Plots 5 Meadowside

Sustainable Drainage Management and Maintenance Plan

Client	Far East Consortium
Project Title	Plot 5 Meadowside – Angel Meadows
Project Number	AM05
Revision	P01
Date Issue	14th September 2021

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1.0 Project Drainage Introduction

The external foul and surface water drainage systems at the Meadowside Development have been designed by FEC's design consultants – WSP and Scott Hughes Engineers. The foul and surface water systems leave the site via an adoptable combined manhole on the corner of Old Mount Street and Ludgate Hill, the surface water system incorporates a sustainable drainage scheme to collect surface water from the development's external pavement drainage, Level 8/11 roofs and Level 2 terrace area.

The drainage system has an Attenuation Storage system which is controlled by a hydro-brake chamber which restricts the flow to 23l/s. The scheme design details show the surface water is collected from these areas into the Aldberburgh Pluvial Cube Modular Cell storage system below the external paving located in the buildings under croft area.

The external surface water system incorporates a hydro-brake chamber, Attenuation Storage system and interceptor manholes within the system prior to the surface water being discharged into the combined adoptable manhole before finally discharged from site into the local sewer network on Ludgate Hill.

The surface water scheme design drawings are listed below and include a verification photograph of the installed Hydrobrake.

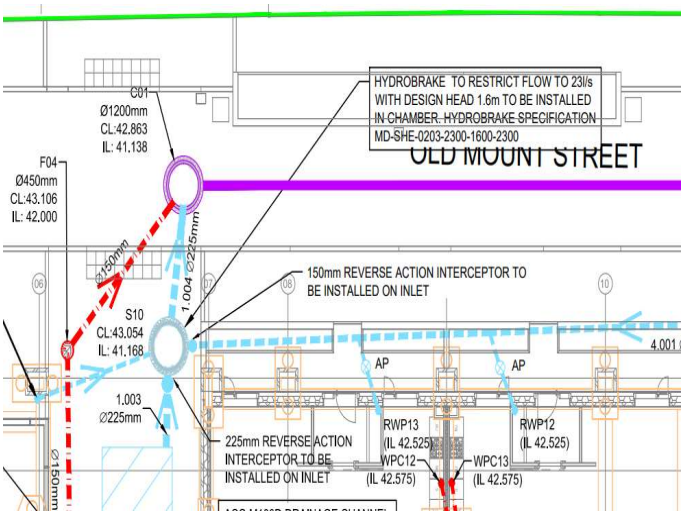
The drainage systems have been constructed as per the design drawings and specification.

2.0 Design Drawings

Drawing Number	Drawing Title
MDW-SHD-00-ZZ-DR-C_0100 Rev C5	Drainage GA
MDW-SHD-00-ZZ-DR-C_0102 Rev C4	Drainage Details Sheet 2 of 2
MDW-SHD-00-ZZ-DR-C_0103 Rev C5	Manhole Schedules

3.0 Photographs

Image of installed Hydrobrake



Extract from MDW-SHD-00-ZZ-DR-C_0100 Rev C5 – Hydrobrake Location.

4.0 Management & Maintenance Plan

The sustainable drainage scheme will require general maintenance throughout the lifetime of the project and the system has been designed to incorporate feature to allow the system to be easily maintained.

The areas of the drainage scheme that require regular inspection and maintenance are:

- Roof Outlets to ensure that all leaves or loose material is removed to prevent debris entering into the systems.
- External Drains located in the external landscape to ensure that the debris collected in the gulley does not impede the outlet flow into the main pipework and should cleared on a regular basis.
- Hydro-brake Manhole to ensure that the Hydro-brake is working correctly and that all debris is removed from the manhole. The Building Management Team (Zenith) will implement a planned and preventative management regime for the sustainable drainage scheme in line with the manufacturer's recommendations. These recommendations are given in CIRIA C697.

Prior to completion FEC will ensure that the Building Management Team are briefed and fully trained to ensure that the Inspection & Maintenance Plan is undertaken.

4.1 Hydrobrake Maintenance Recommendation

Determining Your Maintenance Schedule

The frequency of cleanout is determined in the field after installation. During the first year of operation, the unit should be inspected every three to six months to determine the rate of sediment and screenings accumulation. A simple probe such as a Sludge Judge® can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance log (attached) to establish a routine maintenance schedule.

Inspection Procedures

Inspection is a simple process that may not have to involve entry into the vault. Maintenance crews should be familiar with the internal components prior to inspection.

Scheduling

- It is important to inspect your Hydro DryScreen every three to six months during the first year of operation to determine your site-specific rate of pollutant accumulation.
- Typically, inspection may be conducted during any season of the year if the winter months do not prevent access to the surface openings.
- Sediment removal is not required unless sediment depths exceed the maximum clean-out depths stated in Table 1.

