional HGV traffic up to 44000kg GVW (HA loading)	Please consult with AQUALITY

(1) Assumes 27 degree load distribution through fill material and overlaying surface asphalt or block paving
(2) Minimum cover depth to avoid accidental damage from gardening/landscaping work
(3) Occasional Trafficking by refuse collection or similar vehicles (typically one per week)
(4) Please check minimum frost cover depths for geographical location

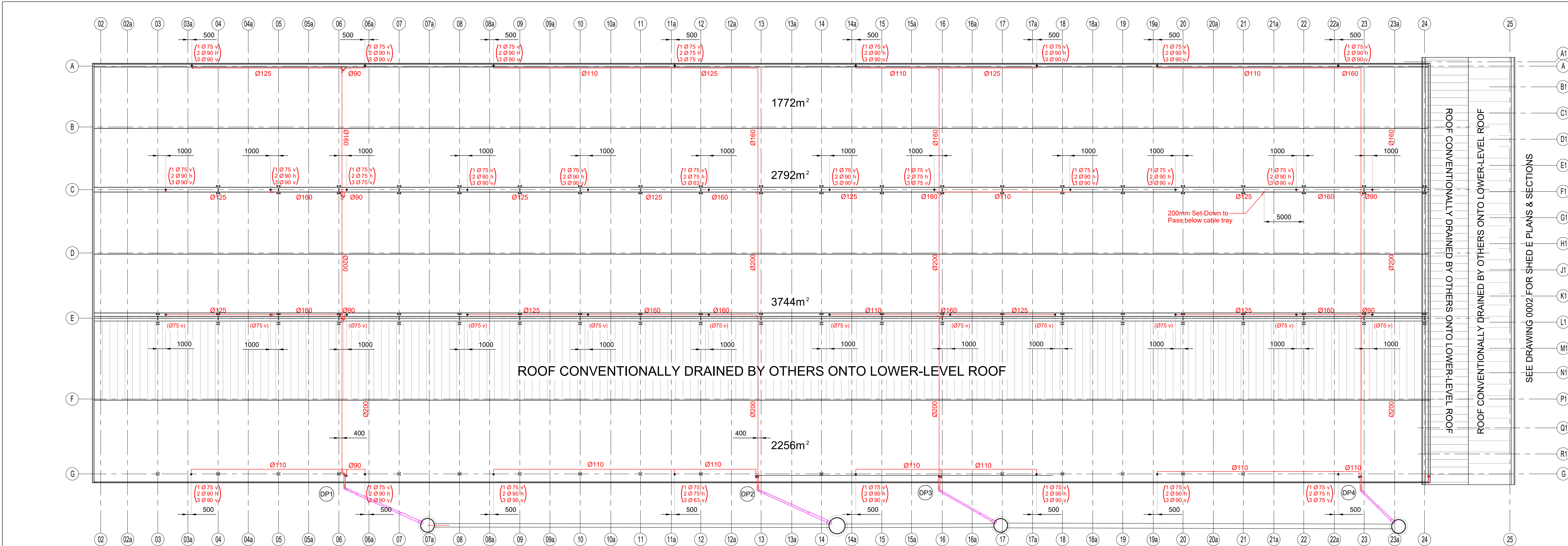
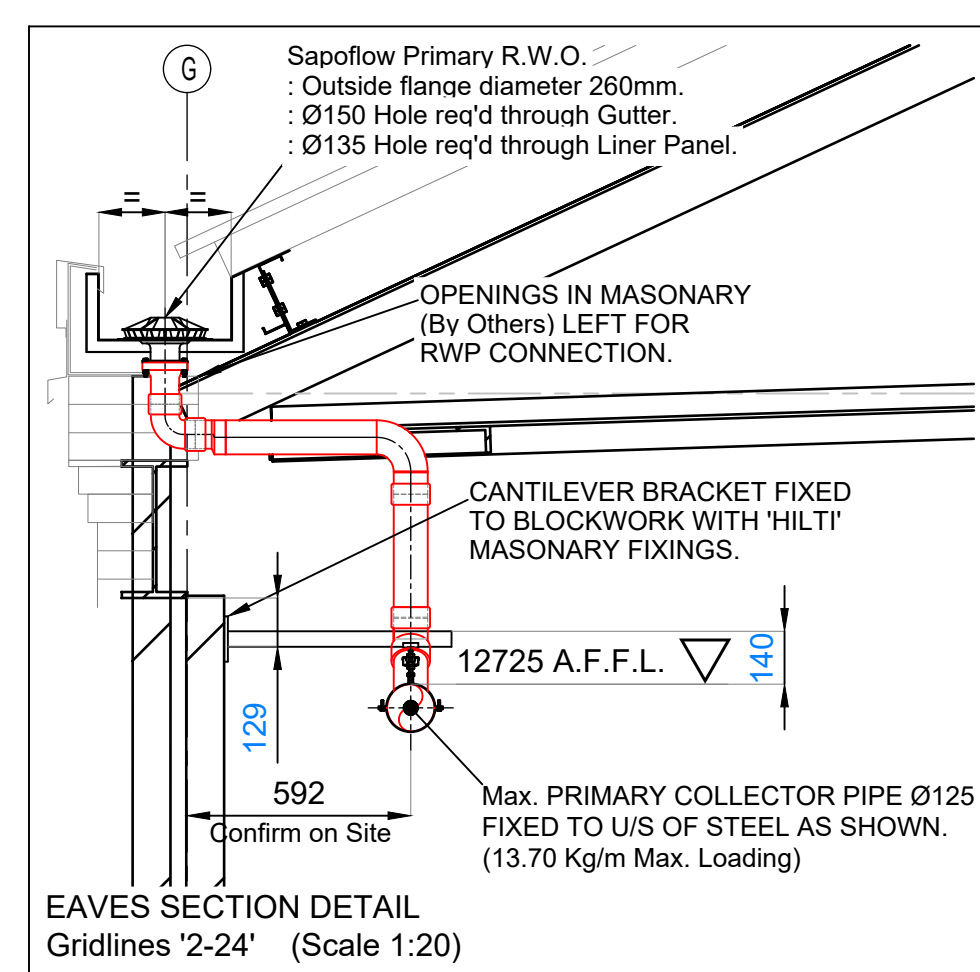
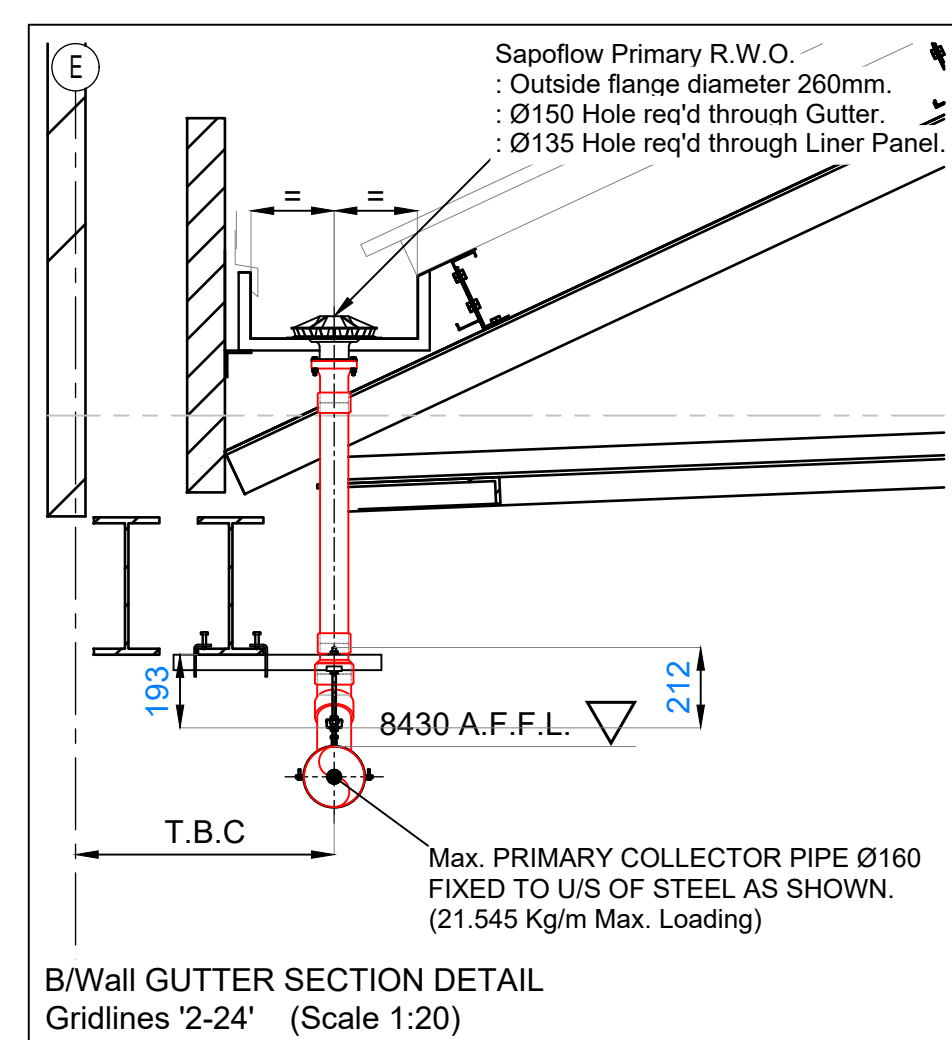
