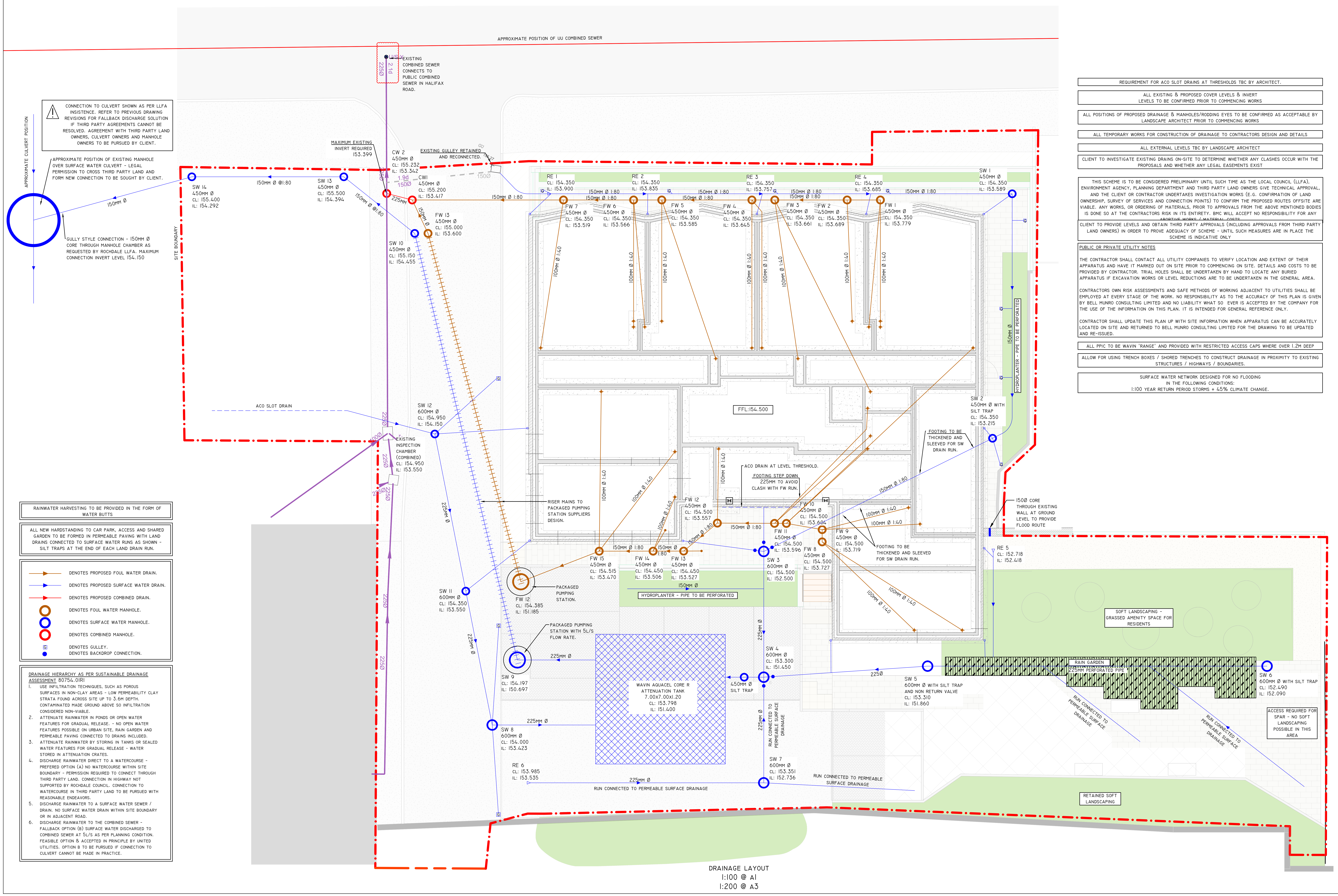
APPROXIMATE POSITION OF UU COMBINED SEWER
EXISTING COMBINED SEWER CONNECTS TO PUBLIC COMBINED SEWER IN HALIFAX ROAD.
2250
2.1d
APPROXIMATE CULVERT POSITION
APPROXIMATE POSITION OF EXISTING MANHOLE OVER SURFACE WATER CULVERT - LEGAL PERMISSION TO CROSS THIRD PARTY LAND AND FORM NEW CONNECTION TO BE SOUGHT BY CLIENT.
150MM Ø
GULLY STYLE CONNECTION - 150MM Ø CORE THROUGH MANHOLE CHAMBER AS REQUESTED BY ROCHDALE LLFA. MAXIMUM CONNECTION INVERT LEVEL 154.150
SITE BOUNDARY
SW 14 450MM Ø CL: 155.400 IL: 154.292
150MM Ø @1:80
SW 13 450MM Ø CL: 155.500 IL: 154.394
150MM Ø @1:80
MAXIMUM EXISTING INVERT REQUIRED 153.399
CW 2 450MM Ø CL: 155.232 IL: 153.342
EXISTING GULLEY RETAINED AND RECONNECTED.
1.9d 1500
CWI 450MM Ø CL: 155.200 IL: 153.417
225MM
150MM Ø
FW 13 450MM Ø CL: 155.000 IL: 153.600
SW 10 450MM Ø CL: 155.150 IL: 154.455
RE 1 CL: 154.350 IL: 153.900
RE 2 CL: 154.350 IL: 153.835
RE 3 CL: 154.350 IL: 153.757
RE 4 CL: 154.350 IL: 153.685
SW 1 450MM Ø CL: 154.350 IL: 153.589
150MM Ø 1:80
FW 7 450MM Ø CL: 154.350 IL: 153.519
FW 6 450MM Ø CL: 154.350 IL: 153.566
FW 5 450MM Ø CL: 154.350 IL: 153.585
FW 4 450MM Ø CL: 154.350 IL: 153.645
FW 3 450MM Ø CL: 154.350 IL: 153.661
FW 2 450MM Ø CL: 154.350 IL: 153.689
FW 1 450MM Ø CL: 154.350 IL: 153.779
100MM Ø 1:40
150MM Ø
HYDROPLANTER - PIPE TO BE PERFORATED
ACO SLOT DRAIN
SW 12 600MM Ø CL: 154.950 IL: 154.150
EXISTING INSPECTION CHAMBER (COMBINED) CL: 154.950 IL: 153.550
1000
225MM Ø
FFL:154.500
