

DRAINAGE CONDITION DISCHARGE

Document Reference. 1-21554-CCL-DA-001

Revision. 0

Planning Application No	136933/FO/2023
Site Location	DIXONS ACADEMY
Description	NEW 2 STOREY CLASSROOM EXTENSION BLOCK AND NEW SPORTS HALL ON EXISTING SCHOOL SITE
Applicant Name	DEPARTMENT FOR EDUCATION

Planning Application	FULL
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LLFA Drainage comments.

Condition 1:

No development shall take place until surface water drainage works in accordance with Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) or any subsequent replacement national standards have been submitted to and approved in writing by the Local Planning Authority.

In order to avoid/discharge the above drainage condition the following additional information has to be provided:

- *A finalised drainage layout showing all components, hydro-brake (limited to 5l/s), outfalls, levels and connectivity.*
- *Maximised integration of green SuDS components (utilising infiltration or attenuation) if practicable.*
- *A feasibility assessment and engineering details of the Green / Blue Roof.*
- *Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for 45% climate change in any part of a building.*
- *Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site.*
- *Where surface water is connected to the public sewer, agreement in principle from United Utilities is required that there is adequate spare capacity in the existing system*

taking future development requirements into account. An email of acceptance of proposed flows and/or new connection will suffice.

- *Hydraulic calculation of the proposed drainage system, including all engineering parameters*
- *Construction details of flow control and SuDS elements*

Reason: To promote sustainable development, secure proper drainage and to manage the risk of flooding and pollution. This condition is imposed in light of national policies within the NPPF and NPPG and local policies EN08 and EN14.

Condition 2:

No development hereby permitted shall be occupied until details of the implementation, maintenance and management of the sustainable drainage scheme have been submitted to and approved by the local planning authority. The scheme shall be implemented and thereafter managed and maintained in accordance with the approved details. Those details shall include:

- *Verification report providing photographic evidence of construction as per design drawings.*
- *As built construction drawings if different from design construction drawings.*
- *Management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.*

Reason: To manage flooding and pollution and to ensure that a managing body is in place for the sustainable drainage system and there is funding and maintenance mechanism for the lifetime of the development.

CCL Response to FRM

Condition 1

- A finalised drainage layout showing all components, hydro-brake (limited to 5l/s), outfalls, levels and connectivity.

Refer to drainage layout and details appended to the back of this document.

The exact invert level at drainage connection point should be confirmed by survey prior to commencement of works.

- Maximised integration of green SuDS components (utilising infiltration or attenuation) if practicable.

Refer to Flood Risk and Drainage Strategy document submitted for planning, Ref: FS0998-CCL-SE-8-XX-T-C-0101. Section 6.3.4, 6.3.24 and 6.4. Infiltration testing results appended to the back of this document.

- A feasibility assessment and engineering details of the Green / Blue Roof

A Bio-solar green roof is being proposed and the engineering details can be found appended to this document.

- Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for 45% climate change in any part of a building.

The current proposed discharge rate is proposed to be restricted to 5 l/s for all storms up to and including 1 in 100 year plus 45% climate change and 10% urban creep, as per the FRA&DS submitted for planning. Refer to hydraulic calculations appended to the back of this document.

- Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site.

As included in the FRA&DS submitted for planning, please refer to Flood Exceedance plan appended to the back of this report. The proposed works are central to the site, external levels are to fall away from existing and proposed buildings and existing level around the site are to remain therefore no change to the existing flow routes.

- Where surface water is connected to the public sewer, agreement in principle from United Utilities is required that there is adequate spare capacity in the existing system taking future development requirements into account. An email of acceptance of proposed flows and/or new connection will suffice.

United Utilities have been consulted with regards to connection to the public sewer and have confirmed connection to public sewer is acceptable, subject to following the hierarchy of discharging SW. Refer to United Utilities correspondence appended to this document.

- Hydraulic calculation of the proposed drainage system, including all engineering parameters

The current proposed discharge rate is proposed to be restricted to 5 l/s for all storms up to and including 1 in 100 year plus 45% climate change and 10% urban creep, as per the Drainage Strategy submitted for planning. Refer to hydraulic calculations appended to the back of this document.

- Construction details of flow control and SuDS elements.

Refer to details appended to the back of this document.

- Flow control
- Cellular storage
- Landscaped areas
- Permeable MUGA Pitch (Existing to remain)

Existing Permeable MUGA - Site investigation suggest 150mm permeable surface layers and 450mm free draining sub-base. CCTV suggests perforated pipes within sub-base convey flows to perimeter surface water drainage system within the existing site.

Condition 2

- Verification report providing photographic evidence of construction as per design drawings;

Contractor to provide verification report including photographic evidence of all installed drainage components as per the design drawings.

- As built construction drawings if different from design construction drawings;

To be provided post construction.

- Management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

Management and maintenance plan/strategy to be included within the O&M manual.

CCL Documents/Drawings Included

1. Drainage Layout
2. Exploratory Hole Location Plan and BRE Testing results.
3. Bio-Solar green roof
4. Hydraulic Calculations
5. Overland flow path
6. United Utilities correspondence.
7. Drainage Details
8. Landscaping proposals
9. FRM Conditions

1. Drainage Strategy Layout



MUGA PITCH DRAINAGE TO REMAIN AS EXISTING. EXISTING DRAINAGE RECORDS FOR MUGA PITCH TBC. CCTV SURVEY WORKS ON SITE 12TH JUNE 23. DRAWING TO BE UPDATED TO INCLUDE FINDINGS.

EXISTING AREA TO DRAIN TO EXISTING SYSTEM VIA GULLIES. AS EXISTING. ANY LEVELS AMENDED IN THIS AREA TO BE LAID TO FALL TOWARDS EXISTING GULLIES.

ONLY AREA BOUNDED BLACK HAS BEEN ACCOUNTED FOR WITHIN THE PROPOSED DRAINAGE SYSTEM.

PROPOSED CELLULAR STORAGE. SIZE SHOWN = 275m² x 0.75. REQUIRED VOLUME c.200m³

FLOW CONTROL CHAMBER. 5 l/s MAX DISCHARGE RATE FOR ALL STORMS UP TO AND INCLUDING 1 IN 100 YEAR PLUS 45% CLIMATE CHANGE AND 10% URBAN CREEP.

EXISTING AREA TO DRAIN TO EXISTING SYSTEM. LEVELS AMENDED IN THIS AREA TO BE LAID TO FALL TOWARDS PROPOSED LINEAR DRAIN.

EXISTING HARD STANDING AREA (2084m²) TO BE REMOVED FROM EXISTING DRAINAGE SYSTEM. PROPOSED AREA TO BE LANDSCAPED.

CONNECT TO EXISTING SW DRAIN

EXISTING AREA TO DRAIN TO EXISTING SYSTEM VIA NEW LINEAR CHANNEL. GROUND LEVELS TO FALL TOWARDS LINEAR CHANNEL.

NEW SVPS TO BEND 350mm BELOW UNDERSIDE OF SLAB UNO.

CONNECT TO EXISTING MANHOLE

PROPOSED FOUNDATIONS SHOWN IN CLOSE PROXIMITY TO EXISTING DRAIN. CARE TO BE TAKEN AND PIPEWORK TO BE PROTECTED DURING CONSTRUCTION.

EXISTING 2250 CONNECTION TO MANHOLE 31 AS CONFIRMED IN LAYER SURVEYS CCTV REPORT.

BUILDING DRAINAGE - FOUL WATER
RECOMMEND CCTV SURVEY OF ALL EXISTING POP UPS TO BE REUSED TO CONFIRM SIZE AND CONDITION. TO BE CHAINED TO OUTFALL POSITION AND MAPPED ON DRAWING.
POTENTIAL CLASHES WITH PROPOSED BELOW GROUND SVP CONNECTIONS WITH EXISTING SVP CONNECTIONS DUE TO UNKNOWN LOCATIONS.
ALL SVP SIZES ARE ASSUMED TO BE 100mm IN LIEU OF MEP INFORMATION. LOADINGS AND PIPE SIZES TO BE CONFIRMED.
FG CONNECTIONS TO BE 100mm UNO.
EXISTING SVPS TO BE MAINTAINED AND UTILISED BY ABOVE GROUND DRAINAGE WHERE POSSIBLE.
NEW DRAINAGE RUNS BELOW EXISTING BUILDINGS TO BE CO-ORDINATED WITH EXISTING FOUNDATIONS. EXISTING SLAB TO BE REMOVED AND REPLACED TO INSTALL CONNECTION WHERE SHOWN.
ADDITIONAL FOUL DRAINAGE RUNS MAY BE REQUIRED SUBJECT TO RECEIPT OF FINAL POP UP SETTING OUT.
EXISTING POP UPS TO REMAIN OR REMOVED TO BE CONFIRMED.
INCREASED FOUL DRAINAGE RUNS AND CHAMBERS SHOWN DUE TO NUMBER OF PROPOSED SVPS.
ALL EXISTING SVPS TO REMAIN LIVE UNO.

BUILDING DRAINAGE - SURFACE WATER
EXISTING ROOF (TO REMAIN) AND EXISTING RWPS TO DRAIN AS EXISTING TO DIVERTED RUN.
PROPOSED RWP POSITIONS SHOWN INDICATIVE. TO BE CONFIRMED BY ARCHITECT.
ALL EXISTING RWPS TO REMAIN LIVE UNO.

DRAWINGS BASED ON THE FOLLOWING INFORMATION

- TOPOGRAPHICAL SURVEY - 14692-TOPO-2D
- GPR SURVEY - 14692-T+UG
- UNITED UTILITIES SEWER RECORDS
- SITE LAYOUT - FS0998-IBA-14-XX-D-1-7001 P07
- BUILDING LAYOUT 00 - FS0998-IBA-2-00-D-A-3101 P03
- FOUNDATIONS - FS0998-CCL-SE-1-XX-D-S-3001, 3002 & 3003
- MEP INFO - NOT RECEIVED
- EXISTING POP UPS TAKEN FROM MORGAN SINDALL MARK UP RECEIVED 21.04.23 (NEWALL GREEN SCHOOL - GF PLANS - POP UP LOCATIONS)
- EXISTING RWP POSITIONS TAKEN FROM TOPOGRAPHICAL SURVEY

KEY:

- SITE BOUNDARY
- EXISTING PUBLIC COMBINED SEWER
- EXISTING PRIVATE FOUL
- EXISTING PRIVATE SURFACE
- EXISTING PRIVATE COMBINED
- EXISTING PRIVATE SURFACE (ASSUMED)
- EXISTING PRIVATE FOUL (ASSUMED)
- EXISTING BGD TO BE ABANDONED
- PROPOSED DIVERTED SURFACE BGD
- PROPOSED SURFACE WATER BGD
- PROPOSED FOUL WATER BGD
- PROPOSED RAIN WATER PIPE AND CONNECTION. SIZE 150mm AND SETTING OUT TBC BY ARCHITECT.
- PROPOSED SOIL VENT PIPE AND 150mm CONNECTION. MEP TO CONFIRM ABOVE GROUND SIZES. POTENTIAL TO REDUCE CONNECTION SIZE FOLLOWING RECEIPT OF ABOVE GROUND DESIGN AND LOADINGS.
- EXISTING SOIL VENT PIPE
- EXISTING FLOOR GULLY
- EXISTING SINK OUTLET
- EXISTING RAIN WATER PIPE
- EXISTING GULLY TO REMAIN
- RELAYED EXISTING RWP CONNECTION
- PROPOSED LINEAR CHANNEL AND CONNECTION. 225mm TBC AND DESIGNED BY SELECTED MANUFACTURER. CONTRACTOR TO CONFIRM ACCESS AND OUTLET BOXES REQUIRED TO EACH END.
- PROPOSED FLOW CONTROL, HYDRO-BRAKE OR SIMILAR APPROVED.
- PROPOSED CELLULAR STORAGE. SDS LTD OR SIMILAR APPROVED.
- PROPOSED BIOSOLAR ROOF
- AREA TAKEN OUT OF EXISTING DRAINAGE SYSTEM AND REPLACED WITH LANDSCAPING
- AREA TO DRAIN AS EXISTING
- EXISTING SLAB TO BE BROKEN OUT TO INSTALL NEW DRAINAGE CONNECTION.
- FOUNDATIONS.
- PIPEWORK TO PASS THROUGH, ABOVE OR BELOW FOUNDATION.

PT - PA - PB

REFER TO DRAWING 5201 FOR NOTES AND MANHOLE SCHEDULE

DRAINAGE DESIGN SUBJECT TO APPROVAL FROM THE LEAD LOCAL FLOOD AUTHORITY AND UNITED UTILITIES.

T01	02.06.23	STAGE 4	CD	SW	DS
P01	24.03.23	PRELIMINARY	CD	DS	DS
Rev	Date	Description	By	Check	App.

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Client	MORGAN SINDALL CONSTRUCTION
Project	DIXON NEWALL GREEN ACADEMY
Office	ALTRINCHAM
Discipline	CIVIL
Title	DRAINAGE LAYOUT
Scale @ A1	1:500
Status	STAGE 4



Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-8	XX
Type	Discipline	Drawing No.	Revision
D	C	5200	T01

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

2. ALL ADOPTABLE DRAINAGE WORKS INCLUDING WORKS TO EXISTING PUBLIC SEWERS TO BE UNDERTAKEN IN ACCORDANCE WITH "SEWERS FOR ADOPTION 7th EDITION" AND "CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION" AND CONSTRUCTED TO THE RELEVANT STATUTORY UNDERTAKERS DETAILS.

3. ALL PRIVATE DRAINAGE WORKS TO BE IN ACCORDANCE WITH "CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7th EDITION", BS EN 752 2017 'DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS' AND THE BUILDING REGULATIONS APPROVED 'DOCUMENT H'.

4. 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.

5. DESIGN BASED ON TOPOGRAPHICAL SURVEY AND INFORMATION AVAILABLE AT THE TIME OF THE DESIGN.

6. OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.

7. ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.

8. COVER LEVELS, GULLY POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/LANDSCAPE ARCHITECT. CONTRACTOR TO ALLOW FOR ADJUSTMENT TO SUIT AGREED POSITIONS AND FINISHED LEVELS, AND CONFIRM ALL COVER LEVELS ON SITE.

9. ALL BELOW SLAB DRAINAGE CONNECTIONS SHOWN TO THE PENETRATION POSITIONS ARE INDICATIVE ONLY. REFER TO DIMENSIONED LOCATIONS AND DIAMETERS ON ARCHITECTS GROUND FLOOR SETTING-OUT PLANS.

10. ALL UNDERGROUND FOUL DRAINAGE SHOULD BE SUITABLY VENTED AT OR NEAR TO THE HEAD OF RUNS.

11. ALL ACCESS FITTINGS, STACKS, RWPS AND GULLIES TO BE RODDABLE. ALL TO HAVE LOW LEVEL RODDING ACCESS PLATES UNLESS AN ALTERNATIVE MEANS OF ACCESS IS AGREED. ACCESS POINT TO BE ABOVE ANY GROUND FLOOR CONNECTED APPLIANCE SPILL LEVEL.

12. LARGE ACCESS FITTING REQUIRED ABOVE GROUND WHERE GREATER THAN 12M UP TO 22M TO A JUNCTION. SMALL ACCESS FITTING REQUIRED UP TO 12M TO A JUNCTION.

13. ALL GULLY AND CHANNEL DRAIN OUTLETS AND TERMINATION POINTS TO BE TRAPPED AND RODDABLE. INTERNAL GULLIES AND CHANNEL DRAINS TO BE SPECIFIED BY OTHERS.

14. WHERE NO WCS ARE CONNECTED UPSTREAM, UNDERSLAB FW DRAINAGE TO BE LAID AT 1:40 MIN. AFTER THE CONNECTION OF AT LEAST 1NO WC, A MIN. FALL OF 1:80 APPLIES.

15. ALL CONNECTIONS FROM POP-UPS TO BE LAID AT A CONSTANT GRADIENT TO JUNCTION/ INSPECTION CHAMBER/ MANHOLE UNLESS NOTED OTHERWISE. ANY ISSUES RELATING TO CLASHES WITH FOUNDATIONS ARE TO BE FORWARDED TO THE ENGINEER, ALLOWING SUFFICIENT TIME FOR AN ALTERNATIVE SOLUTION TO BE PROPOSED.

16. INVERT LEVELS AT MANHOLES/ INSPECTION CHAMBERS TO BE USED TO SET OUT PIPEWORK. PIPE GRADIENTS ARE SHOWN INDICATIVELY ONLY.

17. ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS.

18. ALL SEWERS, UNLESS AGREED OTHERWISE STATED, SHALL BE:
 - 100mm to 300mm DIA TO BE VITRIFIED CLAY.
 - 375mm DIA AND GREATER TO BE CLASS 120 CONCRETE PIPES.

19. AS AN ALTERNATIVE THE CONTRACTOR MAY USE AN APPROVED UNPLASTICISED POLYVINYL CHLORIDE (PVCU) WITH APPROVAL FROM THE ENGINEER.

20. SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS.

21. THE 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 FACE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.

22. ALL NEW CONNECTIONS INTO EXISTING MANHOLES (OR INTO EXISTING SEWERS) TO BE 'SOFFITS LEVEL' UNLESS OTHERWISE NOTED.

23. ALL ADOPTABLE DRAINAGE PIPES WILL REQUIRE A MINIMUM OF 1200mm COVER, IN ACCORDANCE WITH SEWERAGE UNDERTAKERS REQUIREMENTS. WHERE THIS IS NOT ACHIEVED, IT WILL BE NECESSARY TO AGREE THE BED AND SURROUND DETAIL.

24. ALL PRIVATE DRAINAGE PIPES WITH A COVER OF LESS THAN 600mm IN NON-TRAFFICKED AREAS AND LESS THAN 1200mm IN TRAFFICKED AREAS TO BE BEDDED AND SURROUNDED IN CONCRETE (CLASS 2). COMPRESSIBLE MATERIAL SHALL BE PROVIDED AT EVERY PIPE JOINT. WHERE COVER EXCEEDS THIS DEPTH, PIPES ARE TYPICALLY BEDDED AND SURROUNDED IN CLASS S. REFER TO PIPE EMBEDMENT DETAILS DRAWING FOR SPECIFIC TYPES.

25. WHERE DRAINAGE PIPES ARE LESS THAN 300mm BELOW THE UNDERSIDE OF THE GROUND FLOOR SLAB, CONCRETE ENCASEMENT IS REQUIRED (CLASS 2). COMPRESSIBLE JOINTS ARE TO BE PROVIDED AT EVERY PIPE JOINT WITHIN THE CONCRETE.

26. WHERE PIPES ARE MORE THAN 300mm BELOW THE UNDERSIDE OF THE SLAB, CLASS S BEDDING IS ACCEPTABLE.

27. SULPHATE RESISTANT CEMENT (C20-DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED TO PROVE THAT SUCH PRECAUTIONS ARE NOT REQUIRED.

28. WHERE FOUL SEWERS RUN ABOVE SURFACE SEWERS, CONCRETE PROTECTION MAY BE REQUIRED AT CROSSOVERS TO PREVENT ANY POTENTIAL CONTAMINATION.

29. ALL CONNECTIONS PASSING THROUGH BASES OR EDGE BEAMS TO BE IN SEALED SLEEVES. ALTERNATIVELY CONNECTIONS MAY BE CAST-IN WITH FLEXIBLE JOINTS NOT GREATER THAN 150MM FROM FACE OF CONCRETE.

30. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION MAY NEED TO BE INCREASED TO ACCOMMODATE THE CONNECTIONS AND BENDS.

31. ALL MANHOLE COVERS IN BLOCK/SLAB AND EXTERNAL PAVING AREAS TO HAVE RECESSED COVERS OF THE APPROPRIATE GRADE TO ACCEPT ARCHITECT'S PAVING PROPOSAL.

32. UNLESS NOTED OTHERWISE IN THE MANHOLE SCHEDULE, ALL MANHOLE, GULLY AND CHANNEL COVERS (IRONWORK) SHOULD BE THE FOLLOWING SPECIFICATION:
 - B125 LOAD CLASS IN PEDESTRIAN AREAS
 - D400 LOAD CLASS IN VEHICULAR AREAS.

33. ALL PROPRIETARY PRODUCTS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.

34. GREASE TRAPS SHOULD BE PROVIDED ABOVE GROUND WITHIN AN ENZYME TREATMENT SYSTEM BY APPROPRIATE SPECIALIST DESIGNER. WHERE A BELOW GROUND GREASE TREATMENT SYSTEM IS REQUIRED - ADDITIONAL NOTES REQUIRED AND DESIGN ADJUSTED TO SUIT.

35. DILUTION TRAPS TO BE PROVIDED WITHIN ABOVE GROUND DESIGNS TBC BY MEP.

36. CONNECTIONS OUT OF LINEAR DRAINS TO MATCH SIZE OF CHANNEL UNO. LINEAR CHANNEL SIZES TBC BY SELECTED MANUFACTURER.

37. PIPE AND MANHOLE NUMBERS REFERENCE ON SURFACE WATER PIPE RUNS TO BE READ IN CONJUNCTION WITH THE SURFACE WATER HYDRAULIC CALCULATIONS.