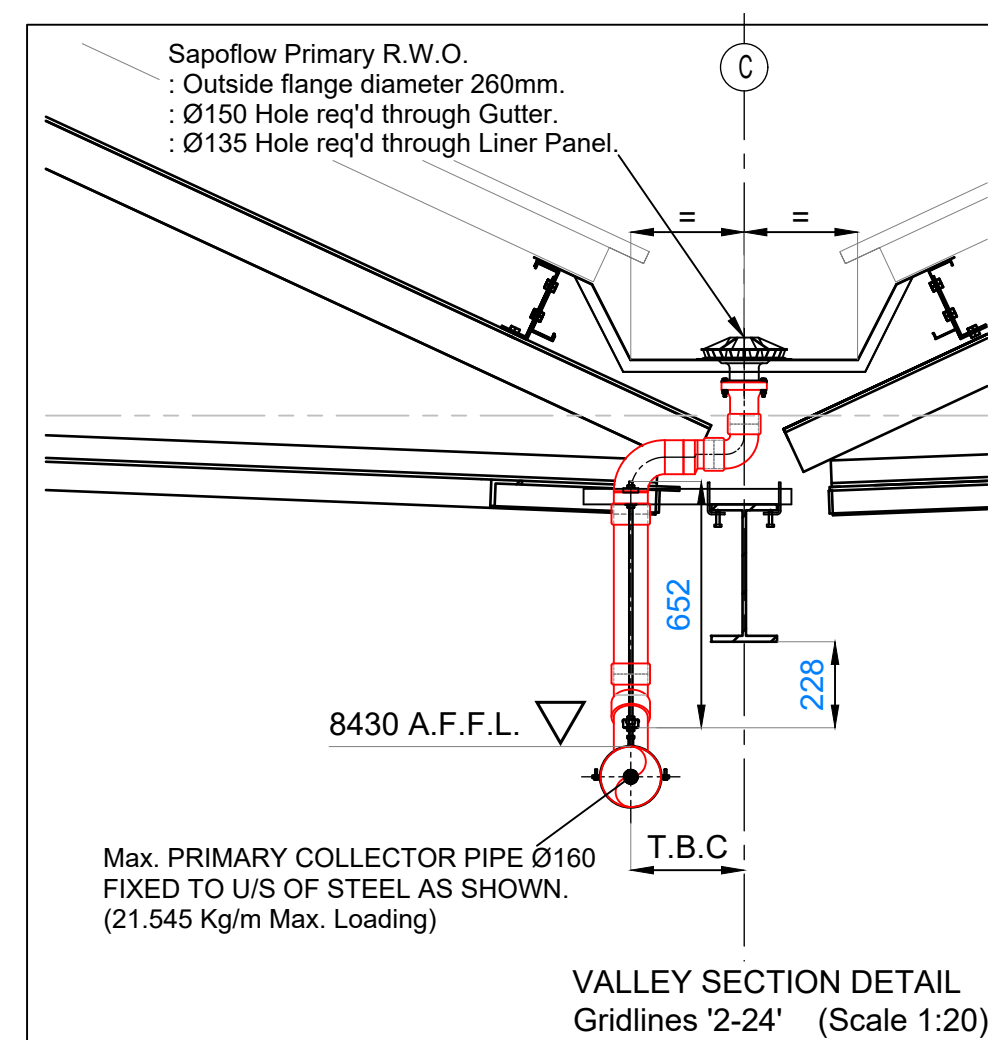
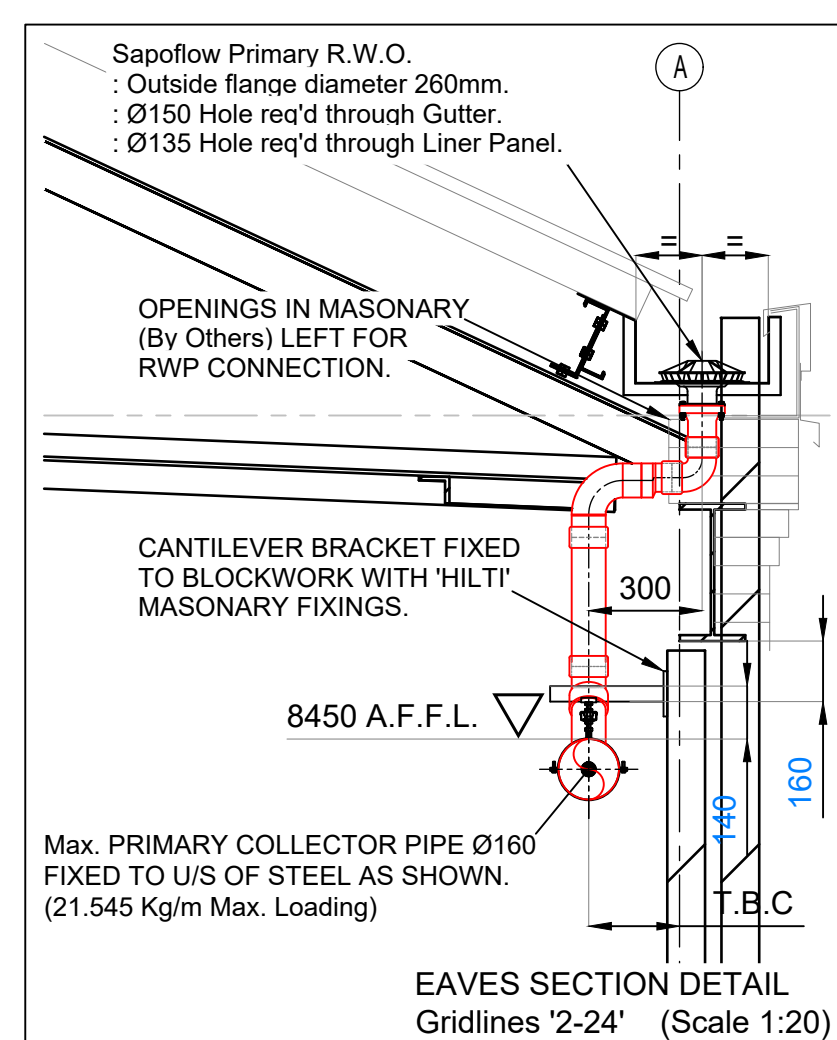
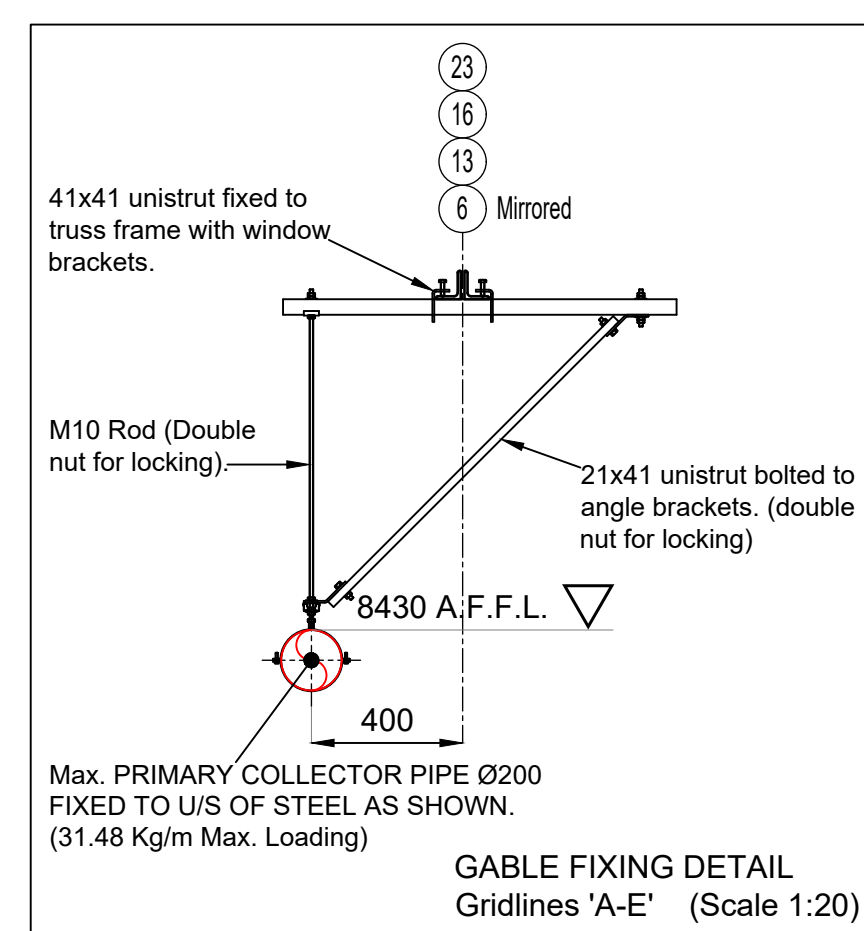
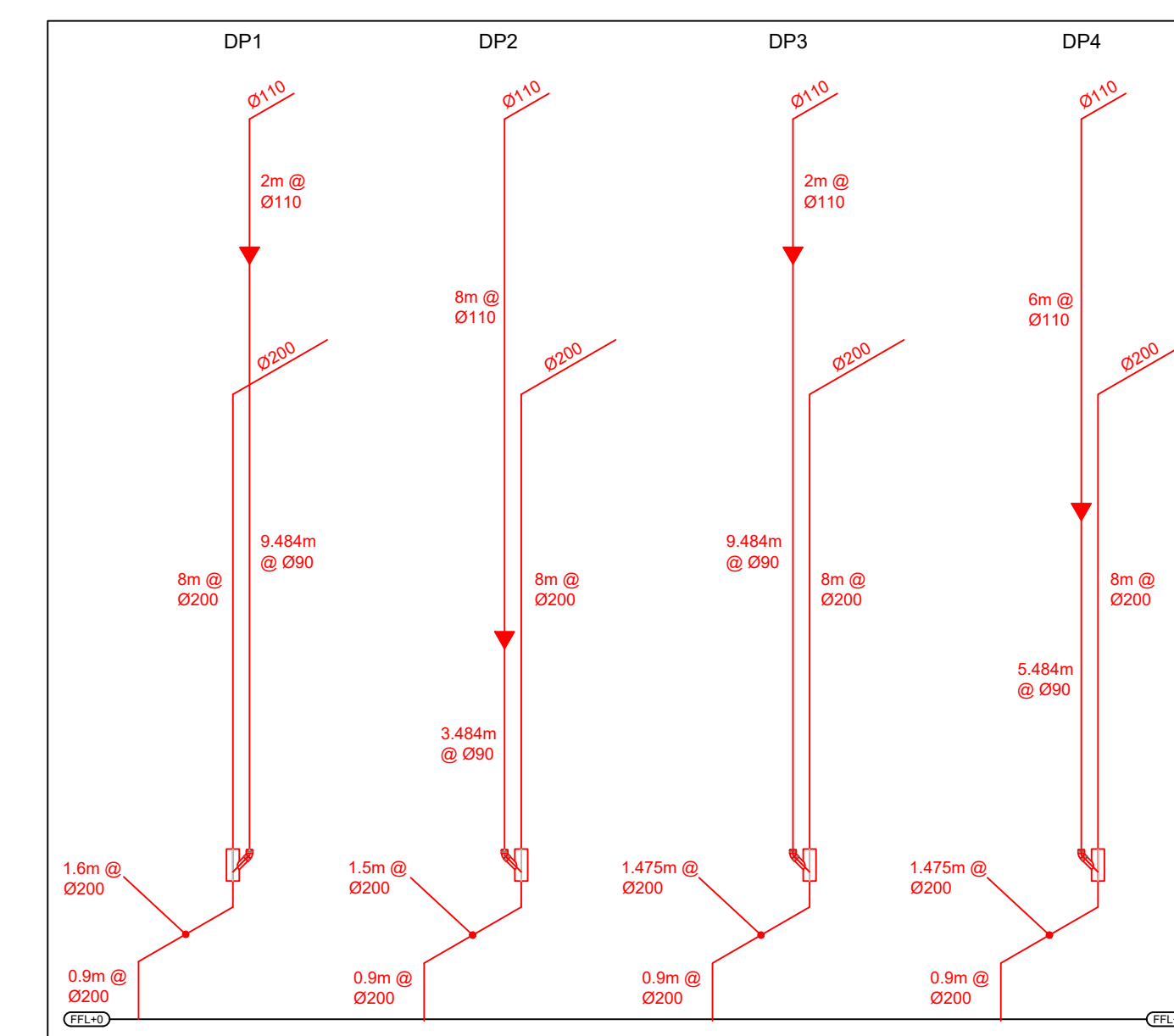
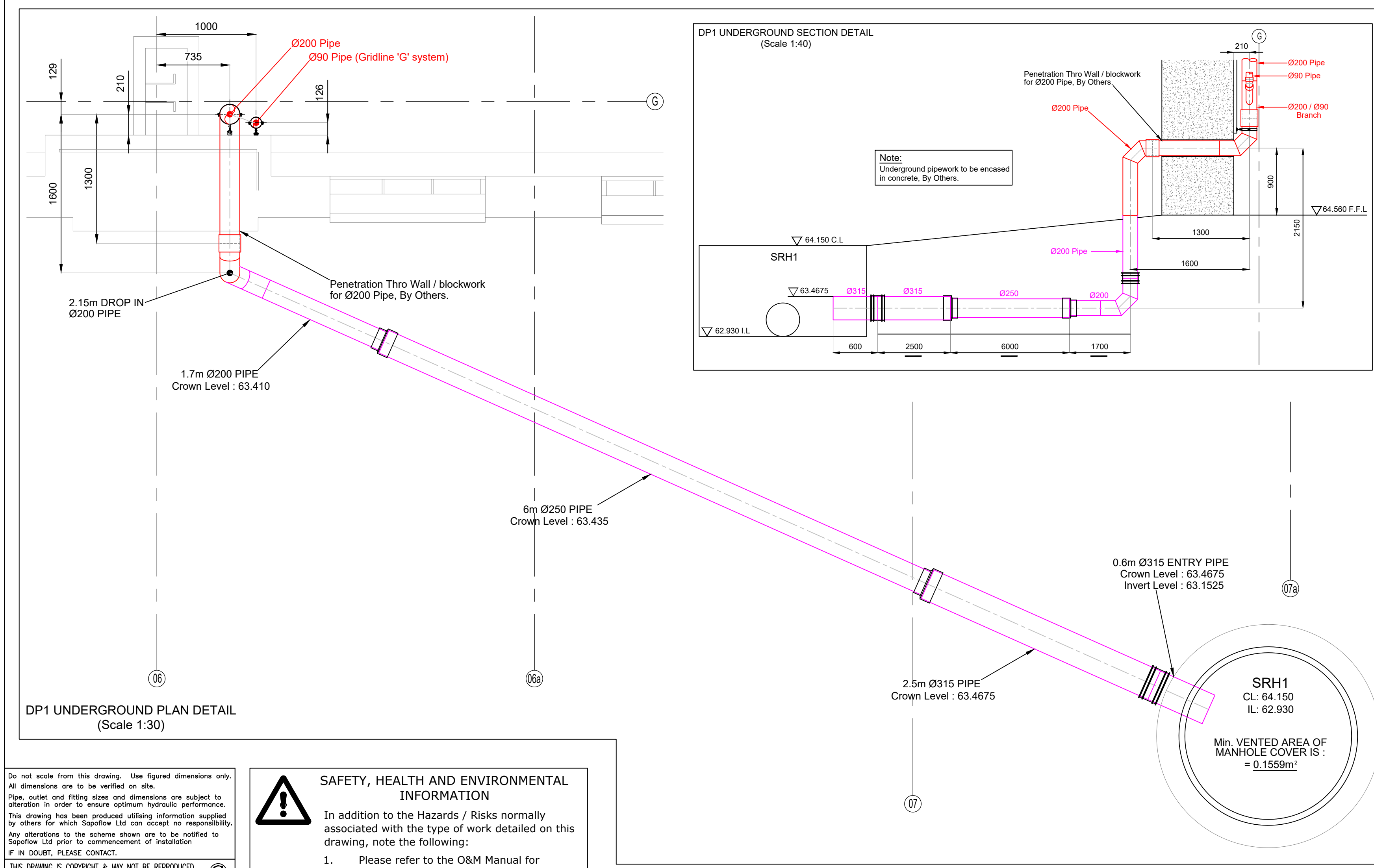
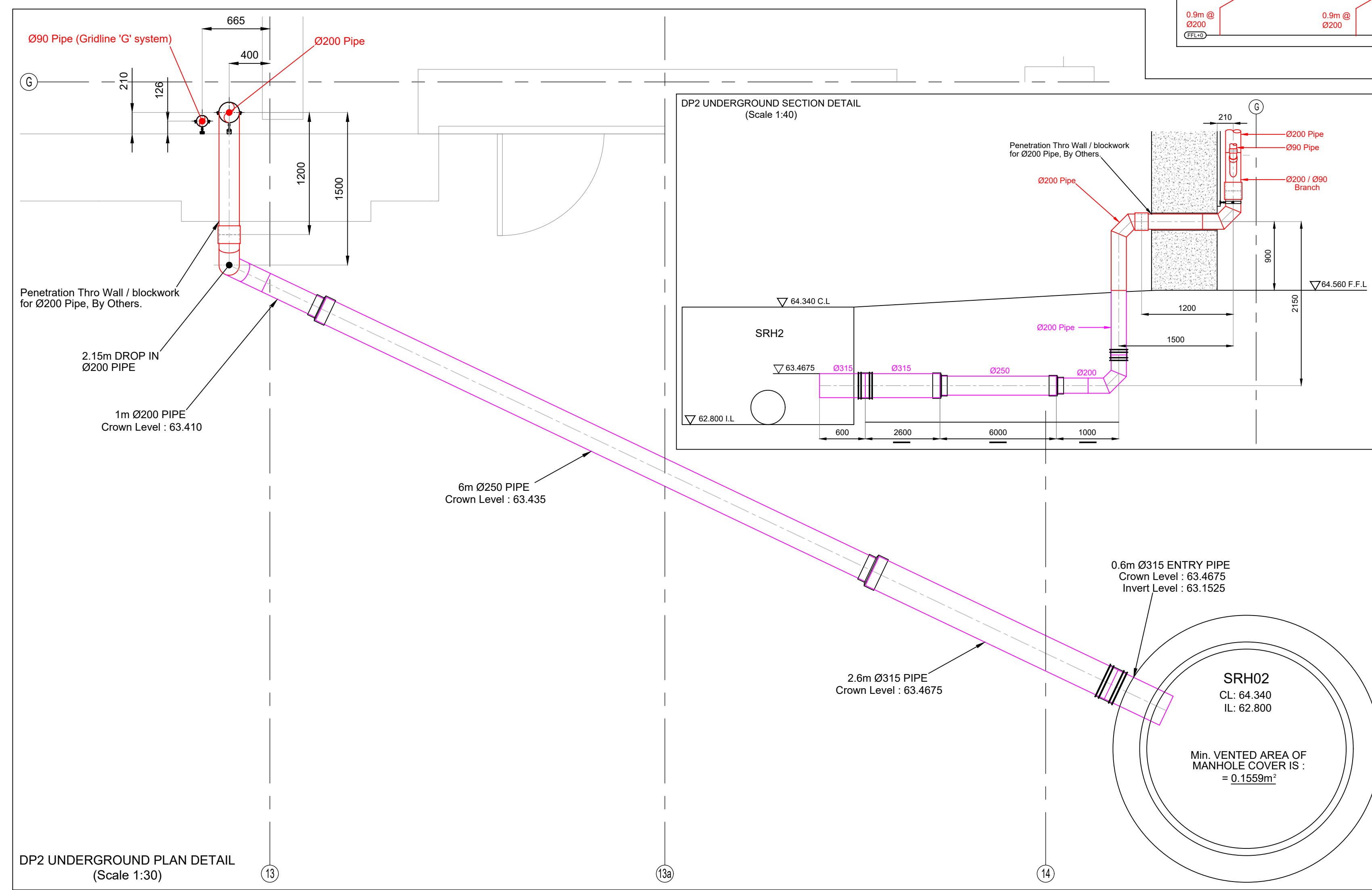
Project: Manchester - Hammerstone Road	
Title: AQUALITY Storage Block SD attenuation	
System: AQUALITY Storage Block SD attenuation (on-line)	
Project-No: HRD-ABE-ZZ-ZZ-DR-M-5033	
Project state: S2	Date: 22/09/2023
Scale: NTS @A3	Revision: P01
Drawn by: AR	Checked by: CF



