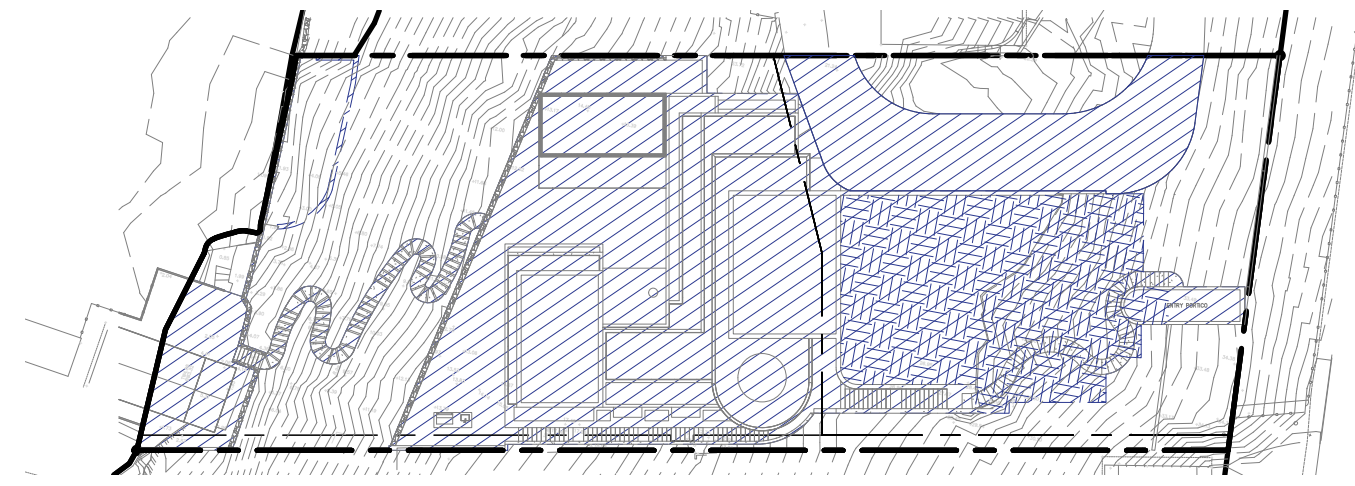


EXISTING IMPERVIOUS AREA: 566m² (32%)
SCALE = 1 : 500



CIVIL CONSULTING ENGINEERS



PROPOSED IMPERVIOUS AREA: 1,030m² (58%)
SCALE = 1 : 500

PROPOSED NEW DWELLING

139–141 RIVERVIEW ROAD, AVALON BEACH

STORMWATER DRAINAGE NOTES:

- ALL PIPES TO BE 100mm Ø UNLESS NOTED OTHERWISE.
- ALL PIPES TO BE uPVC TO AS 1254–2002 UNLESS NOTED OTHERWISE.
- ALL PIPES TO BE LAYED AT 1 % MINIMUM GRADE UNLESS NOTED OTHERWISE.
- ALL PIPES SHALL BE LAID ON A 75mm SAND BED, COMPACTED TO 100% S.M.D.D. BELOW PAVEMENTS. (NO COMPACTION REQUIRED BELOW LANDSCAPING). COVER TO SURFACE FROM TOP OF PIPE TO BE 300mm MINIMUM. BACKFILL TO BE ADEQUATELY CONSOLIDATED AROUND PIPES BY METHOD OF RAMMING AND WATERING IN. TRENCHES TO BE FILLED WITH GRANULAR MATERIAL AS SPECIFIED.
- ALL DOWN PIPES TO BE 100mm Ø UNLESS NOTED OTHERWISE.
- DOWN PIPE LOCATIONS ARE INDICATIVE ONLY. LOCATIONS TO BE CONFIRMED WITH ARCHITECT PRIOR TO COMMENCEMENT WITH WORK.
- PROVIDE CLEANING EYES AT ALL DOWNPIPES.
- ALL PITS TO BE CAST INSITU OR, IF PRECAST, APPROVED BY ENGINEER. CAST INSITU PITS TO HAVE 150mm THICK CONCRETE WALLS AND BASE. WALLS TO BE REINFORCED WITH 1 N12 TOP TIE UNLESS NOTED OTHERWISE. CAST INSITU PITS GREATER THAN 1000 DEEP TO BE MINIMUM 900x600 AND TO HAVE 150mm THICK CONCRETE WALLS AND BASE. WALLS TO BE REINFORCED WITH N12 AT 250 EACH WAY UNLESS NOTED OTHERWISE.
- ALL PITS GREATER THAN 1000mm DEEP SHALL HAVE STEP IRONS AS PER COUNCIL STANDARDS.
- ALL WORK TO BE IN ACCORDANCE WITH LOCAL COUNCIL STANDARDS AND SPECIFICATIONS.
- PRIOR TO COMMENCING ANY SITE WORKS THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL MEASURES TO APPROVED SEDIMENT AND EROSION CONTROL PLAN, EPA GUIDELINES AND COUNCIL SPECIFICATIONS. ALL MEASURES TO REMAIN IN PLACE UNTIL COMPLETION AND STABILIZATION OF THE SITE TO COUNCIL SATISFACTION.
- ALL LEVELS SHOWN ARE TO AHD UNLESS NOTED OTHERWISE.
- ENSURE THAT ALL PITS AND STORMWATER PIPES ARE LOCATED CLEAR FROM TREE ROOT SYSTEMS.
- ALL EXISTING EARTHENWARE PIPES TO BE UPGRADED TO uPVC.
- ALL WORKS TO BE IN ACCORDANCE WITH AS 3500.3 NATIONAL PLUMBING DRAINAGE CODE PART 3 – STORMWATER DRAINAGE.
- UNLESS NOTED OTHERWISE, SUB–SOIL DRAINS ARE TO BE INSTALLED IN ACCORDANCE WITH AS3500.3 ALONGSIDE WALLS THAT IMPEDE THE NATURAL FLOW OF GROUNDWATER. THIS MAY ALSO INVOLVE TRENCHING INTO THE CLAY OR ROCK SUBGRADE TO DIRECT GROUNDWATER AWAY FROM STRUCTURES.
- IF NOT INDICATED ON PLANS, PROVIDE LEAF CATCHERS TO ALL DOWNPIPES.
- ORIFICE PLATE MUST BE INSTALLED PRIOR TO INSTALLATION OF THE ROOF DRAINAGE SYSTEM AND CONNECTION OF THE SITE STORMWATER SYSTEM TO THE ONSITE DETENTION TANK.
- EXISTING STORMWATER SYSTEM TO BE CHECKED AND UPGRADED AS REQUIRED IN ACCORDANCE WITH AS 3500.3.
- CARE SHOULD BE TAKEN WHEN UNDERTAKING WORKS IN THE VICINITY OF SELECTED TREES NOT TO DISTURB THE TREE ROOT SYSTEM. HAND DIGGING OF TRENCHES MAY BE NECESSARY. REFER ARBORIST'S REPORT WHERE REQUIRED.
- CONTRACTOR TO LOCATE ALL EXISTING SERVICES PRIOR TO EXCAVATION AND NOTIFY ENGINEER OF ANY POTENTIAL CLASHES WITH THE PROPOSED DRAINAGE EASEMENT PIPE LINE.
- ALL SUB–SOIL DRAINAGE TO BE INSTALLED IN ACCORDANCE WITH THE STRUCTURAL AND GEOTECHNICAL REQUIREMENTS, AUSTRALIAN STANDARDS AS 3500.3 AND IS TO BE DIRECTED TO THE SITE DRAINAGE SYSTEM BY MEANS OF GRAVITY DISCHARGE ONLY. DO NOT CONNECT SUB–SOIL PIPES TO AREAS WITH HIGHER SURFACE LEVELS U.N.O..
- ALL PIPES SHOWN ARE INDICATIVE ONLY AND MINIMUM CLEARANCES FROM THE EXTERNAL WALLS OF BUILDINGS, FOR THE EXCAVATION OF TRENCHES, ARE TO BE PROVIDED IN ACCORDANCE WITH AS 3500.3.
- ANY COMPONENTS OF THE EXISTING SYSTEM PROPOSED TO BE RETAINED ARE TO BE CERTIFIED DURING CONSTRUCTION TO BE IN GOOD CONDITION AND OF ADEQUATE CAPACITY TO CONVEY ADDITIONAL RUNOFF AND BE REPLACED OR UPGRADED IF REQUIRED.
- ANY CHARGED PIPES MUST BE A MINIMUM OF 100mm (UNLESS NOTED OTHERWISE) WITH ALL JOINTS MUST BE SOLVENT WELDED. A CLEANING EYE, OR FLUSH OUT POINT, MUST BE PROVIDED AT THE LOW POINT IN THE SYSTEM WITHIN A PIT THAT CAN BE DRAINED TO AN ONSITE DISPERSAL SYSTEM.
- PROVISION IS TO BE MADE FOR THE COLLECTION AND DISPOSAL IN AN APPROVED MANNER OF ANY OVERLAND FLOW OR SUB–SURFACE FLOW ENTERING THE SUBJECT PROPERTY, OR CONCENTRATED AS A RESULT OF THE PROPOSED WORKS. ANY REDIRECTION OR TREATMENT OF FLOWS ENTERING THE PROPERTY SHALL NOT ADVERSELY AFFECT ANY OTHER PROPERTIES.
- PREVENT ANY STORMWATER EGRESS INTO ADJACENT PROPERTIES BY CREATING PHYSICAL BARRIERS AND SURFACE DRAINAGE INTERCEPTION.
- GUTTER GUARDS MUST BE INSTALLED ON ALL GUTTERS TO MINIMISE DEBRIS ENTERING THE SYSTEM.
- ALL SUB–SOIL DRAINAGES, STRIP DRAINS AND DRAINAGE PITS SHALL DISCHARGE TO THE ESTABLISHED SITE DISCHARGE POINT U.N.O AND BE CONSTRUCTED IN ACCORDANCE WITH AS3500.3 REQUIREMENTS.
- OVERFLOW PATHS SHALL BE PROVIDED TO ALLOW FOR FLOWS IN EXCESS OF THE CAPACITY OF THE PIPE/DRAINAGE SYSTEM DRAINING THE SITE.
- WHERE ANY NEW STORMWATER DRAINAGE SYSTEM CROSSES THE FOOTPATH AREA WITHIN ANY ROAD, SEPERATE APPROVAL UNDER SECTION 139 OF THE ROAD ACT 1993 MUST BE OBTAINED FROM COUNCIL FOR THOSE WORKS PRIOR TO THE ISSUE OF ANY CONSTRUCTION CERTIFICATE.
- CONCEALED DOWNPIPES MUST BE INSTALLED IN ACCORDANCE WITH SECTION 4.5.6 OF AUSTRALIAN STANDARDS AS3500.3 REQUIREMENTS. BUILDER TO ENSURE LOCATIONS DO NOT RESTRICT NORMAL OPERATION OF DOORS, WINDOWS, ACCESS OPENINGS OR OCCUPANCY OF A BUILDING, DO NOT CAUSE NUISANCE OR LEAD TO INJURY OF A PERSON, DO NOT INTERFERE WITH THE STRUCTURAL INTEGRITY OF THE WALL OR COLUMN, AS CLOSE AS PRACTICABLE TO THE SUPPORTING STRUCTURE, ARE PROTECTED FROM MECHANICAL DAMAGE, AT LEAST 100mm CLEAR OF ANY ELECTRICAL CABLE OR GAS PIPE, AT LEAST 50mm FROM ANY OTHER PIPEWORK OR SERVICE. CONCEALED DOWNPIPES TO HAVE INSPECTION OPENINGS THAT EXTEND TO THE FACE OF THE WALL OR SLAB FOR MAINTENANCE. SEAMS AND JOINTS TO BE WATERTIGHT. IF INSPECTION OPENINGS ARE REQUIRED FOR TESTING AND MAINTENANCE PURPOSES, INSPECTION OPENINGS SHALL HAVE A NOMINAL SIZE OF NOT LESS THAN THE NOMINAL DIAMETER OF THE DOWNPIPE.
- WHERE A DOWNPIPE IS CONNECTED TO A SITE STORMWATER DRAIN LOCATED BELOW A SLAB–ON–GROUND, THE CONNECTION OF A CONCEALED DOWNPIPE SHALL BE LOCATED ABOVE THE LEVEL OF THE FLOOR.
- SUPPORT SYSTEMS OF DOWNPIPES OR PIPEWORK MUST BE INSTALLED IN ACCORDANCE AUSTRALIAN STANDARDS AS3500.3 REQUIREMENTS.
- FOR CONCEALED EAVES GUTTERS, U.N.O THE TOP EDGE OF THE FASCIA SHOULD NOT BE LESS THAN 25mm BELOW THE TOP OF THE BACK OF THE GUTTER, OR INTEGRAL FLASHING (TAIL) WITH THE TOP EDGE OF THE FLASHING NOT LESS THAN 25mm ABOVE THE TOP OF THE FASCIA.
- THE FOLLOWING ABBREVIATIONS DENOTE:
FSL – FINISHED SURFACE LEVEL OR RL – REDUCED LEVEL
IL – INVERT LEVEL OF PIPE
INV. – INVERT LEVEL OF PIT
CL – CENTRELINE OF ORIFICE
TWL – TOP WATER LEVEL

NOTE:

THE BUILDER/CONTRACTOR SHALL LOCATE ALL EXISTING PUBLIC UTILITY SERVICES WITHIN THE SITE, FOOTPATH AREA AND ROAD RESERVE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ALL LOCATIONS AND LEVELS OF SERVICES SHALL BE REPORTED TO THE STORMWATER ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORKS TO ENSURE THAT THERE ARE NO OBSTRUCTIONS IN THE LINE OF THE DRAINAGE DISCHARGE PIPES.