MANHOLE SCHEDULE														
MH REF	CL (mAOD)	IL (mAOD)	DEPTH TO SOFFIT (m)	DS PIPE DIA (m)	MH DIA (mm)	MH TYPE	COVER SIZE (mm)	COVER CLASS	RECESSED	RESTRICTED ACCESS	BACK DROP	COMMENTS	EASTING	NORTHING
SURFACE WATER														
S1	55.70	54.30	1.18	0.225	600	PPIC	600X600	D400	N	Y	N		TBC AT ST5	TBC AT ST5
S2 - OMITTED														
S3 - OMITTED														
S4 - OMITTED														
S5	55.30	54.00	1.08	0.225	600	PPIC	600X600	D400	N	Y	N	CATCHPIT TYPE	TBC AT ST5	TBC AT ST5
S6	55.69	54.17	1.30	0.225	600	PPIC	600X600	D400	N	Y	N		TBC AT ST5	TBC AT ST5
S7 - OMITTED														
S8	55.69	53.98	1.49	0.225	600	PPIC	600X600	D400	N	Y	N		TBC AT ST5	TBC AT ST5
S9	55.50	53.76	1.52	0.225	600	PPIC	600X600	D400	N	Y	N	CATCHPIT TYPE	TBC AT ST5	TBC AT ST5
S10	55.20	53.65	1.25	0.300	1500	PCC	1200X600	D400	N	N	N	CATCHPIT TYPE	TBC AT ST5	TBC AT ST5
FCC	55.60	53.53	1.92	0.150	1200	PCC	600X600	D400	N	N	N	FLOW CONTROL CHAMBER	TBC AT ST5	TBC AT ST5
FOUL WATER														
F1	55.63	54.87	0.61	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F2	55.72	54.52	1.05	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F3	55.72	54.50	1.07	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F4	55.72	54.49	1.08	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F5	55.72	54.49	1.08	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F6	55.70	54.44	1.11	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F7	55.70	54.41	1.14	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F8	55.68	54.67	0.86	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F9	55.67	54.54	0.98	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F10	55.67	54.40	1.12	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F11	55.69	54.08	1.39	0.225	600	PPIC	600X600	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F12	55.45	54.45	0.85	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F13	55.67	54.19	1.33	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F14	55.60	54.13	1.32	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F15	55.53	54.08	1.30	0.15	450	PPIC	450X450	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F16	55.70	55.05	0.50	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F17	55.70	54.99	0.56	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F18	55.70	54.84	0.71	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F19	55.67	54.67	0.85	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
F20	55.67	54.62	0.90	0.15	450	PPIC	450X450	D400	N	N	N	NON ENTRY	TBC AT ST5	TBC AT ST5
DIVERTED SURFACE WATER														
SD1	55.72	54.02	1.40	0.300	600	PPIC	600X600	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
SD2	55.72	53.95	1.47	0.300	600	PPIC	600X600	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
SD3	55.72	53.77	1.65	0.300	600	PPIC	600X600	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
SD4	55.70	53.52	1.88	0.300	1500	PCC	600X600	D400	N	N	N		TBC AT ST5	TBC AT ST5
SD5	55.72	53.44	1.83	0.450	1500	PCC	600X600	D400	N	N	N		TBC AT ST5	TBC AT ST5
SD6	55.40	53.36	1.59	0.450	1500	PCC	600X600	D400	N	N	N		TBC AT ST5	TBC AT ST5
SD7	56.24	53.23	2.56	0.450	1500	PCC	600X600	D400	N	N	N		TBC AT ST5	TBC AT ST5
SD8	55.70	53.15	2.10	0.450	1500	PCC	600X600	D400	N	N	N		TBC AT ST5	TBC AT ST5
SD9	56.24	53.65	2.44	0.150	600	PPIC	600X600	D400	N	Y	N	NON ENTRY	TBC AT ST5	TBC AT ST5
NON ENTRY - REDUCER CAP REQUIRED AND FITTED TO SHAFT, PPIC - POLYPROPYLENE INSPECTION CHAMBER, CP - CATCH PIT TYPE, PCC - PRECAST CONCRETE.														

T01	02.06.23	STAGE 4		CD	SW
Rev	Date	Description		By	Check
					App.

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Client		MORGAN SINDALL CONSTRUCTION	
Project		DIXON NEWALL GREEN ACADEMY	
Office		ALTRINCHAM	
Discipline		CIVIL	
Title		DRAINAGE NOTES AND MANHOLE SCHEDULE	
Scale @ A1		1:500	Status STAGE 4

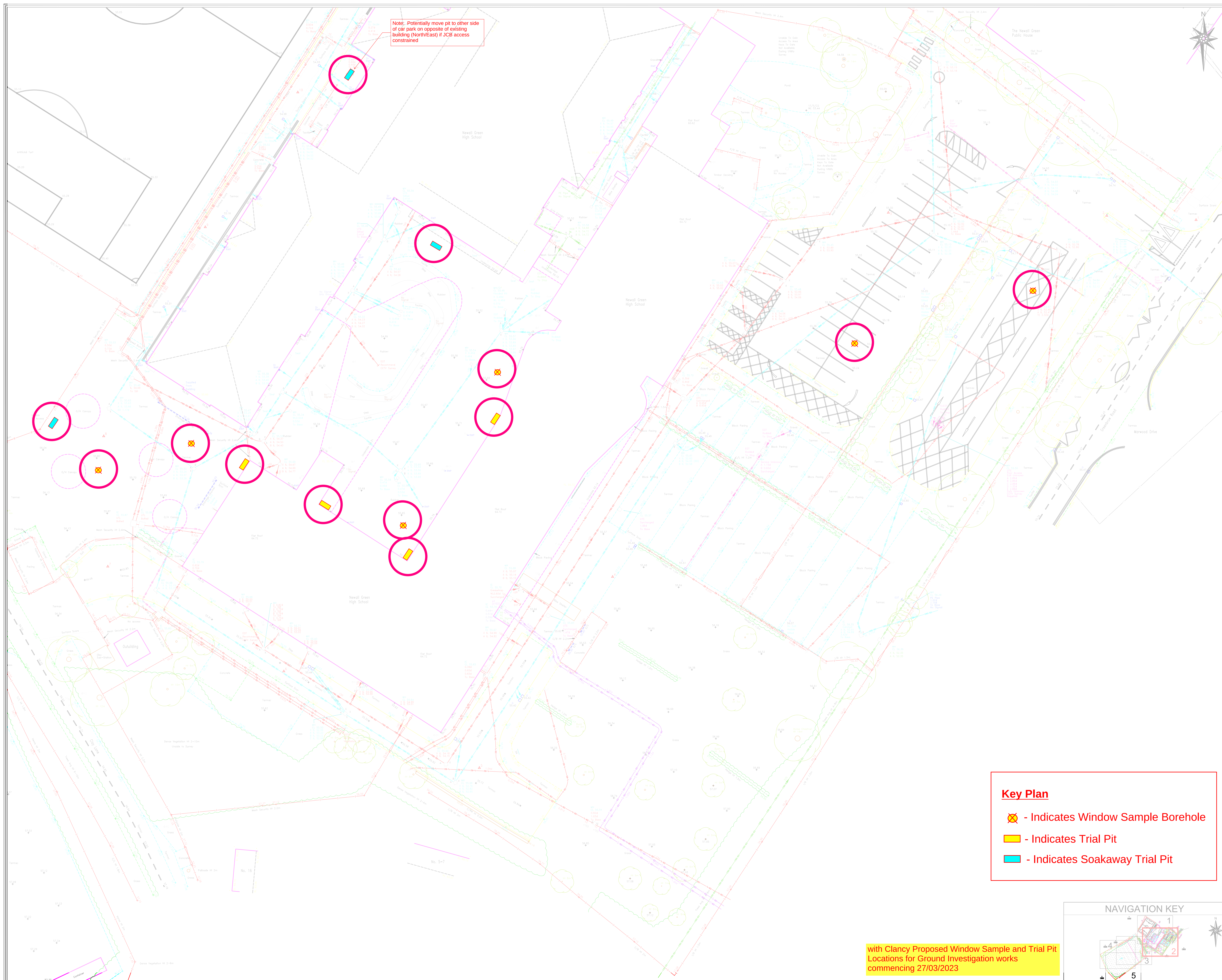


Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-8	XX
Type	Discipline	Drawing No.	Revision
D	C	5201	T01

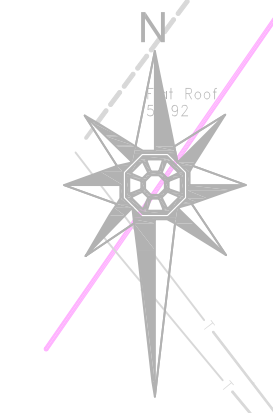
www.clancy.co.uk

Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-8	XX
Type	Discipline	Drawing No.	Revision
D	C	5201	T01

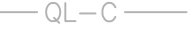
2. Exploratory Hole Location Plan and BRE Testing results.



NOTES:



UTILITY KEY

	ELECTRIC CABLE
	HY ELECTRIC CABLE
	ELECTRIC & COMMS CABLE
	HY DRINKING WATER
	TRAFFIC RING / CABLE
	TRADING SIGNAL CABLE
	TELECOM CABLE
	TELECOM & COMMS CAB
	IN SAME DUCT
	CABLE TELEVISION
	COMMUNICATION CABLE
	WATER PIPE
	GAS PIPE
	FOUL DRAINAGE
	CONTAMINATED SURFACE
	SURFACE DRAINAGE
	COMBINED DRAINAGE
	PUMPING MAIN
	FUEL PIPE
	VENT PIPE
	HEATING PIPES
	UNIDENTIFIED
	EMPTY DUCTS
	SERVICE DUCTS
	TRENCH SCAFF
	GROUND DEPRESSION
	SURVEY BOUNDARY

QL-A	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY AND ITS DETECTION BY ONE OR MORE LOCATOR WITHIN TRENCH PIT, I.C., H.M.S ETC
B-1	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY MULTIPLE GEOPHYSICAL TECHNIQUES USED
B-2	HORIZONTAL AND VERTICAL LOCATION OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUE USED
B-3	HORIZONTAL LOCATION ONLY OF THE UTILITY DETECTED BY ONE GEOPHYSICAL TECHNIQUES USED (PASSIVE)
B-4	A UTILITY SEGMENT WHICH IS SUSPECTED TO EXIST BUT HAS NOT BEEN DETECTED AND IS THEREFORE SHOWN BY AN ASSUMED LOCATION
QL-C	A SEGMENT OF UTILITY WHOSE LOCATION IS DEMONSTRATED BY VISUAL REFERENCE TO STREET FURNITURE, TOPOGRAPHICAL FEATURES OR EVIDENCE OF PREVIOUS STREET WORKS.
B-5	A SEGMENT OF UTILITY WHOSE LOCATION CANNOT BE DEMONSTRATED BY VISUAL REFERENCE TO STREET FURNITURE OR TOPOGRAPHICAL FEATURES AND HAS BEEN DERIVED SOLELY FROM RECORD PLANS

ABBREVIATIONS

AC	ASBESTOS CEMENT	LP	LAMP POST
AS	ASSUMED RUCK	ML	MANHOLE
BB	BASE BAND	MW	MONITORING WELL
BD	BAND BUCK	OH	OVERHEAD
BE	BENCH	OSA	OFF SURVEY AREA
BR	BRICK	PE	POLYETHYLENE
BTIC	BATTERY INSPECTION CHAMBER	PL	PLASTIC
CATV	CATV INSPECTION CHAMBER	PR	PIPER RISER
CBX	CONTROL BOX	PVC	POLYVINYL CHLORIDE
CD	COVER DEPTH	R	RODGING
CL	COVER LEVEL	RWP	RAIN WATER PIPE
CR	CABLE RISER	S	SOAKAWAY
CP	CUT POINT	SPUN IRON	STOP IRON
d	DEPTH	ST	STOP TAP
D	DUCTILE IRON	ST	STEEL
DP	DOWN PIPE	SV	STOP VALVE
ED	EMPTY DUCT	SW	SWITCH VALVE
ESC	EMERGENCY ESCAPE SCAR	SW	SOIL WENT PIPE
EOT	END OF TRACE	T	TRAPPED EJECT
ER	ERTHING ROD	TR	TAKEN FROM RECORD
ES	ELECTRICITY POLE	TRF	TRAFFIC
FI	FIRE HYDRANT	TP	TELEGRAPH POLE
FL	FLOOD LIGHT	UTCTV	UNABLE TO CIFY
FP	FLAME PENETRATING RADAR	UTL	UNABLE TO LIFT
GPR	GROUND PENETRATING RADAR	UTS	UNABLE TO SURVEY
GRP	GLASS REINFORCED PLASTIC	V	VITRIFIED CLAY
GV	GAZ VALVE	V	VENT PIPE
H	HIGH LEVEL	VR	VAPOUR RECOVERY
HU	HEAD OF RUN	W	WATER LEVEL
IC	INSPECTION CHAMBER	WM	WATER METER
IND	INLET LEVEL	WM	WASH OUT VALVE
ISWS	INTERIOR WATER SEWER		
CSWS	CONTAMINATED SURFACE WATER SEWER		
F	FOUL WATER SEWER		
FW	FOUL WATER SEWER		

[illegible]

CLIENT

Arcadis

PROJECT	Dixons Manchester Academy Newall Green High School Greenbrow Road Manchester M23 2SX
---------	---

TITLE	Underground Utility Survey (PAS128_14)
-------	---

AMETHYST
SURVEYS LIMITED

UTILITY | GPR | CCTV DRAINAGE | PAS:128
TOPOGRAPHICAL | RECORD SEARCHES
CONFINED SPACE ENTRY | CLEARANCE



DATE: 25-27/05/2022	JOB No: 14692
---------------------	---------------

DRAWING No:	14692_UG2	REV:	0
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APPROVED: CJW SCALE: 1:200 @ A0







Copyright Amethyst Surveys Ltd. 01/07/20

with Clancy Proposed Window Sample and Trial Pit Locations for Ground Investigation works commencing 27/03/2023

NAVIGATION KEY

The diagram shows a map of the study area with five numbered regions highlighted in different colors: 1 (pink), 2 (red), 3 (green), 4 (blue), and 5 (yellow). A compass rose is located in the top right corner, indicating North (N), South (S), East (E), and West (W). The map also shows various roads and landmarks, including the 'Mall' and 'Mall Road'.



STRUCTURAL SOILS LTD
INSITU TESTING REPORT



1774

Report No. 785391R.01(00)

Date 29-March-2023 Contract Dixons Academy, Wythenshaw

Client Clancy Consulting Ltd

Address Dunham Court
2 Dunham Road
Altrincham
Cheshire
WA14 4NX

For the Attention of Phil Hill

Order received 23-February-2023

Testing Started 27-March-2023

Testing Completed 28-March-2023

Client Reference CCL: 10-2250

Client Order No. 32109

Instruction Type Written

Tests marked 'Not UKAS Accredited' in this report are not included in the UKAS Accreditation Schedule for our Laboratory.

UKAS Accredited Tests

Not - UKAS Tests:

* 3 no. Soakaway Testing to BRE Digest 365

Please note that 3 fills in each pit was not achievable due to time constraints/ground conditions

The results represent the ground conditions at the specified locations and depths at the time of testing.

Please Note: Remaining samples will be retained for a period of one month from today and will then be disposed of.

Test were undertaken on samples 'as received' unless otherwise stated.

Opinions and interpretations expressed in this report are outside the scope of accreditation for this laboratory.

Structural Soils Ltd, The Potteries, Pottery Street, Castleford, WF10 1NJ Tel.01977552255. e-mail matthew.doran@soils.co.uk

TESTING VERIFICATION CERTIFICATE

The test results included in this report are certified as:-

ISSUE STATUS: **FINAL**

In accordance with the Structural Soils Ltd Laboratory Quality Management System, results sheets and summaries of results issued by the laboratory are checked by an approved signatory. The integrity of the test data and results are ensured by control of the computer system employed by the laboratory as part of the Software Verification Program as detailed in the Laboratory Quality Manual.

This testing verification certificate covers all testing compiled on or before the following datetime: **29/03/2023 12:03:04**.

Testing reported after this date is not covered by this Verification Certificate.



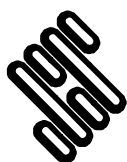
Approved Signatory
Matthew Doran (Site Testing Manager (North))

(Head Office)
Bristol Laboratory
Unit 1A, Princess Street
Bedminster
Bristol
BS3 4AG

Castleford Laboratory
The Potteries, Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Hemel Laboratory
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

Tonbridge Laboratory
Anerley Court, Half Moon Lane
Hildenborough
Tonbridge
TN11 9HU



**STRUCTURAL
SOILS LTD**

Contract:

Dixon Academy, Wythenshawe

Job No:

785391

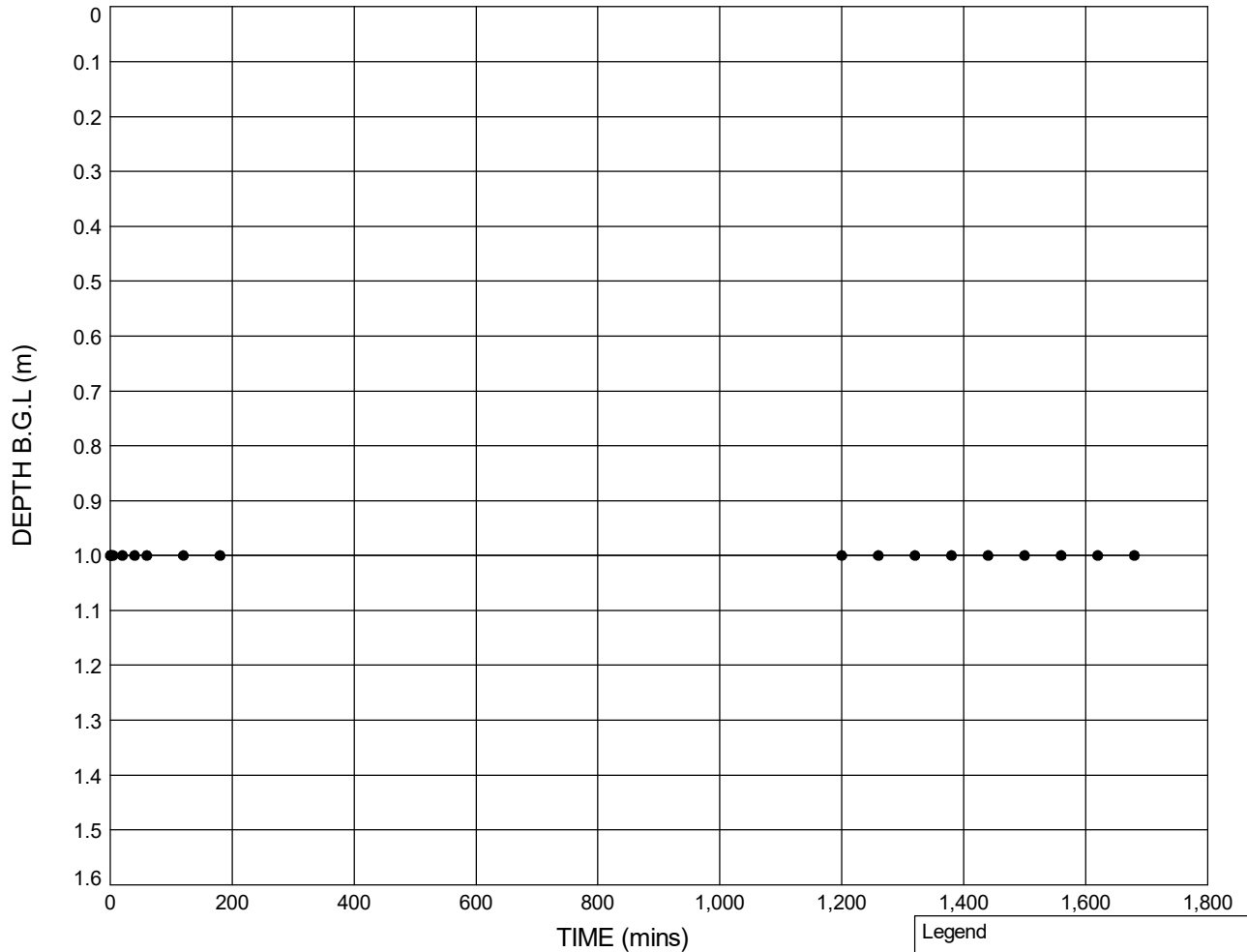


FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **SA01**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



Test 1

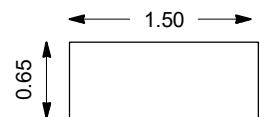
Pit start depth: = **1.65** m
 Pit final depth: = **1.65** m
 Effective depth, D_e = **0.65** m
 Effective storage volume, V_{p75-25} = **0.3169** m³
 Surface area, a_{s50} = **2.3725** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level.