Recommended Equipment

- Safety Equipment and Personal Protective Equipment
- (traffic cones, work gloves, etc.)
- Crow bar or other tool to remove grate or lid
- Pole with skimmer or net
- Sediment probe (such as a Sludge Judge®)
- Trash bag for removed floatables
- Maintenance Log

Inspection Procedures

1. Set up any necessary safety equipment around the access port or grate of the Hydro DryScreen as stipulated by

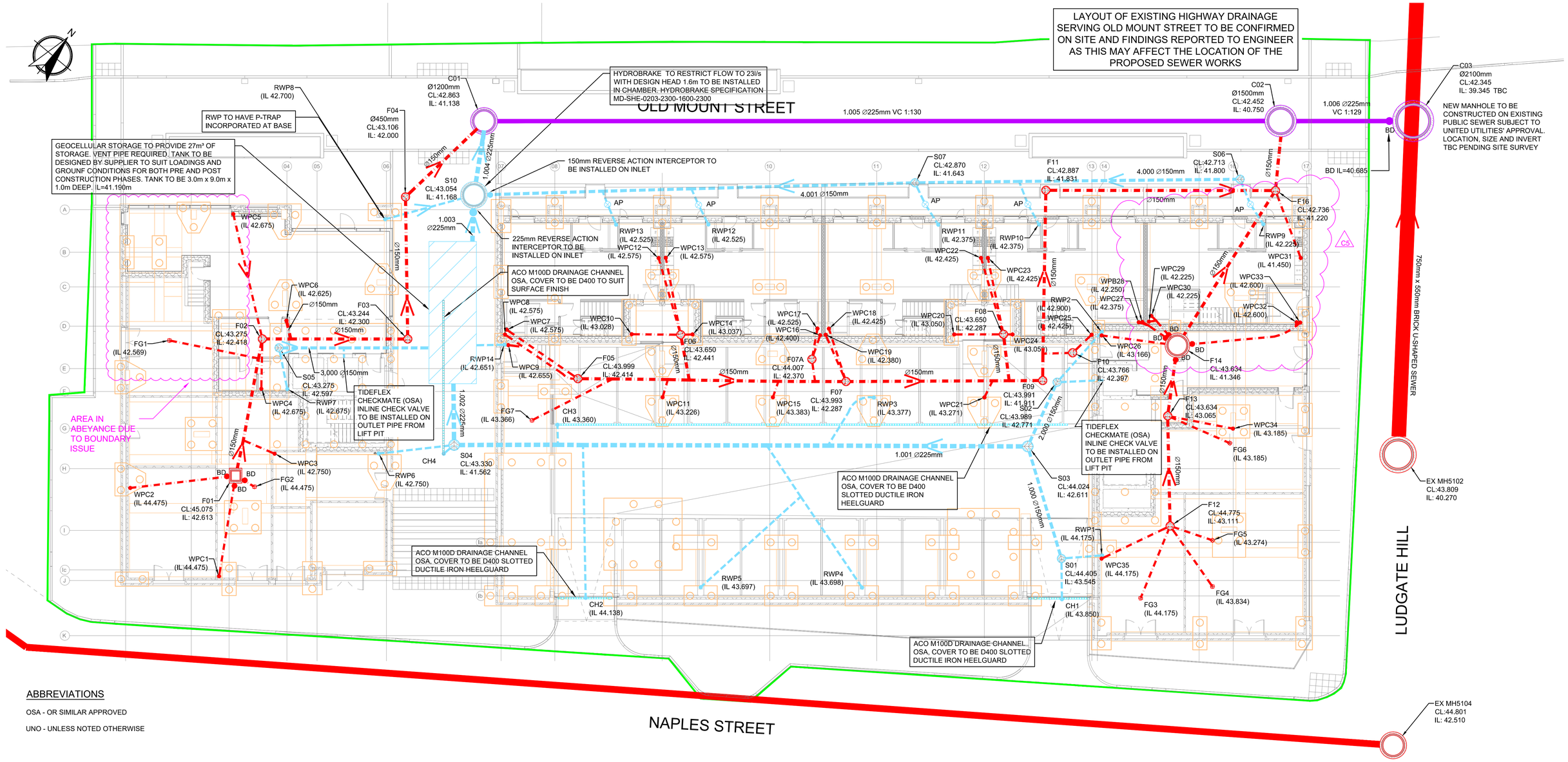
local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.

2. Remove the lids to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of screenings and volumes with concern for them to exceed the weir height.
4. Without entering the vessel, use the pole with the skimmer net to remove and screenings and loose debris from horizontal screen.
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel.
6. On the attached Maintenance Log, record the date, unit location, estimated volume of screenings and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.
7. Securely replace the access covers.
8. Take down safety equipment.
9. Notify Hydro International of any irregularities noted during inspection.

4.2 Attenuation Tank Maintenance Recommendation

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

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



ABBREVIATIONS

OSA - OR SIMILAR APPROVED

UNO - UNLESS NOTED OTHERWISE

GENERAL NOTES

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.

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KEY

- EXISTING COMBINED WATER DRAIN
- EXISTING COMBINED WATER MANHOLE
- PROPOSED ADOPTED CW SEWER
- PROPOSED ADOPTED CW MANHOLE
- BD — PROPOSED ADOPTED CW MANHOLE WITH BACKDROP
- PROPOSED PRIVATE SW DRAINAGE
- PROPOSED PRIVATE SW MANHOLE
- PROPOSED PRIVATE SW PPIC
- AP — PROPOSED RWP ACCESS PIPE CONNECTION
- RWP — PROPOSED PRIVATE RAINWATER PIPE
- PROPOSED DRAINAGE CHANNEL
- PROPOSED PRIVATE FW DRAINAGE
- PROPOSED PRIVATE FW PPIC
- PROPOSED PRIVATE FW MINI PPIC
- PROPOSED PRIVATE FW MANHOLE
- BD — PROPOSED PRIVATE FW PCC IC WITH BACKDROP
- WPC — PROPOSED WASTE POINT CONNECTION
- FG — PROPOSED FLOOR GULLY - WADE BOTTLE TRAP BODY (GC144) WITH CIRCULAR SS GRATING (K2307) TO SURFACE FINISH. FLOOR GULLY TO INCLUDE FILTER BUCKET (UP701)
- PROPOSED LIFT PIT DRAIN
- SITE BOUNDARY