RAINWATER HARVESTING REQUIREMENTS:

- CONSIDERING THE ROOF CATCHMENT AREA, LOCATION OF PROPERTY, INTENDED USE OF RAINWATER AND GARDEN SIZE WE RECOMMEND PROVIDING A RAINWATER TANK FOR USE AS PER BASIX REQUIREMENTS, HCCRENS WATER SMART PRACTICE NOTE (N.4) AND THE NSW HEALTH REQUIREMENTS FOR NON DRINKING USE ONLY AS FOLLOWS:
a) TO WATER GARDEN AREAS b) POOL TOP–UP c) TOILETS d) LAUNDRY e) BASIX REQUIREMENTS.
 - THE TANKS PROVIDED WILL REDUCE PRESSURE ON COUNCIL'S STORMWATER INFRASTRUCTURE.
 - REFERENCES: COOMBS P.J. & KUCZERA G. (2001), "RAINWATER TANK DESIGN FOR WATER SUPPLY & STORMWATER MANAGEMENT," STORMWATER INDUSTRY ASSOCIATION REGIONAL CONFERENCE, PATRICK DUPONT & STEVE SHACKEL, "RAINWATER" AUSTRALIAN GOVERNMENT (2004), "GUIDANCE ON USE OF RAINWATER TANKS",
 - ALL CONNECTIONS TO PLUMBING AND RAINWATER TANKS TO BE IN ACCORDANCE WITH SYDNEY WATERS' GUIDE "INSTALLING A RAINWATER TANK" AVAILABLE AT www.sydneypwater.com.au OR FROM LOCAL COUNCIL GUIDELINES.
 - PROVIDE A DUAL SUPPLY SYSTEM AND BACKFLOW PREVENTION SYSTEM IN ACCORDANCE WITH 'BASIX–DESIGN GUIDE FOR SINGLE DWELLINGS' BY NSW DEPARTMENT OF INFRASTRUCTURE, PLANNING AND NATURAL RESOURCES AND AS3500.1.
 - IF NOT SPECIFIED ON PLANS, THE FIRST FLUSH SYSTEM IS TO HAVE A MINIMUM SIZE OF 20L PER 100m² OF ROOF CATCHMENT AREA PRIOR TO ENTERING THE RAINWATER TANK. INDIVIDUAL SITE ANALYSIS IS REQUIRED IN HEAVILY POLLUTED AREAS TO DETERMINE IF LARGER VOLUMES OF FIRST FLUSH RAINWATER ARE TO BE DIVERTED. IF IN DOUBT, CHECK WITH LOCAL HEALTH AUTHORITIES.
 - SCREENED DOWNPIPE RAINWATER HEAD OR OTHER SUITABLE LEAF AND DEBRIS DEVICE TO BE INSTALLED ON EACH DOWNPIPE. SCREEN MESH TO BE 4–6mm AND DESIGNED TO BE SELF–CLEANING.
 - FIRST FLUSH DEVICES, OR APPROVED ALTERNATIVE, TO BE INSTALLED WITH AN AUTOMATED DIVERSION AND DRAINAGE SYSTEM, THAT IS, NO MANUAL DIVERSION AND DRAINAGE VALVES. REFER TYPICAL FLUSH OUT PIT FOR DETAILS. THIS SHOULD CATER FOR THE FIRST 1mm OF RAINFALL.
 - BEFORE PURCHASING MATERIALS OR PAINT TO BE USED ON ROOF CATCHMENT AREAS, THE MANUFACTURER'S RECOMMENDATIONS ON LABELS AND BROCHURES FOR RAINWATER TANK SUITABILITY TO BE READ AND ADHERED TO.
 - PRE–STORAGE PITS FOR UNDERGROUND RAINWATER STORAGE TANKS AND FLUSH OUT PITS MAY ASSIST IN LIMITING SILT, AND PREVENT VERMIN, INSECTS (INCLUDING MOSQUITOES) AND DEBRIS FROM ENTERING THE RAINWATER STORAGE AREA.
 - RAINWATER TANK TO BE WATER PROOFED IN ACCORDANCE WITH HB 230–200B
 - BUILDER OR PLUMBER TO ENSURE THE INSTALLATION OF THE RAINWATER TANK SYSTEM IS IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND THE RAINWATER TANK DESIGN AND INSTALLATION HANDBOOK – HB 230–200B. IF IN DOUBT CONTACT ENGINEER.
 - NOISE EMISSIONS FROM ANY PUMPS DO NOT EXCEED 5db(A) ABOVE AMBIENT BACKGROUND NOISE LEVEL MEASURED AT THE ALLOTMENT BOUNDARY.
 - AT THE COMPLETION OF THE WATER SERVICE INSTALLATION AND PRIOR TO HYDROSTATIC TESTING, THE SYSTEM SHALL BE THOROUGHLY FLUSHED TO REMOVE ANY FOREIGN MATTER. THE FLUSHING SHALL BE UNDERTAKEN IN ACCORDANCE WITH AS3500.1 REQUIREMENTS – APPENDIX I, PARAGRAPH I3 AND CONTINUE UNTIL THE FLUSHED WATER RUNS COMPLETELY CLEAR. THE SYSTEM SHALL THEN BE PRESSURE TESTED IN ACCORDANCE WITH CLAUSE 16.3.1.
 - AT THE COMPLETION OF THE WATER SERVICE INSTALLATION THE RAINWATER STORAGE TANKS ARE TO BE TESTED IN ACCORDANCE WITH SECTION 16 OF AS3500.1.
- ### INSTALLATION OF PIPEWORK NEAR AND UNDER BUILDINGS NOTES:
- THE FOLLOWING APPLY TO A DRAIN IN CLOSE PROXIMITY TO FOOTINGS OR FOUNDATIONS:
- WHERE THE DRAIN PASSES UNDER A STRIP FOOTING, ITS ANGLE OF INTERSECTION WITH THE FOOTING IN THE HORIZONTAL PLANE SHALL BE NOT LESS THAN 45°, AND THE MINIMUM CLEARANCE BETWEEN THE TOP OF THE DRAIN TO THE UNDERSIDE OF THE FOOTING SHALL BE 25mm.
 - IF THE DRAIN IS LAID THROUGH FOOTINGS OR WALLS, OTHER THAN BELOW–GROUND EXTERNAL WALLS, IT SHALL BE INSTALLED WITH AN ANNULAR SPACE OF NOT LESS THAN 25mm FILLED WITH A LINER OF FLEXIBLE MATERIAL.
 - THE DRAIN MAY BE LAID THROUGH BELOW–GROUND EXTERNAL WALLS, PROVIDED–
 - TWO FLEXIBLE JOINTS ARE PROVIDED EXTERNALLY WITHIN 800mm OF THE EXTERNAL FACE OF THE WALL, AND SUCH JOINTS ARE NOT LESS THAN 600mm APART; AND
 - THE PENETRATION OF THE WALL IS MADE WATERTIGHT.
 - WHERE THE DRAIN IS TO BE LAID PARALLEL TO A FOOTING, THE TRENCH SHALL BE LOCATED AS FOLLOWS:
 - THE DRAIN SHALL BE LAID–
 - IN ACCORDANCE WITH NCC VOLUME TWO; AND
 - FOR SINGLE DWELLINGS, AS SHOWN IN FIGURE 6.2.8 OF AS3500.3.

