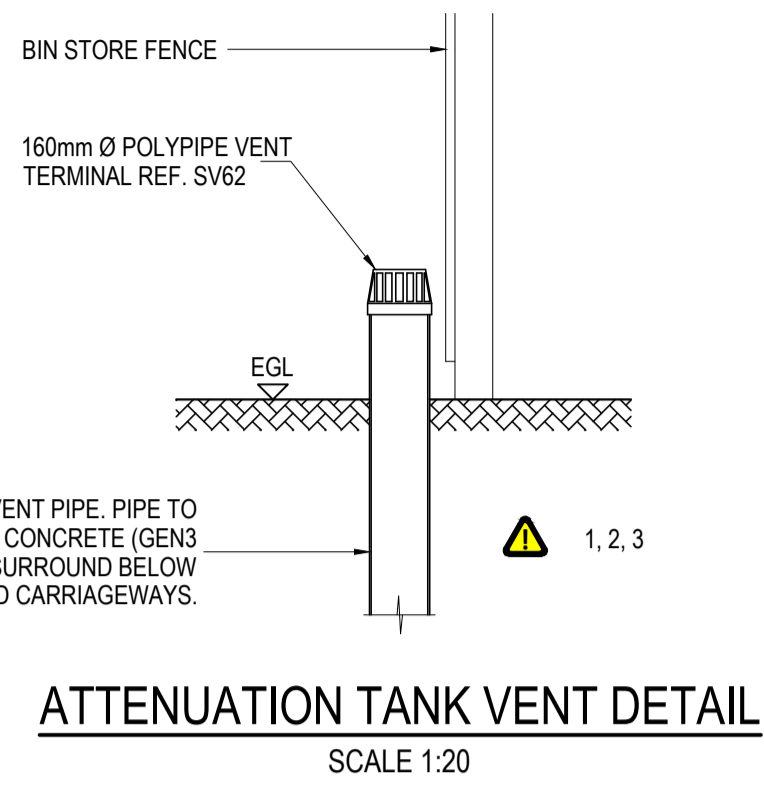


**TYPICAL SECTION THROUGH ATTENUATION TANK**  
SCALE 1:20

CONSIDERATION TO BE GIVEN REGARDING THE TRACKING OF PLANT EQUIPMENT OVER AND IMMEDIATELY ADJACENT TO THE CELLULAR CONSTRUCTION DURING CONSTRUCTION. IF IN ANY DOUBT SEEK SPECIALIST ADVICE

ATTENUATION TANK SYSTEM TO BE INSTALLED TO MANUFACTURER'S SPECIFICATION WITH AIR VENT(S) CONVENIENTLY LOCATED. CONFIGURATION OF SHOWN INDICATIVELY ONLY

REFER TO ENLARGED DETAIL FOR WRAPPING AND BEDDING REQUIREMENTS OF ATTENUATION TANK



**ATTENUATION TANK VENT DETAIL**  
SCALE 1:20

CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 - MANAGING H&S INFORMATION BOX FOR THE CONSTRUCTION AND MAINTENANCE OF THE PROJECT

IN ADDITION TO THE HAZARDS AND RISKS NORMALLY ASSOCIATED WITH THE TYPE OF WORKS DETAILED ON THIS DRAWING, TAKE NOTE OF THE FOLLOWING SIGNIFICANT RISKS WHICH ARE NOT OBVIOUS, ARE UNUSUAL, OR LIKELY TO BE DIFFICULT TO MANAGE. IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.

INDICATES A RESIDUAL RISK WARNING

1. AVOIDANCE OF EXISTING BURIED AND UNKNOWN UNDERGROUND SERVICES. BEFORE STARTING WORK, UNDERGROUND SERVICE PLANS SHOULD BE OBTAINED AND SERVICE SCANNING MUST BE COMPLETED BY THE CONTRACTOR.
2. CONTAMINATED OR UNSTABLE GROUND CONDITIONS.
3. THE DESIGN OF TEMPORARY WORKS, SUCH AS TRENCH SUPPORT, DE-WATERING, TEMPORARY PROPPING, ETC., WHICH MUST BE UNDERTAKEN BY A TEMPORARY WORKS DESIGNER.