FOR SETTING OUT DETAILS OF PIPES PASSING THROUGH GROUND BEAMS AND WALLS REFER TO DRAWING NUMBER MDW-SHD-00-ZZ-DR-C-0104. WHERE PIPES PASS THROUGH GROUND BEAMS AND WALLS PIPE ARE TO BE CAST IN TO THE BEAM / WALL WITH ROCKER PIPES EITHER SIDE. REFER TO DRAWING NUMBER MDW-SHD-00-ZZ-DR-C-0102 FOR DETAIL

FOR DRAINAGE DETAILS AND NOTES REFER TO SCOTT HUGHES' DRAWING MDW-SHD-00-ZZ-DR-C-0101 & 0102

ALL PIPEWORK TO BE 100mm DIAMETER UNO

ALL WPC AND RWP DROP LOCATIONS TO BE CONFIRMED BY OTHERS

ALL CONNECTIONS TO HAVE ABOVE GROUND RODDABLE ACCESS

ALL WPC AND RWP DROP LOCATIONS TO BE CONFIRMED BY OTHERS

C5

FOR ADOPTABLE SEWER WORKS REFER TO SEPARATE SUITE OF ADOPTABLE SEWER WORKS DRAWINGS. DRAWING NOS. MDW-SHD-ZZ-DR-C-0105 - 0107

No	DATE	DRAWN	REV'D ENG.	AMENDMENT

No	DATE	DRAWN	REV'D ENG.	AMENDMENT

No	DATE	DRAWN	REV'D ENG.	AMENDMENT
C5	07.02.19	AB	PG	MH COVER LEVELS ADDED AND CLOUDED REVISIONS
C4	17.01.19	AB	PG	CLOUDED REVISIONS
C3	11.01.19	AB	PG	CLOUDED REVISIONS
C2	04.12.18	AB	PG	CLOUDED REVISIONS
C1	09.11.18	AS	AB	CONSTRUCTION ISSUE

STATUS: A

PURPOSE OF ISSUE: CONSTRUCTION

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CLIENT: BARDSLEY CONSTRUCTION

PROJECT: MEADOWSIDE PLOT 5 MANCHESTER

DRAFTER: AS

ENGINEER: AB

DRAINAGE GA

SCALE	SHEET	DRAWING No	REV
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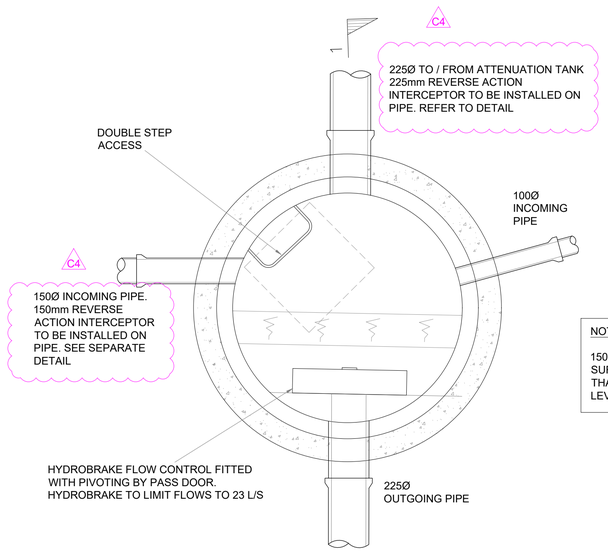
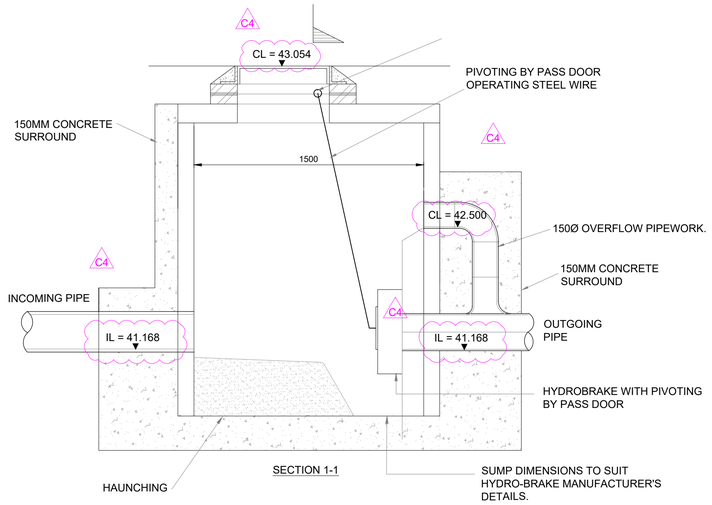
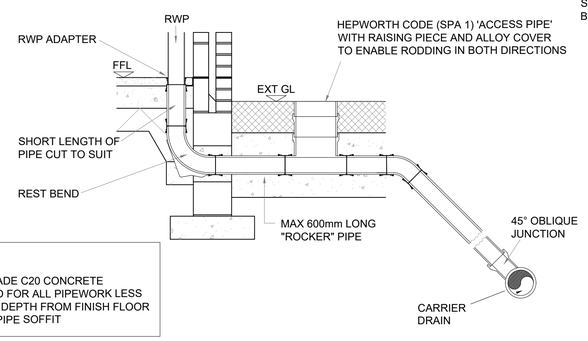