SEDIMENT AND EROSION CONTROL NOTES:

- SILT FENCE AND ASSOCIATED WORKS INCLUDING INTERCEPTOR DRAIN IS TO BE INSTALLED BEFORE THE COMMENCEMENT OF ANY EXCAVATION.
- GEOTECHNICAL ENGINEER IS TO PROVIDE SITE STABILITY REQUIREMENTS. CUTS ARE TO BE EXECUTED TO THE REQUIRED LEVEL USING CONVENTIONAL EXCAVATION MACHINERY. AS A GUIDE, INITIALLY THE DEPTH OF FILL/CLAY IS TO BE ESTABLISHED TO ENSURE NEIGHBOURING PROPERTIES ARE NOT ADVERSELY AFFECTED. EARTH BATTERS TO BE A MAXIMUM SLOPE OF 1.0m VERT. TO 1.7m HORIZ. (AS PER GEOTECHNICAL REPORT). ANY BATTERS GREATER THAN 1.0m VERT. TO 1.7m HORIZ. ARE TO BE ADEQUATELY SHORED IN ACCORDANCE WITH GEOTECHNICAL ENGINEERS DETAILS AND INSTRUCTIONS.
- ANY PERMANENT RETAINING STRUCTURE IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ENGINEERS DETAILS AND INSTRUCTIONS.
- ALL PERMANENT RETAINING STRUCTURES ARE TO BE COMPLETED WITH MINIMUM DELAY FOLLOWING EXCAVATION.
- ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSPECTED AND MAINTAINED DAILY BY SITE MANAGER.
- CONTRACTOR TO MINIMISE DISTURBED AREAS.
- ALL STOCKPILES TO BE CLEAR FROM DRAINS, GUTTERS AND FOOTPATHS.
- DRAINAGE IS TO BE CONNECTED TO STORMWATER SYSTEM AS SOON AS POSSIBLE.
- ROADS AND FOOTPATH TO BE SWEEP DAILY.
- CONSTRUCTION VEHICLES ARE TO LEAVE AND ENTER THE SITE OVER AN ALL WEATHER SURFACE CONSISTING OF COURSE CRUSHED STONE OR BLUE METAL CONSTRUCTED WITHIN THE FRONT SETBACK AREA OPPOSITE THE EXISTING FOOTPATH CROSSING UNLESS NOTED OTHERWISE.
- EXCAVATION MACHINERY ARE TO BE UNLOADED AND LOADED UPON THIS ALL WEATHER SURFACE. CONCRETE PUMPS AND TRUCKS WILL ALSO UTILISE THE ALL WEATHER SURFACE FOR THEIR OPERATIONS.
- MATERIALS WILL BE UNLOADED UPON THE ALL WEATHER SURFACE WITHIN THE FRONT SETBACK AREA BY MEANS OF CRANES MOUNTED ON THE BACK OF DELIVERY TRUCKS OR UNLOADED BY HAND. A MOBILE CRANE MAY BE REQUIRED DURING THE CONSTRUCTION PROCESS.
- SOME STOCKPILING OF TOPSOIL REMOVED FROM THE BUILDING AREA MAY BE STORED ON THE SITE DURING THE CONSTRUCTION WITHIN THE PROPERTY IN AN AREA ENCLOSED WITHIN THE SEDIMENT CONTROL FENCING.
- ALL EXCAVATED & CONSTRUCTION MATERIALS, SHED, SKIP BINS, TEMPORARY WATER CLOSETS, SPOIL AND EQUIPMENT, ETC SHALL BE KEPT WITHIN THE PROPERTY. NO VEHICLES OR MACHINES SHALL BE KEPT WITHIN THE PROPERTY. NO VEHICLES OR MACHINES SHALL STAND ON COUNCIL FOOTPATHS FOR LARGE LENGTHS OF TIME.
- ALL RUBBISH & RECYCLABLE MATERIAL SHALL BE STOCKPILED IN WASTE BINS IN THE AREA NOMINATED ON THE SITE PLAN WITHIN THE SITE BOUNDARY. PUBLIC PROPERTY SHALL BE KEPT FREE OF RUBBISH AND RECYCLABLES AT ALL TIMES ANY WASTE MATERIALS SHALL BE REGULARLY COLLECTED FROM THE SITE AND DISPOSED OF IN AN APPROPRIATE FASHION.
- ANY BUILDING OR DEMOLITION WORKS INVOLVING ASBESTOS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT STANDARDS.
- VEHICLES LEAVING THE SITE WILL DO SO VIA THE ALL WEATHER BALLAST DRIVEWAY MADE OF COURSE AGGREGATE OR SIMILAR LOCATED WITHIN THE FRONT SETBACK AREA OF THE DEVELOPMENT. ANY DIRT OR MATERIAL DEPOSITED ON THE ROAD RESERVE OR ROADWAY IS TO BE PROMPTLY CLEANED.
- ANY EXCAVATED AREA REQUIRING SUPPORT WILL BE UNDERTAKEN BY THE OWNER USING STRUCTURALLY APPROVED RETAINING STRUCTURES.
- ADEQUATE SAFETY SIGNAGE MUST BE ERECTED IN A PROMINENT POSITION ON THE WORK SITE, WARNING OF UNAUTHORISED ENTRY TO WORK SITE AND INTENDING DANGERS.
- SAFETY FENCES SHALL BE PROVIDED AROUND ALL BOUNDARIES UNLESS A CONTINUOUS STRUCTURALLY ADEQUATE FENCE PRESENTLY EXISTS. THE FENCING SHALL BE ADEQUATE TO RESTRICT PUBLIC ACCESS TO THE SITE WHEN BUILDING WORK IS NOT IN PROGRESS OR THE SITE IS UNOCCUPIED.
- NOISE LEVELS SHALL NOT EXCEED COUNCIL REGULATION LEVELS. BUILDING AND DEMOLITION WORKS SHALL ONLY BE CARRIED OUT BETWEEN HOURS AND DAYS SPECIFIED BY COUNCIL.
- GEOTEXTILE FABRIC SHALL BE PLACED ON THE INSIDE OF THE SITE FENCING PRIOR TO SITE DISTURBANCE TO PREVENT SEDIMENT WASHING FROM CLEARED AND DISTURBED AREAS OF THE SITE INTO THE STORMWATER SYSTEM. DURING CONSTRUCTION, UNLESS OTHERWISE NOTED, UNCONTAMINATED RUNOFF FROM CLEARED OR DISTURBED AREAS ARE TO BE DIRECTED TO A TEMPORARY SILT ARRESTOR PIT THAT SHALL BE PROVIDED WITHIN THE SITE AT THE STREET BOUNDARY PROCESSING SITE STORMWATER BEFORE IT IS DISCHARGED TO THE STREET DRAINAGE SYSTEM OR WATERCOURSE.
- ALL TOP SOIL STRIPPED & STOCKPILED ONSITE IS TO BE PLACED IN NOMINATED AREAS ON PLAN OR TO COUNCIL REQUIREMENTS. ALL DISTURBED AREAS ARE TO BE STABILISED UPON THE COMPLETION OF BUILDING WORKS.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO BE CONTINUALLY MAINTAINED DURING CONSTRUCTION AND INSPECTED FOR STRUCTURAL DAMAGE AFTER EACH RAINFALL EVENT, WITH TRAPPED SEDIMENT BEING REMOVED TO THE TOPSOIL STOCKPILE.
- WHERE THERE IS THE POTENTIAL OF SITE EROSION TO PRODUCE EXCESSIVE SEDIMENT RUNOFF, SUITABLE GEOTEXTILE BARRIERS SHALL BE PLACED TO ALLEVIATE THE RISK ACCORDINGLY. BARE SURFACES SHALL BE KEPT MOIST TO REDUCE DUST LEVELS. GEOTEXTILE FABRIC LOCATED ON THE INSIDE OF FENCES SHALL ALSO BE UTILISED FOR DUST CONTROL WHERE NECESSARY.
- ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH:
 - LOCAL AUTHORITY REQUIREMENTS
 - EPA – POLLUTION CONTROL MANUAL FOR URBAN STORMWATER
 - LANDCOM NSW – MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION ("BLUE BOOK")
- PRIOR TO DISCHARGE OF SITE STORMWATER, GROUNDWATER AND SEEPAGE WATER INTO COUNCIL'S STORMWATER SYSTEM, CONTRACTORS MUST UNDERTAKE WATER QUALITY TESTS IN CONJUNCTION WITH A SUITABLY QUALIFIED ENVIRONMENTAL CONSULTANT OUTLING THE FOLLOWING:
 - COMPLIANCE WITH THE CRITERIA OF THE AUSTRALIAN AND NEW ZEALAND GUIDELINES FOR FRESH AND MARINE WATER QUALITY (2000)
 - IF SUBJECT TO THE ENVIRONMENTAL CONSULTANTS ADVICE, PROVIDE REMEDIAL MEASURES TO IMPROVE THE QUALITY OF WATER THAT IS TO BE DISCHARGED INTO COUNCIL'S STORMWATER DRAINAGE SYSTEM. THIS SHOULD INCLUDE COMMENTS FROM A SUITABLY QUALIFIED ENVIRONMENTAL CONSULTANT CONFIRMING THE SUITABILITY OF THESE REMEDIAL MEASURES TO MANAGE THE WATER DISCHARGED FROM THE SITE INTO COUNCIL'S STORMWATER DRAINAGE SYSTEM. OUTLINING THE PROPOSED, ONGOING MONITORING, CONTINGENCY PLANS AND VALIDATION PROGRAM THAT WILL BE IN PLACE TO CONTINUALLY MONITOR THE QUALITY OF WATER DISCHARGED FROM THE SITE. THIS SHOULD OUTLINE THE FREQUENCY OF WATER QUALITY TESTING THAT WILL BE UNDERTAKEN BY A SUITABLY QUALIFIED ENVIRONMENTAL CONSULTANT.