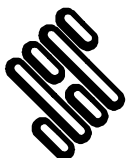
Legend

● Test 1 (27.03.23)

Plan (Not to scale)



No Bearing Taken



STRUCTURAL SOILS
 The Potteries
 Pottery Street
 Castleford
 W. Yorkshire WF10 1NJ

Compiled By

K. Flincher

Date

29/03/23

Checked By

M. Daw

Date

29/03/23

Contract

Dixon Academy, Wythenshawe

Contract Ref:

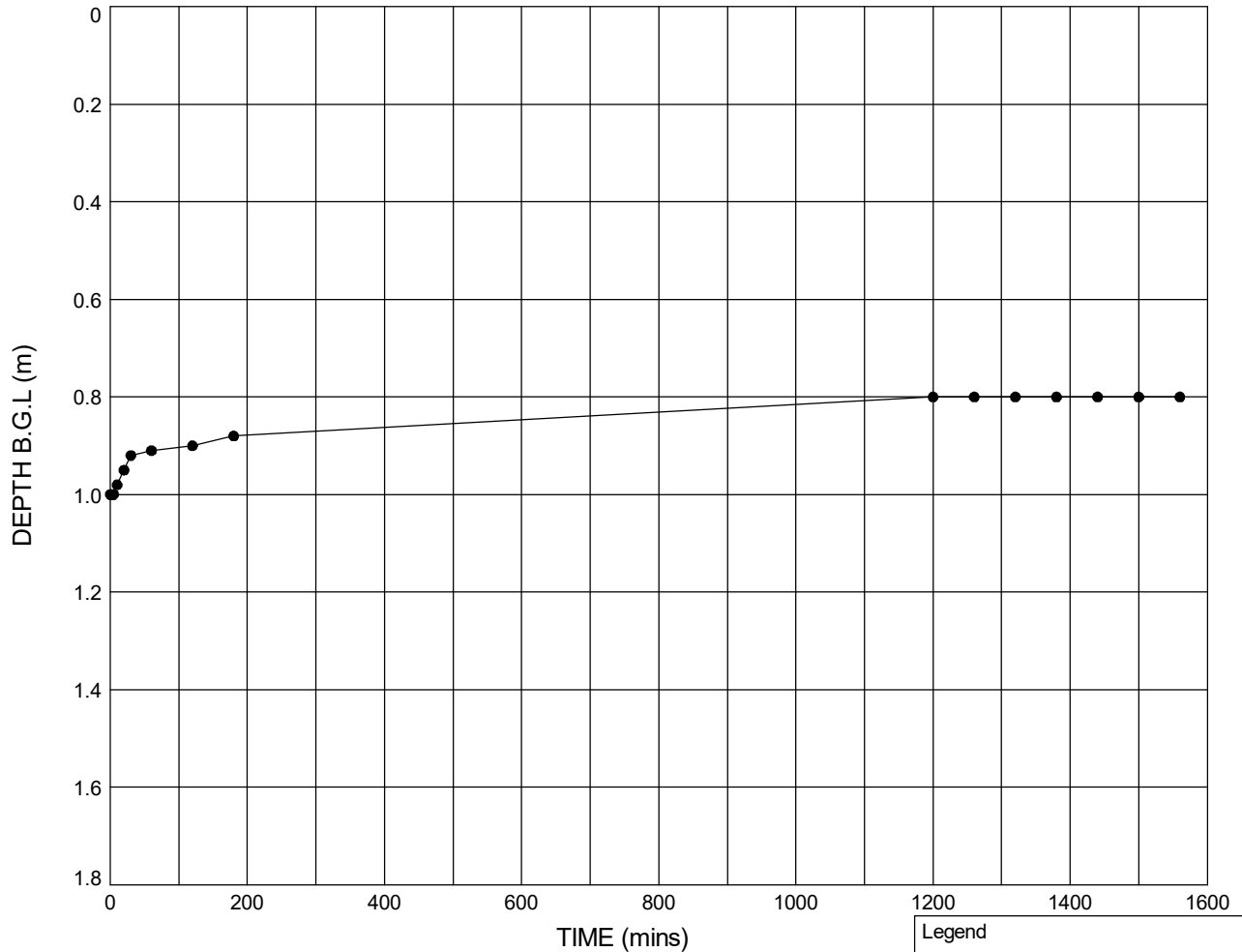
785391

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **SA02**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



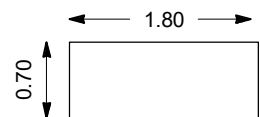
Pit start depth: = **1.70** m
 Pit final depth: = **1.70** m
 Effective depth, D_e = **0.70** m
 Effective storage volume, V_{p75-25} = **0.4410** m³
 Surface area, a_{s50} = **3.0100** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level.

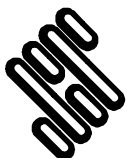
Legend

● Test 1 (27.03.23)

Plan (Not to scale)



No Bearing Taken



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 Castleford
 W. Yorkshire WF10 1NJ

Compiled By

K. L. W. M. Acher

Date

29/03/23

Checked By

M. D. Acher

Date

29/03/23

Contract

Dixon Academy, Wythenshawe

Contract Ref:

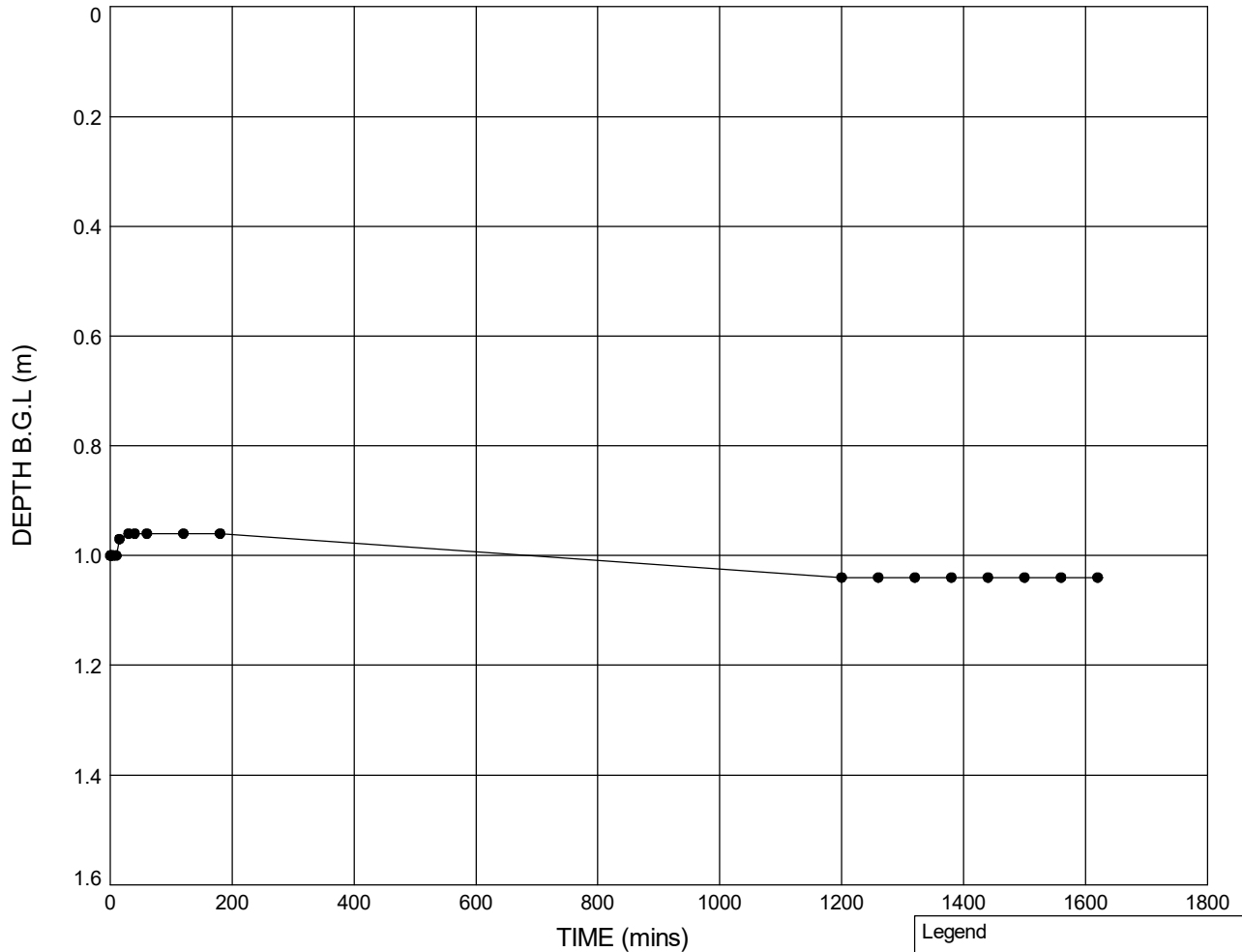
785391

FULL SCALE SOAKAWAY TEST

Non-standard test

Soakaway Test - Position ID : **SA03**

PLOT OF DEPTH OF WATER BELOW GROUND LEVEL AGAINST TIME



Test 1

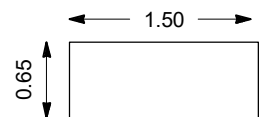
Pit start depth: = **1.65** m
 Pit final depth: = **1.65** m
 Effective depth, D_e = **0.65** m
 Effective storage volume, V_{p75-25} = **0.3169** m³
 Surface area, a_{s50} = **2.3725** m²
 Time, t_{p75-25} = **N/A** secs
 Infiltration rate, f = **N/A** m/s

Notes: Test 1 - Unable to calculate infiltration rate due to insufficient drop in water level.

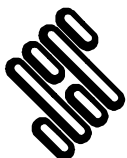
Legend

● Test 1 (27.03.23)

Plan (Not to scale)



No Bearing Taken



STRUCTURAL SOILS
 The Potteries
 Pottery Street
 Castleford
 W. Yorkshire WF10 1NJ

Compiled By

K. Flincher

Date

29/03/23

Checked By

M. Daw

Date

29/03/23

Contract

Dixon Academy, Wythenshawe

Contract Ref:

785391

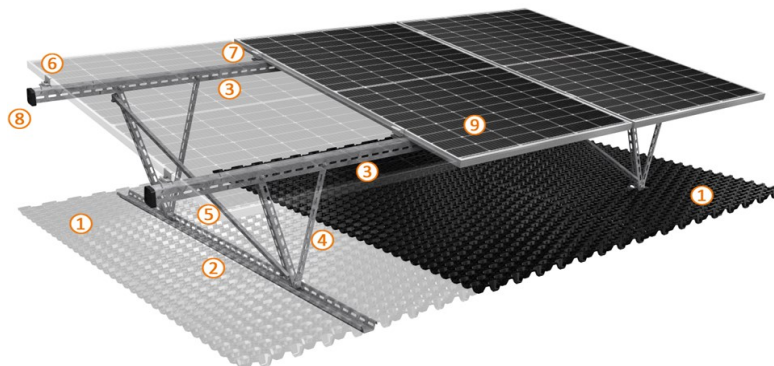
3. Bio-solar Green Roof

SYSTEM SUMMARY

BauderSOLAR G LIGHT

Biosolar mounting solution for photovoltaic modules

BauderSOLAR G LIGHT is an integrated solar PV mounting system for framed photovoltaic modules, specifically for Bauder biodiverse or extensive green roofs. This system can also be specified with the BauderBLUE STORMcell blue roof system.



Product	Description	Dimensions (mm)	Weight
1 BauderSOLAR DSE 40 anchor board	Modified DSE40 drainage board installed above base rails to ballast the mounting system	1040 x 2030	
2 BauderSOLAR BS-4 or BauderSOLAR BS-2 base rail	Powder coated steel base rail installed on protection layer and beneath DSE40 anchor board	3994 (BS-4) or 1994 (BS-2) x 36 x 72	
3 BauderSOLAR MTR Module carrier rail	Powder coated steel profile rail to support framed solar modules	4700 x 61.9 x 47.5	
4 BauderSOLAR VT 745 BauderSOLAR VT 545 V-beams	Pre-assembled V-shaped module carrier rail support manufactured from powder coated steel	745 x 399 x 54 545 x 343 x 54	
5 BauderSOLAR DLE diagonal profile	Support rail to add rigidity to mounting system—Powder coated steel	1245 x 30 x 15	
6 & 7 BauderSOLAR MKL (mid) or BauderSOLAR EKL (end)	Mid and end pre-assembled module clamps	n/a	
8 Module rail end cap	Polypropylene end cap to protect module mounting rail ends	n/a	
9 Solar module	Framed crystalline solar photovoltaic module	Variable	
Total system weight (kg/m²)*			176kg/m²

*Includes weight of Bauder BTRS roof system with 160mm PIR insulation and saturated Biodiverse green roof based on a substrate depth of 100mm

SYSTEM OPTIONS

Solar module options**		
Module	Efficiency	Size
JAM54S-30-405-MR	20.7%	1134mm x 1722mm
SOLARWATT Classic 4.0 405Wp	20.7%	1134mm x 1722mm

Recommended planting mix:

Name	Description
Bauder Flora 3 seed mix GB50120403	A broad mix of low growing and some shade tolerant species ideal, for most roof environments. Recommend for BioSOLAR installations.

**Bauder BioSolar is a universal mounting system. The listed modules are for reference only, please contact Bauder for advise on project specific module selection.

UNITED KINGDOM

Bauder Ltd
70 Landseer Road, Ipswich, Suffolk IP3 0DH
T: +44 (0)1473 257671 E: info@bauder.co.uk
bauder.co.uk

IRELAND

Bauder Ltd
O'Duffy Centre, Carrickmacross, Co. Monaghan
T: +353 (0)42 9692 333 E: info@bauder.ie
bauder.ie

BauderGREEN – extensive green roof

Seeded native wildflower system

The BauderGREEN seeded system uses Bauder's flora seed mixes to establish the vegetation on a green roof. Bauder have 5 different native wildflower mixes giving various habitat creation options which are significantly cheaper and easier to install than a vegetation blanket or plugged solution. It allows the establishment of vegetation deliberately designed to give a long flowering season, it is fully GRO and FLL compliant. This system is suitable for both new build construction and refurbishment applications on $\leq 5^\circ$ pitch.

	Function	Product name	Thickness (mm)	Weight (kg/m ²)	Indicative extensive green roof system - seeded
1	Wildflower seed*	BauderGREEN flora seed mixes. (5 options)	Height and weight varies with season		
2	Growing medium	BauderGREEN SUB-BM UK biodiverse substrate	100+	120	
3	Filtration layer	FV 125 filter fleece	20	0.13	
4	Drainage Layer	DSE 40 drainage board	40	15.3	
5	Protection Layer	FSM 600 protection mat	4	3.6	
6	Underlying Waterproofing	Bauder's underlying waterproofing system	Not included	Not included	
System build-up (saturated)			164+	139	
*Bauder supply various green roof systems to meet required biodiverse targets and other green roof requirements					
In-depth and up-to-date product specific technical data is available for each element within a system. Download from our website bauder.co.uk/technical-centre					
Please note: All green roofs require water during times of drought. Bauder recommend that the watering and maintenance of this roof is considered and addressed during its design.					



System summary



Characteristics of the system

- Ideally suited to native biodiverse green roofs where habitat creation is the primary goal and a more natural finish is required.
- Bauder Flora seed mixes Include: a shade tolerant mix, Urban mix, Chalk grassland mix, Coastal mix and Scottish mix. The mixes can be combined with plugs to introduce key species to the design.
- All seed mixes are Buglife approved, RHS - Perfect for Pollinators. Seed is collected in line with Flora Locale guidelines.
- The SUB-BM biodiverse substrate is a lightweight growing medium for biodiverse green roof planting schemes manufactured to GRO and FLL guidelines and tested to BS8616 (Ideally substrate depths should be 100mm+ to give greater drought resistance)
- DSE 40 is a lightweight water storage and drainage layer made of 100% recycled HDPE.
- FSM 600 is 100% recycled Polyester and polypropylene fibre mix protection layer to prevent mechanical damage to the underlying waterproofing.
- System can be laid on any of the various Bauder waterproofing solutions: Bituminous Membrane, Hot Melt, Single-ply or Cold applied liquid systems.
- Comprehensive guarantee packages to meet project requirements. Bauder's "Green Roof Promise" is available for this system.

Accreditations and approvals



System variations are available to the specifier so that a tailored solution meets the needs of the building. The selection of products should be confirmed with our technical department to ensure suitability for the individual construction requirements of the flat roof.

E: technical@bauder.co.uk

T: 01473 257671

OPTIONS AVAILABLE

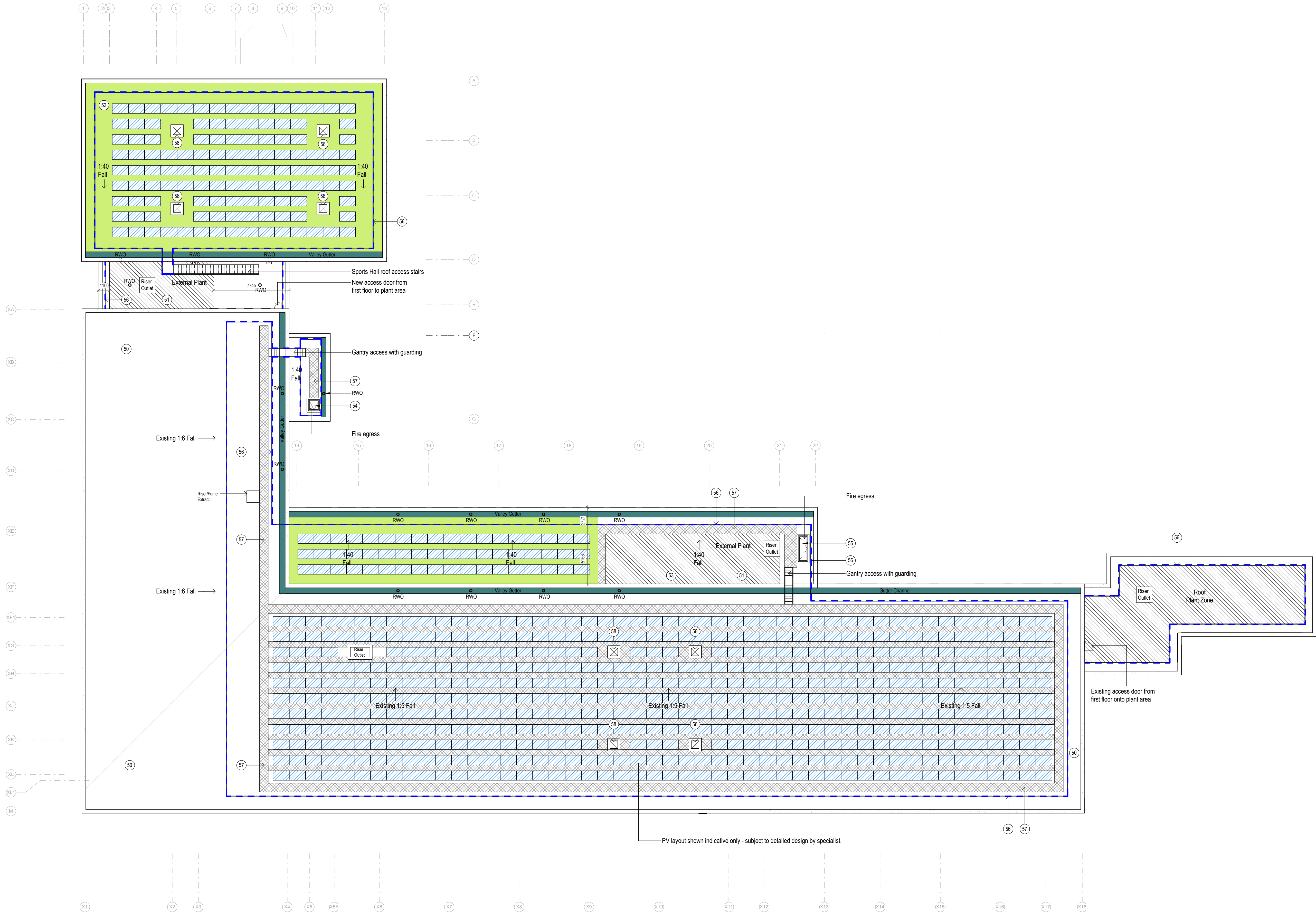
Bauder supply a number of green roof solutions for flat and pitched roofs. Including sedum, wildflower and biodiverse vegetation. Further details can be found on our website: <https://www.bauder.co.uk/technical-centre/system-summaries/green-roof-systems>

In depth and up-to-date product specific technical data is available for each component within a system.

System fire performance

The system arrangements tested, verified, and that achieve industry standards for fire performance are defined in the relevant BBA certificate. Please ensure you are aware of which permutations currently have a stated performance against fire by viewing and downloading the BBA certificate from our website [bauder.co.uk/technical-centre](https://www.bauder.co.uk/technical-centre)

Bauder continually tests its systems for fire performance and so if the permutation of products you are specifying is not stated in our latest BBA certificate please contact technical@bauder.co.uk for clarification.



Notes:

- This drawing is copyright.
- Do not scale dimensions from this drawing.
- This drawing is to be read in conjunction with all other relevant drawings.
- All discrepancies on this drawing are to be reported to the architect.
- Do not modify any element of this drawing.
- Use drawing only for purpose(s) issued.
- This drawing may contain colour.