MH S10 - FLOW CONTROL CHAMBER

NOTE

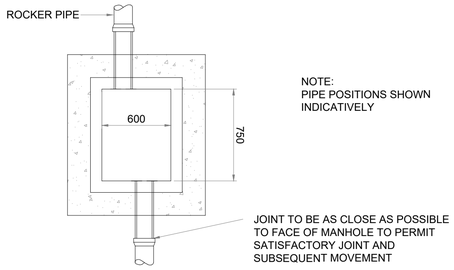
POSITIONING DETAIL OF RWP WITHIN CLADDING TO BE CONFIRMED.



NOTE

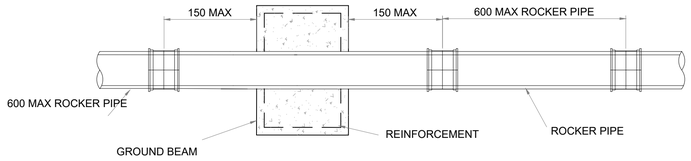
150mm GRADE C20 CONCRETE SURROUND FOR ALL PIPEWORK LESS THAN 1.2m DEPTH FROM FINISH FLOOR LEVEL TO PIPE SOFFIT

RWP ACCESS PIPE CONNECTION DETAIL

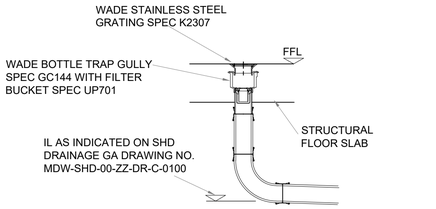


NOTE:
PIPE POSITIONS SHOWN INDICATIVELY

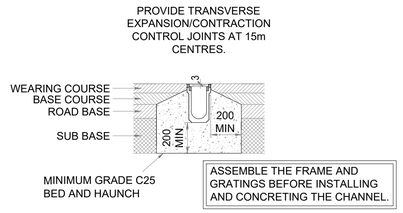
RECTANGULAR PRECAST CONCRETE INSPECTION CHAMBER



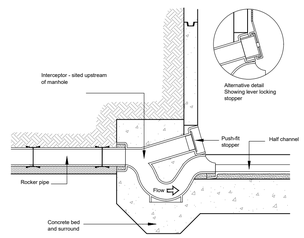
TYPICAL FOUNDATION PENETRATION DETAIL



TYPICAL FLOOR GULLY DETAIL



TYPICAL DRAINAGE CHANNEL IN FLEXIBLE PAVEMENT



Reverse-Action Interceptor Detail

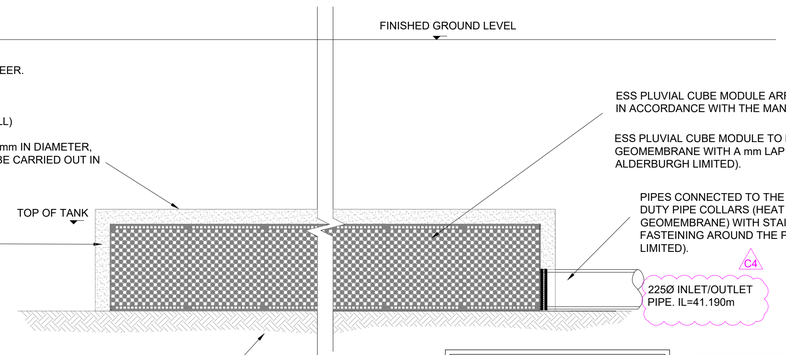
BACKFILL OPTIONS ABOVE THE MODULAR UNIT FOR FIRST 100mm :

- MIN 100mm THICK SELECTED EXCAVATED MATERIAL IF SEEN SUITABLE BY THE SITE ENGINEER.
- 100 mm THICK COARSE SAND OR CLASS 6H SELECTED GRANULAR MATERIAL.
- BACKERBOARD HD (IS A PREMOULDED BOARD FOR USE AS PROTECTION AGAINST BACKFILL)

BACKFILL MATERIAL WITHIN 300mm OF THE TANK TO BE FREE FROM PARTICLES EXCEEDING 40mm IN DIAMETER, IN ACCORDANCE WITH CLASS 8 MATERIAL TO SERIES 600, VOLUME 1, MCHW. BACKFILLING TO BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S GUIDANCE.

BACKFILL OPTIONS AROUND THE SIDES OF MODULAR UNIT:

- 100mm THICK SELECTED EXCAVATED MATERIAL IF SEEN SUITABLE BY THE SITE ENGINEER.
- BACKERBOARD HD (IS A PREMOULDED BOARD FOR USE AS PROTECTION AGAINST BACKFILL)



ESS PLUVIAL CUBE MODULE ARRANGEMENTS AS SHOWN. TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND SPECIFICATION.

ESS PLUVIAL CUBE MODULE TO BE WRAPPED WITH TUFLEX IMPERMEABLE GEOMEMBRANE WITH A mm LAP HEAT WELDED JOINTS. (AS SUPPLIED BY ALDERBURGH LIMITED).