RISER MAINS TO PACKAGED PUMPING STATION SUPPLIERS DESIGN.
ACO DRAIN AT LEVEL THRESHOLD.
FOOTING STEP DOWN 225MM TO AVOID CLASH WITH FW RUN.
FW 12 450MM Ø CL: 154.500 IL: 153.557
FW 10 450MM Ø CL: 154.500 IL: 153.604
FW 11 450MM Ø CL: 154.500 IL: 153.596
FW 9 450MM Ø CL: 154.500 IL: 153.719
FW 8 450MM Ø CL: 154.500 IL: 153.727
FOOTING TO BE THICKENED AND SLEEVED FOR SW DRAIN RUN.
SW 2 450MM Ø WITH SILT TRAP CL: 154.350 IL: 153.215
150Ø CORE THROUGH EXISTING WALL AT GROUND LEVEL TO PROVIDE FLOOD ROUTE
RE 5 CL: 152.718 IL: 152.418
FW 15 450MM Ø CL: 154.515 IL: 153.470
FW 14 450MM Ø CL: 154.450 IL: 153.506
FW 13 450MM Ø CL: 154.450 IL: 153.527
SW 3 600MM Ø CL: 154.500 IL: 152.500
PACKAGED PUMPING STATION.
FW 12 CL: 154.385 IL: 151.185
SW 11 600MM Ø CL: 154.350 IL: 153.550
PACKAGED PUMPING STATION WITH 5L/S FLOW RATE.
SW 9 CL: 154.197 IL: 150.697
WAVIN AQUACEL CORE R ATTENUATION TANK 7.00x7.00x1.20 CL: 153.798 IL: 151.400
450MM Ø SILT TRAP
SW 4 600MM Ø CL: 153.300 IL: 151.450
SW 8 600MM Ø CL: 154.000 IL: 153.423
RE 6 CL: 153.985 IL: 153.535
RUN CONNECTED TO PERMEABLE SURFACE DRAINAGE
SW 7 600MM Ø CL: 153.351 IL: 152.736
2250
SW 5 600MM Ø WITH SILT TRAP AND NON RETURN VALVE CL: 153.310 IL: 151.860
RAIN GARDEN
225MM PERFORATED PIPE
SW 6 600MM Ø WITH SILT TRAP CL: 152.490 IL: 152.090
SOFT LANDSCAPING - GRASSED AMENITY SPACE FOR RESIDENTS
RUN CONNECTED TO PERMEABLE SURFACE DRAINAGE
ACCESS REQUIRED FOR SPAR - NO SOFT LANDSCAPING POSSIBLE IN THIS AREA
RETAINED SOFT LANDSCAPING