AQUALITY Trading & Consulting Ltd
6 Wadsworth Road
London UB6 7JJ
www.aqua-lity.co.uk
Tel.: +44 (0)20 8991 3725

Appendix F

- Sapoflow Details (Siphonic Drainage)
- Vented Manhole Details



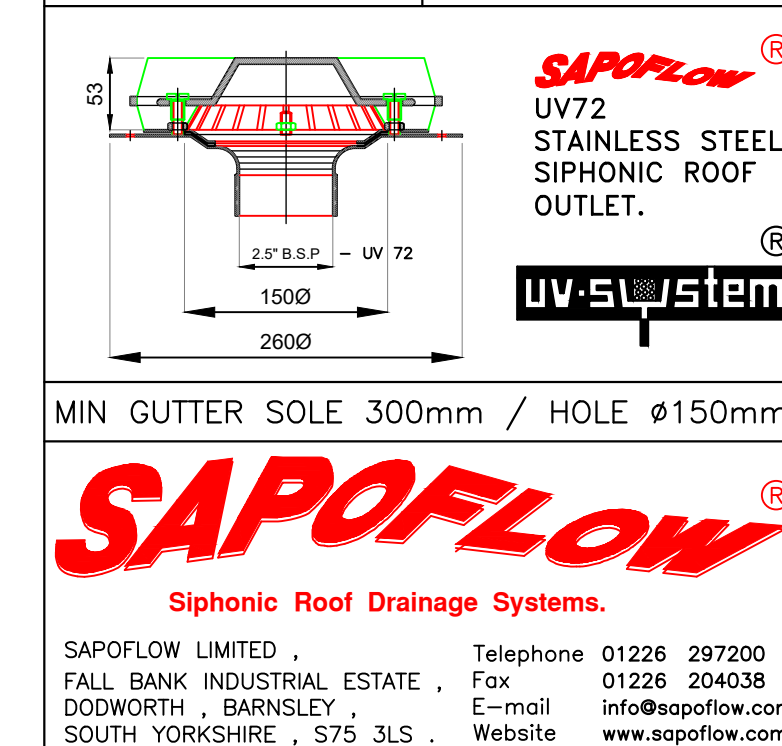
BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM MAIN STRUCTURE: e.g. Roof Purlin					
PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET (mm)	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET (mm)
Ø50	2000	6.76 Kg	Ø125	2000	27.40 Kg
Ø63	2000	9.07 Kg	Ø160	2000	43.09 Kg
Ø75	2000	11.68 Kg	Ø200	2000	62.96 Kg
Ø90	2000	15.58 Kg	Ø250	1500	73.71 Kg
Ø110	2000	21.87 Kg	Ø315	1500	120.0 Kg

BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM UNISTRUT CHANNEL: NOTE: Ø125 UNISTRUT FOR PIPES UP TO AND INCLUDING Ø160. Ø141 UNISTRUT Ø200 & ABOVE.					
PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET (mm)	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET (mm)
Ø50	1000	3.38 Kg	Ø125	1500	20.55 Kg
Ø63	1000	4.54 Kg	Ø160	2000	43.09 Kg
Ø75	1000	5.84 Kg	Ø200	2000	62.96 Kg
Ø90	1500	11.69 Kg	Ø250	2000	98.28 Kg
Ø110	1500	16.40 Kg	Ø315	2000	160.0 Kg

RAINFALL INTENSITY (mm/hr)	DOWNPIPE NUMBER	DIMENSION DATA	DISCHARGE FLOW (l/s)	DISCHARGE VELOCITY (m/s)
212	DP1	See Isometric	155.53	2.34
	DP2	See Isometric	155.53	2.34
	DP3	See Isometric	155.53	2.34
	DP4	See Isometric	155.53	2.34
	DP5	See Isometric	77.73	2.90

REV	DATE	DESCRIPTION
C04	14/06/23	UG Details amended
C03	06/07/23	UG route along gridline 'F1' on DP4 system amended.
C02	02/06/23	UG Details amended
C01	02/05/23	DP Isometric & UG Section details amended
P07	27/04/23	Pipe sizes & UG details added for DP's 3 & 4
P06	17/03/23	Pipe sizes & UG details added for DP's 1 & 2
P05	14/03/23	Pipe sizes & UG details added for DP's 1 & 2
P04	21/02/23	Roof Area's added
P03	27/01/23	Sections amended for grids '25' & '29'
P02	27/01/23	Issued for 'Co-Ordination'
P01	19/12/22	Issued for Rainwater Outlet Positions

REV	DATE	DESCRIPTION
C04	14/06/23	UG Details amended
C03	06/07/23	UG route along gridline 'F1' on DP4 system amended.
C02	02/06/23	UG Details amended
C01	02/05/23	DP Isometric & UG Section details amended
P07	27/04/23	Pipe sizes & UG details added for DP's 3 & 4
P06	17/03/23	Pipe sizes & UG details added for DP's 1 & 2
P05	14/03/23	Pipe sizes & UG details added for DP's 1 & 2
P04	21/02/23	Roof Area's added
P03	27/01/23	Sections amended for grids '25' & '29'
P02	27/01/23	Issued for 'Co-Ordination'
P01	19/12/22	Issued for Rainwater Outlet Positions



MIN GUTTER SOLE 300mm / HOLE Ø150mm	
SAPOFLOW Siphonic Roof Drainage Systems.	
SAPOFLOW LIMITED - FALL BANK INDUSTRIAL ESTATE DOODWORTH - BARNESLEY SOUTH YORKSHIRE - S75 3LS	Telephone 01226 297200 Fax 01226 294038 E-mail info@sapoflow.com Website www.sapoflow.com
PROJECT ANCHORAGE 2 HAMMERSTONE ROAD SALFORD QUAYS	
TITLE SIPHONIC ROOF DRAINAGE PLAN	
DESIGN W. Beaumont	DRAWN W.B./AutoCAD
SCALE 1:200 @ A0	CHECKED T.G.
PROJECT NO. 21397	DATE 16/12/22
DRAWING NO. HRD-SAP-01-RL-DR-X-0001	REV C04

Construction

- KEY REFERENCE :-
- Sapoflow Primary System R.W.O.
 - Sapoflow Primary System Pipe Route.
 - ⊗ Sapoflow Primary Down Pipe.
 - Sapoflow Primary Underground Pipe Route.

Do not scale from this drawing. Use figured dimensions only. All dimensions are to be verified on site.