PIPES CONNECTED TO THE ATTENUATION TANK USING HEAVY DUTY PIPE COLLARS (HEAT WELDED TO TULFEX IMPERMEABLE GEOMEMBRANE) WITH STAINLESS STEEL STRANGLE BANDS FOR FASTEINING AROUND THE PIPE (AS SUPPLIED BY ALDERBURGH LIMITED).

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

MODULES REQUIRE 450 mm MINIMUM BACKFILL COVER BEFORE DRIVING OVER WITH SMALL EXCAVATORS OR BOBCAT

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

NOTE :
THIS DRAWING IS INDICATIVE ONLY. SEE MANUFACTURERS DRAWINGS AND SPECIFICATION FOR EXACT CONSTRUCTION DETAILS.

TYPICAL DETAILS OF ATTENUATION TANKS BASED ON ALDERBURGH PLUVIAL CUBE MODULE UNITS

DRAINAGE NOTES

1. 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.

2. 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.

3. ALL PRIVATE DRAINAGE WITHIN THE SITE IS TO COMPLY WITH THE REQUIREMENTS OF BSEN752 AND BUILDING REGULATIONS PART H. WHERE APPROPRIATE, ALL ADOPTED DRAINAGE SHALL BE DESIGN AND CONSTRUCTED IN ACCORDANCE WITH SEWERS FOR ADOPTION 6th EDITION AND THE ADOPTING AUTHORITIES STANDARD REQUIREMENTS.

4. ALL PRIVATE DRAINAGE PIPES TO BE LAID IN TRENCHES BEDDED CLASS 'B' ON SINGLE SIZED AGGREGATE AND BACKFILLED WITH APPROVED SELECTED FILL (40mm DOWN) REUSED FROM EXCAVATED MATERIAL. UNDER BUILDINGS AND WHERE COVER TO INVERT IS LESS THAN 1200mm UNDER TRAFFICKED AREAS PIPES TO BE CAST IN CONCRETE (CLASS Z BEDDING). CLASS 'S' BED AND SURROUND MAY BE REQUIRED FOR SEWERS TO BE ADOPTED. REFER TO SPECIFIC DRAWINGS FOR FURTHER INFORMATION.

5. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM EXCAVATED MATERIAL, FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, TREE ROOTS, CONTAMINATED

5. MATERIAL. SELECTED BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS. THE MATERIAL SHALL BE COMPACTED TO ACHIEVE NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN LABORATORY COMPACTION TESTS. SUFFICIENT TESTING SHALL BE CARRIED OUT, BY THE CONTRACTOR, TO DEMONSTRATE THIS IS - ACHIEVED (NUMBER AND FREQUENCY OF TESTING TO BE AGREED WITH SHD). WHERE THE MOISTURE CONTENT OF THE MATERIAL PROHIBITS COMPLIANCE WITH THE ABOVE 6F1 OR SIMILAR IMPORTED MATERIAL SHALL BE USED.

6. CONCRETE PROTECTION TO PIPEWORK IS TO BE PROVIDED AS FOLLOWS:
   a) ALL PIPEWORK WITHIN PEDESTRIAN/SOFT AREAS WITH LESS THAN 600mm COVER.
   b) ALL PIPEWORK SUBJECT TO VEHICULAR OVERRUN WITH LESS THAN 1.2m COVER.

7. ALL PIPEWORK WITHIN MANHOLES ARE TO BE LAID SOFFIT TO SOFFIT (U.N.O). ALL CHAMBER INVERT LEVELS ARE FOR THE OUTGOING PIPE LEVELS. BACKDROP PIPEWORK SHALL BE CONNECTED AT SOFFIT TO SOFFIT WITH THE RODDING ACCESS LEVEL SPECIFIED.

8. ALL DRAINS TO BE LAID ACCURATELY TO LINE AND LEVEL IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

9. ANY GRADIENTS OF DRAINS INDICATED ARE INDICATIVE ONLY AND THE CONTRACTOR SHALL INSTALL THE DRAINS TO THE SPECIFIED LEVELS SHOWN FOR EACH MANHOLE (U.N.O). CATCHPIT INVERT LEVELS ARE FOR THE OUTGOING PIPE WITH THE SUMP LEVEL SPECIFIED SEPARATELY.

10. CO-ORDINATE SETTING OUT INFORMATION FOR MANHOLES IS TO THE INTERSECTION THE DRAINS AND NOT THE CENTRE OF THE MANHOLE.

11. COVER LEVELS OF THE MANHOLES ARE PROVISIONAL AND SUBJECT TO ADJUSTMENT ON SITE TO SUIT THE FINISHED GROUND LEVELS. ALL EXTERNAL WORKS CONSTRUCTION AREAS TO BE AS LOCATED BY THE ARCHITECT.

12. MANHOLE COVERS AND FRAMES ARE TO BE IN ACCORDANCE WITH BSEN124 AND THE FOLLOWING:
   a) VEHICULAR AREAS: CLASS D400 (E600 IN VULNERABLE SE`RVICE YARD LOCATIONS), DOUBLE TRIANGULAR, 150mm DEEP DUCTILE IRON COVER AND FRAME WITH THREE POINT COVER SEATING, BADGED FW OR SW FOR FOUL OR SURFACE WATER DRAINAGE.
   b) PEDESTRIAN AREAS: CLASS B125, 100mm DEEP, BADGED FW OR SW FOR FOUL OR SURFACE WATER DRAINAGE.