DRAINAGE LAYOUT
1:100 @ A1
1:200 @ A3

⚠ CONNECTION TO CULVERT SHOWN AS PER LLFA INSISTENCE. REFER TO PREVIOUS DRAWING REVISIONS FOR FALLBACK DISCHARGE SOLUTION IF THIRD PARTY AGREEMENTS CANNOT BE RESOLVED. AGREEMENT WITH THIRD PARTY LAND OWNERS, CULVERT OWNERS AND MANHOLE OWNERS TO BE PURSUED BY CLIENT.

RAINWATER HARVESTING TO BE PROVIDED IN THE FORM OF WATER BUTTS

ALL NEW HARDSTANDING TO CAR PARK, ACCESS AND SHARED GARDEN TO BE FORMED IN PERMEABLE PAVING WITH LAND DRAINS CONNECTED TO SURFACE WATER RUNS AS SHOWN - SILT TRAPS AT THE END OF EACH LAND DRAIN RUN.

▶ (foul)	DENOTES PROPOSED FOUL WATER DRAIN.
▶ (surface)	DENOTES PROPOSED SURFACE WATER DRAIN.
▶ (combined)	DENOTES PROPOSED COMBINED DRAIN.
○	DENOTES FOUL WATER MANHOLE.
○	DENOTES SURFACE WATER MANHOLE.
○	DENOTES COMBINED MANHOLE.
G	DENOTES GULLEY.
●	DENOTES BACKDROP CONNECTION.