COMPACTION OF THE FIRST 300mm OF STONE OVER THE TOP AND IMMEDIATELY ADJACENT TO THE ATTENUATION TANKS MUST BE UNDERTAKEN BY USE OF NON-MECHANICAL COMPACTION PLANT WITH A GROSS WEIGHT OF LESS THAN 2300kgm.

THIRD PARTY VALIDATION IS TO BE UNDERTAKEN UPON THE COMPLETED TANKING MEMBRANE INSTALLATION PRIOR TO COMMENCEMENT OF BACKFILLING. A SUPPORTING VALIDATION REPORT IS TO BE PROVIDED BY THE THIRD PARTY

TEMPORARY PROTECTION TO ATTENUATION TANK IS TO BE PROVIDED UNTIL FULL HARDSTANDING CONSTRUCTION IS COMPLETE - PROVIDE TEMPORARY BYPASS DRAINS

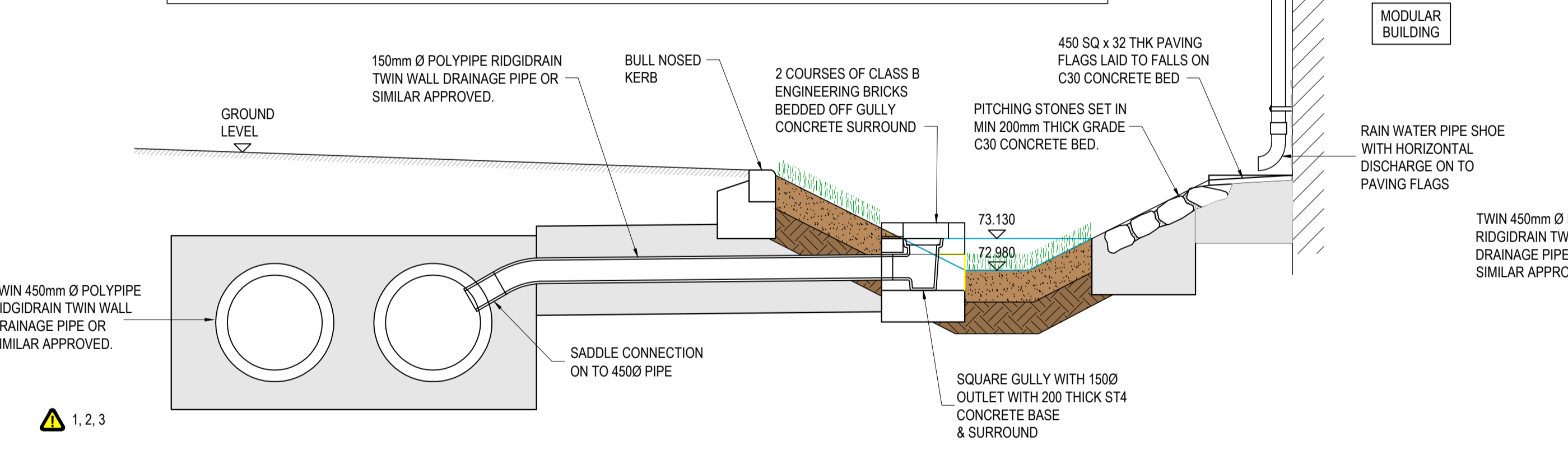
SHOULD GROUND WATER BE ENCOUNTERED THEN APPROPRIATE DE-WATERING METHODS SHOULD BE USED. SEEK SPECIALISTS ADVICE FOR INSTALLATION OF ATTENUATION TANKS

ATTENUATION TANKS AND ASSOCIATED PROTECTION (MEMBRANES AND PROTECTION FLEECE / BOARD) ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S DETAILS AND SPECIFICATIONS