13. POSITIONS AND SIZES OF ABOVE GROUND FOUL AND SURFACE WATER DRAINAGE CONNECTIONS ARE TO BE CONFIRMED PRIOR TO CONSTRUCTION WITH THE ARCHITECT & M&E ENGINEER.

14. GULLY GRATINGS AND STEEL CHANNEL COVERS ARE TO BE IN ACCORDANCE WITH BSEN124 AS FOLLOWS:
   a) AREAS SUBJECT TO VEHICULAR OVERRUN: CLASS D400 MINIMUM.
   b) AREAS NOT SUBJECT TO REGULAR VEHICLE OVERRUN (ADJACENT TO KERBS ETC): CLASS C250.
   c) GULLY GRATES ADJACENT TO KERBS SHALL BE HINGED ON THE SIDE OF THE TRAFFIC DIRECTION (LEFT HAND SIDE).

15. ALL BRICKWORK IN CONNECTION WITH DRAINAGE IS TO BE SOLID CLASS B ENGINEERING BRICK TO BS3921.

16. ALL PRECAST CONCRETE PIPES, CHAMBER PRODUCTS AND ROAD GULLIES SHALL BE TO BS5911 AND BE KITEMARKED.

17. ALL DRAINAGE INSITU CONCRETE SHALL BE GEN3 (U.N.O).

18. ALL INSITU AND CONCRETE PRODUCTS SHALL COMPLY WITH THE REQUIREMENTS FOR SULPHATE EXPOSURE IN ACCORDANCE WITH BRE SPECIAL DIGEST 1, CONCRETE IN AGGRESSIVE GROUND (2001) PART 1: TABLE 2.

19. 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 EXISTING DRAINAGE SYSTEM.

20. CONSTRUCTION JOINTS IN CONCRETE SURROUND MUST NOT BE WITHIN 150MM OF CHAMBER/SHAFT RING JOINTS.

21. ROCKER PIPES TO BE SURROUNDED WITH CONCRETE LOCATED 150mm MINIMUM 200mm MAXIMUM FROM THE FIRST FLEXIBLE JOINT TO THE MANHOLE WALL.

22. SOFT SPOTS IN THE TRENCH FORMATION SHALL BE REMOVED AND REPLACED WITH GRANULAR BEDDING UNLESS INSTRUCTED OTHERWISE.

23. LATERAL CONNECTIONS IN BETWEEN MANHOLE RUNS SHALL BE FORMED BY USING PURPOSE MADE JUNCTION FITTINGS. BEND FITTINGS SHALL BE PROVIDED WHERE APPROPRIATE TO DIRECT THE FLOW INTO MAIN RUNS.

24. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LIAISE WITH BUILDING CONTROL FOR APPROVALS, INTERIM INSPECTION, SNAGGING AND FINAL INSPECTIONS OF THEIR WORK.

25. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING STATUTORY UNDERTAKERS APPARATUS AND SERVICE CONNECTIONS ADJACENT TO AND CROSSING THE WORKS BY TRIAL PITS PRIOR TO COMMENCING MACHINE DIG.

26. AT THE CONCLUSION OF THE WORKS THE CONTRACTOR SHALL PROVIDE A MARKED UP DRAWING TO RECORD ANY AS BUILT VARIATIONS NOT SHOWN ON THE DRAWINGS.

27. THE DRAINAGE SYSTEM IS NOT DESIGNED TO ACCEPT UNTREATED EFFLUENT FROM A COMMERCIAL KITCHEN CONTAINING GREASE AND OILS. REMOVAL OF GREASE AND OIL SHOULD BE MADE AT SOURCE USING A FLOOR MOUNTED ABOVE GROUND GREASE REMOVAL SYSTEM. IT IS RECOMMENDED THAT A MECHANICAL GREASE REMOVAL SYSTEM BE EMPLOYED FOR THIS PURPOSE NOT A PASSIVE SYSTEM.

28. PIPEWORK TO BE OF THE FOLLOWING MANUFACTURER: 100 / 150 / 225MM DIAMETER HEPWORTH SUPERSLEEVE VITRIFIED CLAY PIPES (40kN/mm CRUSHING STRENGTH), 300mm + TO BE CONCRETE CLASS M. ALTERNATIVELY 'POLYSEWER' UPVC DRAINAGE SYSTEM BY POLYPIPE WHEN INSTALLED IN LINE WITH THE MANUFACTURERS RECOMMENDATIONS. FILTER DRAINAGE TO BE PERFORATED HDPE.

29. ALL RWP, WPC & GULLY CONNECTIONS TO BE 100mm DIA UNO & ARE RODDABLE AT LOCATIONS ABOVE GROUND LEVEL.

30. ALL INSPECTION CHAMBERS WITH A DEPTH GREATER THAN 1.2m TO HAVE A 350mm DIAMETER REDUCING PLATE LOCATED BENEATH COVER AND FRAME TO PREVENT ACCESS.