SURVEY NOTES:

- THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE PROJECT SURVEY. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. RTS CIVIL CONSLTING ENGINEERS PTY LTD DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE.
- SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT THE ENGINEER.
- REFERENCE SHOULD BE MADE DIRECTLY TO THE SURVEYOR BEFORE SETTING OUT.

EXISTING UNDERGROUND SERVICES NOTES:

- THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.
- RTS CIVIL CONSULTING ENGINEERS PTY LTD CANNOT GUARANTEE THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.
- CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY.
- CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.
- CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.
- CONTRACTOR IS TO CONFIRM FINDINGS FOR THE LOCAL COUNCIL OR SYDNEY WATER IN RELATION TO THE SEWER OR WATER MAINS LOCATED. CONFIRMATION OF MAINS IS REQUIRED PRIOR TO CONSTRUCTION. POSSIBLE CONFLICT OF SERVICES ARE TO BE REPORTED TO THE SUPERINTENDENT OR ENGINEER FOR FURTHER DIRECTIONS.

EXTERNAL NOTES:

- ALL ACTIVITIES AND WORKS EXTERNAL TO THE SITE, OR THAT AFFECT PUBLIC ROADS, ARE TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S CODES AND STANDARDS.
- PUBLIC FOOTPATHS SHALL BE RECONSTRUCTED TO THE SATISFACTION OF COUNCIL'S DIRECTOR OF ENGINEERING SERVICES. A ROAD OPENING PERMIT SHALL BE OBTAINED FOR ALL WORKS CARRIED OUT IN A PUBLIC OR COUNCIL CONTROLLED LAND.
- RESTORATION OF LANDSCAPING, ROADS AND PATHS SHALL BE TO COUNCIL'S REQUIREMENTS. ALL OTHER RESTORATION SHALL BE TOTHE SATISFACTION OF THE AFFECTED PARTIES.
- WHERE WORKS ARE UNDERTAKEN ON PUBLIC ROADS, ADEQUATE TRAFFIC CONTROL AND DIRECTIONS TO MOTORISTS SHALL BE PROVIDED BY OTHERS.

DRAWING SCHEDULE:

- SW001 – COVERPAGE, NOTES & CALCULATIONS SHEET 1 OF 2
SW002 – COVERPAGE, NOTES & CALCULATIONS SHEET 2 OF 2
SW100 – GROUND STORMWATER MANAGEMENT PLAN
SW101 – FIRST FLOOR STORMWATER MANAGEMENT PLAN
SW102 – SECOND FLOOR STORMWATER MANAGEMENT PLAN
SW103 – ROOF STORMWATER MANAGEMENT PLAN
SW104 – ENTRY PORTICO STORMWATER MANAGEMENT PLANS
SW200 – STORMWATER DRAINAGE DETAILS SHEET 1 OF 3
SW201 – STORMWATER DRAINAGE DETAILS SHEET 2 OF 3
SW202 – STORMWATER DRAINAGE DETAILS SHEET 3 OF 3

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NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE.



DEVELOPERS & EXCAVATORS MAY BE HELD FINANCIALLY RESPONSIBLE BY THE ASSET OWNER SHOULD THEY DAMAGE UNDERGROUND NETWORKS.

CARELESS DIGGING CAN DIGGING CAN:

- CAUSE DEATH OR SERIOUS INJURY TO WORKERS AND THE GENERAL PUBLIC
- INCONVENIENCE USERS OF ELECTRICITY, GAS, WATER AND COMMUNICATIONS
- LEAD TO CRIMINAL PROSECUTION AND DAMAGES CLAIMS
- CAUSE EXPENSIVE FINANCIAL LOSSES
- TO BUSINESS
- CUT OFF EMERGENCY SERVICES
- DELAY PROJECT COMPLETION TIMES WHILE THE DAMAGE IS REPAIRED