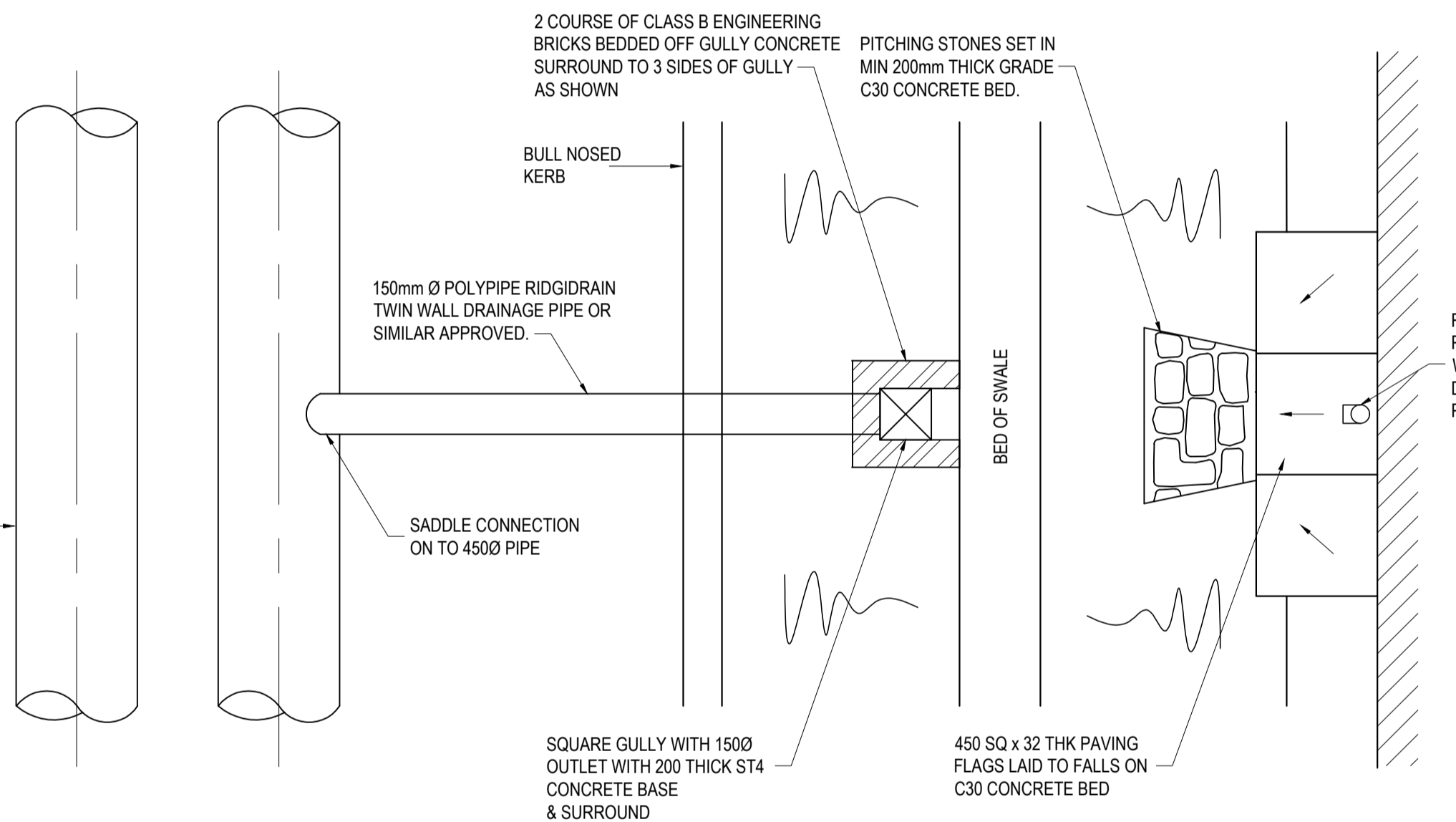
**GENERAL NOTES**

1. DRAINAGE DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH: BS EN 12056 - GRAVITY DRAINAGE SYSTEMS INSIDE BUILDINGS. BS EN 752 - DRAIN AND SEWER SYSTEMS OUTSIDE BUILDINGS. BS EN 1810 - CONSTRUCTION AND TESTING OF DRAINS AND SEWERS. SEWERS FOR ADOPTION - 7TH EDITION.
2. THE CONTRACTOR IS TO CHECK THE CONDITION OF ALL EXISTING DRAINAGE DETAILS TO CONFIRM THEY ARE IN GOOD WORKING ORDER AND THE LEVELS SHOWN ON THIS DRAWING ARE ACCURATE PRIOR TO COMMENCEMENT OF ANY WORKS OR DURING WEEK ONE OF THE CONTRACT PROGRAMME. SLEATER & WATSON LLP ENGINEER TO BE NOTIFIED OF ANY DISCREPANCIES.
3. ALL ARISING THAT ARE TO BE REMOVED FROM SITE SHALL BE DISPOSED OF AT A LICENSED WASTE DISPOSAL SITE. WHERE NECESSARY TEST CERTIFICATES FOR ARISING CONTAINING CONTAMINANTS SHOULD BE SUBMITTED TO THE LICENSED WASTE DISPOSAL SITE FOR APPROVAL AND ACCEPTANCE AS SOON AS IS PRACTICALLY POSSIBLE
4. ALL PROPOSED DRAINAGE DETAILS ARE TO BE CONSTRUCTED TO THE COMPLETE SATISFACTION OF THE PROJECT'S BUILDING CONTROL OFFICER
5. ALL SURFACE WATER INTERNAL BELOW GROUND DRAINAGE AND EXTERNAL DRAINAGE UP TO AND INCLUDING 300mm DIAMETER IS TO BE POLYPIPE RIDGIDRAIN TWIN WALL HOPE PIPEWORK OR SIMILAR APPROVED IN MAXIMUM 3.0m LONG LENGTHS.
6. ALL POLYPIPE BELOW GROUND DRAINAGE IS TO BE CONNECTED VIA POLYPIPE DOUBLE SOCKET COUPLINGS WITH EPDM SEALS REFERENCED - CRD100-SRD100 FOR 100Ø, CRD150-SRD150 FOR 150Ø, CRD225-SRD225 FOR 225Ø AND CRD300-SRD300 FOR 300Ø.