Scale Bar

0 2m 6m 10m

Scale: 1:200

North Point

Key Plan

Hazard

HAZ-xx

To warn of significant hazards or information that is unusual

To be read in conjunction with all other consultant's information

Refer to CDM Schedule XXXX-IBI-WB-XX-SH-A-200-XXXX

The following external model files are included within this drawing:

KEY		
	Plant Zones	
	PV maintenance walkway tiles	
	PV solar panels zone	
	Counter weight balustrade	
	Valley Gutter Zone	
	New BioSolar Roof	

ROOF MATERIALS KEY		
50	Reinforced bitumen membrane. BauderSolar PV system.	NBS XXX.XXX
51	Inverted roof with paving and ballast	NBS XXX.XXX
52	Green Roof over Sports Hall. DauderRock Acoustic Trough Filters. Bauder BioSolar and Biodiverse system	NBS XXX.XXX
53	Green Roof over Teaching Block. Bauder BioSolar and Biodiverse system.	NBS XXX.XXX
54	Roof Access Hatch and Ladder system	NBS XXX.XXX
55	Service Stair Access	NBS XXX.XXX
56	Counter weight balustrade	NBS XXX.XXX
57	Slip resistant walkway tiles for maintenance access	NBS XXX.XXX
58	Wind catcher vent	NBS XXX.XXX

Overall Total Solar Panels including maintenance access to existing roof = 1321 m²

P05	17/04/23	Grid added	EA	CP
P04	14/04/23	M&E coordination to Roof Plan	AJ	EA
P03	Date 20	RIBA Stage 3	WL	EA
P02	24/03/23	Stage approval	WL	EA
P01	02/03/23	INFORMATION	AJ	EA
Rev	Date	Revision Notes	Drawn	Review

Project

Dixons Newall Green Academy

Drawing Title

Roof Plan

Job Number	Date	Security Classification	Drawn By
142037	07/03/2023		AJ
Scale@A1	Purpose	Reviewed By	
As indicated	Suitable for Stage Approval	EA	
Drawing Number	Revision	Suitability	
FS0998-IBI-A-2-RL-D-A-3103	P05	S4	

4. Hydraulic Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	1	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.070	5.00	55.690	600	380813.781	387445.578	1.390
S5	0.034	5.00	55.300	600	380827.824	387500.686	1.425
S6	0.037	5.00	55.690	600	380849.314	387464.080	1.522
S8	0.022	5.00	55.690	600	380859.694	387480.264	1.714
S9	0.053	5.00	55.500	600	380841.312	387492.055	1.742
S10	0.168	5.00	55.200	1200	380841.487	387509.000	1.550
TANK	0.000		55.400	1200	380833.732	387496.906	1.807
FCC	0.000		55.600	1200	380825.835	387484.587	2.066
OF	0.000		55.700		380821.249	387483.851	2.200

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S1	S9	54.019	0.600	54.300	53.982	0.318	170.0	225	5.90	43.3
1.001	S9	TANK	8.999	0.600	53.758	53.668	0.090	100.0	225	6.02	42.9
2.000	S6	S8	19.227	0.600	54.168	53.976	0.192	100.0	225	5.25	45.7
2.001	S8	S9	21.839	0.600	53.976	53.758	0.218	100.0	225	5.52	44.7
4.000	S10	TANK	14.367	0.600	53.650	53.593	0.057	250.0	300	5.24	45.7
5.000	S5	TANK	7.014	0.600	53.875	53.805	0.070	100.0	225	5.09	46.3
1.002	TANK	FCC	14.633	0.600	53.593	53.534	0.059	250.0	300	6.26	42.1
1.003	FCC	OF	4.645	0.600	53.534	53.500	0.034	136.6	300	6.32	41.9

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.000	39.7	8.2	1.165	1.293	0.070	0.0	69	0.790
1.001	1.307	52.0	21.2	1.517	1.507	0.182	0.0	100	1.241
2.000	1.307	52.0	4.6	1.297	1.489	0.037	0.0	45	0.814
2.001	1.307	52.0	7.1	1.489	1.517	0.059	0.0	56	0.920
4.000	0.990	70.0	20.8	1.250	1.507	0.168	0.0	112	0.865
5.000	1.307	52.0	4.3	1.200	1.370	0.034	0.0	44	0.796
1.002	0.990	70.0	43.8	1.507	1.766	0.384	0.0	173	1.043
1.003	1.343	94.9	43.7	1.766	1.900	0.384	0.0	143	1.315

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	54.019	170.0	225	Circular	55.690	54.300	1.165	55.500	53.982	1.293
1.001	8.999	100.0	225	Circular	55.500	53.758	1.517	55.400	53.668	1.507
2.000	19.227	100.0	225	Circular	55.690	54.168	1.297	55.690	53.976	1.489
2.001	21.839	100.0	225	Circular	55.690	53.976	1.489	55.500	53.758	1.517
4.000	14.367	250.0	300	Circular	55.200	53.650	1.250	55.400	53.593	1.507
5.000	7.014	100.0	225	Circular	55.300	53.875	1.200	55.400	53.805	1.370
1.002	14.633	250.0	300	Circular	55.400	53.593	1.507	55.600	53.534	1.766
1.003	4.645	136.6	300	Circular	55.600	53.534	1.766	55.700	53.500	1.900

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	600	Manhole	Adoptable	S9	600	Manhole	Adoptable
1.001	S9	600	Manhole	Adoptable	TANK	1200	Manhole	Adoptable
2.000	S6	600	Manhole	Adoptable	S8	600	Manhole	Adoptable
2.001	S8	600	Manhole	Adoptable	S9	600	Manhole	Adoptable
4.000	S10	1200	Manhole	Adoptable	TANK	1200	Manhole	Adoptable
5.000	S5	600	Manhole	Adoptable	TANK	1200	Manhole	Adoptable
1.002	TANK	1200	Manhole	Adoptable	FCC	1200	Manhole	Adoptable
1.003	FCC	1200	Manhole	Adoptable	OF		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	380813.781	387445.578	55.690	1.390	600				
						0	1.000	54.300	225
S5	380827.824	387500.686	55.300	1.425	600				
						0	5.000	53.875	225
S6	380849.314	387464.080	55.690	1.522	600				
						0	2.000	54.168	225
S8	380859.694	387480.264	55.690	1.714	600				
						1	2.000	53.976	225
S9	380841.312	387492.055	55.500	1.742	600				
						0	2.001	53.976	225
						1	2.001	53.758	225
						2	1.000	53.982	225
						0	1.001	53.758	225
S10	380841.487	387509.000	55.200	1.550	1200				
						0	4.000	53.650	300
TANK	380833.732	387496.906	55.400	1.807	1200				
						1	5.000	53.805	225
						2	4.000	53.593	300
						3	1.001	53.668	225
						0	1.002	53.593	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
FCC	380825.835	387484.587	55.600	2.066	1200		1	1.002	53.534 300
OF	380821.249	387483.851	55.700	2.200			0 1	1.003 1.003	53.534 53.500 300

Simulation Settings

Rainfall Methodology	FSR	Drain Down Time (mins)	240
FSR Region	England and Wales	Additional Storage (m³/ha)	0.0
M5-60 (mm)	17.000	Check Discharge Rate(s)	✓
Ratio-R	0.400	1 year (l/s)	99.5
Summer CV	0.750	30 year (l/s)	232.2
Winter CV	0.840	100 year (l/s)	292.6
Analysis Speed	Normal	Check Discharge Volume	✓
Skip Steady State	x	100 year 360 minute (m³)	321

Storm Durations

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	45	10	0
30	0	0	0				

Pre-development Discharge Rate

Site Makeup	Brownfield	CV	1.000	Q 30 year (l/s)	232.2
Brownfield Method	MRM	Time of Concentration (mins)	5.00	Q 100 year (l/s)	292.6
Contributing Area (ha)	0.590	Betterment (%)	0		
PIMP (%)	100	Q 1 year (l/s)	99.5		

Pre-development Discharge Volume

Site Makeup	Brownfield	CV	1.000	Betterment (%)	0
Brownfield Method	MRM	Return Period (years)	100	PR	1.000
Contributing Area (ha)	0.590	Climate Change (%)	0	Runoff Volume (m³)	321
PIMP (%)	100	Storm Duration (mins)	360		

Node FCC Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	53.534	Product Number	CTL-SHE-0109-5000-0800-5000
Design Depth (m)	0.800	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	5.0	Min Node Diameter (mm)	1200

Node TANK Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	53.593
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	275.0	0.0	0.750	275.0	0.0	0.751	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.80%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	11	54.369	0.069	8.3	0.0194	0.0000	OK
15 minute winter	S5	10	53.920	0.045	4.1	0.0126	0.0000	OK
15 minute winter	S6	10	54.212	0.044	4.4	0.0124	0.0000	OK
15 minute winter	S8	10	54.031	0.055	6.9	0.0155	0.0000	OK
15 minute winter	S9	11	53.866	0.108	20.6	0.0306	0.0000	OK
15 minute winter	S10	6	53.817	0.167	20.0	0.1889	0.0000	OK
120 minute winter	TANK	90	53.688	0.095	14.6	24.9610	0.0000	OK
120 minute winter	FCC	90	53.687	0.153	4.9	0.1732	0.0000	OK
15 minute summer	OF	1	53.500	0.000	4.5	0.0000	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S9	7.9	0.784	0.199	0.5463	
15 minute winter	S5	5.000	TANK	4.0	0.753	0.078	0.0376	
15 minute winter	S6	2.000	S8	4.3	0.677	0.083	0.1234	
15 minute winter	S8	2.001	S9	6.8	0.530	0.130	0.2871	
15 minute winter	S9	1.001	TANK	20.8	1.170	0.399	0.1597	
15 minute winter	S10	4.000	TANK	20.1	1.472	0.287	0.2911	
15 minute winter	TANK	1.002	FCC	5.7	0.379	0.081	0.2981	
120 minute winter	FCC	Hydro-Brake®	OF	4.8				39.7

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.80%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	11	54.413	0.113	20.4	0.0321	0.0000	OK
15 minute winter	S5	10	53.947	0.072	9.9	0.0203	0.0000	OK
15 minute winter	S6	10	54.238	0.070	10.8	0.0199	0.0000	OK
15 minute winter	S8	10	54.063	0.087	17.1	0.0247	0.0000	OK
15 minute winter	S9	11	53.981	0.223	51.3	0.0631	0.0000	OK
120 minute winter	S10	116	53.873	0.223	15.5	0.2521	0.0000	OK
120 minute winter	TANK	116	53.873	0.280	35.1	73.4270	0.0000	OK
120 minute winter	FCC	116	53.872	0.338	5.3	0.3828	0.0000	SURCHARGED
15 minute summer	OF	1	53.500	0.000	5.0	0.0000	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S9	19.7	0.998	0.496	1.0674	
15 minute winter	S5	5.000	TANK	9.8	0.956	0.189	0.0720	
15 minute winter	S6	2.000	S8	10.7	0.861	0.205	0.2387	
15 minute winter	S8	2.001	S9	16.8	0.623	0.323	0.5868	
15 minute winter	S9	1.001	TANK	50.6	1.399	0.973	0.3303	
15 minute winter	S10	4.000	TANK	48.7	1.775	0.696	0.4930	
15 minute summer	TANK	1.002	FCC	9.7	0.453	0.139	0.6778	
240 minute summer	FCC	Hydro-Brake®	OF	5.0				103.5

Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.80%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	11	54.765	0.465	41.9	0.1315	0.0000	SURCHARGED
240 minute winter	S5	236	54.313	0.438	3.9	0.1238	0.0000	SURCHARGED
15 minute winter	S6	11	54.561	0.393	22.2	0.1112	0.0000	SURCHARGED
15 minute winter	S8	11	54.521	0.545	33.1	0.1543	0.0000	SURCHARGED
15 minute winter	S9	11	54.410	0.652	102.5	0.1846	0.0000	SURCHARGED
240 minute winter	S10	236	54.313	0.663	19.5	0.7493	0.0000	SURCHARGED
240 minute winter	TANK	236	54.313	0.720	43.6	188.7905	0.0000	SURCHARGED
240 minute winter	FCC	236	54.312	0.778	5.3	0.8800	0.0000	SURCHARGED
15 minute summer	OF	1	53.500	0.000	5.0	0.0000	0.0000	OK
Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	S1	1.000	S9	39.7	1.044	1.000	2.1484	
15 minute winter	S5	5.000	TANK	20.2	1.147	0.389	0.1600	
15 minute winter	S6	2.000	S8	20.7	0.892	0.398	0.7647	
15 minute winter	S8	2.001	S9	32.9	0.827	0.633	0.8686	
15 minute winter	S9	1.001	TANK	102.5	2.576	1.971	0.3579	
15 minute winter	S10	4.000	TANK	98.1	1.976	1.403	1.0117	
15 minute summer	TANK	1.002	FCC	12.9	0.478	0.185	1.0304	
15 minute winter	FCC	Hydro-Brake®	OF	5.0				73.2

5. Overland Flow Plan



KEY:
OVERLAND FLOW ROUTE
SITE OWNERSHIP



P01	24.03.23	PRELIMINARY	CD	DS	DS
Rev	Date	Description	By	Check	App.

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Client	MORGAN SINDALL CONSTRUCTION
Project	DIXON NEWALL GREEN ACADEMY
Office	ALTRINCHAM
Discipline	CIVIL
Title	OVERLAND FLOW PLAN

Scale @ A1	NTS	Status	PRELIMINARY
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Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-8	XX
Type	Discipline	Drawing No.	Revision
D	C	5203	P01

DRAWINGS BASED ON THE FOLLOWING INFORMATION
• TOPOGRAPHICAL SURVEY - 14692-TOPO-2D
• SITE LAYOUT - FS0998-IBI-A-14-XX-D-L-7010 & 7011

6. UU Correspondence

Carl Dawson

From: wastewaterdeveloperservices@uuplc.co.uk
Sent: 01 March 2023 08:22
To: Carl Dawson
Subject: RE: Our reference - 03629709 Dixon (New Green) Academy

Good morning Carl,

Pre Development Enquiry for: Dixon Academy School Greenbrow Rd, Manchester M23 2SX UU **Reference Number : 03629709**

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

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

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

Foul Water

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

Our preferred point of discharge would be to the 525mm diameter public combined sewer located to the east of your proposed development at an unrestricted rate. It is understood the existing connection is to be utilised which is acceptable in principle, please ensure the private sewers are in good condition. Please ensure the proposed building levels are higher than the receiving sewer cover levels.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

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

This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**

4. to a combined sewer.

For guidance, The [North West SuDS Pro-Forma](#) provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Surface water runoff generated from this development should discharge to the ground via infiltration system where feasible.

A detailed evidence based feasibility assessment must be carried out in line with Chapter 25 of the CIRIA SuDS Manual 2015 to determine whether infiltration is a suitable method of surface water disposal.

Particular attention must be paid to Ground Water Source Protection Zones to ensure that the risk of pollution to these valuable resources is not compromised. Details can be obtained from the government website:

<https://www.gov.uk/guidance/groundwater-source-protection-zones-spzs#find-groundwater-spzs>

If your site is in a Groundwater Source Protection Zone, you should have regard to the Environment Agency's approach to Groundwater Protection. Information on this is available via the link below:

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

Please note that such a location could have implications for the principle of your development and the need for additional mitigating measures to protect the groundwater environment and public water supply in the detailed design of your site.

Waterbody

It is understood that there are no chartered watercourse within the vicinity of the site.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 525mm diameter public combined sewer located east of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 34l/s. Please could you provide evidence for

the existing surface water connection to the sewer and ensure the existing connection you intend to reuse is in good condition. Is there a new proposed sport pitch please could you confirm?

As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

According to our public sewer records there are public sewers located within your site boundary. We will require unrestricted access to the sewer for maintenance purposes, we would ask that you maintain a minimum clearance of 6m which is measured 3m from the centre line of the pipe unless there happens to be a formal easement agreement in place, in which case the specified easement width would apply. If you cannot achieve this then you may wish to consider diverting and or abandoning the public sewer.

Please be aware that any proposed diversion may require modelling. This process may take up to 6 months in order to reach an acceptable design.

Please refer to the link below to obtain full details of the processes involved with sewer diversions:

<https://www.unitedutilities.com/builders-developers/larger-developments/wastewater/sewer-diversions/>

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address:

DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/>

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

<https://www.unitedutilities.com/builders-developers/wastewater-services/sewer-connections/sewer-connection/>

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any

proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind regards,

Shoaib.



Shoaib Tauqeer
Developer Engineer
Developer Services & Metering
M: 07876745601
unitedutilities.com

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----- Original Message -----

From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]

Sent: 16/02/2023 11:50

To: carl.dawson@clancy.co.uk

Subject: Our reference - 03629709 Dixon (New Green) Academy



Good Morning Carl

PRE DEVELOPMENT APPLICATION AT: Dixon (New Green) Academy
UU Ref: 03629709

Please accept this email as receipt of your application received on 15/02/2023 for the above development. This has now been logged on our system and the job reference is 03629709 we would ask that you quote this reference in all future correspondence.

I have reviewed your application (and attachments) and can confirm this is suitable to be passed to Shoaib Tauqeer for technical assessment. You will receive their response within 8 working days.

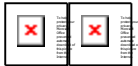
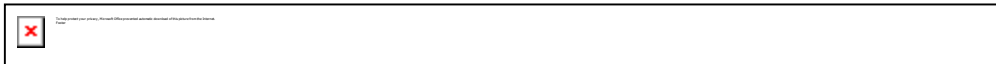
Kind regards