DRAINAGE HIERARCHY AS PER SUSTAINABLE DRAINAGE ASSESSMENT 80754.01R1

1. USE INFILTRATION TECHNIQUES, SUCH AS POROUS SURFACES IN NON-CLAY AREAS - LOW PERMEABILITY CLAY STRATA FOUND ACROSS SITE UP TO 3.6M DEPTH. CONTAMINATED MADE GROUND ABOVE SO INFILTRATION CONSIDERED NON-VIABLE.
2. ATTENUATE RAINWATER IN PONDS OR OPEN WATER FEATURES FOR GRADUAL RELEASE. - NO OPEN WATER FEATURES POSSIBLE ON URBAN SITE, RAIN GARDEN AND PERMEABLE PAVING CONNECTED TO DRAINS INCLUDED.
3. ATTENUATE RAINWATER BY STORING IN TANKS OR SEALED WATER FEATURES FOR GRADUAL RELEASE - WATER STORED IN ATTENUATION CRATES.
4. DISCHARGE RAINWATER DIRECT TO A WATERCOURSE - PREFERED OPTION (A) NO WATERCOURSE WITHIN SITE BOUNDARY - PERMISSION REQUIRED TO CONNECT THROUGH THIRD PARTY LAND. CONNECTION IN HIGHWAY NOT SUPPORTED BY ROCHDALE COUNCIL. CONNECTION TO WATERCOURSE IN THIRD PARTY LAND TO BE PURSUED WITH REASONABLE ENDEAVORS.
5. DISCHARGE RAINWATER TO A SURFACE WATER SEWER / DRAIN. NO SURFACE WATER DRAIN WITHIN SITE BOUNDARY OR IN ADJACENT ROAD.
6. DISCHARGE RAINWATER TO THE COMBINED SEWER - FALLBACK OPTION (B) SURFACE WATER DISCHARGED TO COMBINED SEWER AT 5L/S AS PER PLANNING CONDITION. FEASIBLE OPTION & ACCEPTED IN PRINCIPLE BY UNITED UTILITIES. OPTION B TO BE PURSUED IF CONNECTION TO CULVERT CANNOT BE MADE IN PRACTICE.

REQUIREMENT FOR ACO SLOT DRAINS AT THRESHOLDS TBC BY ARCHITECT.

ALL EXISTING & PROPOSED COVER LEVELS & INVERT LEVELS TO BE CONFIRMED PRIOR TO COMMENCING WORKS

ALL POSITIONS OF PROPOSED DRAINAGE & MANHOLES/RODDING EYES TO BE CONFIRMED AS ACCEPTABLE BY LANDSCAPE ARCHITECT PRIOR TO COMMENCING WORKS

ALL TEMPORARY WORKS FOR CONSTRUCTION OF DRAINAGE TO CONTRACTORS DESIGN AND DETAILS

ALL EXTERNAL LEVELS TBC BY LANDSCAPE ARCHITECT

CLIENT TO INVESTIGATE EXISTING DRAINS ON-SITE TO DETERMINE WHETHER ANY CLASHES OCCUR WITH THE PROPOSALS AND WHETHER ANY LEGAL EASEMENTS EXIST

THIS SCHEME IS TO BE CONSIDERED PRELIMINARY UNTIL SUCH TIME AS THE LOCAL COUNCIL (LLFA), ENVIRONMENT AGENCY, PLANNING DEPARTMENT AND THIRD PARTY LAND OWNERS GIVE TECHNICAL APPROVAL, AND THE CLIENT OR CONTRACTOR UNDERTAKES INVESTIGATION WORKS (E.G. CONFIRMATION OF LAND OWNERSHIP, SURVEY OF SERVICES AND CONNECTION POINTS) TO CONFIRM THE PROPOSED ROUTES OFFSITE ARE VIABLE. ANY WORKS, OR ORDERING OF MATERIALS, PRIOR TO APPROVALS FROM THE ABOVE MENTIONED BODIES IS DONE SO AT THE CONTRACTORS RISK IN ITS ENTIRETY. BMC WILL ACCEPT NO RESPONSIBILITY FOR ANY ABORTIVE WORKS / MATERIAL COSTS

CLIENT TO PROVIDE LEVELS AND OBTAIN THIRD PARTY APPROVALS (INCLUDING APPROVALS FROM THIRD PARTY LAND OWNERS) IN ORDER TO PROVE ADEQUACY OF SCHEME - UNTIL SUCH MEASURES ARE IN PLACE THE SCHEME IS INDICATIVE ONLY

PUBLIC OR PRIVATE UTILITY NOTES

THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES TO VERIFY LOCATION AND EXTENT OF THEIR APPARATUS AND HAVE IT MARKED OUT ON SITE PRIOR TO COMMENCING ON SITE. DETAILS AND COSTS TO BE PROVIDED BY CONTRACTOR. TRIAL HOLES SHALL BE UNDERTAKEN BY HAND TO LOCATE ANY BURIED APPARATUS IF EXCAVATION WORKS OR LEVEL REDUCTIONS ARE TO BE UNDERTAKEN IN THE GENERAL AREA.