MINIMISE YOUR RISK AND DIAL BEFORE YOU DIG. – TEL. 1100

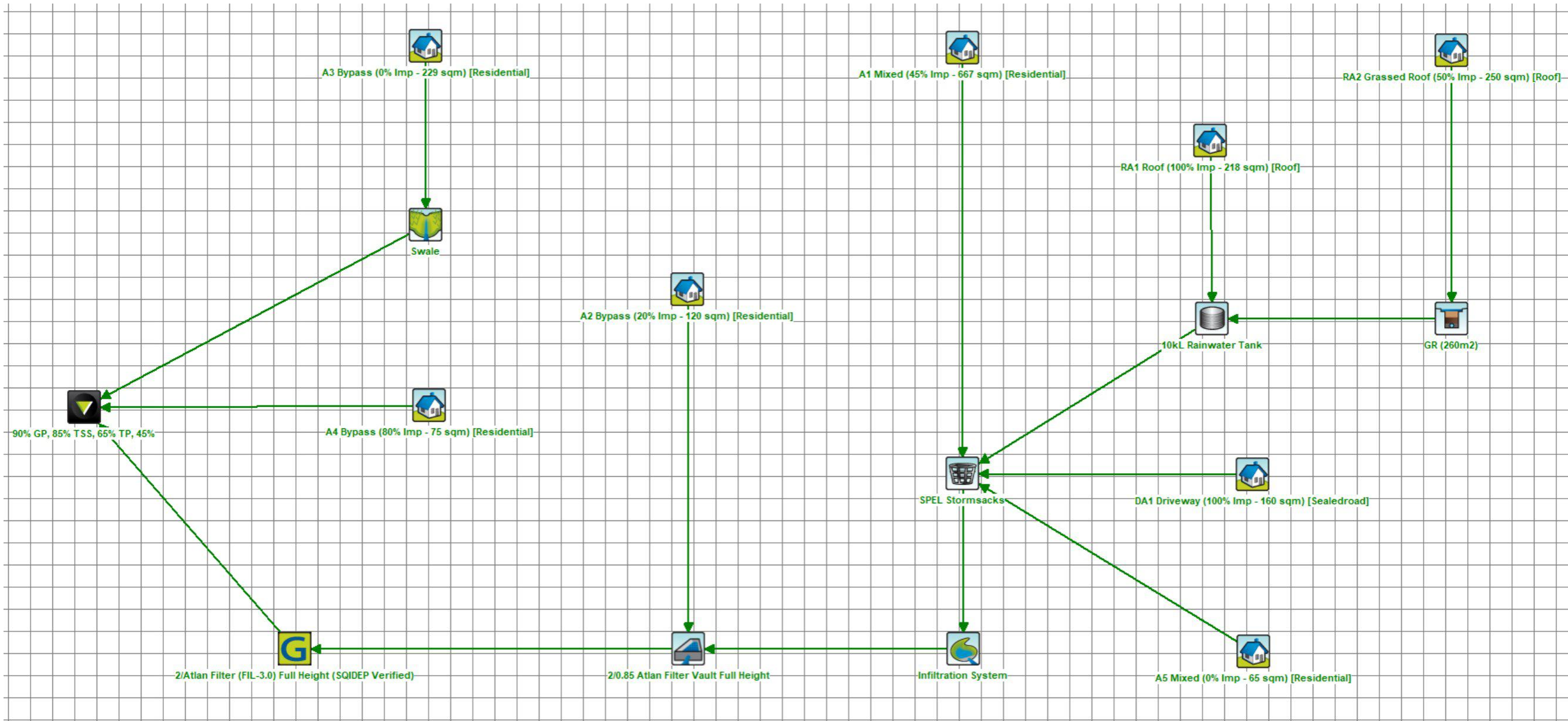
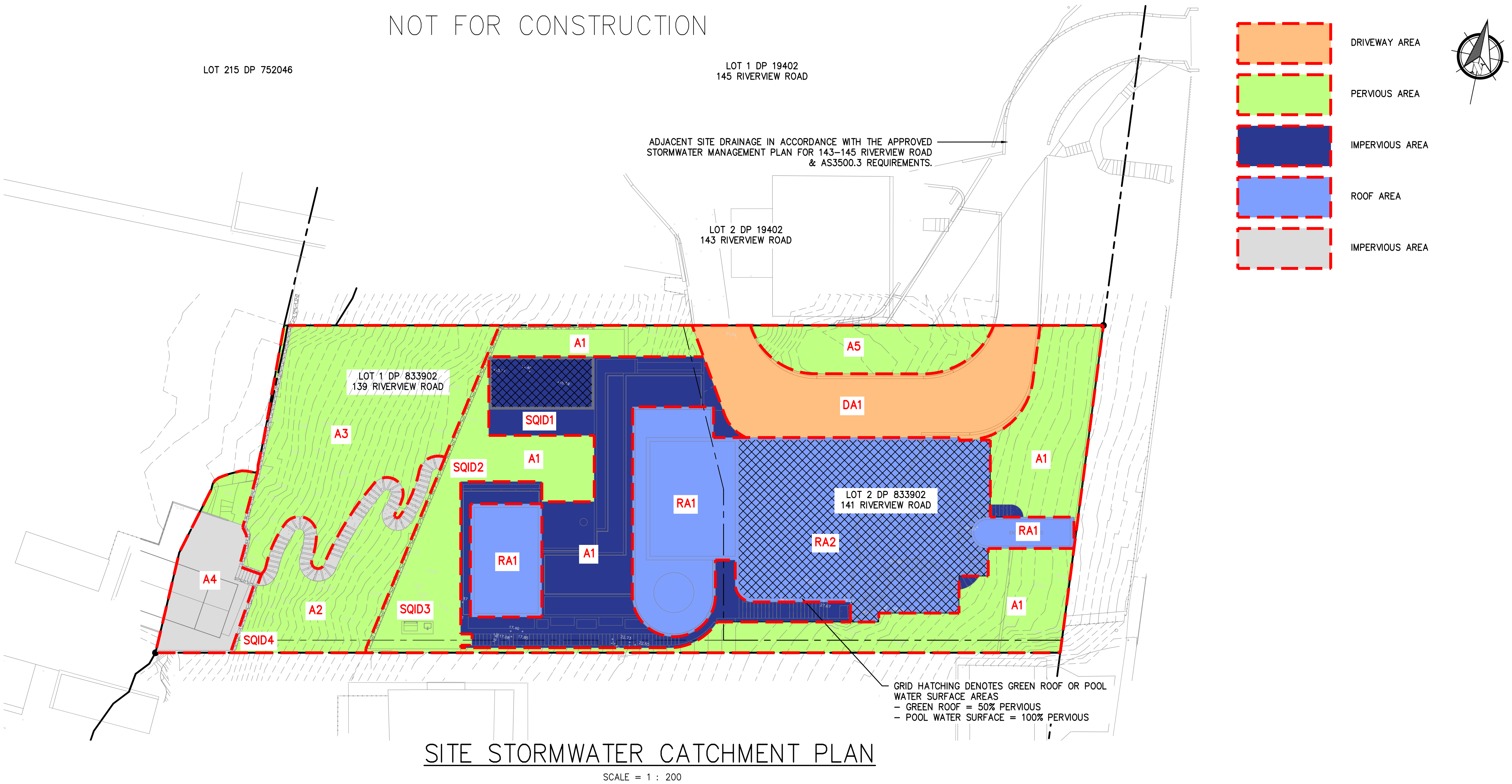
ALL DIMENSIONS MUST BE VERIFIED ON SITE BY BUILDER BEFORE COMMENCING WITH WORK.

A1 ORIGINAL				BY BUILDER BEFORE COMMENCING WITH WORK.														
				Issued for: DEVELOPMENT APPLICATION	Title:	Initial:	Date:	 <div>RTS CIVIL CONSULTING ENGINEERS STORMWATER • CIVIL • FLOOD MITIGATION ABN: 81 615 065 588 Phone: 0490 507 300 Email: admin@rtscivil.com.au Web: rtscivil.com.au</div>	Architect:	CM STUDIO		Project and Drawing Title: 139–141 RIVERVIEW ROAD, AVALON BEACH COVERPAGE, NOTES & CALCULATIONS SHEET 1 OF 2		Local Council: NORTHERN BEACHES COUNCIL				
				Approved by:	DESIGN	R.M	05.07.2024											
B	17.07.25	REVISED FOR NEW DA SUBMISSION	R.M	Date : 17.07.25  Rhys Mikhail Director Principal Engineer NER: 2570082 RPEQ: 17480 BEng (Civil) Hons MIEAust CPEng NER RPEQ APEC IntPE(Aus)	DRAWN	S.M	05.07.2024											
A	10.12.24	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M		CHECKED	R.M	17.07.2025		Client: MMIG DEVELOPMENTS PTY LTD									
Rev:	Date:	Description:	Reviewed:		APPROVED	R.M	17.07.2025						Project Number: 240601		Drawing ID: SW001		Issue: B	