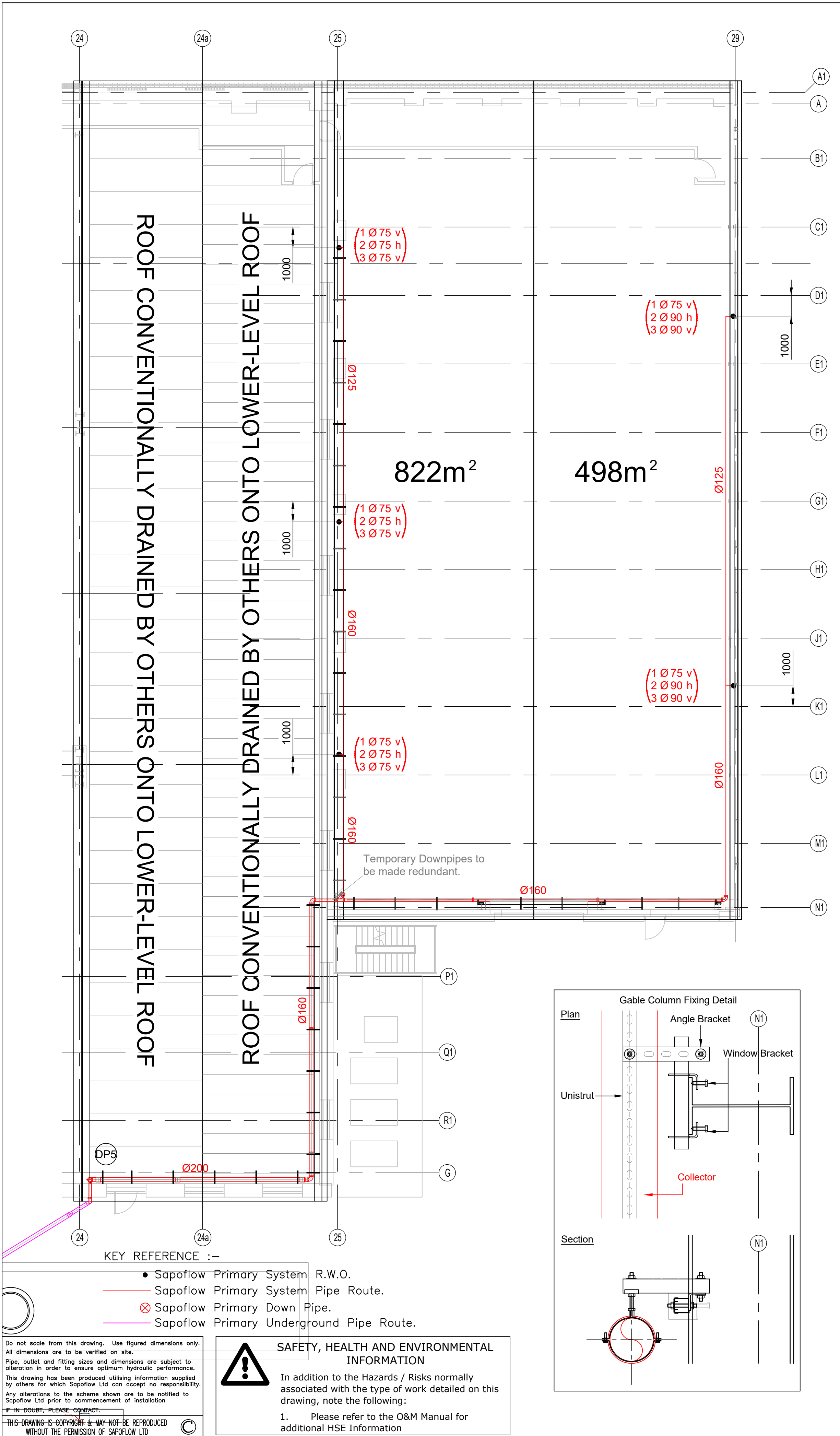
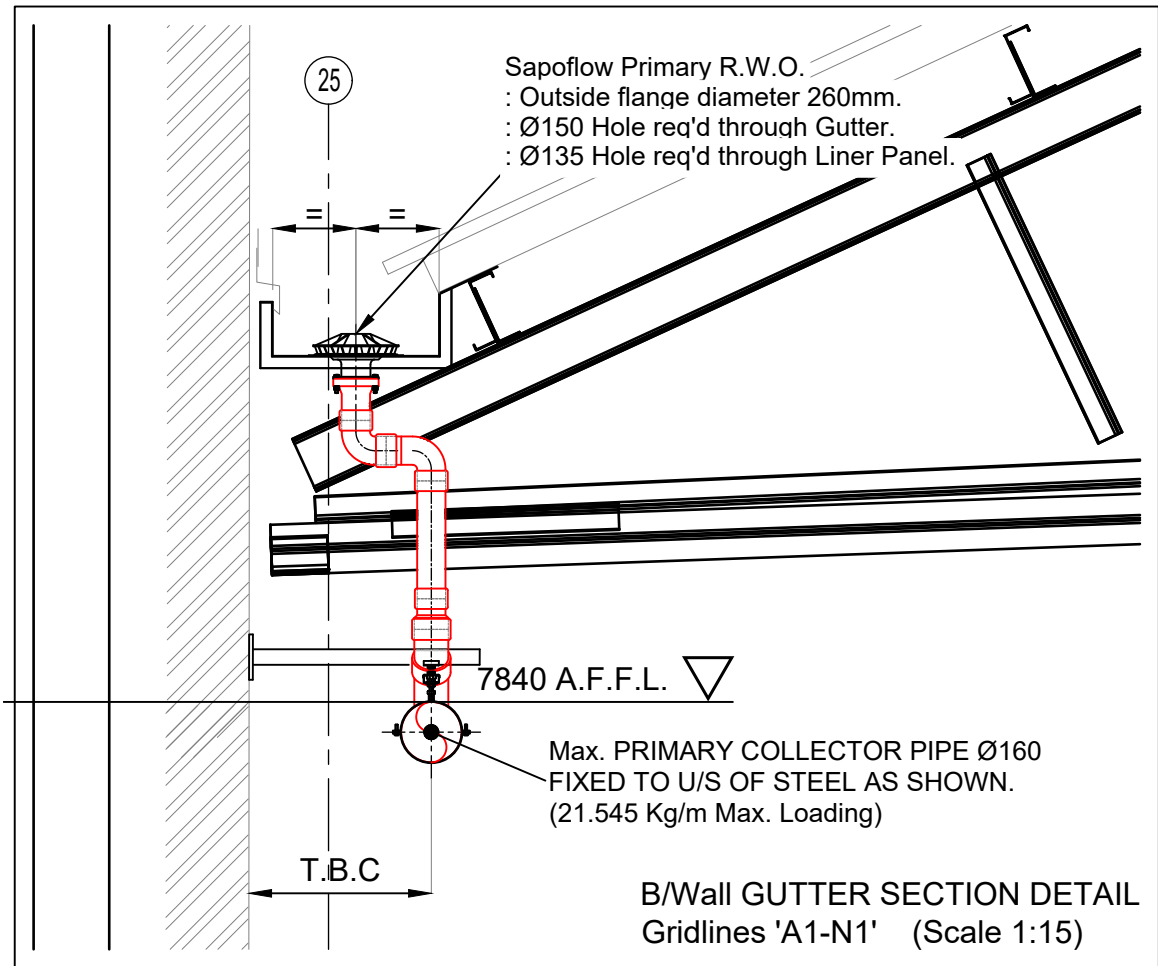
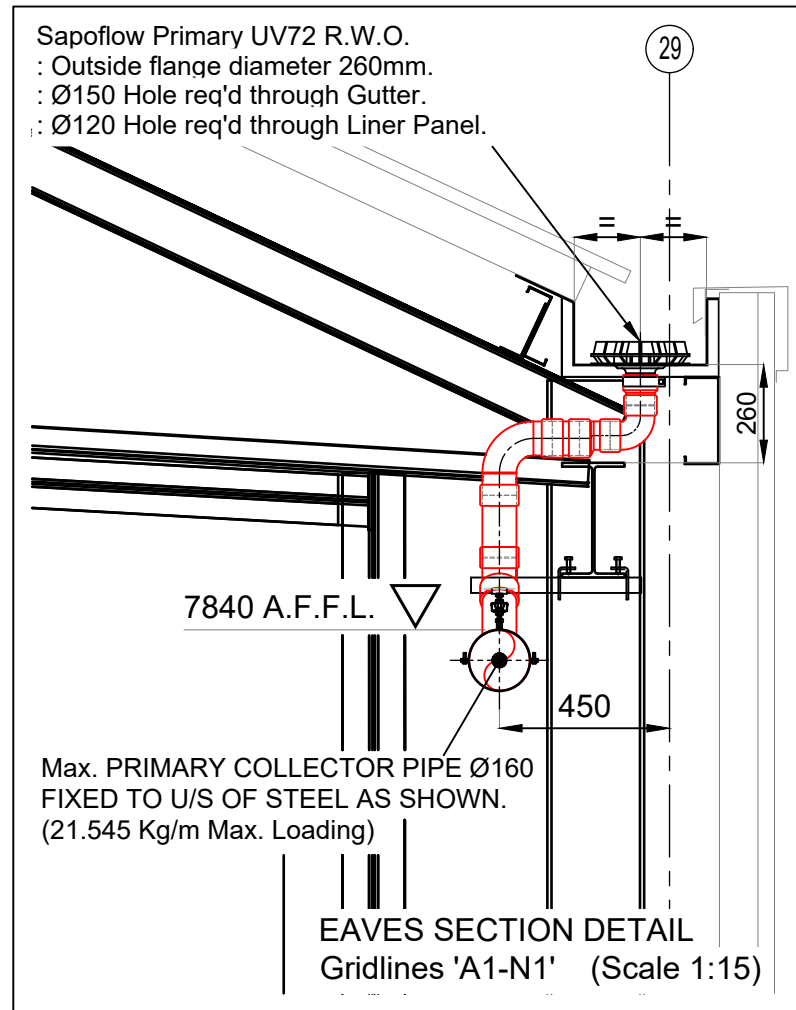
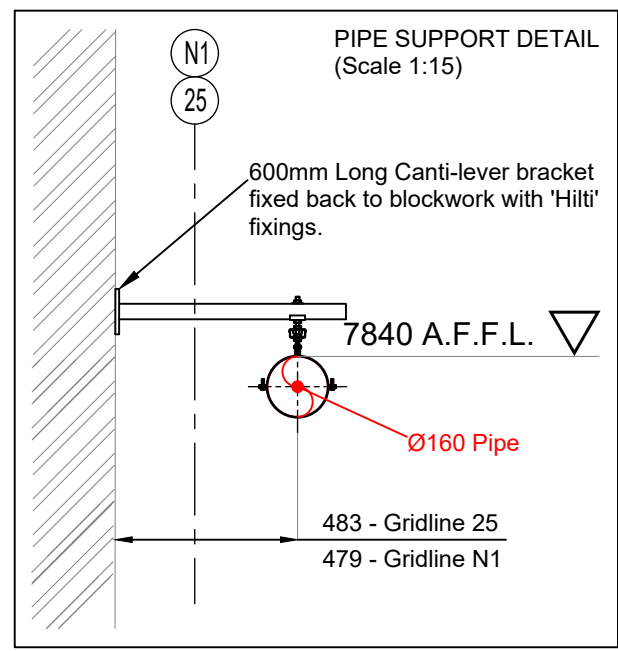
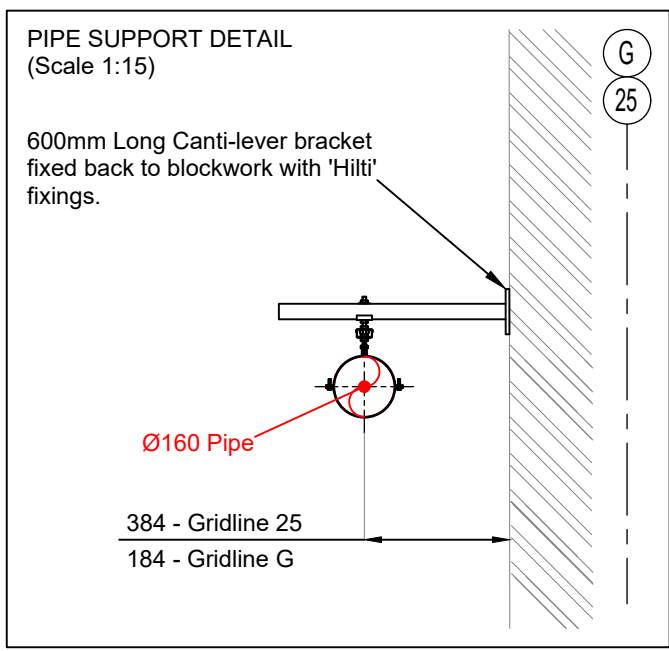
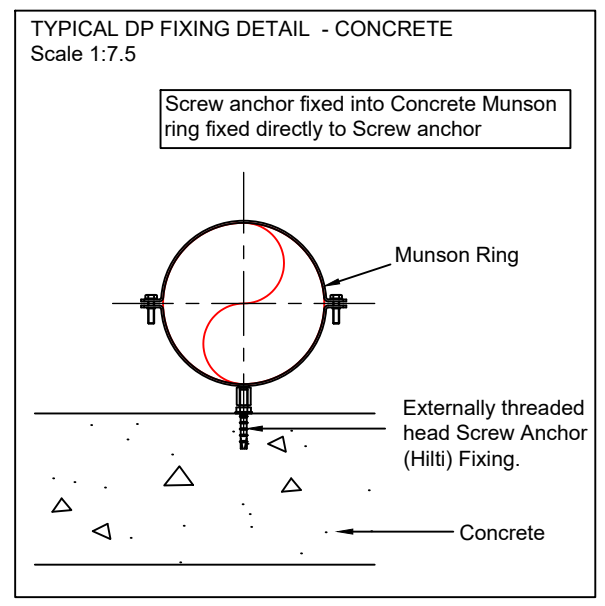
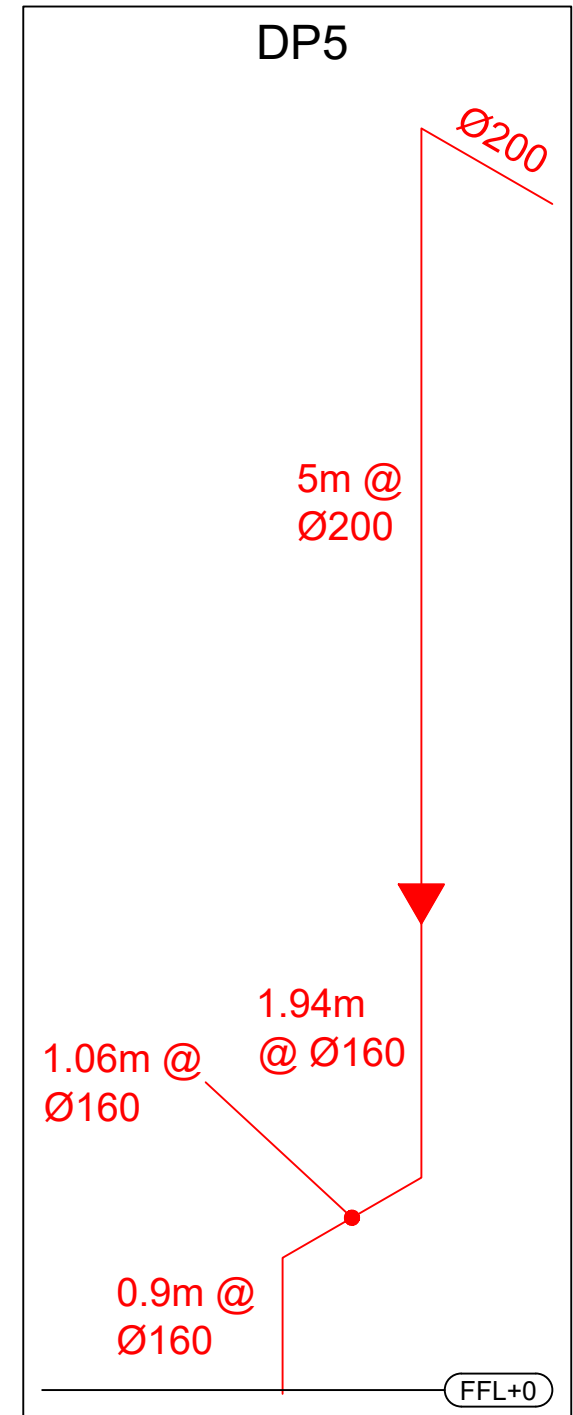
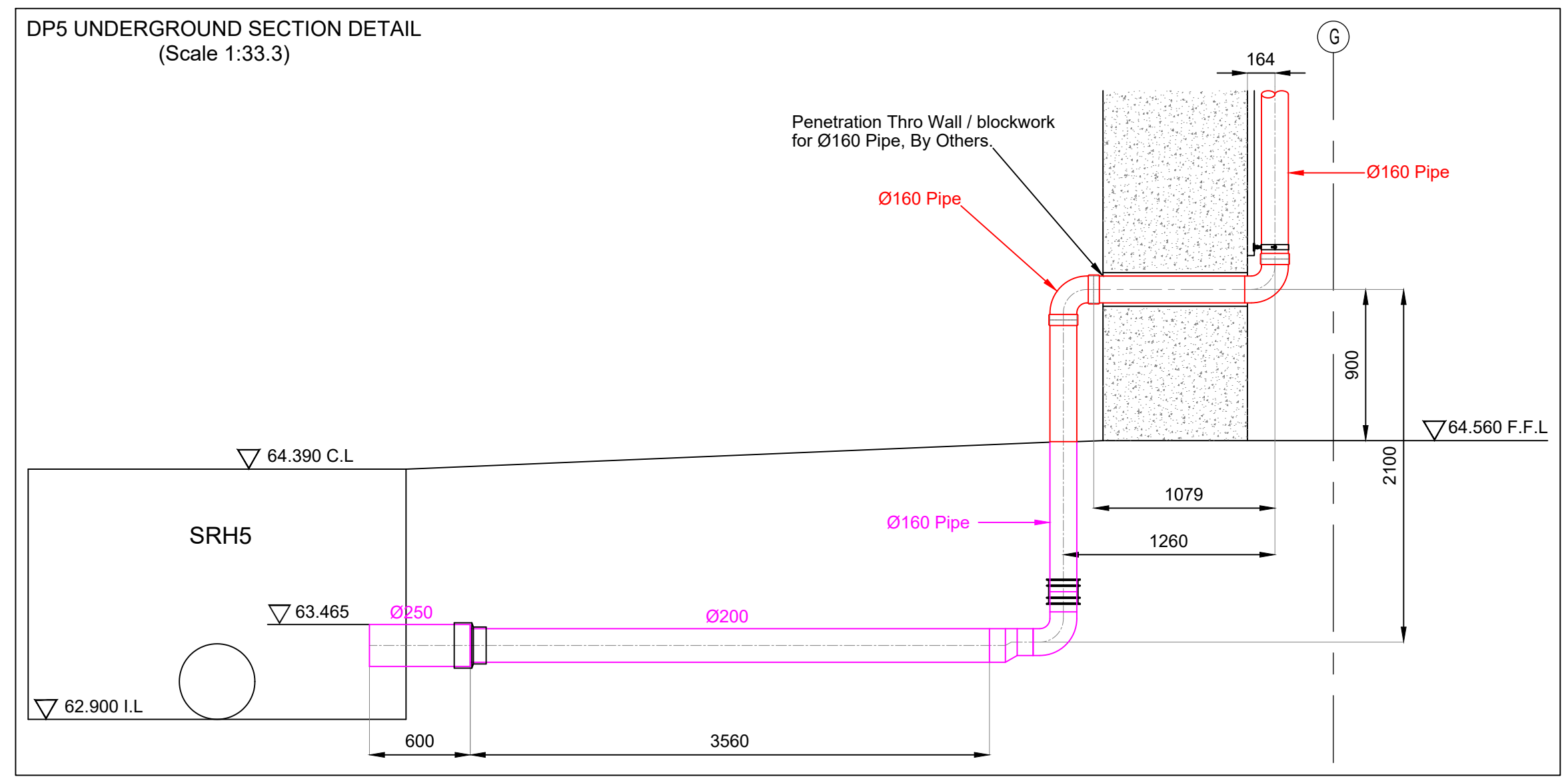
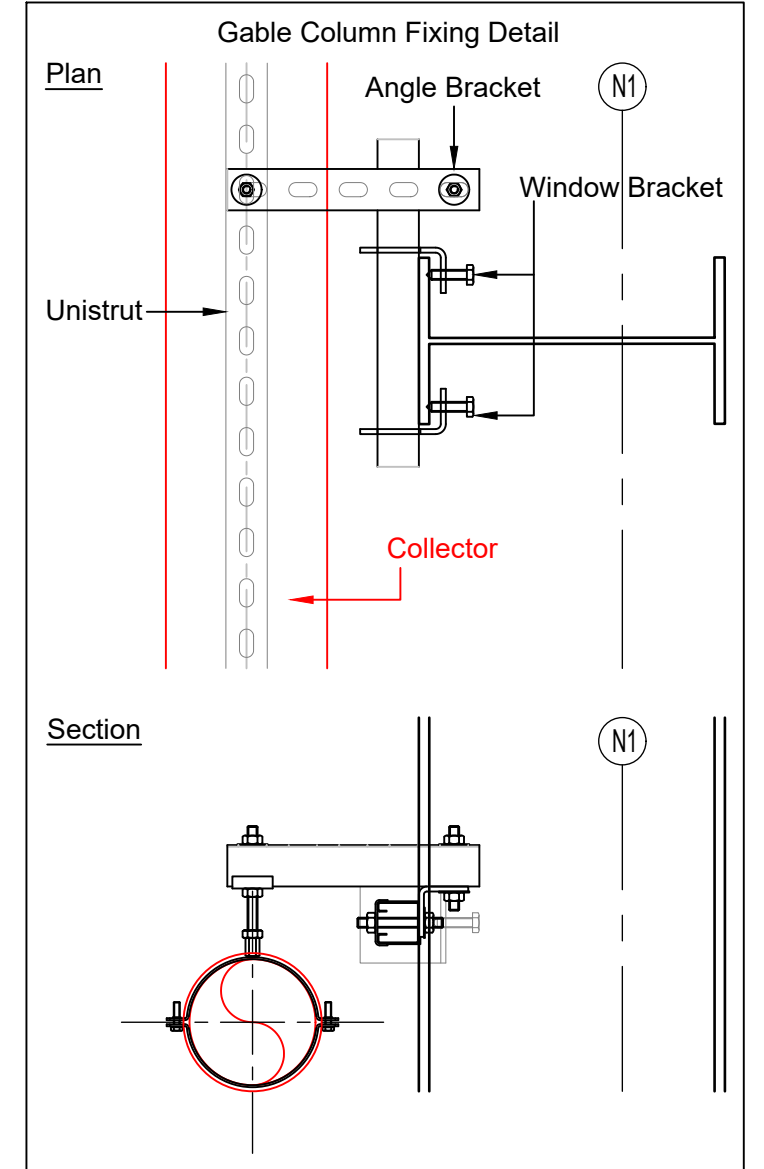
Pipe, outlet and fitting sizes and dimensions are subject to alteration in order to ensure optimum hydraulic performance. This drawing has been produced offering information supplied by others for which Sapoflow Ltd can accept no responsibility. Any alteration to the system shown on this drawing is to be notified to Sapoflow Ltd prior to commencement of installation. If in doubt, PLEASE CONSULT.