Amanda Harding
Customer Advisor Advanced
Developer Services & Metering
Customer Services
Direct Tel: 01925 233186
Tel: 0345 072 6067
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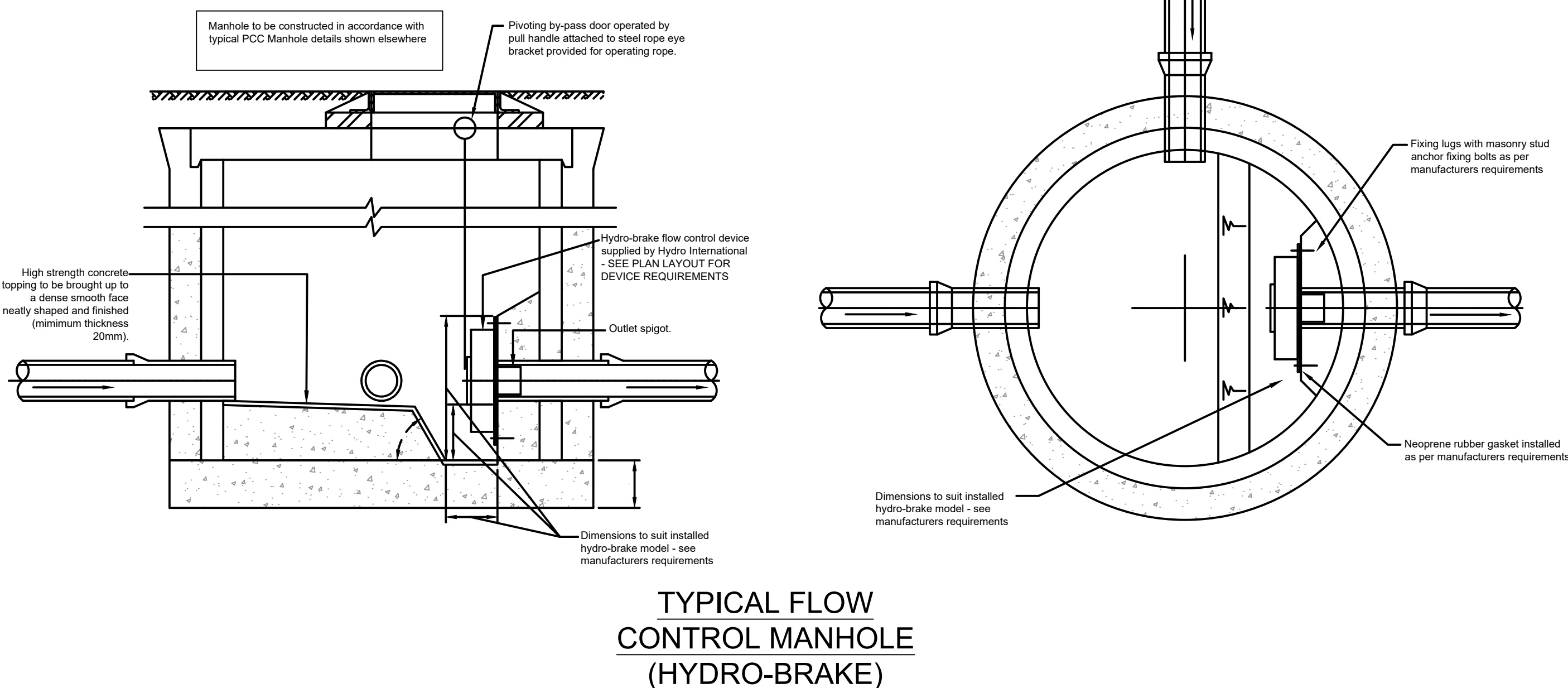
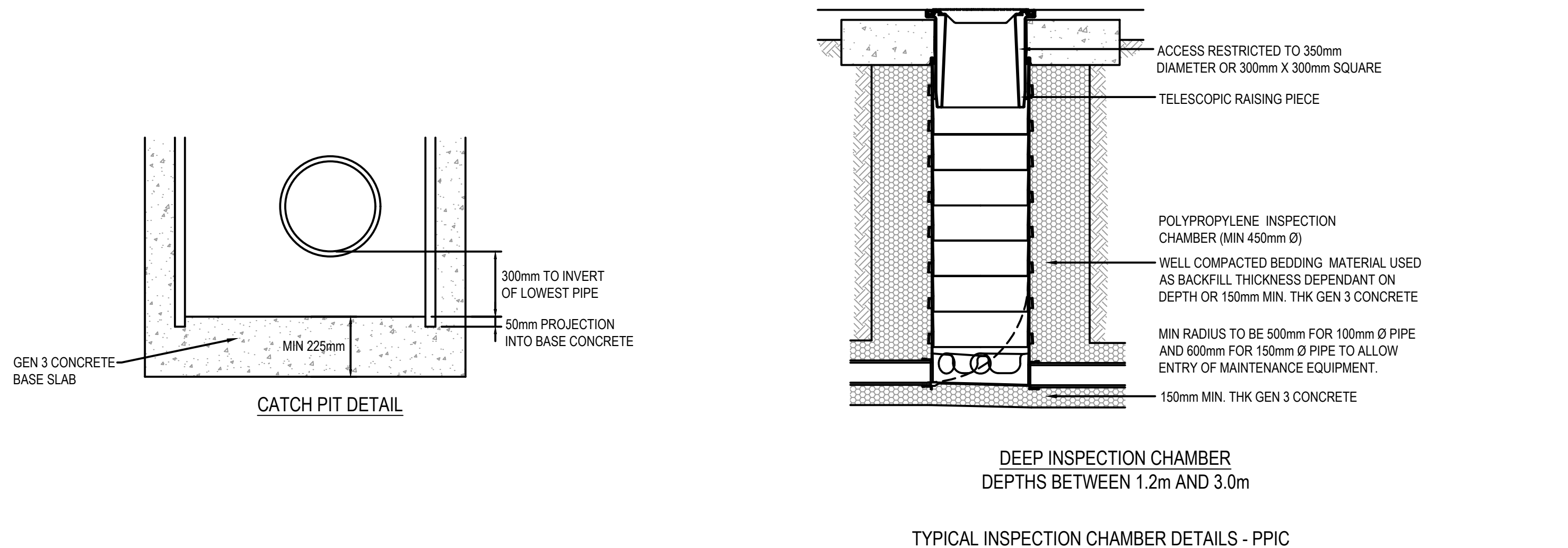
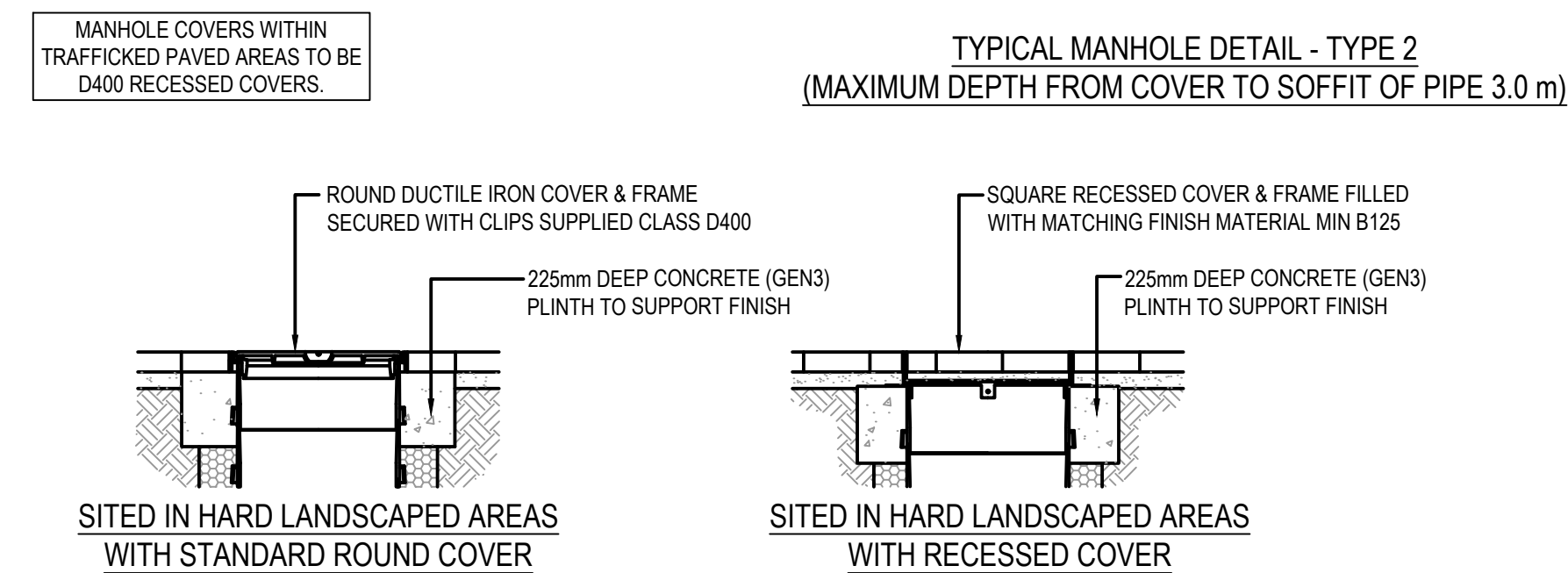


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7. Drainage Details



DO NOT SCALE THIS DRAWING.

ALL MANHOLES ARE IN LINES UNLESS NOTED OTHERWISE. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS AND ALL DISCREPANCIES ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO COMMENCING ANY WORKS SHOWING.

ALL MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL COUNCILS BUILDING CONTROL, OR ANY OTHER RELEVANT STANDARDS VIZ:

ALL PROPRIETARY PRODUCT TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS, INSTRUCTIONS AND TEST DETAILS SHALL TAKE.

DRAINAGE NOTES:

NO WORK SHOULD COMMENCE ON SITE UNTIL WRITTEN APPROVAL IS RECEIVED FROM THE ADAPTING HIGHWAY AUTHORITY, ADAPTING SEWERAGE UNDERTAKERS, ENVIRONMENTAL AGENCIES AND ANY OTHER RELEVANT AUTHORITY WORKS TO BE UNDERTAKEN PRIOR TO APPROVAL ARE AT THE DEVELOPERS RISK AND CLANCY COULD BE HELD RESPONSIBLE FOR SUBSEQUENT DELAYS IN APPROVALS, REMEDIAL COSTS OR DELAYS.

ALL INVERT LEVELS OF EXISTING FLOO AND SURFACE WATER SYSTEMS ARE TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY ON SITE WORK. ANY DISCREPANCIES IN LEVELS ARE TO BE REPORTED IMMEDIATELY TO CLANCY CONSULTING AGREED.

ALL SEWERS, UNLESS LIMITED OTHERWISE, SHALL: BE 150MM DIA TO VITRIFIED CLAY PIPE TO CLASS 1200/1500 225MM DIA TO BE VITRIFIED CLAY PIPE TO CLASS 1500/1500 300MM DIA TO BE VITRIFIED CLAY PIPE TO CLASS 1500/1500 375MM DIA AND GREATER TO BE CLASS 1200 CONCRETE PIPES.

ALL VITRIFIED CLAY PIPES TO BS EN 205-1 ALL CONCRETE PIPES TO BS EN 206-1 ALL CONCRETE MANHOLES TO BS EN EN1917.

150MM DIAM CONNECTIONS FROM MAIN SEWERS TO ADAPTATION CHAMBER TO BE LATERAL DIA MINIMUM UNDO AND CONSTRUCTED TO COMMODATE STANDARDS.

FIRST PIPE OUT OF MANHOLES TO BE AS SHORT AS PRACTICABLE SO AS TO PROVIDE A MINIMUM OF 100MM COVER TO THE TOP OF THE CONCRETE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.

ALL PIPE DIMENSIONS GIVEN ARE NOMINAL INTERNAL PIPE DIMETERS.

ALL SEWER WORKS TO COMPLY WITH WORK/ SEWERS FOR ADAPTER (6TH EDITION), STVS REQUIREMENTS AND KITE-MARKED EQUIPMENT SIMILAR APPROVED WHERE PROVIDED BY THE CONTRACTOR. ALL CONCRETE WORKS TO COMPLY WITH BS 5911 PARTS 85 EN 1920 WHERE THE CLEARING OF THE OPENING OF THE CONCRETE MANHOLE COVER SHALL CARRY THE BS KITE-MARKED AND SHALL COMPLY WITH BS 5911 PARTS 85 EN 1920 WHERE THE CLEARING OF THE OPENING OF THE KITE-MARKED COVER SHALL BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN AS SPECIFIED BY THE CONTRACTOR OR LESS THAN THAT SPECIFIED BY THE SYSTEMS ASSOCIATION (CPA) TECHNICAL BULLETIN (ISSUED JULY 2004) FOR KITE-MARKED COVER SLAB OPENINGS.

SUBSTITUTE RESISTANT CEMENT (C20/25) AND PRECAST CONCRETE CONCRETE SHALL BE USED OR A LABORATORY REPORT PROVIDED TO PROVE THAT SUCH PRECAUTIONS ARE NOT REQUIRED.

ADAPTABLE SEWER PIPES SHALL BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB BARS AND 1.5M FROM ANY OTHER PIPING SYSTEMS.

SEWERS SHALL HAVE 50M CLEARANCE FROM TREES AND HEDGES OR TO HAVE SUITABLE ROOF PROTECTION IN ACCORDANCE WITH THE SF 6/17 REQUIREMENTS.

ALL PIPES TO HAVE CLASS "S" GRANULAR BED AND SURROUND UNLESS OTHERWISE SPECIFIED. ALL PIPES TO BE Laid IN ACCORDANCE WITH THE SF 6/17 REQUIREMENTS (VIZ 4.08-4.02 (TABLE 4) WHERE DEPTH OF COVER TO TOP OF SEWER LESS THAN 1.5M SHALL BE 150MM OR LESS THAN THAT SPECIFIED BY THE SYSTEMS ASSOCIATION (CPA) TECHNICAL BULLETIN (ISSUED JULY 2004) FOR KITE-MARKED COVER SLAB OPENINGS).

ALL SEWER TRENCHES AND BRANCH CONNECTIONS TO BE BACKFILLED WITH SUITABLE MATERIAL IN LAYERS NOT EXCEEDING 225MM UNCONSOLIDATED THICKNESS PER LAYER.

ADAPTABLE SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS THERE IS A SPECIFIC OPERATIONAL NEED TO LAID LONGER LENGTHS.

PLASTIC CHAMBER SECTIONS WILL NOT BE PERMITTED WITH MANHOLE CHAMBERS AND SEWERAGE TO BE USED WITH MANHOLES FOR PIPE SIZES UP TO AND INCLUDING 300MM DIAMETER.

THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTION AND BENDS.

SECTION 10.5 OF THE HIGHWAYS ACT 1980 REQUIRES PROVISION TO BE MADE TO PREVENT WATER FLOWING ON OR FLOWING INTO THE HIGHWAY FROM PRIVATE DRAINAGE SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUCH MEASURES TO THE PRIVATE SURFACE WATER DRAINAGE SYSTEM.

THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:-

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140. THE CONTRACTOR

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Client	MORGAN SINDALL CONSTRUCTION		
Project	DIXON NEWALL GREEN ACADEMY		
Office	ALTRINCHAM		
Discipline	CIVILS		
Title	DRAINAGE DETAILS SHEET 1		
Scale @ A1	NTS	Status	STAGE 4

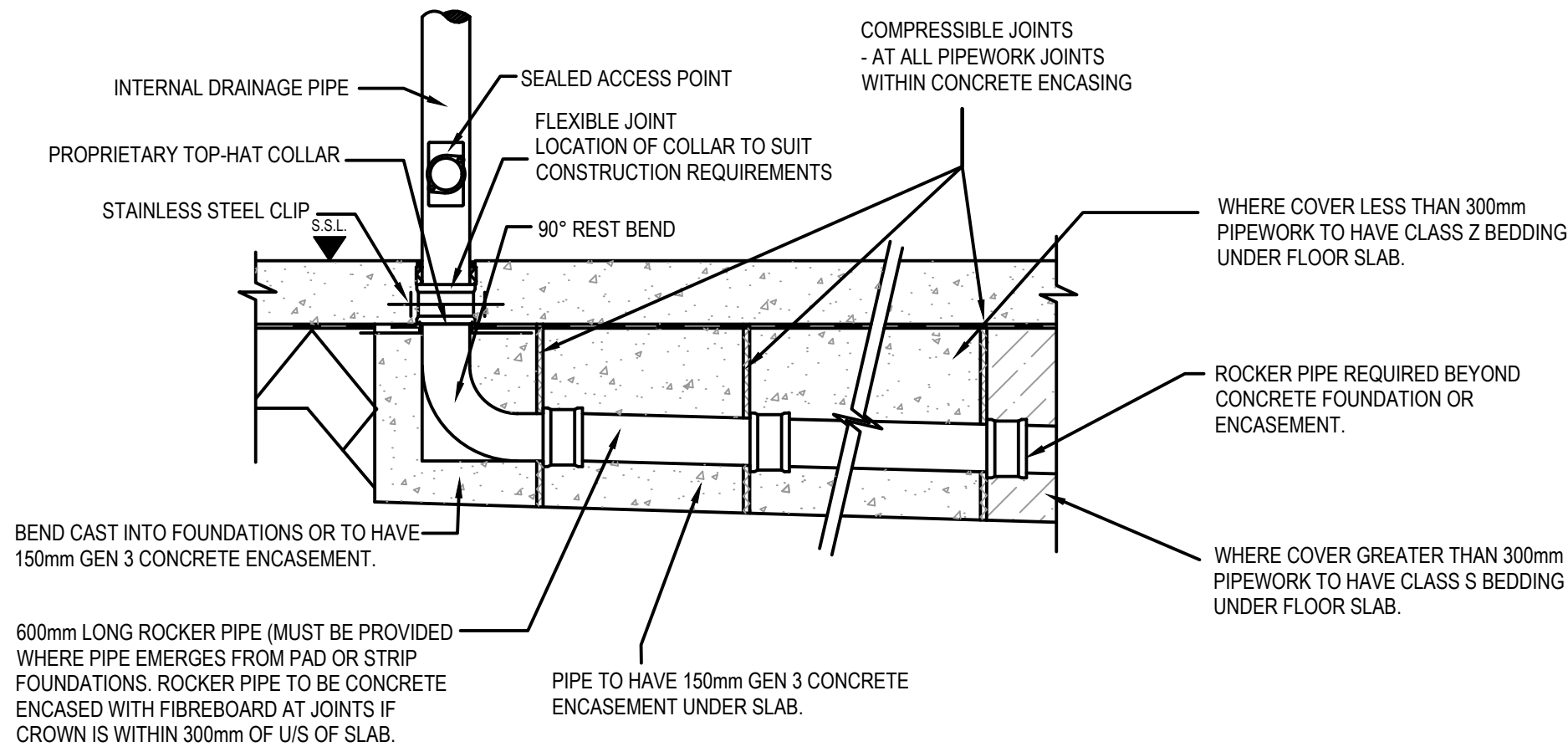


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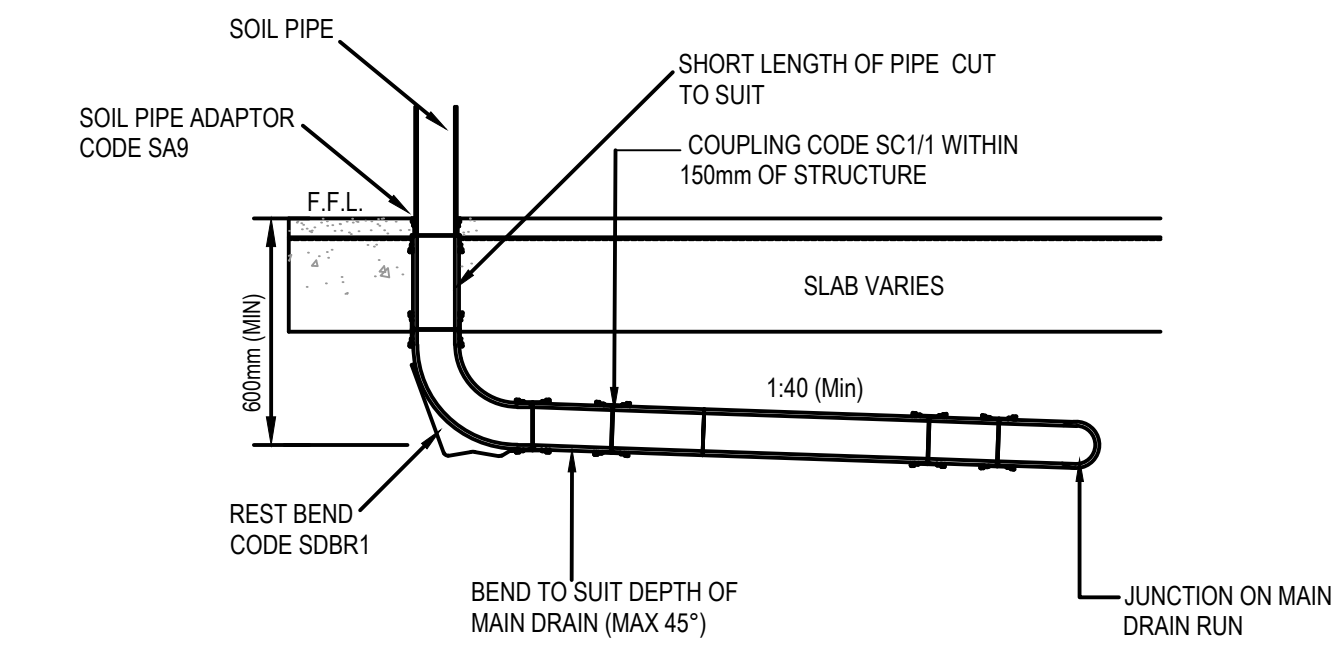
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www.clancy.co.uk

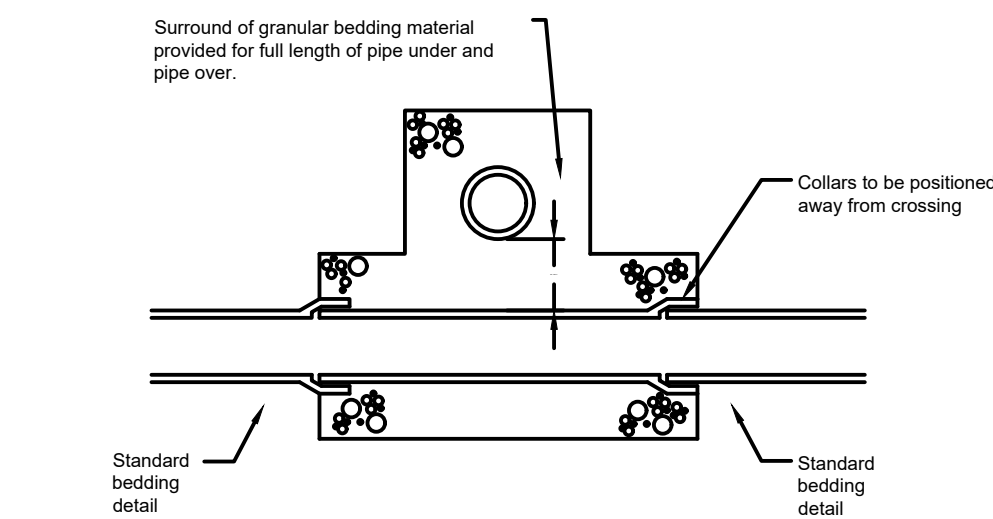
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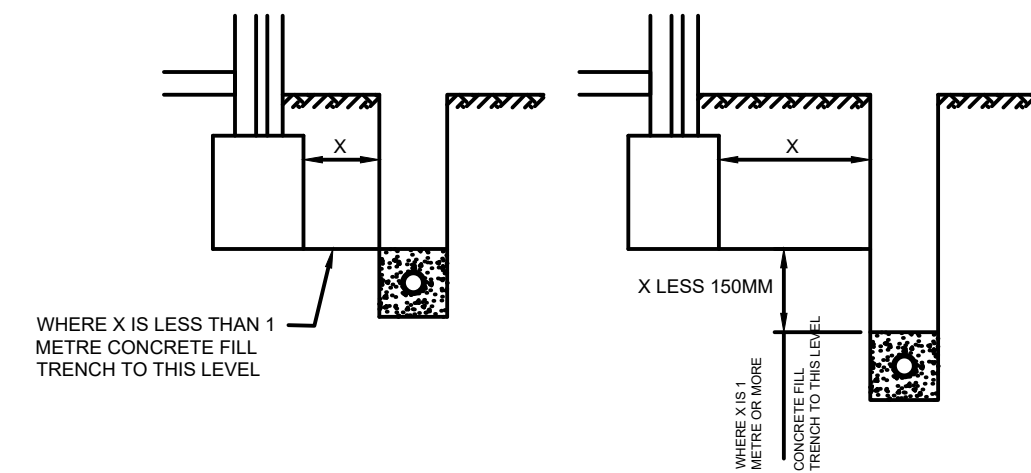
DRAINAGE UNDER BUILDINGS