7. ALL SURFACE WATER EXTERNAL BELOW GROUND DRAINAGE WITH COVER UP TO 1.20m IS TO BE BEDDED AS TYPE 2 - ST2 PREPRESSED MIX CONCRETE BED AND SURROUND WITH COMPRESSIBLE FILLER BOARD AT PIPE JOINTS.
8. ALL SURFACE WATER EXTERNAL BELOW GROUND DRAINAGE WITH COVER EXCEEDING 1.20m IS TO BE BEDDED AS TYPE 5.
9. ALL FOUL WATER INTERNAL BELOW GROUND DRAINAGE AND EXTERNAL DRAINAGE UP TO AND INCLUDING 300mm DIAMETER IS TO BE REPIWORTH SUPERLEVEE VERIFIED CLAY PIPEWORK OR SIMILAR APPROVED TO BS EN 251-1.
10. EXCAVATIONS, BACKFILLING AND REINSTATEMENT WITHIN EXISTING PUBLIC AND PRIVATE HIGHWAYS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE DIT AND HAUC NEW ROADS AND STREET WORKS ACT 1991 - SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS.
11. ALL DRAINS ARE TO BE LAID TO THE GRADIENTS INDICATED ON PLAN. IN THE ABSENCE OF THIS INFORMATION THE FOLLOWING MINIMUM GRADIENTS CAN BE ADOPTED:  
SURFACE WATER 150mm Ø = 1 IN 150  
SURFACE WATER 225mm Ø = 1 IN 200
12. ALL CONCRETE MANHOLES ARE TO BE FORMED USING STANTON BONNA CONCRETE RINGS, COVER SLABS AND REDUCING SLABS (WHERE APPLICABLE) OR SIMILAR APPROVED TO BS EN 1917 AND BS 5911-3. FOR CONSTRUCTION AND SIZES REFER TO DETAILS DRAWING.
13. ALL MANHOLE COVERS ARE TO BE IN ACCORDANCE WITH BS EN 124 BY CLARK-DRAIN TO THE LOAD CLASS NOTED WITHIN THE MANHOLE SCHEDULE AND SIZED IN ACCORDANCE WITH SLEATER & WATSON'S DETAIL DRAWINGS.
14. ALL MANHOLE COVERS ARE TO BE ORIENTATED TO SUIT EXTERNAL FEATURES, I.E. BUILDINGS, KERB LINES, BLOCK PAVING (IF PRESENT), ETC.