CONTRACTORS OWN RISK ASSESSMENTS AND SAFE METHODS OF WORKING ADJACENT TO UTILITIES SHALL BE EMPLOYED AT EVERY STAGE OF THE WORK. NO RESPONSIBILITY AS TO THE ACCURACY OF THIS PLAN IS GIVEN BY BELL MUNRO CONSULTING LIMITED AND NO LIABILITY WHAT SO EVER IS ACCEPTED BY THE COMPANY FOR THE USE OF THE INFORMATION ON THIS PLAN. IT IS INTENDED FOR GENERAL REFERENCE ONLY.

CONTRACTOR SHALL UPDATE THIS PLAN UP WITH SITE INFORMATION WHEN APPARATUS CAN BE ACCURATELY LOCATED ON SITE AND RETURNED TO BELL MUNRO CONSULTING LIMITED FOR THE DRAWING TO BE UPDATED AND RE-ISSUED.

ALL PPIC TO BE WAVIN 'RANGE' AND PROVIDED WITH RESTRICTED ACCESS CAPS WHERE OVER 1.2M DEEP

ALLOW FOR USING TRENCH BOXES / SHORED TRENCHES TO CONSTRUCT DRAINAGE IN PROXIMITY TO EXISTING STRUCTURES / HIGHWAYS / BOUNDARIES.

SURFACE WATER NETWORK DESIGNED FOR NO FLOODING
IN THE FOLLOWING CONDITIONS:
1:100 YEAR RETURN PERIOD STORMS + 45% CLIMATE CHANGE.

DRAINAGE

NOTES:

1. THIS DRAWING IS COPYRIGHT AND THE PROPERTY OF BELL MUNRO CONSULTING LTD. THE DRAWING MUST NOT BE REPRODUCED IN PART OR IN WHOLE WITHOUT PRIOR WRITTEN AUTHORITY.
2. THIS DRAWING MUST NOT BE SCALED BY EITHER CONTRACTORS OR OTHER CONSULTANTS ANY DIMENSIONAL OR SETTING - OUT DISCREPANCIES ARE TO BE REPORTED TO BELL MUNRO CONSULTING PRIOR TO CONSTRUCTION / FABRICATION COMMENCING.
3. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE RELEVANT BMC SPECIFICATIONS TOGETHER WITH THE APPROPRIATE ARCHITECTS AND SERVICES CONSULTANTS DRAWINGS AND SPECIFICATIONS.
4. ALL EXISTING DRAINAGE TO BE CONFIRMED PRIOR TO CONSTRUCTION COMMENCING.
5. ALL NEW PIPEWORK TO BE WAVIN OSMADRAIN OR WAVIN ULTRARIB UPVC UNLESS NOTED OTHERWISE.
6. ALL PIPEWORK AT COVER LEVELS LESS THAN 900MM IN TRAFFICKED AREAS AND 400MM IN OTHER AREAS SHALL BE ENCASED IN CONCRETE (CLASS Z BEDDING).
7. ALL OTHER PIPEWORK TO BE IN CLASS S BEDDING.
8. PIPEWORK PASSING THROUGH BUILDING WALLS SHALL BE FITTED WITH ROCKER PIPES AS PER STANDARD DETAIL.
9. ALL EXTERNAL MANHOLE COVERS TO BE TO EN124:1994 - TRAFFICKED AREAS GRADE D400 AND OTHER AREAS GRADE A14.
10. ALL INTERNAL MANHOLES TO BE SAINT-GOBAIN BRADSTEL TRIPLE SEALED RECESSED COVERS.
11. ANY UNLABELLED FOUL BRANCH PIPEWORK TO BE 100Ø PIPEWORK AT MINIMUM 1:40 FALL. ALL MAIN FOUL WATER PIPEWORK TO BE 150Ø AT 1:80 FALL.
12. ANY UNLABELLED STORM WATER BRANCH PIPEWORK TO BE 100Ø AT MINIMUM 1:40 FALL.
13. ALL RWP AND THRESHOLD DRAIN LOCATIONS AND NUMBERS ARE TO BE CONFIRMED BY ARCHITECT PRIOR TO COMMENCING CONSTRUCTION.
14. EXACT SVP AND GULLEY LOCATIONS TO BE CONFIRMED FROM SERVICES ENGINEERS' DRAWINGS AND DETAILS.