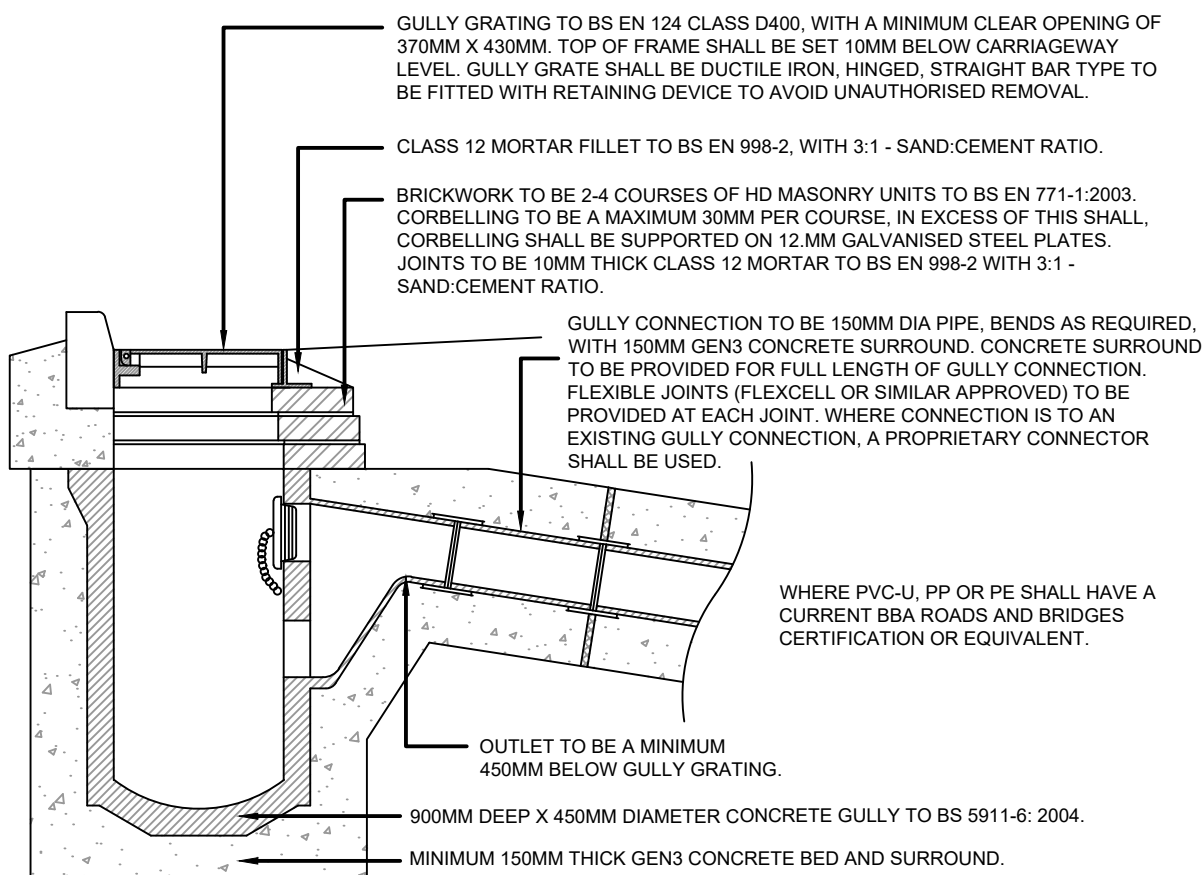
TYPICAL SVP CONNECTION TO MAIN RUN



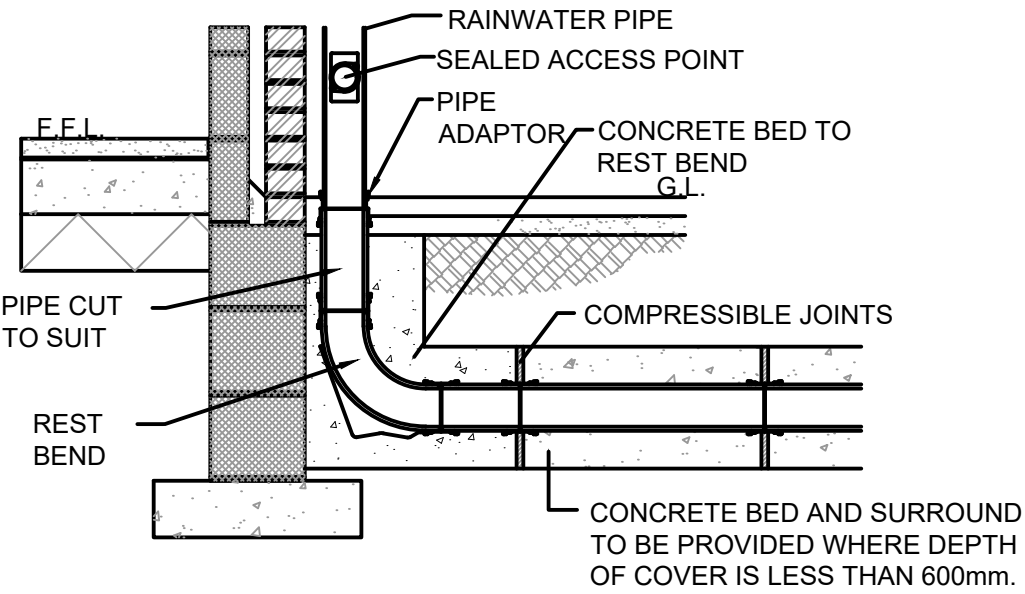
PIPE CROSSINGS DETAIL



TYPICAL DETAILS WHERE DRAINAGE TRENCH IS DEEPER THAN FOUNDATIONS

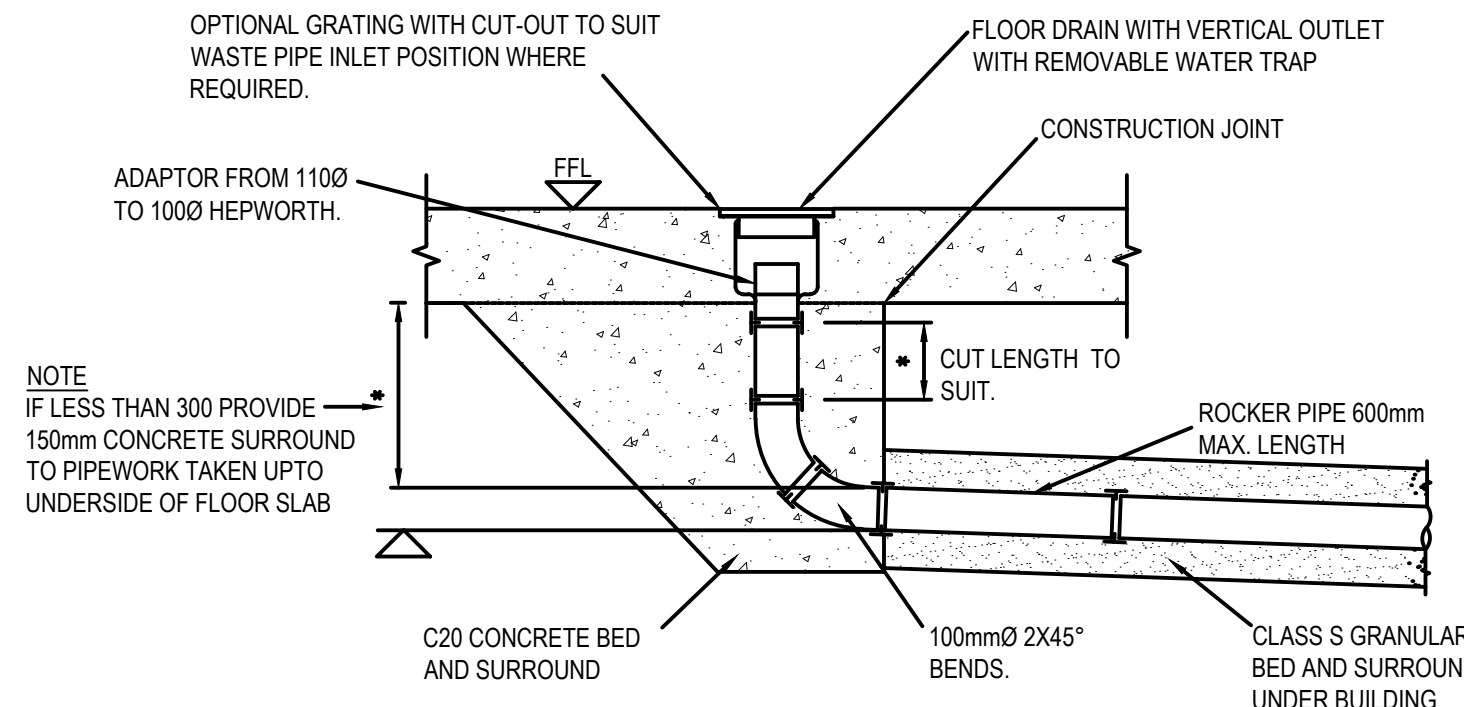


ROAD GULLY(G) DETAIL - TYPE 1

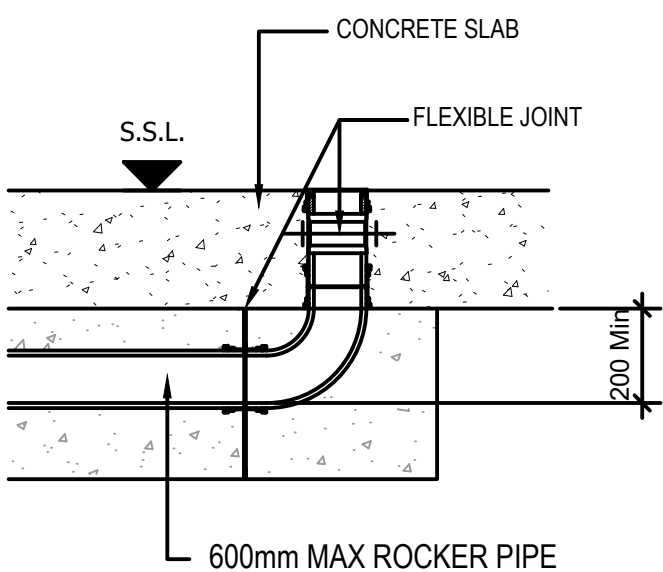


RWP CONNECTION DETAIL

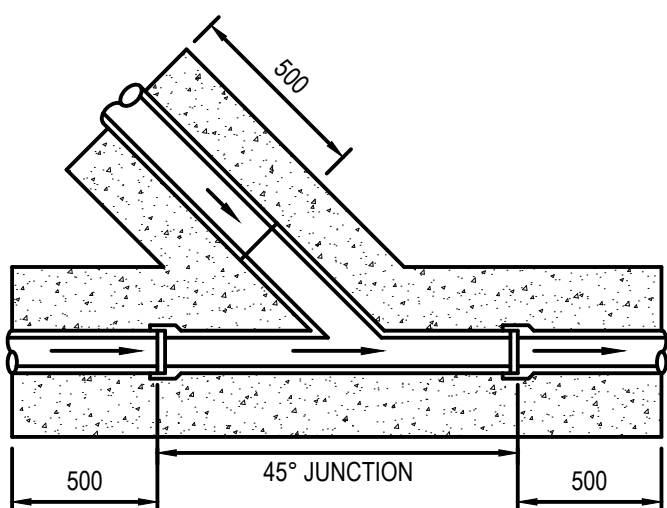
(SCALE 1:20)



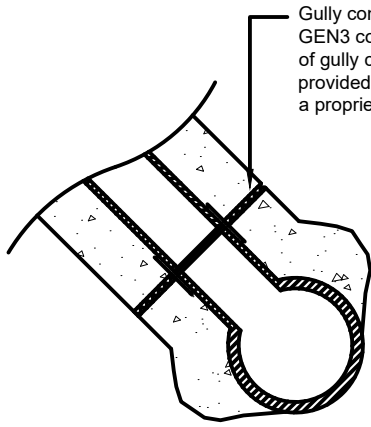
TYPICAL INTERNAL FLOOR DRAIN



TYPICAL SECTION THROUGH SLAB (100mmØ downpipe)



TYPICAL SADDLE CONNECTION

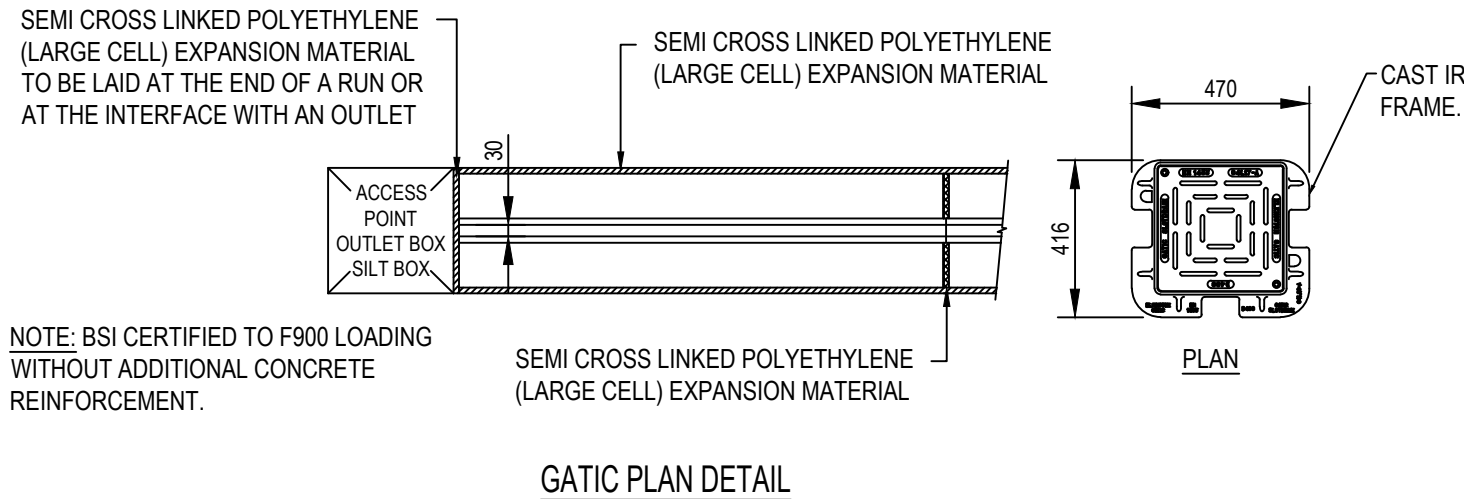


When connecting to an existing sewer, where the diameter is less than 300mm, preformed junctions should be utilised with proprietary couplings as appropriate.

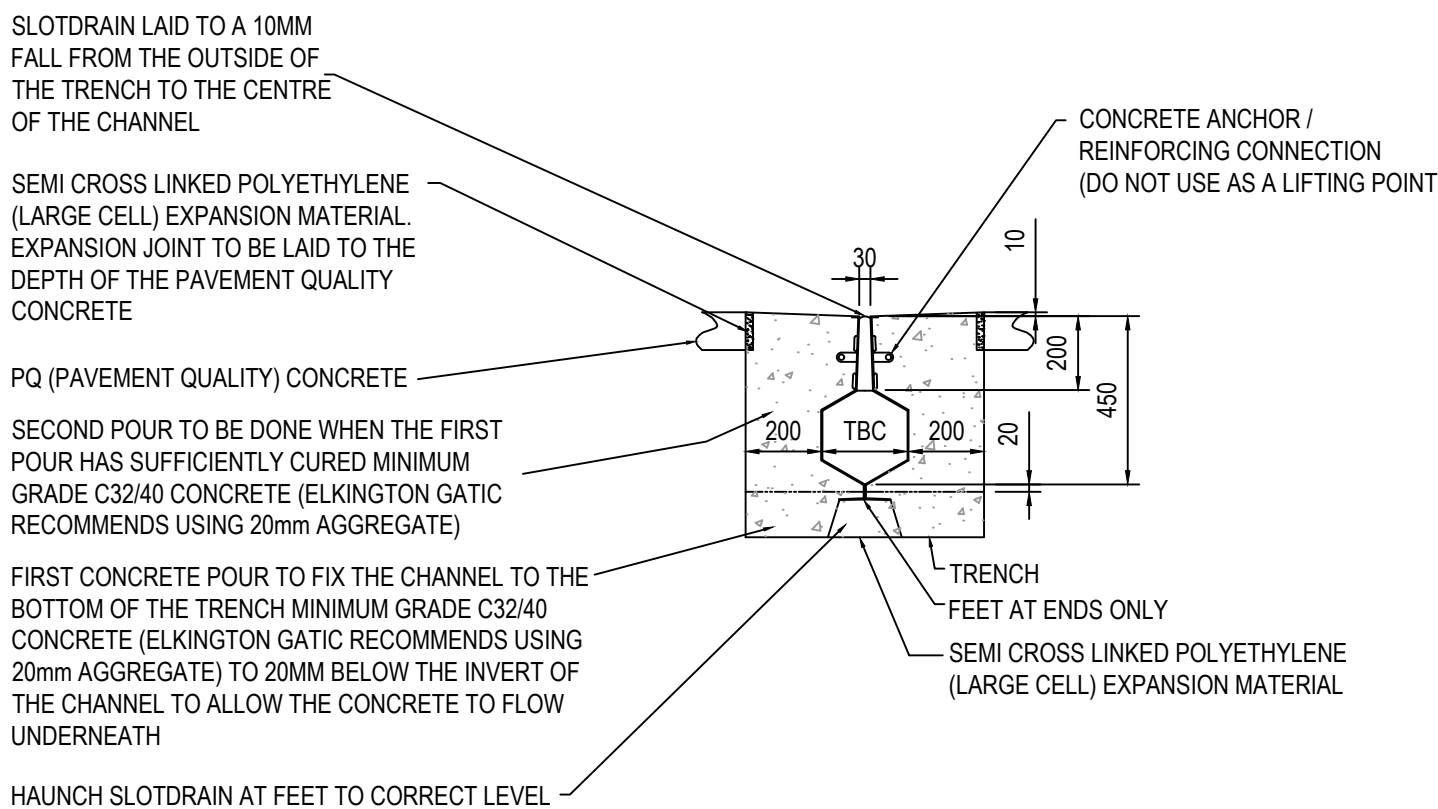
Where the existing sewer is greater than 300mm, a saddle connection may be used.

For new sewer construction, preformed junctions shall be incorporated on the new pipe run.