15. ALL DRAINAGE CHANNELS, ASSOCIATED GULLY / SUMP UNITS AND GRATINGS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S DETAILS. DRAINAGE CHANNEL BED AND SURROUND SHALL BE CONSTRUCTED IN ACCORDANCE WITH SLEATER & WATSON'S DETAIL DRAWINGS.
16. THE ATTENUATION TANK IS TO BE WRAPPED IN A HIGH DENSITY POLYETHYLENE MEMBRANE, VISQUEEN GX GEOMEMBRANE x 1.0mm THICK. MEMBRANE IS TO BE PROTECTED ON THE OUTSIDE BY A VISQUEEN GEOTEXTILE PROTECTION BLANKET OR VISQUEEN 3.0mm THICK HEAVY DUTY PROTECTION BOARD. THIRD PARTY VALIDATION IS TO BE UNDERTAKEN UPON THE COMPLETED TANKING MEMBRANE INSTALLATION PRIOR TO COMMENCEMENT OF BACKFILLING. A SUPPORTING VALIDATION REPORT IS TO BE PROVIDED BY THE THIRD PARTY.
17. LOCATION OF THE VENT OUTLET TO THE ATTENUATION TANKS IS AS PER THE PLAN DRAWING OR IS TO BE AGREED WITH THE ARCHITECT/CLIENT.
18. PRIOR TO CCTV SURVEY, THOROUGHLY FLUSH WITH WATER AND ROD ALL PIPELINES AND MANHOLES TO REMOVE ANY CONSTRUCTION DEBRIS, BACKFILL MATERIAL AND SILT. ANY DEBRIS PRESENT SHALL BE SAFELY DISPOSED OF WITHOUT DISCHARGING THEM INTO SEWERS OR WATERCOURSES.
19. UPON COMPLETION OF THE PROPOSED DRAINAGE WORKS, THE CONTRACTOR IS TO ARRANGE FOR ALL SYSTEMS, INCLUDING INTERFACES WITH EXISTING DRAINAGE PIPES AND MANHOLES, TO BE CCTV SURVEYED. IN ADDITION, THE TWIN WALL HOPE INSTALLATIONS ARE TO BE LASER PROFILED TO RECORD THE QUALITY AND ANY DEFORMATION OF THE NETWORK. A SUBSEQUENT REPORT IS TO BE PROVIDED TO SLEATER & WATSON. IT IS FURTHER RECOMMENDED THAT LASER PROFILING IS UNDERTAKEN ON HOPE DRAINS BELOW HARD SURFACES PRIOR TO COMPLETION