NOTES:
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ONSITE DRAINAGE CALCULATIONS – NORTHERN BEACHES COUNCIL WATER MANAGEMENT POLICY (2021)	
TOTAL SITE AREA	1,783 m ²
COUNCIL ZONE AREA	Region 1
DEVELOPMENT TYPE	NEW DWELLING
TOAL SITE IMPERVIOUS AREA (EXISTING)	566 m ² (32% IMPERVIOUS)
TOAL SITE IMPERVIOUS AREA (PROPOSED)	1,030 m ² (58% IMPERVIOUS)
TOTAL INCREASE IN IMPERVIOUS AREA	464 m ² > 50 m ²
RAINWATER VOLUME (BASIX) REQUIRED	5.0 m ³ (10 m ³ PROVIDED)
AS THE DEVELOPMENT IS LOCATED ON AND DISCHARGING INTO THE PITTWATER, ONSITE STORMWATER DETENTION (OSD) IS NOT RECOMMENDED ACCORDING TO THE INTENT OF COUNCIL'S WATER MANAGEMENT POLICY (2021).	
WATER SENSITIVE URBAN DESIGN TO NORTHERN BEACHES COUNCIL: WSUD & MUSIC MODELLING GUIDLINES	
WSUD MUSIC SUMMARY	% REDUCTION
TOTAL SUSPENDED SOLIDS (TSS)	85 %
TOTAL PHOSPHOROUS (TP)	80 %
TOTAL NITROGEN (TN)	78 %
GROSS POLUTANTS (GP)	94 %

MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS AS3500.3 – TABLE 7.5.2.1			
DEPTH TO INVERT OF OUTLET	MINIMUM INTERNAL DIMENSIONS (mm)		
	RECTANGULAR	CIRCULAR	
	Width	Length	Diameter Ø
≤ 450	350	350	–
≤ 600	450	450	600
> 600 ≤ 900	600	600	900
> 900 ≤ 1200	600	900	1000
> 1200	900	900	1000



Treatment Train Effectiveness - 90% GP, 85% TSS, 65% TP, 45%			
	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.6	0.746	53.5
Total Suspended Solids (kg/yr)	242	35.9	85.2
Total Phosphorus (kg/yr)	0.461	0.0896	80.6
Total Nitrogen (kg/yr)	3.48	0.743	78.7
Gross Pollutants (kg/yr)	36.9	2.06	94.4

NOTE:
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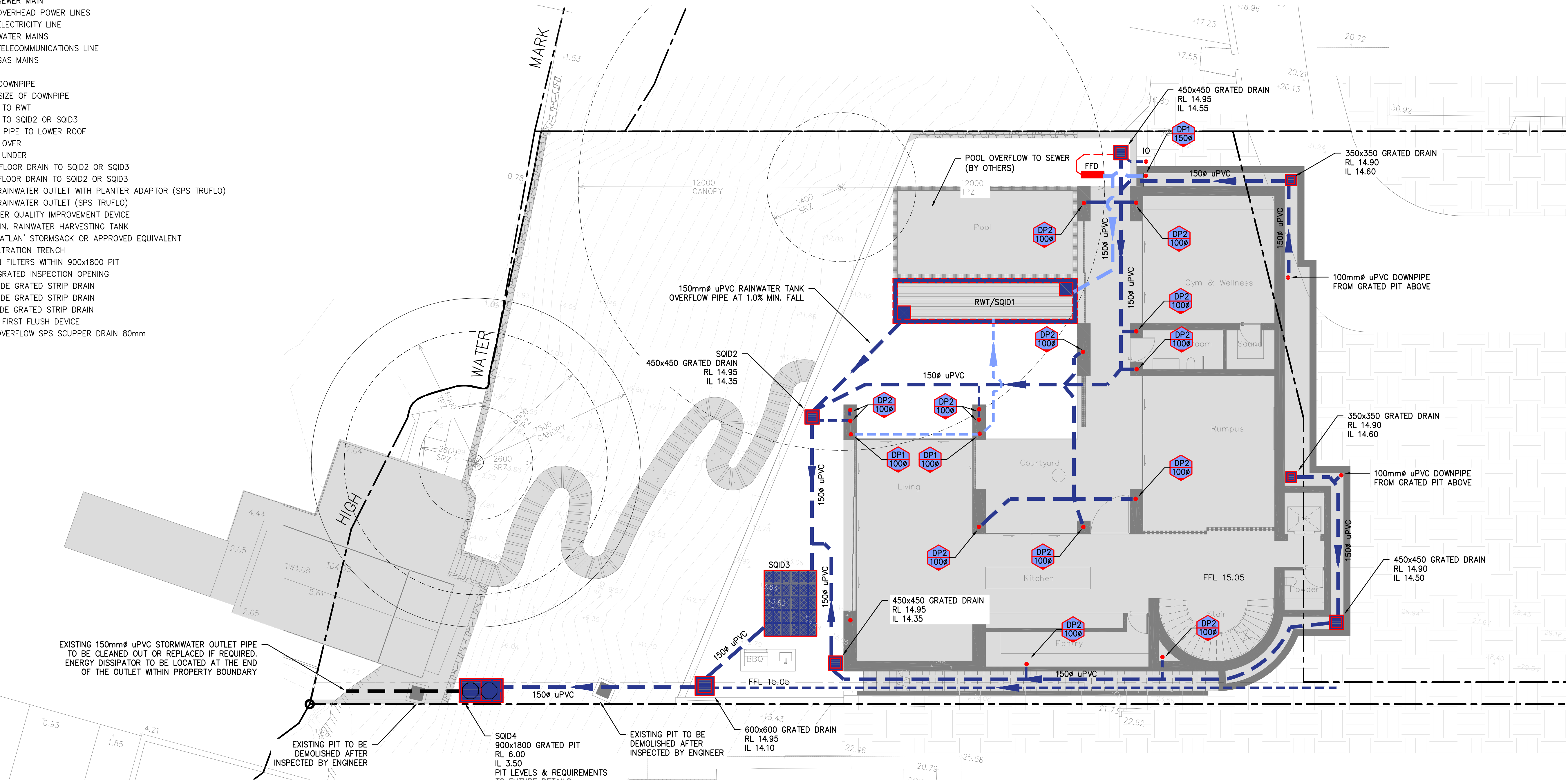
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				Approved by:	DESIGN	R.M	05.07.2024		Client: MMIG DEVELOPMENTS PTY LTD		Project Number:	Drawing ID:	Issue:
B	17.07.25	REVISED FOR NEW DA SUBMISSION	R.M	Date : 17.07.25	DRAWN	S.M	05.07.2024				240601	SW002	B
A	10.12.24	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M	Rhys Mikhail	CHECKED	R.M	17.07.2025						
Rev:	Date:	Description:	Reviewed:	Director Principal Engineer NER: 2570082 RPEQ: 17480 BEng (Civil) Hons MIEAust OPEng NER RPEQ APEC IntPE(Aus)	APPROVED	R.M	17.07.2025				The document is produced by RTS Civil Consulting Engineers Pty Ltd (RTS) solely for the benefit of and use by the client in accordance with the terms and conditions of RTS. RTS does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.		