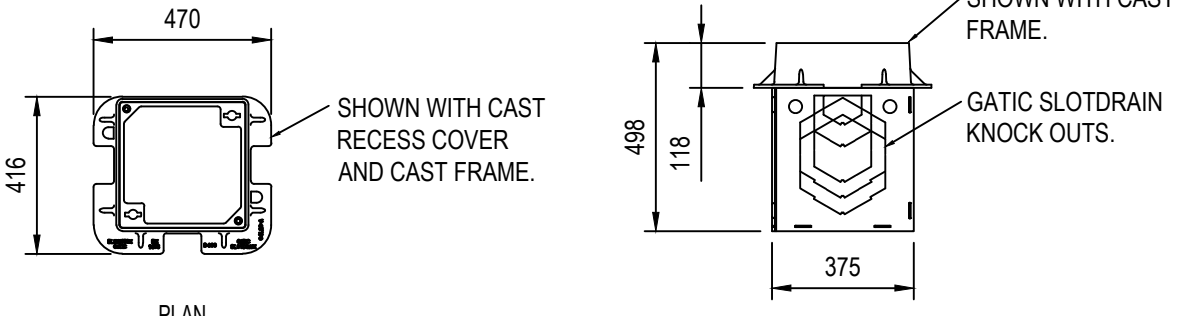
SADDLE CONNECTION TO EXISTING SEWER



GATIC SLOT DRAIN 350mm OUTLET UNIT SECTION AND PLAN DETAILS NTS



GATIC SLOT DRAIN CASTSLOT CONCRETE INSTALLATION



350 ACCESS BOX SECTION AND PLAN DETAILS NTS

- GENERAL NOTES**
- DO NOT SCALE THIS DRAWING.
 - ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
 - ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO COMMENCING ANY WORKS SHOWN.
 - ALL DETAILS TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL COUNCILS BUILDING CONTROL, OR ANY OTHER RELEVANT STANDARDS BODY.
 - ALL PROPRIETARY PRODUCT TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS, INSTRUCTIONS AND RECOMMENDATIONS.
- DRAINAGE NOTES**
- NO WORK SHALL 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 DEVELOPERS RISK AND CLANCY CONSULTING LIMITED WILL NOT BE HELD RESPONSIBLE FOR SUBSEQUENT DELAYS IN APPROVALS, REMEDIAL IN LATE CASES.
 - ALL INVERT LEVELS OF EXISTING FOUL AND SURFACE 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 CLANCY CONSULTING LIMITED.
 - ALL SEWERS, UNLESS AGREED OTHERWISE STATED, SHALL BE: 150mm DIA TO BE VITRIFIED CLAY. 225mm DIA TO BE VITRIFIED CLAY. 300mm DIA TO BE VITRIFIED CLAY. 375mm DIA AND GREATER TO BE CLASS 120 CONCRETE PIPES.
 - ALL VITRIFIED CLAY PIPES TO BS EN 295-1. ALL CONCRETE PIPES TO BE TO BS EN 1916. ALL CONCRETE MANHOLES TO BE TO BS EN1917.
 - LATERAL CONNECTIONS FROM MAIN SEWERS TO DEMARCATION CHAMBER TO BE 150mm DIA MINIMUM AND CONSTRUCTED TO ADAPTABLE STANDARDS.
 - 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 FACE OF THE CONCRETE SURROUND AND CONNECTED TO A LENGTH OF ROCKER PIPE.
 - ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS.
 - ALL SEWER WORKS TO COMPLY WITH HRC SEWERS FOR ADOPTION, 8TH EDITION, STVS REQUIREMENTS AND KITE-MARKED (OR SIMILAR APPROVED) WHERE PRACTICABLE. WHERE CONFLICTING DETAILS OCCUR, STVS DETAILS SHALL TAKE PRECEDENCE IN ALL CASES.
 - MANHOLE COVERS SHALL HAVE A CLEAR OPENING IN ACCORDANCE WITH SFA 6TH EDITION AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN VEHICULAR TRAFFICED AREA. CLASS 8/25 COVERS AND FRAMES TO BE PROVIDED ON ALL OTHER MANHOLES IN LANDSCAPING.
 - FILLED GROUND MUST BE FILLED AND CONSOLIDATED BEFORE ANY SEWER WORKS ARE CARRIED OUT.
 - WATER AUTHORITIES ARE NOT OBLIGED TO ACCEPT FILTER DRINK / LAND DRAINAGE RUN OFF INTO THE PUBLIC SEWER NETWORK OR ADAPTABLE DRAINAGE SYSTEM (DIRECTLY OR INDIRECTLY). AN ALTERNATIVE METHOD OF DISPOSAL OF LAND DRAINAGE RUN OFF WILL THEREFORE BE REQUIRED AND ANY PROPOSALS MUST BE AGREED WITH THE LOCAL AUTHORITY LAND DRAINAGE SECTION.
 - COVER SLABS MUST CARRY THE BSI KITEMARK AND SHALL COMPLY WITH BS 5911 PART 1 / BS EN 1917:2000. WHERE THE CLEAR OPENING OF THE KITE-MARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOAD BEARING SLAB SHOULD BE FITTED ABOVE THE COVER SLAB TO BRING THE SIZE DOWN AS SPECIFIED ABOVE. PLEASE REFER TO CONCRETE PIPELINE SYSTEMS ASSOCIATION (CPSA) 'TECHNICAL BULLETIN' ISSUED AUTUMN 2004 FOR KITE-MARKED COVER SLAB OPENING SIZES.
 - SULPHATE RESISTANT CEMENT (C20-OC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED TO PROVE THAT SUCH PRECAUTIONS ARE NOT REQUIRED.
 - ADAPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.8M FROM KERB FACES AND SERVICE TRENCHES.
 - SEWERS MUST HAVE 9M CLEARANCE FROM TREES AND HEDGES OR TO HAVE SUITABLE ROOT PROTECTION IN ACCORDANCE WITH THE SFA 6TH REQUIREMENTS.
 - ALL PIPES TO HAVE CLASS 'S' GRANULAR BED AND SURROUND UNLESS OTHERWISE STATED. BEDDING AND BACKFILL MATERIALS TO CONFORM TO THE REQUIREMENTS OF BS 4000-2 (TABLE A2). WHERE DEPTH OF COVER TO TOP OF SEWER IS LESS THAN 1.2M IN HIGHWAYS AND VERGES (OR LESS THAN 0.9M IN NON-VEHICULAR ACCESSED AREAS), THEN A CLASS 'Z' BEDDING TO BE USED.
 - ALL SEWER TRENCHES AND BRANCH CONNECTIONS TO BE BACKFILLED WITH SUITABLE MATERIAL IN LAYERS NOT EXCEEDING 225mm UNCONSOLIDATED THICKNESS THEN FULLY COMPACTED.
 - ADAPTABLE SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO AVOID LONGER LENGTHS.
 - PLASTIC CHANNEL SECTIONS WILL NOT BE PERMITTED WITHIN MANHOLE CHAMBERS. CLAYWARE CHANNELS SHALL BE USED WITHIN MANHOLES FOR PIPE SIZES UP TO AND INCLUDING 300mm DIAMETER.
 - THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTION AND BENDS.
 - SECTION 163 OF THE HIGHWAYS ACT 1980 REQUIRES PROVISION TO BE MADE TO PREVENT WATER FALLING ON OR FLOWING ONTO THE HIGHWAY FROM PRIVATE DRIVEWAYS OR PROPERTIES. ANY DRAINAGE REQUIREMENTS MUST BE CONNECTED INTO THE PRIVATE SURFACE WATER DRAINAGE SYSTEM.
 - THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING:- (i) ALL OPERATIONS SHOULD BE CARRIED OUT IN ACCORDANCE WITH THE GENERAL HEALTH AND SAFETY POLICY OF THE DEVELOPER AS REQUIRED BY SECTIONS 2 OF THE HEALTH AND SAFETY AT WORK ACT 1974 AND IN PARTICULAR THE CONSTRUCTION (GENERAL PROVISIONS) REGULATIONS. (ii) THE LOCAL AUTHORITY AND UTILITIES COMPANIES ARE TO BE NOTIFIED PRIOR TO COMMENCEMENT OF WORK ON SITE. (iii) PRIOR TO CONSTRUCTION THE ACTUAL POSITIONS AND DEPTHS OF SERVICES LIKELY TO BE AFFECTED BY THE WORKS SHOULD BE ESTABLISHED BY MEANS OF HAND DIG IN CLOSE LIAISON WITH THE UTILITY COMPANIES. THE CONTRACTOR SHALL IMMEDIATELY ADVISE THE ENGINEER OF ANY SERVICES EXPOSED WHICH MAY AFFECT THE DESIGN. (iv) ALL OPERATIVES WORKING ON THE HIGHWAY WORKS MUST HAVE STREET WORKS ACCREDITATION.
 - THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH CURTINS SPECIFICATION FOR DRAINAGE WORKS AND ANY OTHER SUBSEQUENT ADDITIONS TO THIS LIST.
 - THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
 - THE CONTRACTOR SHALL ALLOW FOR KEEPING TRENCHES AND EXCAVATIONS AS DRY AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY & LPA AND ENVIRONMENT AGENCY.
 - ALL DRAINAGE WORKS ARE TO BE CONSTRUCTED FROM THE OUTFALL TOWARDS THE HEAD OF RUN TO ENSURE THE OUTFALL CAN BE ACHIEVED.

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Rev	Date	Description	By	Check	App.

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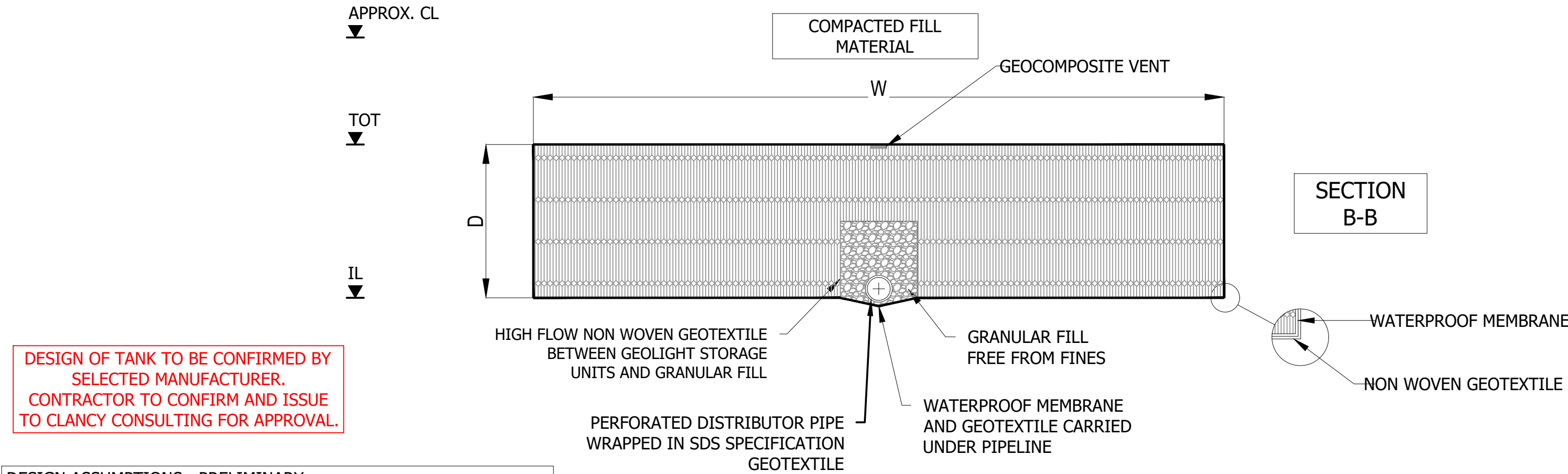
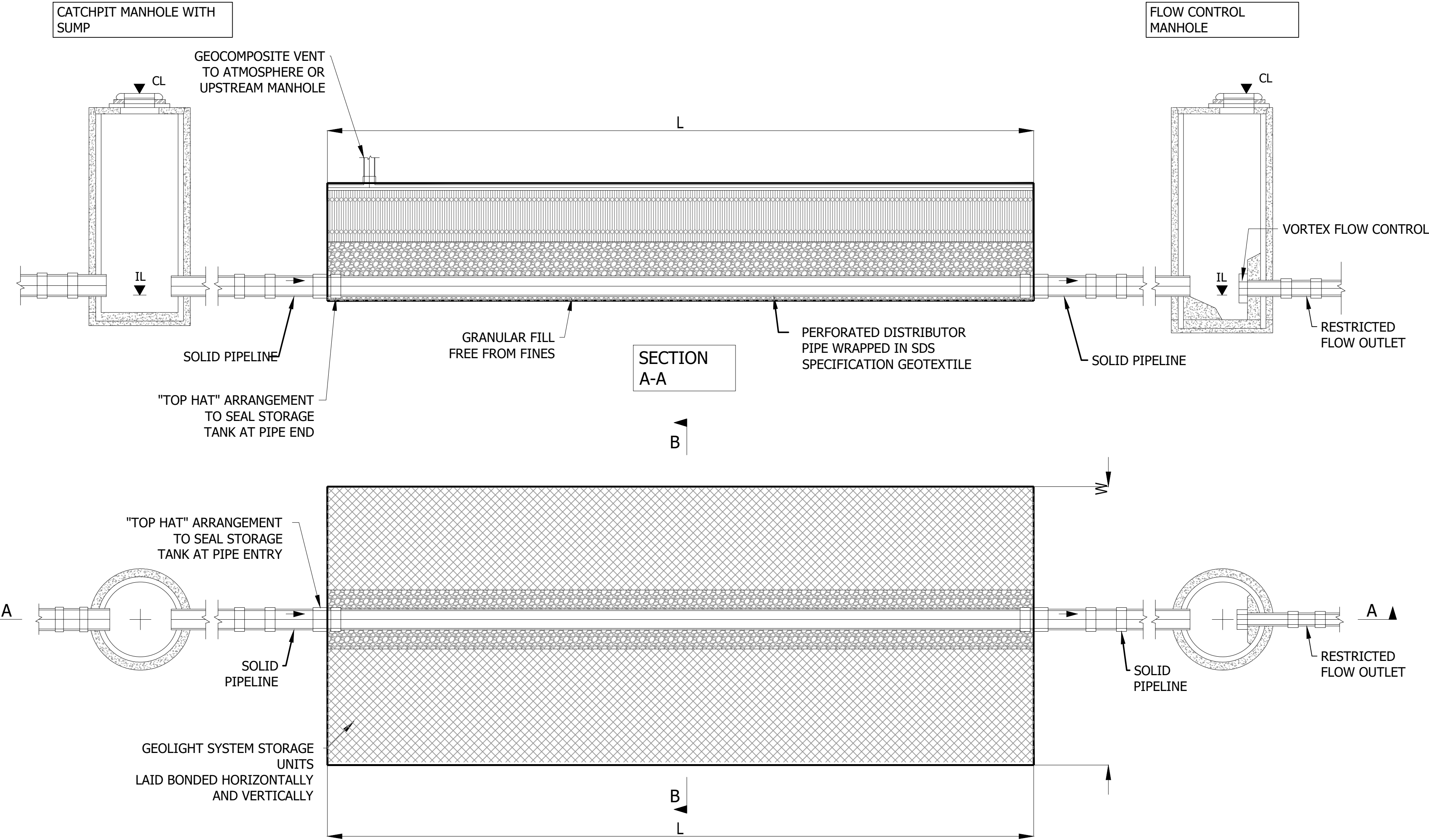
Client	MORGAN SINDALL CONSTRUCTION
Project	DIXON NEWALL GREEN ACADEMY
Office	ALTRINCHAM
Discipline	CIVILS
Title	DRAINAGE DETAILS SHEET 2

Scale @ A1	NTS	Status	STAGE 4
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Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-9	XX
Type	Discipline	Drawing No.	Revision
D	C	5301	T01



DESIGN OF TANK TO BE CONFIRMED BY SELECTED MANUFACTURER. CONTRACTOR TO CONFIRM AND ISSUE TO CLANCY CONSULTING FOR APPROVAL.

DESIGN ASSUMPTIONS - PRELIMINARY

DESIGN BASED ON SDS ONLINE CELLULAR STORAGE SYSTEM

THE MANUFACTURER WILL NEED TO CONFIRM THAT THE TANK HAS SUFFICIENT STRENGTH FOR THE LOCATION IN ACCORDANCE WITH CIRIA C737.

BASE OF THE TANK TO BE LAID TO FALL.

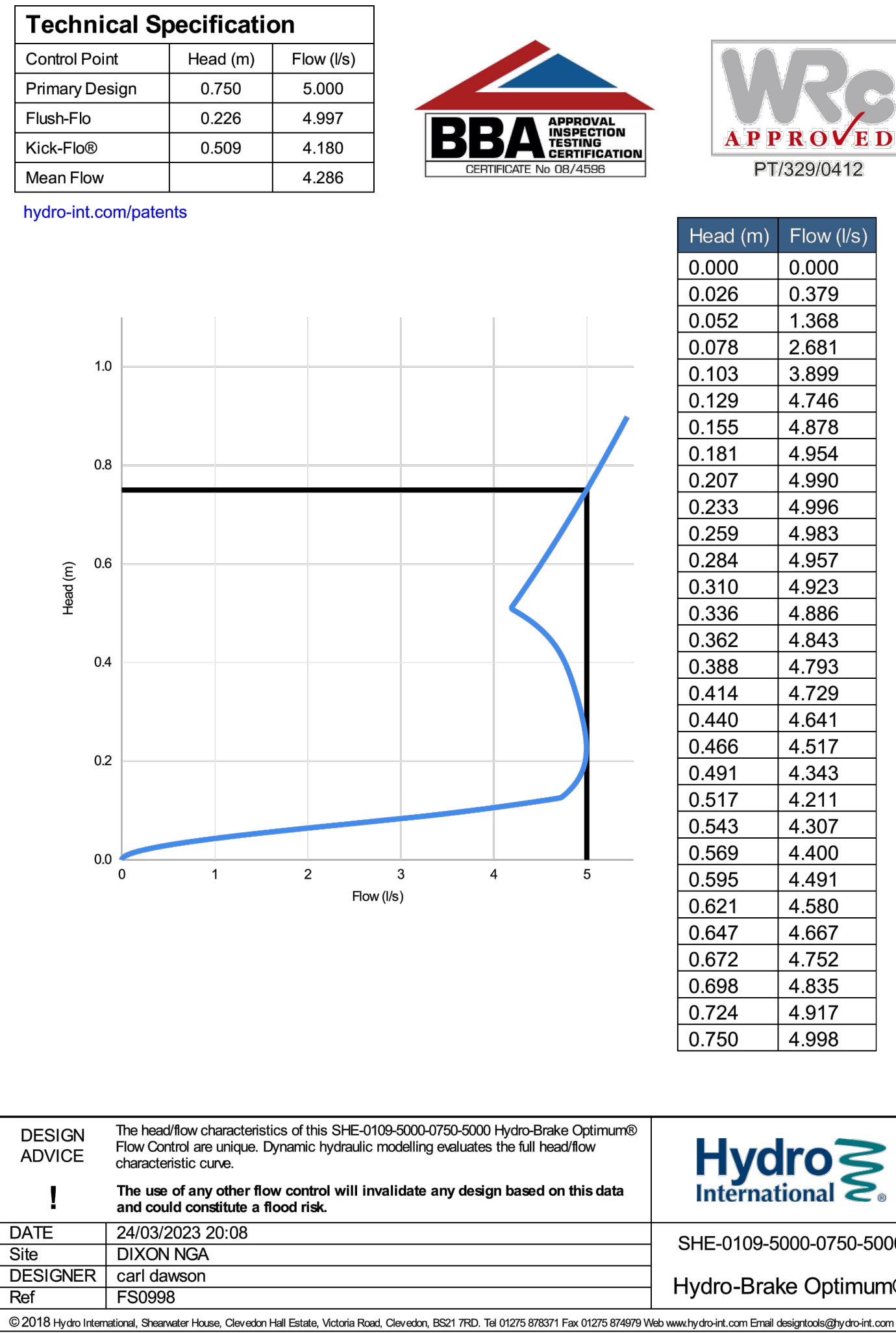
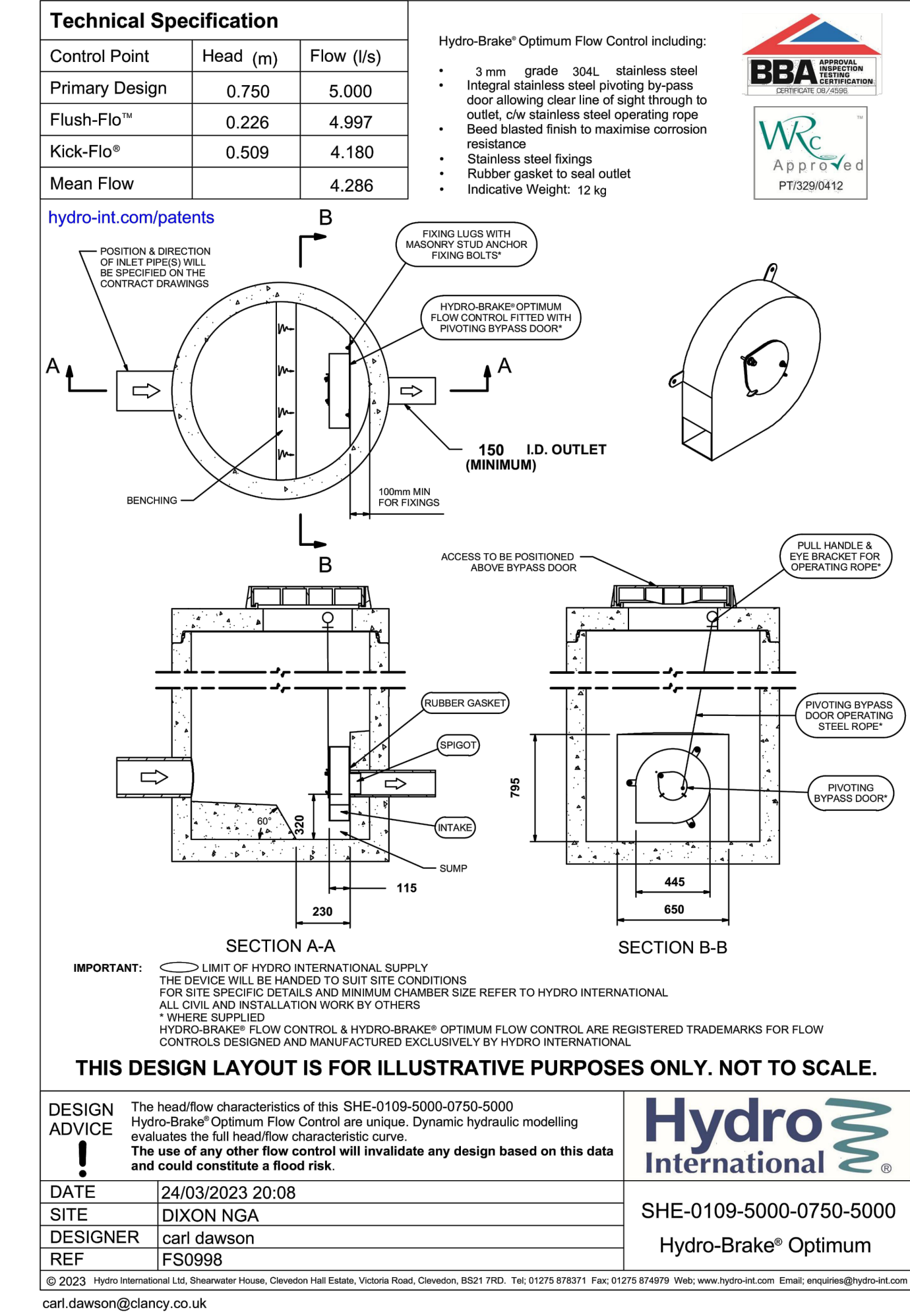
IL = c.53.55m AOD
TANK HEIGHT = 0.75m
REQUIRED VOLUME = c.200m³

IMPERMEABLE MEMBRANE, BED AND SURROUND TO BE CONFIRMED WITH THE MANUFACTURER.

REFER TO DRAINAGE LAYOUT FOR TANK INLETS/OUTLET LOCATIONS.