THIS DRAWING IS COPYRIGHT & MAY NOT BE REPRODUCED WITHOUT THE PERMISSION OF SAPOFLOW LTD

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the Hazards / Risks normally associated with the type of work detailed on this drawing, note the following:

- Please refer to the O&M Manual for additional HSE Information



BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM MAIN STRUCTURE: e.g. Roof Purlin					
PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
ø50	2000	6.76 Kg	ø125	2000	27.40 Kg
ø63	2000	9.07 Kg	ø160	2000	43.09 Kg
ø75	2000	11.68 Kg	ø200	2000	62.96 Kg
ø90	2000	15.58 Kg	ø250	1500	73.71 Kg
ø110	2000	21.87 Kg	ø315	1500	120.0 Kg

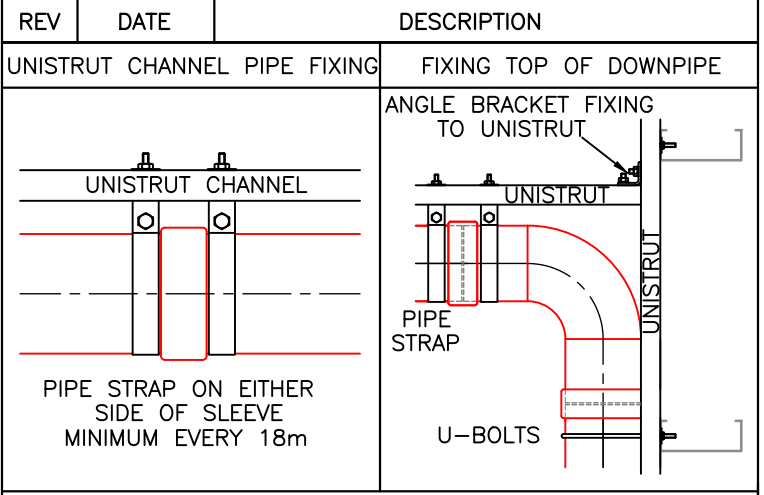
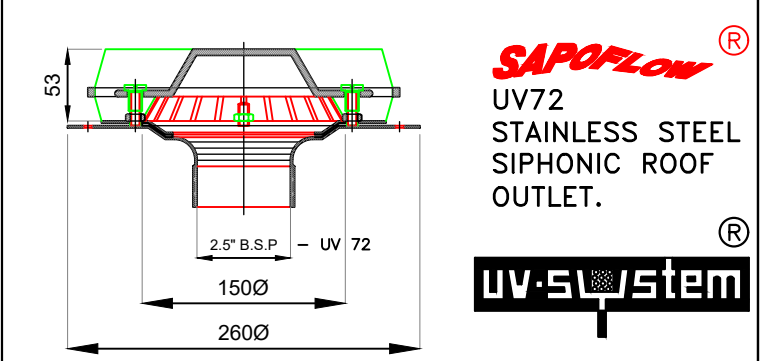
BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM UNISTRUT CHANNEL:
NOTE: 41x21 UNISTRUT FOR PIPES UP TO AND INCLUDING Ø160, 41x41 UNISTRUT Ø200 & ABOVE.

PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
ø50	1000	3.38 Kg	ø125	1500	20.55 Kg
ø63	1000	4.54 Kg	ø160	2000	43.09 Kg
ø75	1000	5.84 Kg	ø200	2000	62.96 Kg
ø90	1500	11.69 Kg	ø250	2000	98.28 Kg
ø110	1500	16.40 Kg	ø315	2000	160.0 Kg

RAINFALL INTENSITY	212 mm/hr	ø90 DENOTES PIPE DIAMETER. (ø63) DENOTES TAIL PIPE DIAMETER.	
DOWNPIPE NUMBER.	DIMENSION DATA.	DISCHARGE FLOW (l/s)	DISCHARGE VELOCITY (m/s)

212 mm/hr Primary Systems.			
DP5	See Isometric	77.73	2.90

REV	DATE	DESCRIPTION
C05	05/09/23	UG Details amended
C04	14/08/23	UG Details amended
C03	02/06/23	Pipe route extended + UG Details added
C02	21/02/23	Roof Area's added
C01	03/02/23	Issued for Construction



MIN GUTTER SOLE 300mm / HOLE ø150mm

SAPOFLOW
Siphonic Roof Drainage Systems.

SAPOFLOW LIMITED, FALL BANK INDUSTRIAL ESTATE, DODD WORTH, BARNESLEY, SOUTH YORKSHIRE, S75 3LS.

Telephone 01226 297200, Fax 01226 204038, E-mail info@sapoflow.com, Website www.sapoflow.com