GEOSMART SUSTAINABLE DRAINAGE ASSESSMENT 80754.01R1 (DESKTOP STUDY) PROPOSES SOAKAWAY INFILTRATION SUBJECT TO INFILTRATION TESTING & PERMEABLE PAVING.

GEO^2 PHASE I/II CONTAMINATED LAND SITE ASSESSMENT 23/1382.1.1 FOUND GROUND CONDITIONS TO BE MADE GROUND OVERLYING CLAY STRATA AND THEREFORE UNSUITABLE FOR INFILTRATION BUT EQUIVALENT SUDS FEATURES WILL BE PROVIDED.

SURFACE WATER DISCHARGE RATE LIMITED TO 5L/S IN ACCORDANCE WITH ROCHDALE COUNCIL PLANNING CONDITION.

GEOSMART FLOODRISK ASSESSMENT 80754.00.01R1 PROPOSES FOLLOWING MEASURES IN MITIGATION OF GROUND WATER FLOOD RISK:

- MINIMUM FINISHED FLOOR LEVEL 0.3M ABOVE ADJACENT GROUND LEVELS - NOT POSSIBLE OVER FULL FOOTPRINT DUE TO SITE SLOPE.
- WATERPROOF TANKING OF THE GROUND FLOOR/BASEMENT - GROUND FLOOR TO BE TANKED BY SPECIALIST.
- INTERCEPTOR DRAINS - INTERCEPTOR DRAINS NOT PRACTICABLE.
- AUTOMATIC SUMP TO EXTRACT FLOOD WATER - SUMP NOT REQUIRED AS GROUND WATER IS NOT CONTAINED IN SUB-FLOOR VOID - REAR WALLS AND LOWER INTERNAL GROUND LEVEL WILL ALLOW GROUND WATER MOVEMENT OUT OF BUILDING.
- NON-RETURN FLAP VALVES ON THE PROPOSED FOUL AND SURFACE WATER SEWER LINES - NON-RETURN FLAPS TO BE INCLUDED.

PRELIMINARY

REV	COMMENTS	DATE	BY
H	FULL SITE DRAINAGE INCLUDED	14/10/25	WR
G	ONLY CONNECTION TO CULVERT SHOWN	08/10/25	WR
F	POTENTIAL CONNECTION SHOWN TO CULVERT	08/10/25	WR
E	GREEN LANDSCAPING HIGHLIGHTED	25/09/25	WR
D	SW CONNECTED TO CULVERT IN A58 - DISCOUNTED	08/08/25	WR
C	UPDATED TO COMMENTS - RAIN GARDEN ADDED	03/07/25	RC
B	PUMPS MOVED TO SUIT CONTRACTORS COMMENTS	09.06.25	WR
A	REVISED TO SUIT ARCHITECTS LAYOUT CHANGES	24.03.25	WR
--	INITIAL ISSUE	20.01.25	WR

BMC

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CLIENT: POSSABILITIES

PROJECT: WUERDLE STREET, ROCHDALE

TITLE: DRAINAGE GENERAL ARRANGEMENT

DRAWN BY:	CHECKED BY:	SCALE:	DATE:
WR	SJB	1:100	01/25

DRAWING NUMBER: J8426/D01
REVISION: H