GROUND WATER LEVELS TBC WITH CORRECT GROUND LEVELS.

FLOTATION REQUIREMENTS TO BE CONFIRMED BY MANUFACTURER. ANTI-FLOTATION MAYBE REQUIRED I.E. CONCRETE SLAB, ANCHORAGE ETC. CONTRACTOR TO MAKE ALLOWANCE.



T01	02.06.23	STAGE 4	CD	SW	DS
P01	24.03.23	PRELIMINARY	CD	SW	DS
Rev	Date	Description	By	Check	App.

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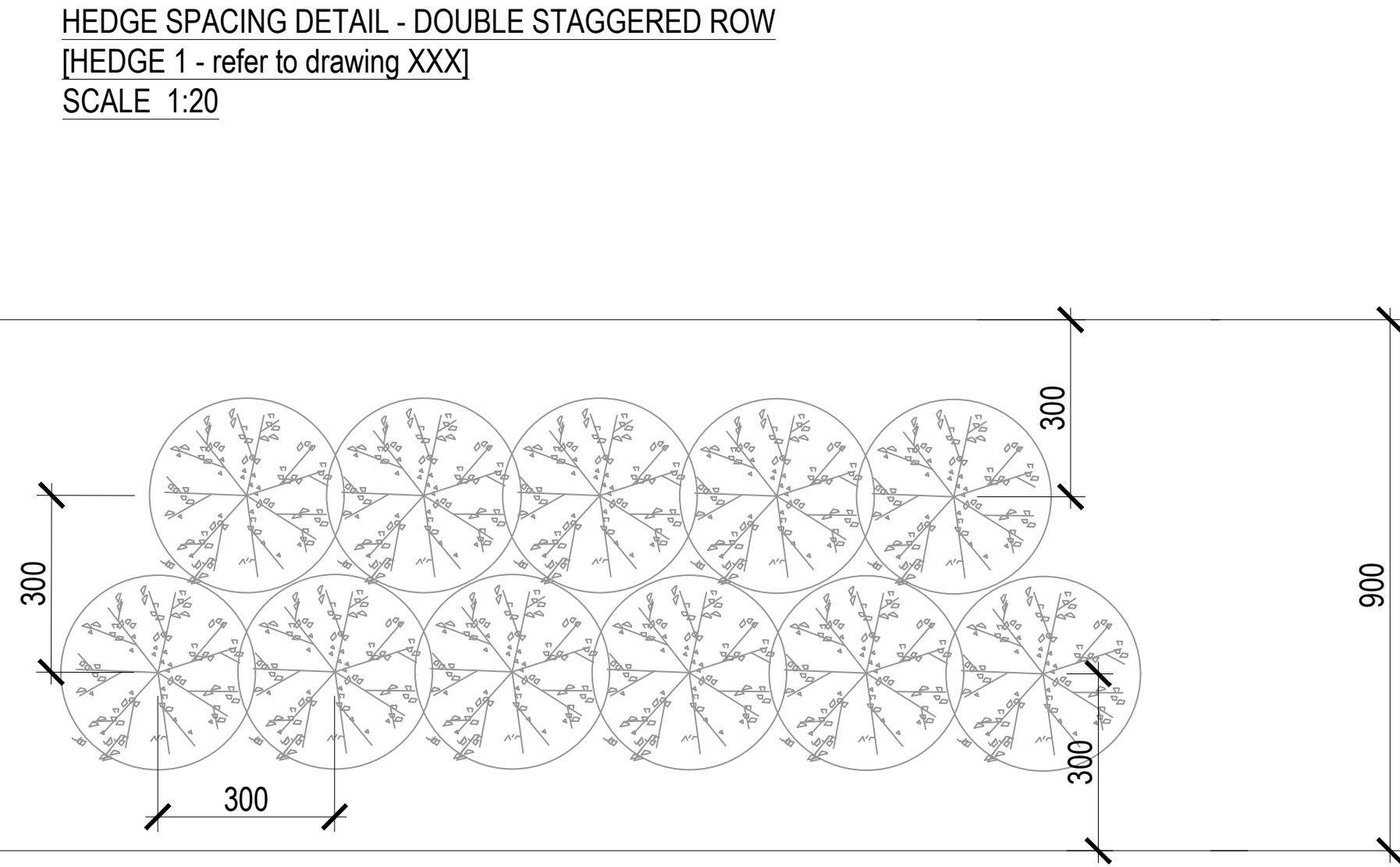
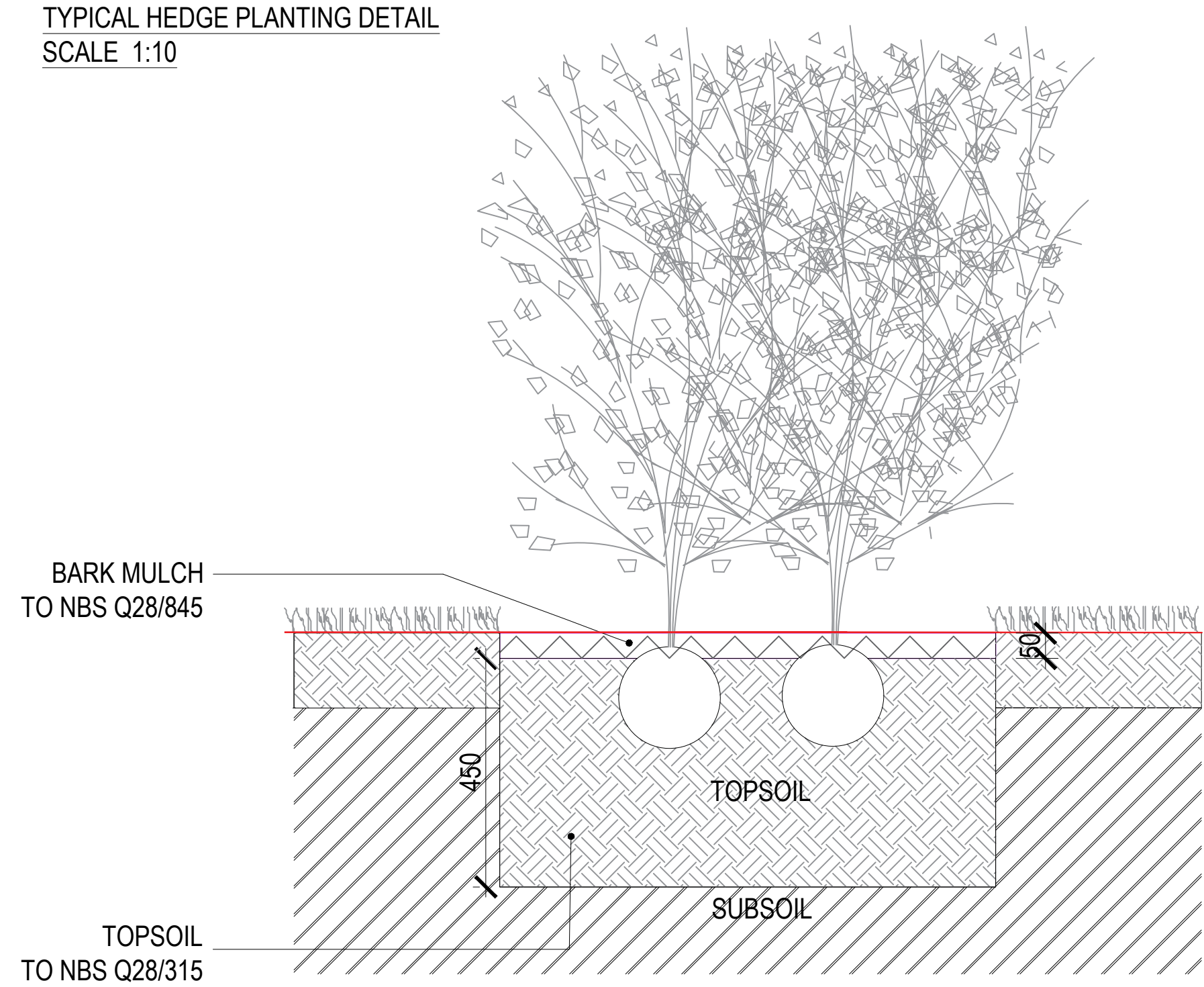
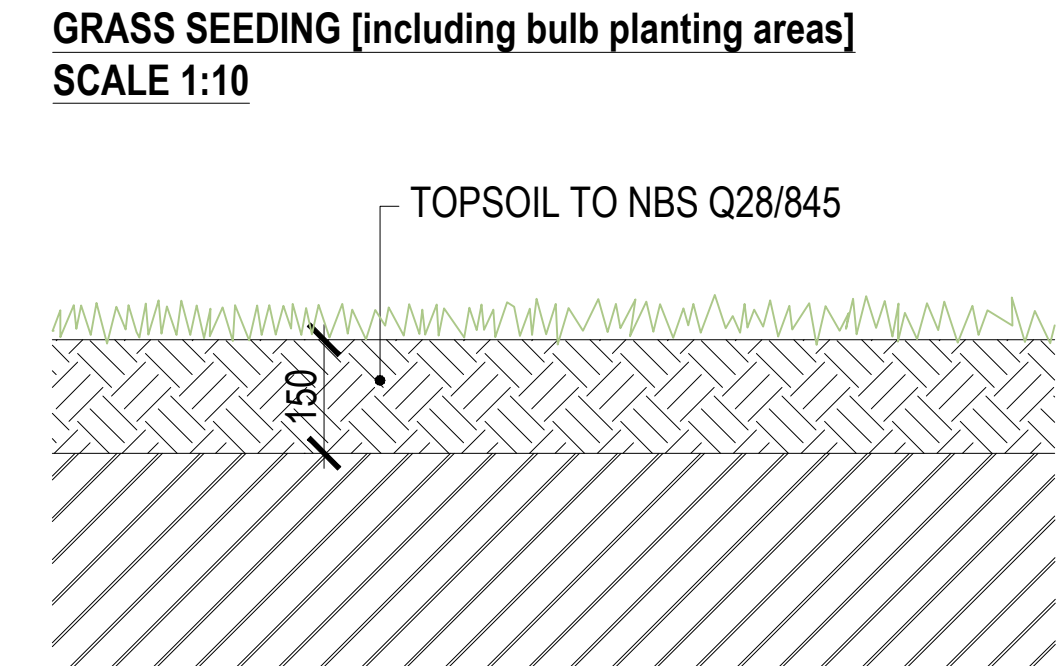
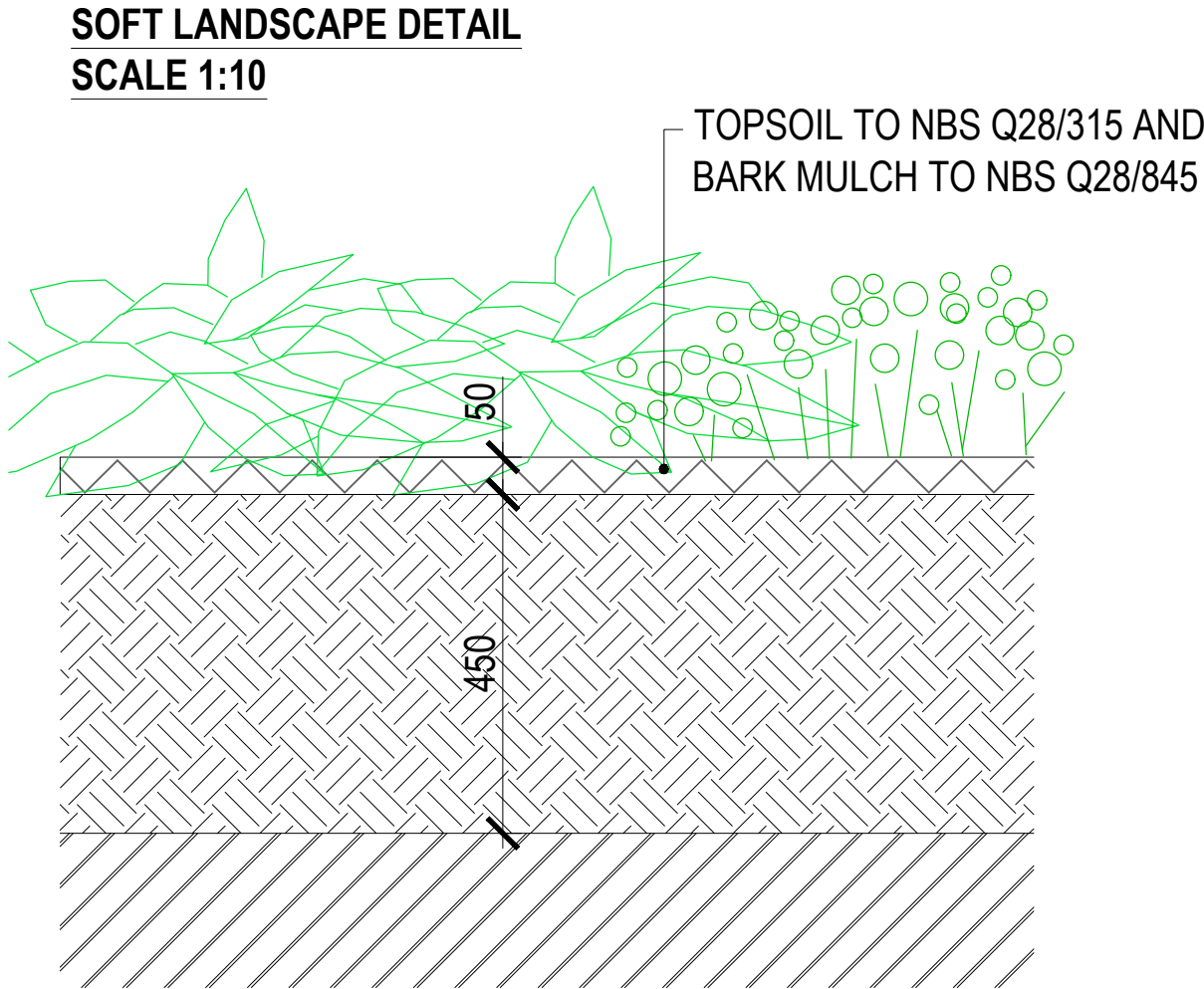
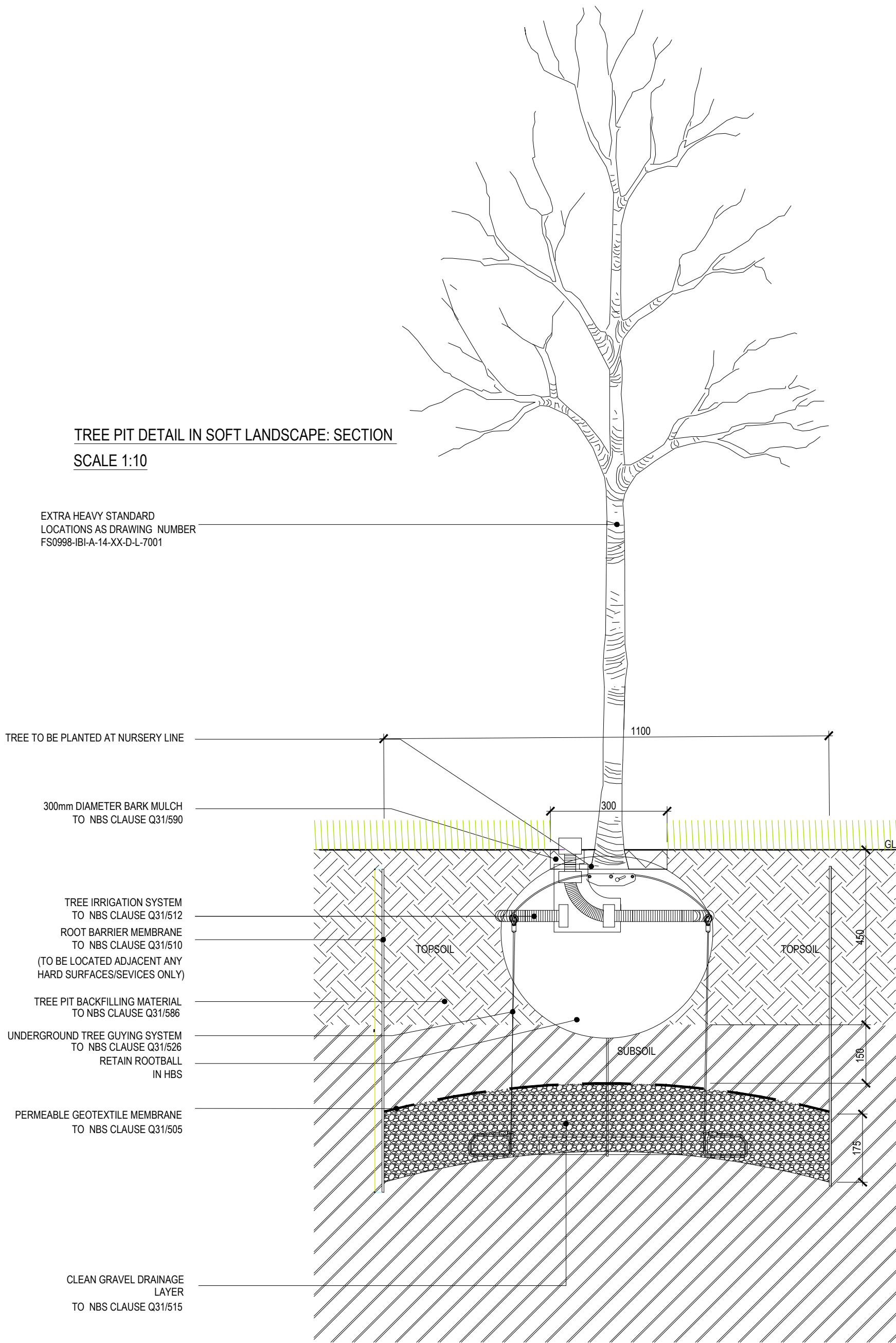
Client	MORGAN SINDALL CONSTRUCTION
Project	DIXON NEWALL GREEN ACADEMY
Office	ALTRINCHAM
Discipline	CIVILS
Title	DRAINAGE DETAILS SHEET 3
Scale @ A1	NTS
Status	STAGE 4



Job Number	Originator	Building/Zone	Level
FS0998	CCL	SE-9	XX
Type	Discipline	Drawing No.	Revision
D	C	5302	T01

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8. Landscape Proposals



0.3Ctr Double Staggered at 0.3m offset
(7 per linear m)

Notes:

- This drawing is copyright.
- Do not scale dimensions from this drawing.
- This drawing is to be read in conjunction with all other relevant drawings.
- All discrepancies on this drawing are to be reported to the architect.
- Do not modify any element of this drawing.
- Use drawing only for purpose(s) issued.

North Sign / Key Plan

The following external model files are included within this drawing:

P01	22/05/23	First issue	DW	DW
Rev	Date	Revision Notes	Dn	Rv

Client / Contractor

IBI Intelligence Buildings Infrastructure

www.ibigroup.com

Project
DIXON ACADEMY

Drawing Title
SOFT LANDSCAPE DETAILS

Job Number 142037	Drawing Originated Date 22/05/2023	PAS 1192 Status Code S4
Scale@A1 1:10	Purpose TENDER	

Drawing Number FS0998-IBI-A-14-XX-D-L-7016	Revision P01
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9. FRM Conditions

Flood Risk Management Team (29/06/2023)

"Given the Flood Risk Assessment proposes to reduce flows to greenfield run-off rates (5l/s maximum), we would have no objection in principle to the proposed outline drainage design.

· Drainage design drawing 5200-P01, date: 24.03.23, appears indicative and subject to further design considerations within the project.

We would therefore recommend the below condition:

No development shall take place until surface water drainage works in accordance with Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) or any subsequent replacement national standards have been submitted to and approved in writing by the Local Planning Authority.

In order to avoid/discharge the above drainage condition the following additional information has to be provided:

- o A finalised drainage layout showing all components, hydro-brake (limited to 5l/s), outfalls, levels and connectivity;
- o Maximised integration of green SuDS components (utilising infiltration or attenuation) if practicable;
- o A feasibility assessment and engineering details of the Green / Blue Roof;
- o Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for 45% climate change in any part of a building;
- o Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site;
- o Where surface water is connected to the public sewer, agreement in principle from United Utilities is required that there is adequate spare capacity in the existing system taking future development requirements into account. An email of acceptance of proposed flows and/or new connection will suffice;
- o Hydraulic calculation of the proposed drainage system, including all engineering parameters;
- o Construction details of flow control and SuDS elements.

Reason: To promote sustainable development, secure proper drainage and to manage the risk of flooding and pollution. This condition is imposed in light of national policies within the NPPF and NPPG and local policies EN08 and EN14.

Condition 2: No development hereby permitted shall be occupied until details of the implementation, maintenance and management of the sustainable drainage scheme have been submitted to and approved by the local planning authority. The scheme shall be implemented and thereafter managed and maintained in accordance with the approved details. Those details shall include:

- Verification report providing photographic evidence of construction as per design drawings;
- As built construction drawings if different from design construction drawings;
- Management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public body or statutory undertaker, or any other arrangements to secure the operation of the sustainable drainage scheme throughout its lifetime.

Reason: To manage flooding and pollution and to ensure that a managing body is in place for the sustainable drainage system and there is funding and maintenance mechanism for the lifetime of the development."