PROJECT
ANCHORAGE 2
HAMMERSTONE ROAD
SALFORD QUAYS

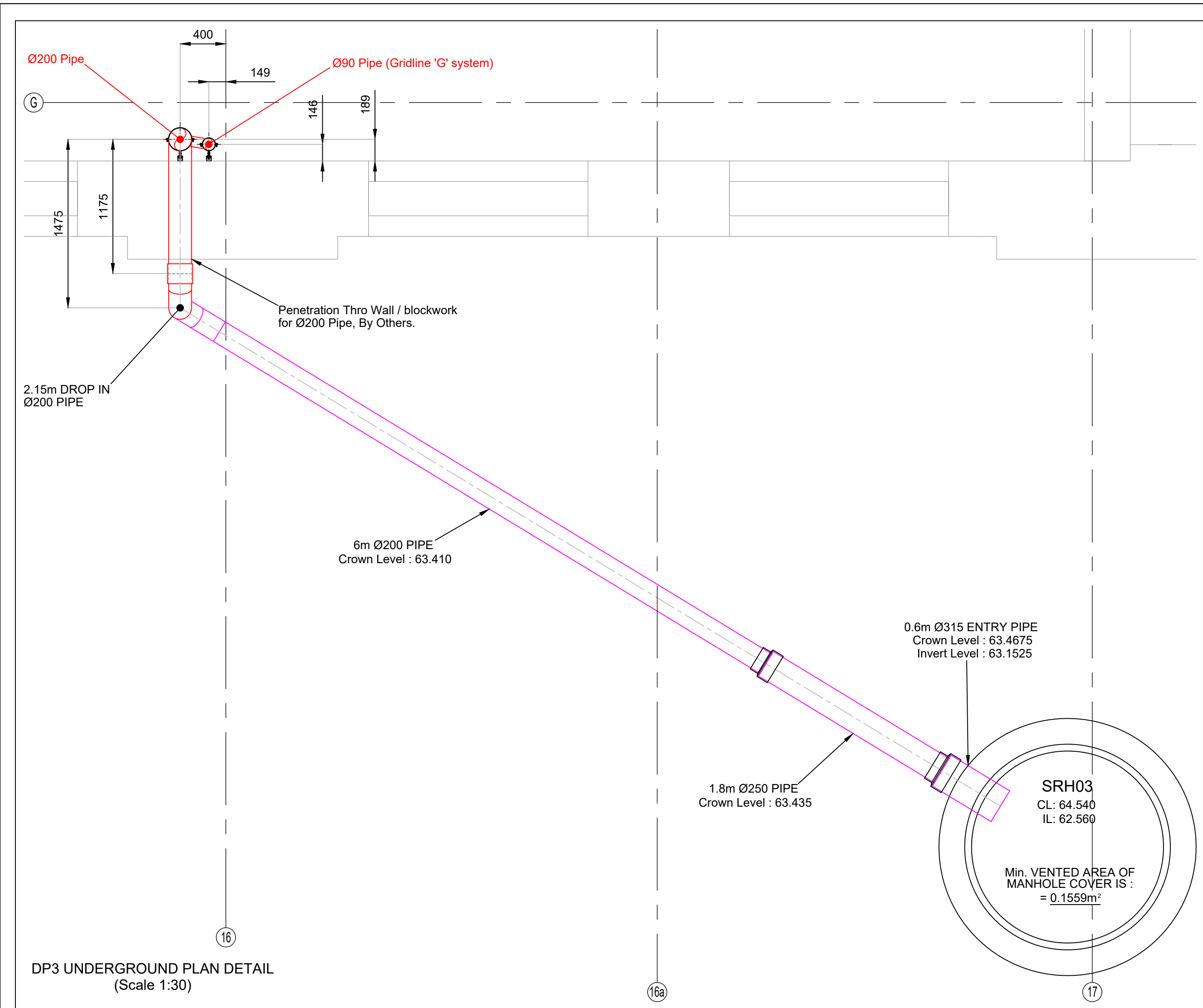
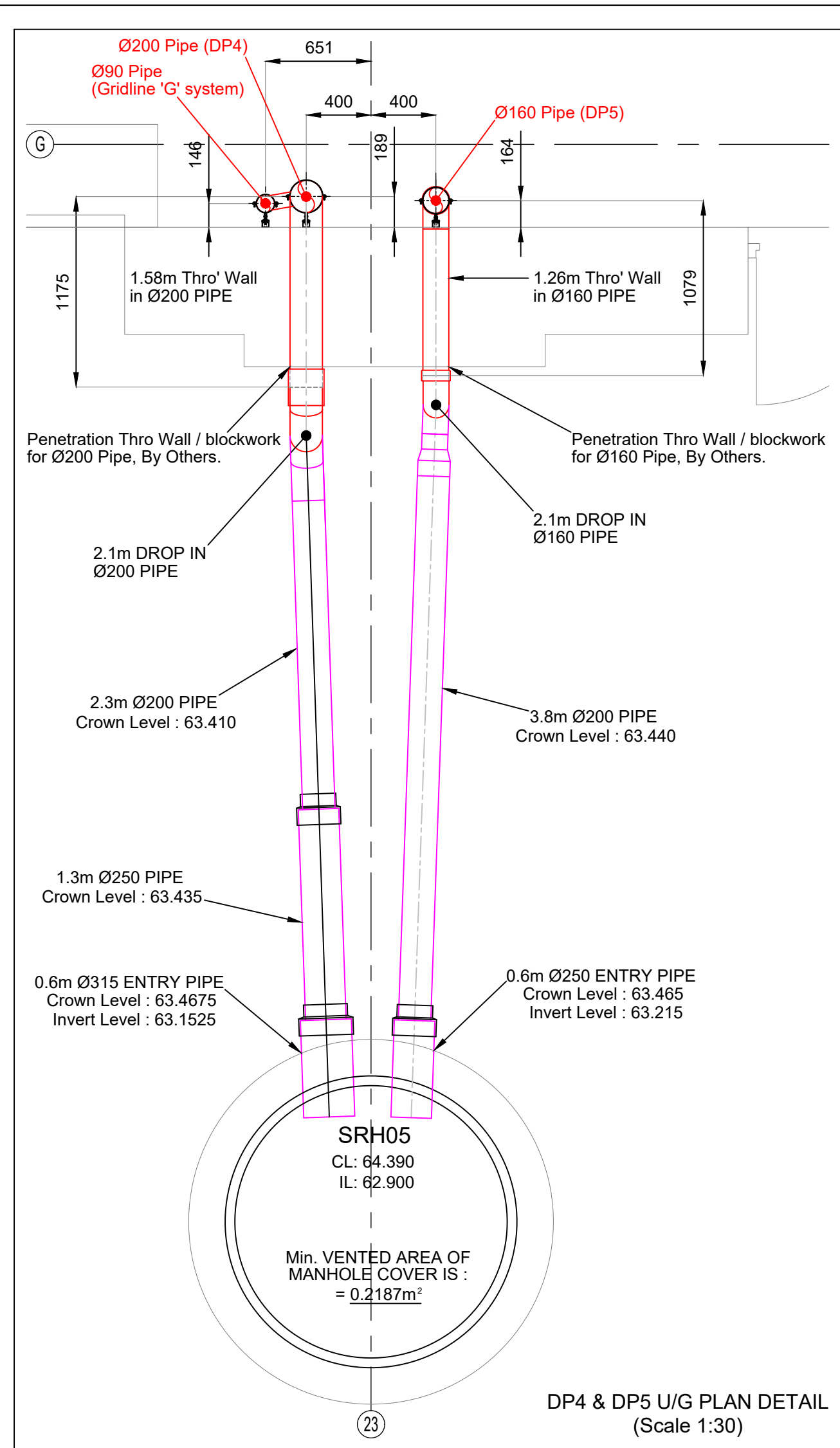
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SHED E
SIPHONIC ROOF DRAINAGE PLAN

DESIGN	W. Beaumont	DRAWN	W.B./AutoCAD.	Checked	T.G.
SCALE	1:125	DATE	03/01/23		

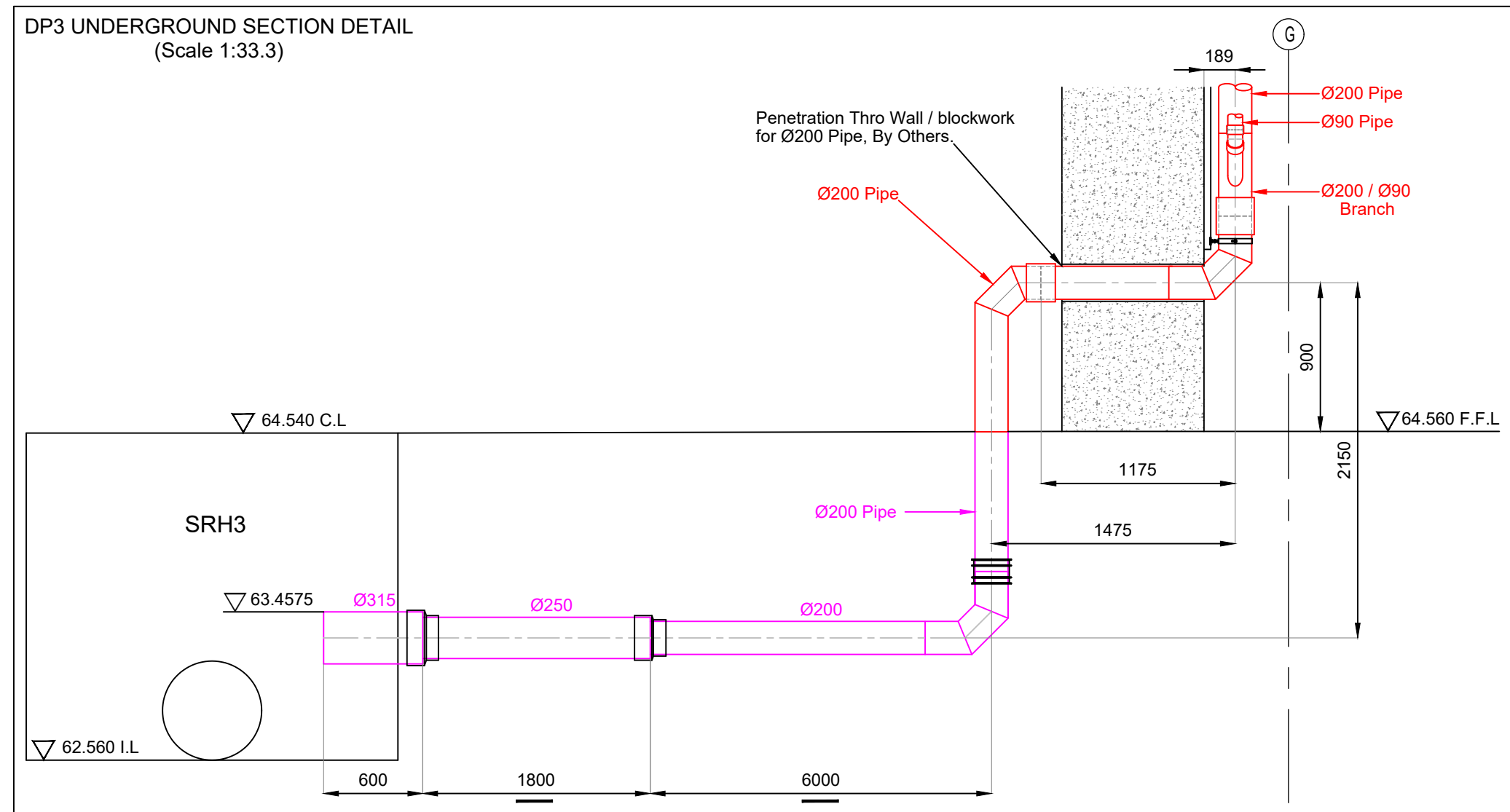
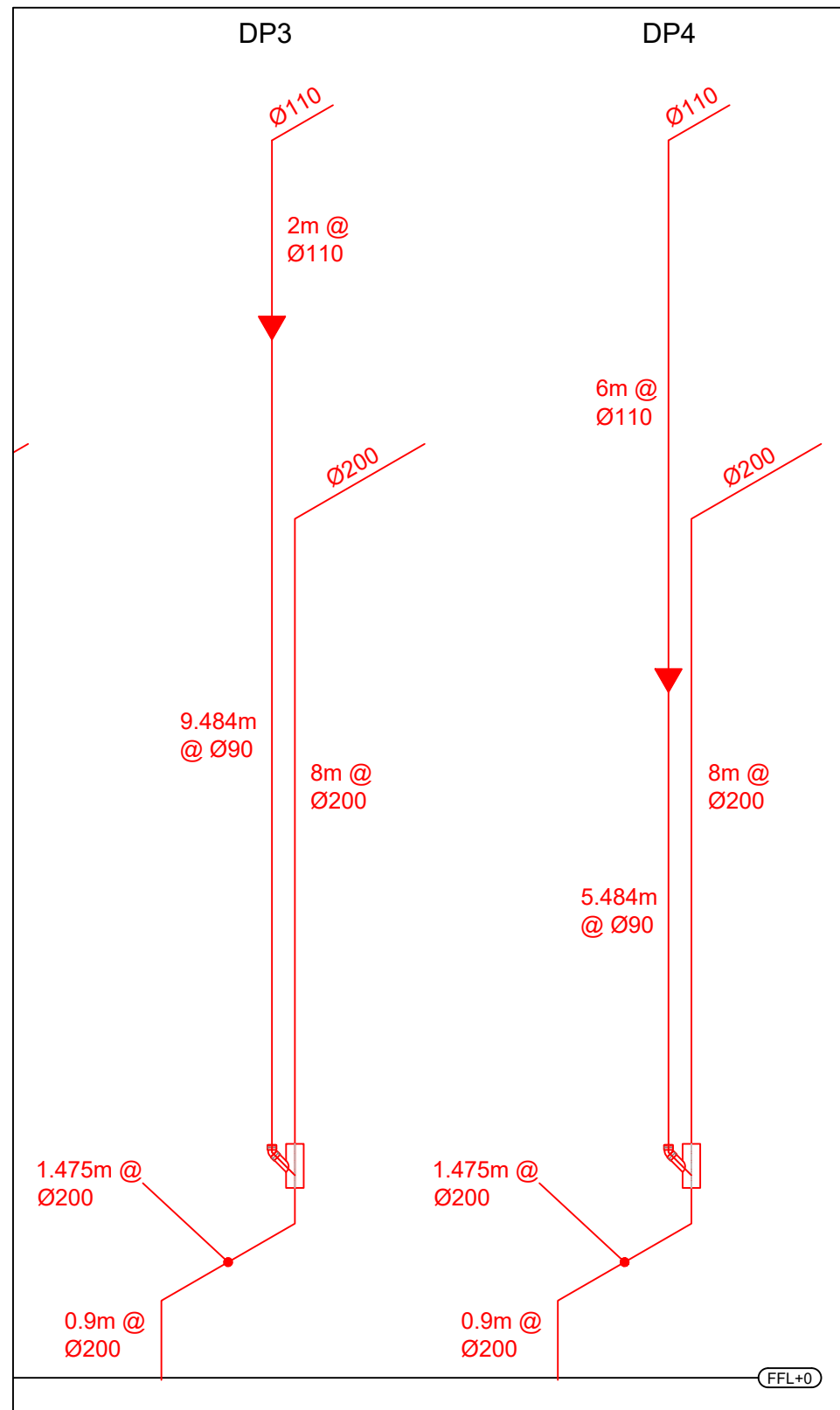
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UK Representative of UN-System Registered in England No. 2717962