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2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

3. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

No	DATE	DRAWN	REVD ENG.	AMENDMENT
C4	29.03.19	AB	PG	CLOUDED REVISIONS
C3	07.02.19	AB	PG	CLOUDED REVISIONS
C2	11.01.19	AB	PG	CLOUDED REVISIONS
C1	09.11.18	AB	PG	CONSTRUCTION ISSUE

STATUS	PURPOSE OF ISSUE
A	CONSTRUCTION

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CLIENT
BARDSLEY CONSTRUCTION LTD

PROJECT
MEADOWSIDE PLOT 5,
MANCHESTER

DRAFTER	ENGINEER
AB	PG

TITLE
DRAINAGE DETAILS:
SHEET 2 of 2

SCALE	SHEET	DRAWING No	REV
NTS	A1	MDW-SHD-00-ZZ-DR-C-0102	C4

GENERAL NOTES

1. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS, ENGINEERS, ARCHITECTS & SERVICES DRAWINGS, INCLUDING APPROVED BUILDERS WORK DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER OF DISCREPANCIES BETWEEN STRUCTURAL DRAWINGS AND SPECIFICATIONS OR OTHER DRAWINGS.

2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

3. DO NOT SCALE FROM THIS DRAWING, WORK TO DIMENSIONS OR CO-ORDINATES PROVIDED. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE NOTED. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS, SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.

ALL INTERNAL MANHOLE COVERS TO BE DOUBLE SEALED AND BOLTED. ALL MANHOLE COVERS TO BE RECESSED TO SUIT FLOOR FINISHES

MANHOLE SCHEDULE

MANHOLE NO.	MANHOLE CO-ORDINATES	COVER LEVEL (m)	DEPTH TO INVERT (m)	MANHOLE SIZE	MANHOLE TYPE	PIPE IN NAME, INVERT LEVEL (m) & DIA	PIPE OUT NAME, INVERT LEVEL (m) & DIA	COVER SIZE (mm) & GRADE	COMMENTS
S01	E:384541.187 N:399158.345	44.405	0.860	450	IC	From CH1, IL=43.595, 100mmØ From RWP1, IL=43.595, 100mmØ	To S03, IL=43.545, 150mmØ	600 x 600 D400	
S02	E:384533.842 N:399166.757	43.989	1.218	450	IC	From Liftpit, IL=42.771, 100mmØ From RWP2, IL=42.771, 100mmØ	To S03, IL=42.771, 150mmØ	600 x 600 D400	
S03	E:384535.009 N:399162.443	44.024	1.413	600	IC	From S02, IL=42.686, 150mmØ From S01, IL=42.686, 150mmØ	To S04 , IL=42.611, 225mmØ	600 x 600 D400	Wavin Integra 600 OSA
S04	E:384507.007 N:399139.307	43.330	1.768	600	IC	From RWP6, IL=41.687, 100mmØ From S03, IL=41.562, 225mmØ From CH4, IL=41.687, 100mmØ	To Tank, IL=41.562, 225mmØ	600 x 600 D400	Wavin Integra 600 OSA
S05	E:384494.547 N:399136.959	43.275	0.678	450	IC	From RWP7, IL=42.647, 100mmØ	To Tank, IL=42.597, 150mmØ	600 x 600 D400	
S06	E:384534.544 N:399184.051	42.713	0.913	450	IC	From RWP9 , IL=41.850, 100mmØ	To S07, IL=41.800, 150mmØ	600 x 600 D400	
S07	E:384518.852 N:399170.730	42.870	1.227	450	IC	From S06, IL=41.643, 150mmØ From RWP11 , IL=41.693, 100mmØ	To S10 , IL=41.643, 150mmØ	600 x 600 D400	
S10	E:384497.859 N:399152.287	43.054	1.886	1,200	TYPE 1	From S07 , IL=41.243, 150mmØ From RWP8, IL=41.293, 100mmØ From Tank, IL=41.168, 225mmØ	To C01, IL=41.168, 225mmØ	600 x 600 D400	Hydrobrake Chamber

MANHOLE SCHEDULE

MANHOLE NO.	MANHOLE CO-ORDINATES	COVER LEVEL (m)	DEPTH TO INVERT (m)	MANHOLE SIZE	MANHOLE TYPE	PIPE IN NAME, INVERT LEVEL (m) & DIA	PIPE OUT NAME, INVERT LEVEL (m) & DIA	COVER SIZE (mm) & GRADE	COMMENTS
C01	E:384495.357 N:399156.302	42.863	1.725	1,200	TYPE 1	From F04, IL=41.213, 150mmØ From S10, IL=41.138, 225mmØ	To C02, IL=41.138, 225mmØ	600x600 D400	
C02	E:384534.162 N:399188.526	42.452	1.702	1,500	TYPE 4	From C01, IL=40.750, 225mmØ From F16, IL=40.825, 150mmØ	To C03, IL=40.750, 225mmØ	1200 X 675 D400	
C03	E:384540.622 N:399193.888	42.345	3.000	2,100	Refer to Comments	From C02, IL=40.685, 225mmØ		600x600 D400	Refer to UU Standard Detail STND/01/005 Invert Level TBC on site prior to construction