PITCHING STONES SET IN MIN 200mm THICK GRADE C30 CONCRETE BED. STONES ARE TO BE GRANITE OR OTHER CLEAN, HARD DENSE AND DURABLE STONES FREE FROM CRACKS, KAOLINISED PATCHES, ORGANIC AND OTHER IMPURITIES. THE DIMENSION OF EACH STONE MEASURED PERPENDICULAR TO THE FACE OF THE PITCHING SHALL NOT BE LESS THAN 225mm AND THE EXPOSED FACE OF EACH STONE SHALL NOT BE LESS THAN 0.02m<sup>2</sup> IN AREA. THE SIDES OF THE STONES SHALL BE ROUGHLY TRIMMED WITH A SPALLING HAMMER TO OBTAIN A CLOSE FIT. THE JOINTS IN THE PITCHING STONES ARE TO BE SEALED WITH 1:2 CEMENT/SAND MORTAR FINISHED NEATLY FLUSH WITH THE SURROUNDING STONES. THE PITCHING STONES SHALL BE LEFT CLEAN OF ALL MORTAR AND STAINS

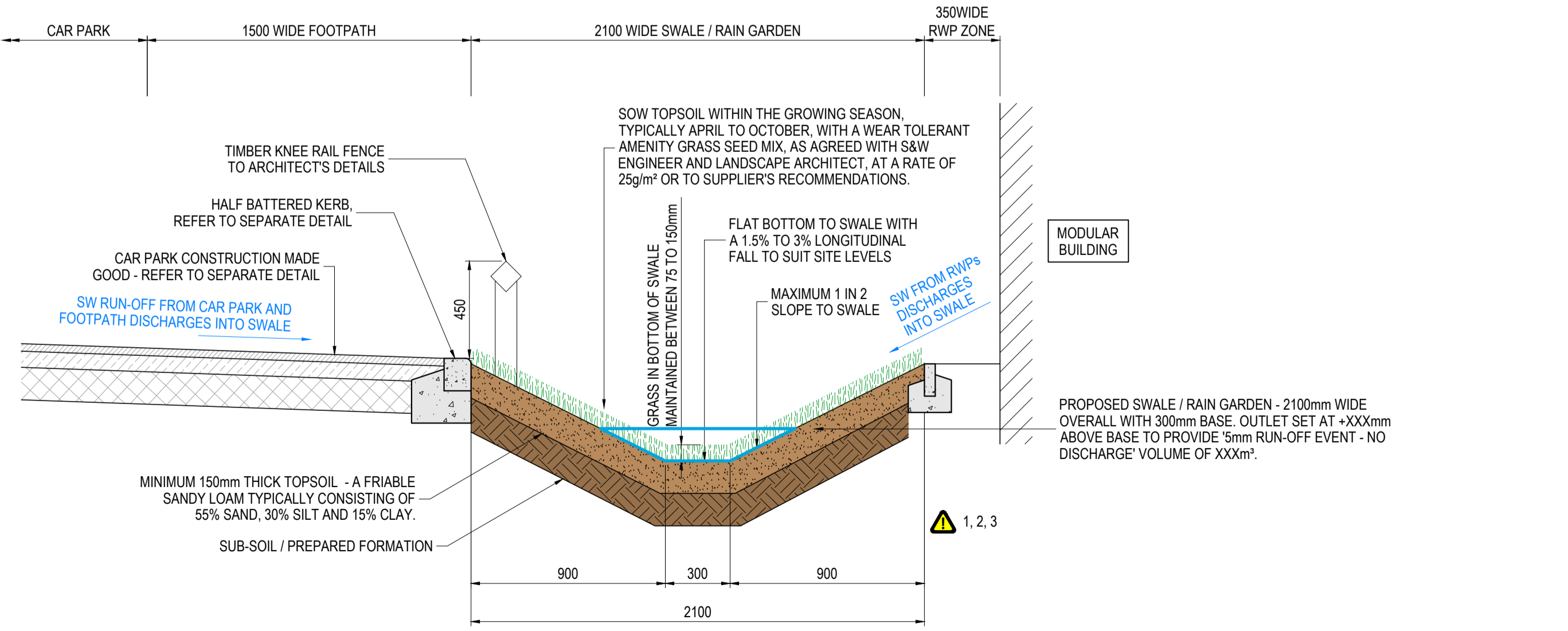


**SECTION THROUGH SWALE & SURFACE WATER DRAINAGE SYSTEM**

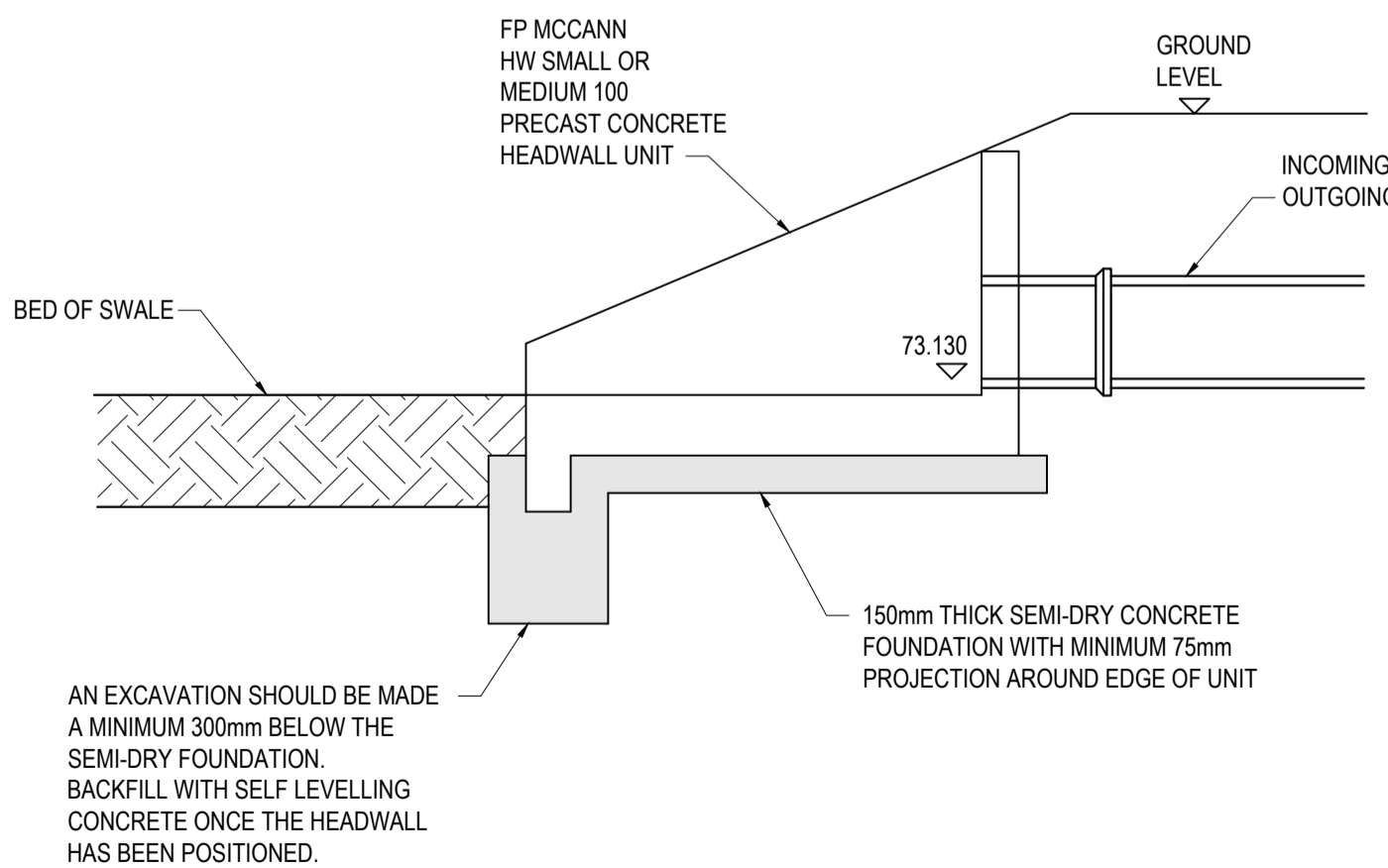


**PART PLAN ON SWALE & SURFACE WATER DRAINAGE SYSTEM**

DRAWING ISSUED FOR DISCHARGE OF PLANNING CONDITIONS



**TYPICAL SWALE / RAIN GARDEN DETAIL**  
SCALE 1:20



**PRECAST CONCRETE HEADWALL DETAIL**

P1	PRELIMINARY ISSUE	14.05.26	MB
REV	AMENDMENTS	DATE	INTS
STATUS		PRELIMINARY	
<b>Sleater &amp; Watson</b>			
Consulting Civil & Structural Engineers. Ribble House, Meanygate, Bamber Bridge, Preston, PR5 6UP Telephone: 01772 821044 E-mail: admin@sleaterwatson.co.uk Website: www.sleaterwatson.co.uk			
CLIENT		BAE SYSTEMS	
PROJECT		MODULAR BUILDING, (CEB REPLACEMENT), BAE SYSTEMS, SAMLESBURY.	
TITLE		SUDS DETAILS	
DRAWN	CHECKED	DATE	PROJECT No.
MB	GJW	MAY. 2026	225/011
SCALE@A1	AS SHOWN		
DRG No.		CEB-SAW-XX-00-52-DR-C-5222-S0-P1	