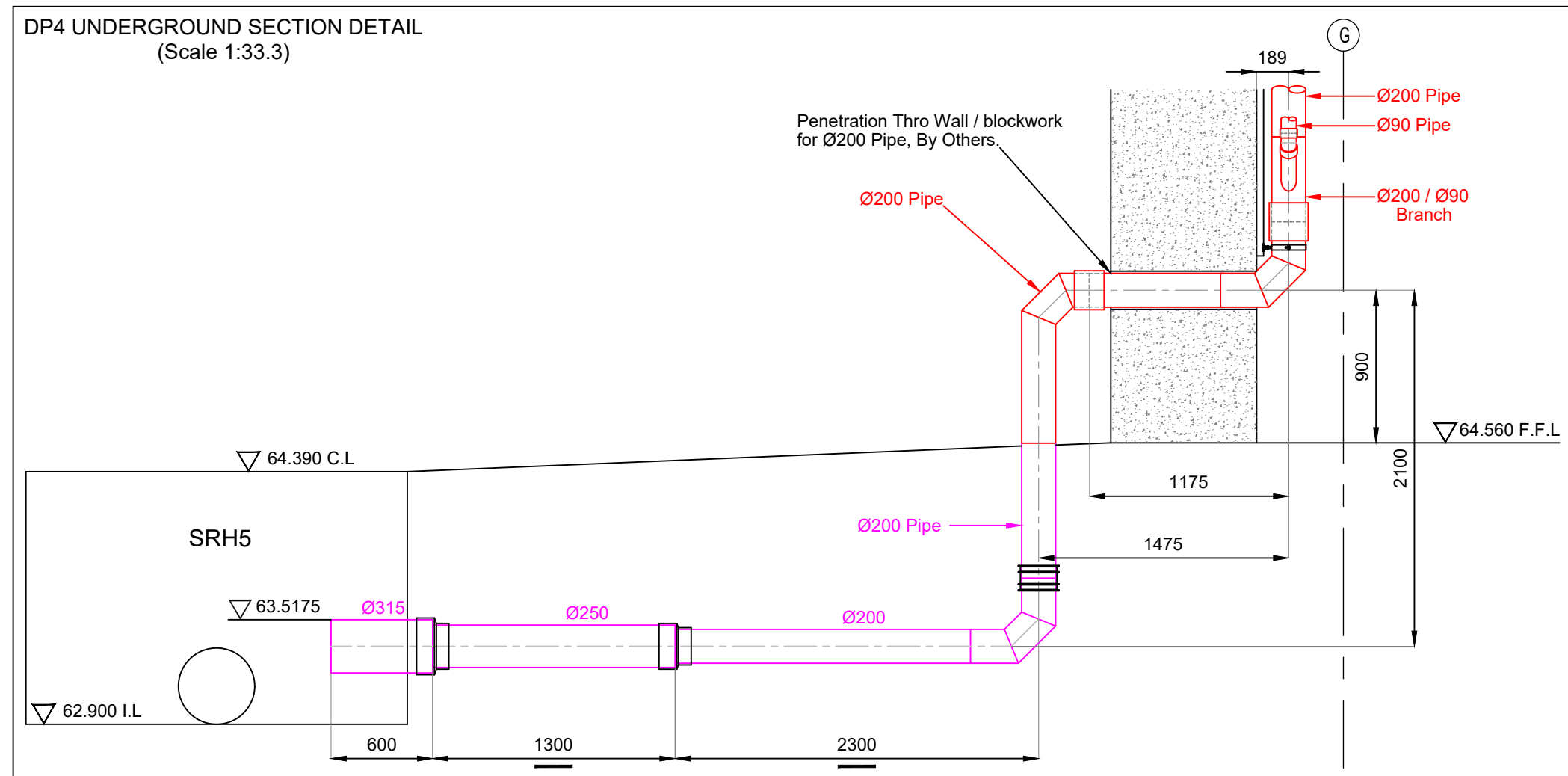
Document Ref: SAP-0002(1)



DP3 UNDERGROUND SECTION DETAIL
(Scale 1:33.3)



DP4 UNDERGROUND SECTION DETAIL
(Scale 1:33.3)



Construction

KEY REFERENCE :-

- Sapoflow Primary System R.W.O.
- Sapoflow Primary System Pipe Route.
- Sapoflow Primary Down Pipe.
- Sapoflow Primary Underground Pipe Route.

BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM MAIN STRUCTURE: e.g. Roof Purlin					
PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
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ø63	2000	9.07 Kg	ø160	2000	43.09 Kg
ø75	2000	11.68 Kg	ø200	2000	62.96 Kg
ø90	2000	15.58 Kg	ø250	1500	73.71 Kg
ø110	2000	21.87 Kg	ø315	1500	120.0 Kg

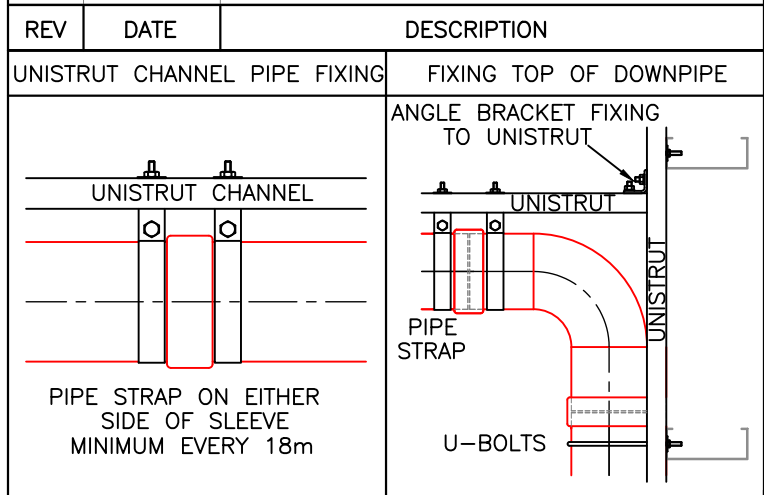
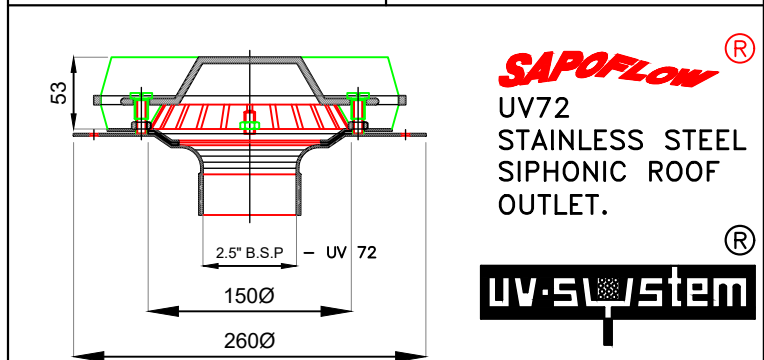
BRACKET SPACINGS & LOADINGS FOR H.D.P.E. PIPE SUPPORTED FROM UNISTRUT CHANNEL:
NOTE: 41x21 UNISTRUT FOR PIPES UP TO AND INCLUDING Ø160, 41x41 UNISTRUT Ø200 & ABOVE.

PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET	PIPE DIAMETER (mm)	BRACKET SPACINGS (mm)	LOADING PER BRACKET
ø50	1000	3.38 Kg	ø125	1500	20.55 Kg
ø63	1000	4.54 Kg	ø160	2000	43.09 Kg
ø75	1000	5.84 Kg	ø200	2000	62.96 Kg
ø90	1500	11.69 Kg	ø250	2000	98.28 Kg
ø110	1500	16.40 Kg	ø315	2000	160.0 Kg

RAINFALL INTENSITY	212 mm/hr	ø90 DENOTES PIPE DIAMETER. (ø63) DENOTES TAIL PIPE DIAMETER.	
DOWNPIPE NUMBER.	DIMENSION DATA.	DISCHARGE FLOW (l/s)	DISCHARGE VELOCITY (m/s)

212 mm/hr Primary Systems.			
DP3	See Isometric	155.53	2.34
DP4	See Isometric	155.53	2.34

C05	05/09/23	UG Details amended
C04	14/08/23	UG Details amended
C03	10/07/23	Status amended on portal
C02	02/06/23	UG Details amended
C01	02/05/23	DP Isometric & UG Section details amended
P01	03/02/23	Issued for Comment/Approval



MIN GUTTER SOLE 300mm / HOLE ø150mm

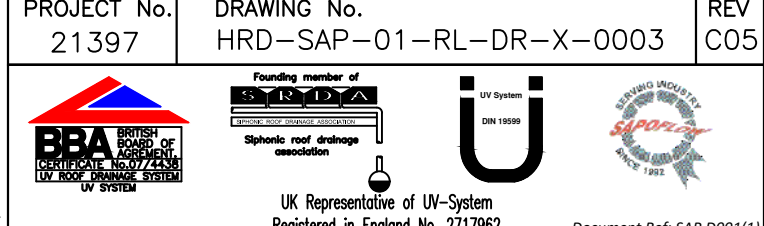
SAPOFLOW
Siphonic Roof Drainage Systems.

SAPOFLOW LIMITED , Telephone 01226 297200
FALL BANK INDUSTRIAL ESTATE , Fax 01226 204038
DODD WORTH , BARNSLEY info@sapoflow.com
SOUTH YORKSHIRE , S75 3LS Website www.sapoflow.com

PROJECT
ANCHORAGE 2
HAMMERSTONE ROAD
SALFORD QUAYS

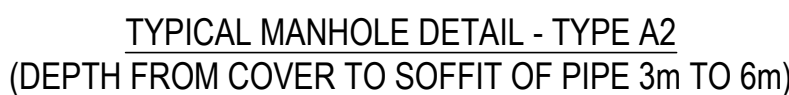
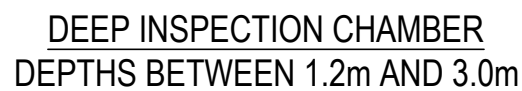
TITLE
SIPHONIC UNDERGROUND DRAINAGE DETAILS

DESIGN W. Beaumont	DRAWN W.B /AutoCAD.	Checked T.G
SCALE 1:30	DATE 27/04/23	
PROJECT No. 21397	DRAWING No. HRD-SAP-01-RL-DR-X-0003	REV C05



Do not scale from this drawing. Use figured dimensions only.
All dimensions are to be verified on site.
Pipe, outlet and fitting sizes and dimensions are subject to alteration in order to ensure optimum hydraulic performance.
This drawing has been produced utilising information supplied by others for which Sapoflow Ltd can accept no responsibility.
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1. Please refer to the O&M Manual for additional HSE Information



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.

P02	STAGE 5 ISSUE	24/09/24	JC	ATL
P05	VENTED COVER DETAIL ADDED	29.04.24	JC	ATL
P04	UPDATED FOR NEW TENDER	02.04.24	ATL	MW
C01	CONSTRUCTION ISSUE	23.09.22	ATL	MW
P03	STAGE 4 ISSUE	09/04/21	MW	MW
P02	STAGE 3 ISSUE	18/11/20	MW	MW
P01	STAGE 3 ISSUE	20/11/19	MW	CG
Rev:	Description:	Date:	By:	Chkd:

Merchant Exchange, 17-19 Whitworth Street West, Manchester, M1 5WG
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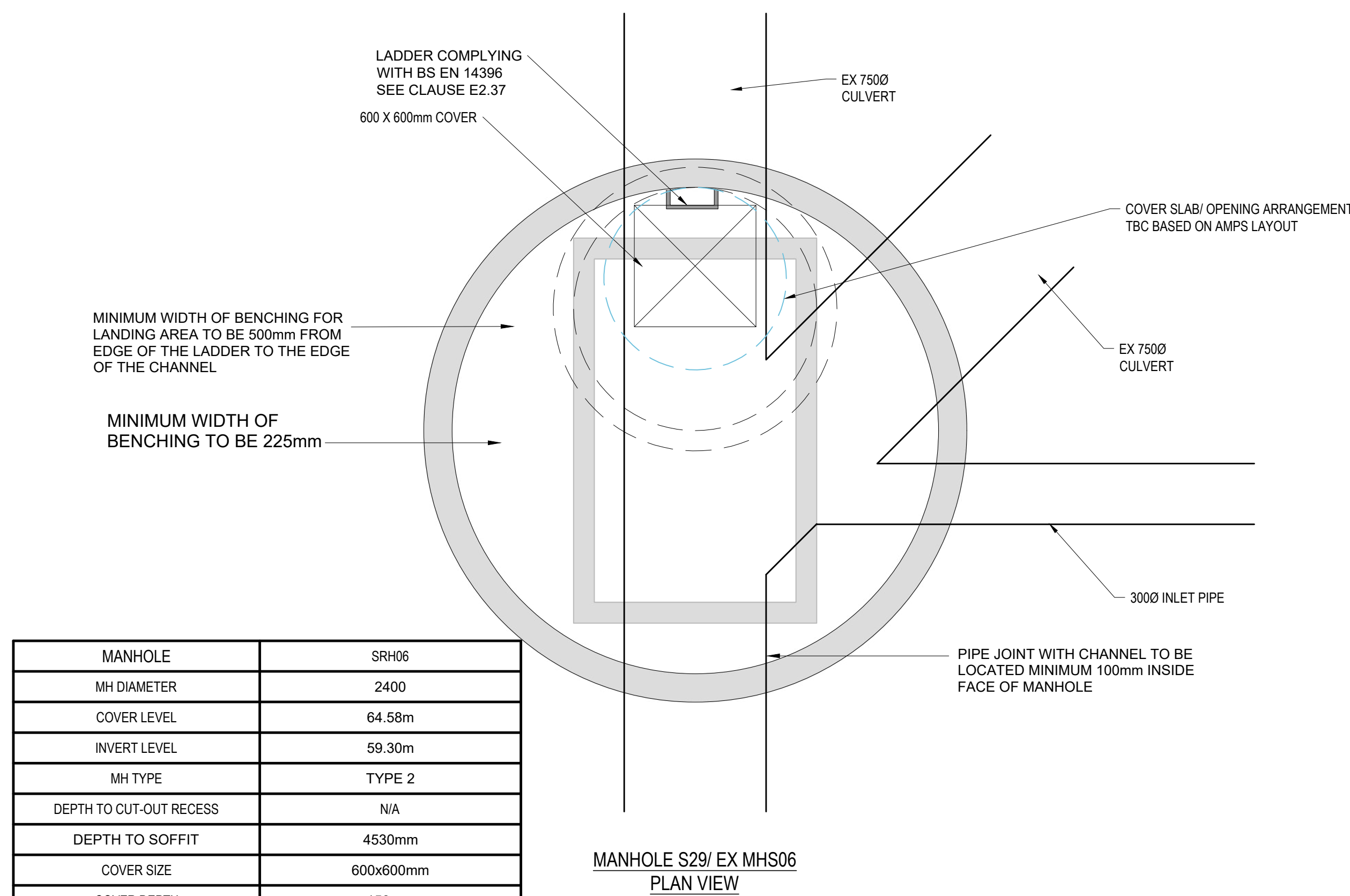
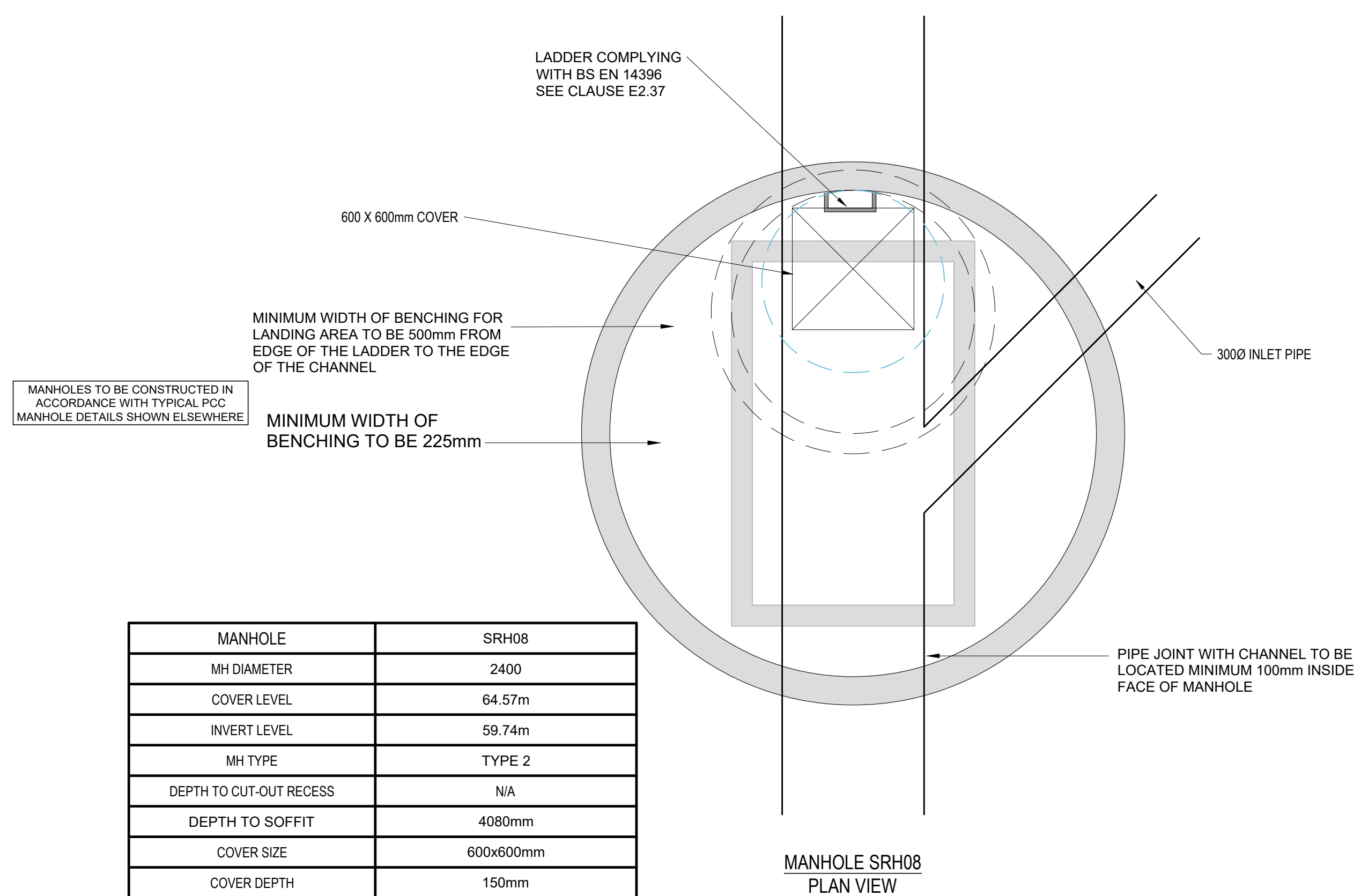
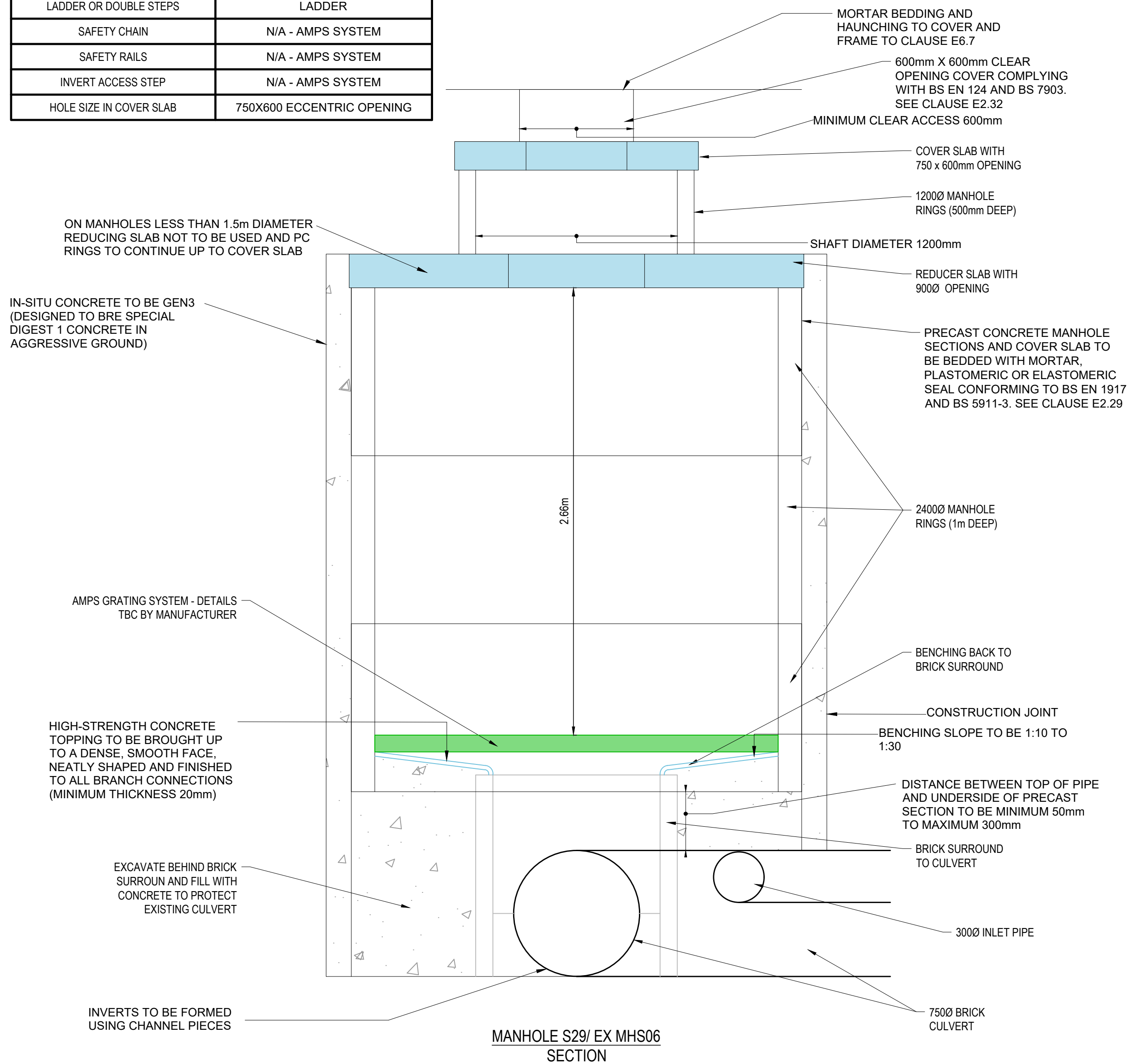
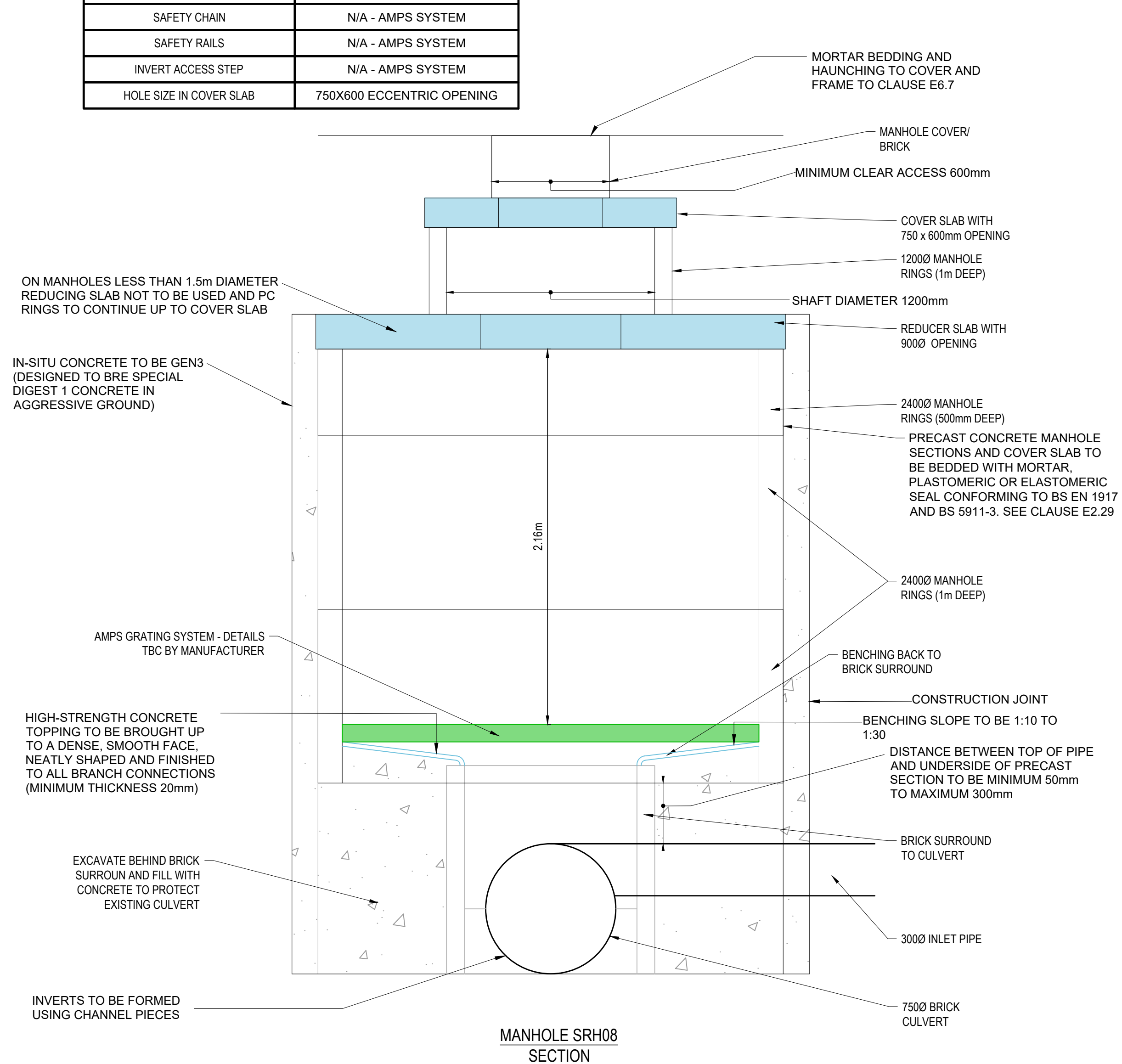
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Status: **STAGE 5**

Project: **HAMMERSTONE ROAD DEPOT**

Dwg Title: **DRAINAGE DETAILS
SHEET 1**

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:		
068065	A1	29/01/19	MW	MW	CG		
	Scale: 1:NTS						
Project Code:	Originator:	Zone:	Level:	Type:	Category / Number:	Rev:	
HRD	- CUR	- XX	- ZZ	- DR	- C	92520	-C02



GENERAL NOTES:

1. 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.
2. DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
3. ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.

P03	ANNOTATION ADDED	29.04.24	JC	ATL
P02	UPDATED FOR NEW TENDER	02.02.24	ATL	MW
P01	ISSUED FOR INFORMATION	23.11.23	KS	ATL
Rev:	Description:	Date:	By:	Chkd:



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Status:

STAGE 5

Project:

HAMMERSTONE ROAD DEPOT

Drg Title:

DRAINAGE DETAILS
SHEET 8
CONNECTIONS TO CULVERT

Project No:	Size:	Date:	Drawn By:	Designed By:	Checked By:		
068065	A1	27/11/23	KS	KS	ATL		
	Scale: 1:20						
Project Code:	Originator:	Zone:	Level:	Type:	Discipline:	Category / Number:	Rev:

HRD - CUR - XX - ZZ - DR - C - 92-528 - P03