MANHOLE SCHEDULE

MANHOLE NO.	MANHOLE CO-ORDINATES	COVER LEVEL (m)	DEPTH TO INVERT (m)	MANHOLE SIZE	MANHOLE TYPE	PIPE IN NAME, INVERT LEVEL (m) & DIA	PIPE OUT NAME, INVERT LEVEL (m) & DIA	COVER SIZE (mm) & GRADE	COMMENTS
F01	E:384497.605 N:399128.978	45.075	2.462	600 x 750	PCC IC	From WPC2, IL=43.900, 100mmØ From FG2 , IL=43.900, 100mmØ From WPC1, IL=43.900, 100mmØ	To F02 , IL=42.613, 150mmØ	600 x 600 D400	Rectangular PCC IC Pipes from WPC1, WPC2 and FG2 on backdrops
F02	E:384493.374 N:399136.722	43.275	0.857	450	IC	From F01, IL=42.418, 150mmØ From WPC4, IL=42.468, 100mmØ From WPC5, IL=42.468, 100mmØ	To F03 , IL=42.418, 150mmØ	600 x 600 D400	
F03	E:384500.460 N:399142.597	43.244	0.944	450	IC	From F02 , IL=42.300, 150mmØ	To F04, IL=42.300, 150mmØ	600 x 600 D400	
F04	E:384494.602 N:399149.431	43.106	1.106	450	IC	From F03, IL=42.000, 150mmØ	To C01, IL=42.000, 150mmØ	600 x 600 D400	
F05	E:384510.355 N:399147.549	43.999	1.585	450	IC	From WPC8 , IL=42.464, 100mmØ From WPC7, IL=42.464, 100mmØ	To F07, IL=42.414, 150mmØ	600 x 600 D400	
F06	E:384513.584 N:399153.845	43.650	1.209	450	IC	From WPC14, IL=42.491, 100mmØ From WPC13, IL=42.491, 100mmØ From WPC12, IL=42.491, 100mmØ From WPC10, IL=42.491, 100mmØ	To Junction, IL=42.441, 150mmØ	600 x 600 D400	
F07	E:384523.533 N:399158.256	43.993	1.706	450	IC	From F05, IL=42.287, 150mmØ From WPC18, IL=42.337, 100mmØ From WPC19, IL=42.370, 100mmØ	To F09, IL=42.287, 150mmØ	600 x 600 D400	
F07A	E:384520.966 N:399157.957	44.007	1.637	450	IC	From WPC16, IL=42.370, 100mmØ From WPC17, IL=42.370, 100mmØ	To Junction, IL=42.370, 100mmØ	600 x 600 D400	
F08	E:384529.292 N:399166.923	43.650	1.363	450	IC	From WPC24, IL=42.337, 100mmØ From WPC23, IL=42.337, 100mmØ From WPC22, IL=42.337, 100mmØ From WPC20, IL=42.337, 100mmØ	To Junction, IL=42.287, 150mmØ	600 x 600 D400	
F09	E:384533.071 N:399166.259	43.991	2.080	450	IC	From F07, IL=41.911, 150mmØ	To F11, IL=41.911, 150mmØ	600 x 600 D400	
F10	E:384533.409 N:399168.821	43.766	1.369	450	IC	From WPC25, IL=42.397, 100mmØ	To Junction, IL=42.397, 100mmØ	600 x 600 D400	
F11	E:384525.531 N:399175.657	42.887	1.057	450	IC	From F09, IL=41.831, 150mmØ	To F16, IL=41.831, 150mmØ	600 x 600 D400	
F12	E:384545.164 N:399164.327	44.775	1.664	450	IC	From FG4, IL=43.161, 100mmØ From FG3, IL=43.161, 100mmØ From FG5, IL=43.161, 100mmØ From WPC35, IL=43.161, 100mmØ	To F13, IL=43.111, 150mmØ	600 x 600 D400	
F13	E:384540.591 N:399169.593	43.634	0.569	450	IC	From F12, IL=43.065, 150mmØ From FG6, IL=43.115, 100mmØ From WPC34, IL=43.115, 100mmØ	To F14, IL=43.065, 150mmØ	600 x 600 D400	
F14	E:384538.213 N:399173.417	43.634	2.288	1,050	Type 1	From WPC26, IL=41.396, 100mmØ From F13, IL=43.034, 150mmØ From WPC28 , IL=42.107, 100mmØ From MH208, IL=42.107, 100mmØ From MH211, IL=42.465, 100mmØ	To F16, IL=41.346, 150mmØ	600 x 600 D400	Pipe from F13, WPC28, WPC30 and WPC33 on backdrops
F16	E:384536.725 N:399184.934	42.736	1.516	450	IC	From F11, IL=41.220, 150mmØ From WPC31, IL=41.270, 100mmØ From F14, IL=41.220, 150mmØ	To C02, IL=41.220, 150mmØ	600 x 600 D400	

C5

No	DATE	DRAWN	REV'D ENG.	AMENDMENT
C5	07.02.19	AB	PG	CLOUDED REVISIONS
C4	17.01.19	AB	PG	CLOUDED REVISIONS
C3	11.01.19	AB	PG	CLOUDED REVISIONS
C2	04.12.18	AB	PG	CLOUDED REVISIONS
C1	09.11.18	AB	PG	CONSTRUCTION ISSUE

STATUS: A

PURPOSE OF ISSUE: CONSTRUCTION

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CLIENT: BARDSLEY CONSTRUCTION

PROJECT: MEADOWSIDE PLOT 5, MANCHESTER

DRAFTER: AB

ENGINEER: PG

TITLE: MANHOLE SCHEDULES

SCALE	SHEET	DRAWING No	REV
NTS	A1	MDW-SHD-00-ZZ-DR-C-0103	C5