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LEGEND

- STORMWATER PIT
NEW STORMWATER PIPE
STORMWATER PIPE FLOW DIRECTION
STORMWATER PIPE TO RWT
EXISTING STORMWATER PIPE
FLUSH-OUT LINE
BOUNDARY LINE
EXISTING SEWER MAIN
EXISTING OVERHEAD POWER LINES
EXISTING ELECTRICITY LINE
EXISTING WATER MAINS
EXISTING TELECOMMUNICATIONS LINE
EXISTING GAS MAINS
- DP1 100%
DP1
DP2
SP1
DP(O)
DP(U)
BD1
PD1
PD
BD
SQID
RWT/SQID1
SQID2
SQID3
SQID4
IO
GD1
GD2
GD3
FFD
O/F
- DENOTES DOWNPIPE
DENOTES SIZE OF DOWNPIPE
DOWNPIPE TO RWT
DOWNPIPE TO SQID2 OR SQID3
SPREADER PIPE TO LOWER ROOF
DOWNPIPE OVER
DOWNPIPE UNDER
BALCONY FLOOR DRAIN TO SQID2 OR SQID3
PLANTER FLOOR DRAIN TO SQID2 OR SQID3
100%80 RAINWATER OUTLET WITH PLANTER ADAPTOR (SPS TRUFLO)
100%80 RAINWATER OUTLET (SPS TRUFLO)
STORMWATER QUALITY IMPROVEMENT DEVICE
10,000L MIN. RAINWATER HARVESTING TANK
PIT WITH 'ATLAN' STORMSACK OR APPROVED EQUIVALENT
10m² INFILTRATION TRENCH
2 x ATLAN FILTERS WITHIN 900x1800 PIT
300x300 GRATED INSPECTION OPENING
200mm WIDE GRATED STRIP DRAIN
200mm WIDE GRATED STRIP DRAIN
100mm WIDE GRATED STRIP DRAIN
INGROUND FIRST FLUSH DEVICE
PROVIDE OVERFLOW SPS SCUPPER DRAIN 80mm



GROUND STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

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WARNING! CARE WHEN DIGGING AROUND TREE ROOTS. HAND DIGGING ONLY! MAY REQUIRE ARBORIST SUPERVISION.

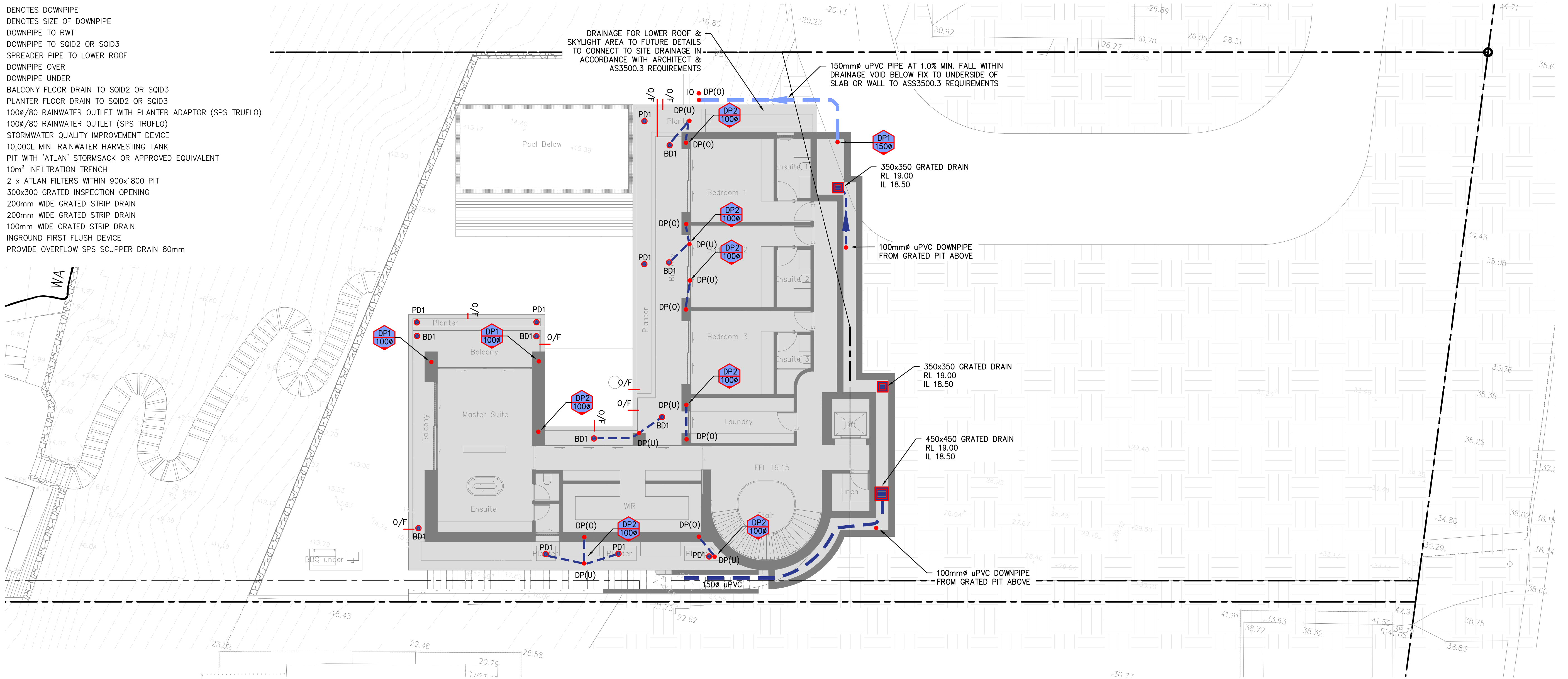


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				Approved by:		DESIGN	R.M	05.07.2024			CM STUDIO								
				<div>Date : 17.07.25 Rhys Mikhail</div> <div>Director Principal Engineer NER: 2570082 RPEQ: 17480 BEng (Civil) Hons MIEAust CPEng NER RPEQ APEC IntPE(Aus)</div>		DRAWN	S.M	05.07.2024			Client:								
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Rev:	Date:	Description:	Reviewed:	APPROVED		R.M	17.07.2025	GROUND STORMWATER MANAGEMENT PLAN		Project Number:		Drawing ID:	Issue:						
										240601		SW100	B						

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LEGEND

- STORMWATER PIT
NEW STORMWATER PIPE
STORMWATER PIPE FLOW DIRECTION
STORMWATER PIPE TO RWT
EXISTING STORMWATER PIPE
FLUSH-OUT LINE
BOUNDARY LINE
S
EXISTING SEWER MAIN
OHP
EXISTING OVERHEAD POWER LINES
E
EXISTING ELECTRICITY LINE
W
EXISTING WATER MAINS
T
EXISTING TELECOMMUNICATIONS LINE
G
EXISTING GAS MAINS
- DP1
1000
DENOTES DOWNPIPE
DENOTES SIZE OF DOWNPIPE
DP1
DOWNPIPE TO RWT
DP2
DOWNPIPE TO SQID2 OR SQID3
SP1
SPREADER PIPE TO LOWER ROOF
DP(O)
DOWNPIPE OVER
DP(U)
DOWNPIPE UNDER
BD1
BALCONY FLOOR DRAIN TO SQID2 OR SQID3
PD1
PLANTER FLOOR DRAIN TO SQID2 OR SQID3
PD
1000/80 RAINWATER OUTLET WITH PLANTER ADAPTOR (SPS TRUFLO)
BD
1000/80 RAINWATER OUTLET (SPS TRUFLO)
SQID
STORMWATER QUALITY IMPROVEMENT DEVICE
RWT/SQID1
10,000L MIN. RAINWATER HARVESTING TANK
SQID2
PIT WITH 'ATLAN' STORMSACK OR APPROVED EQUIVALENT
SQID3
10m² INFILTRATION TRENCH
SQID4
2 x ATLAN FILTERS WITHIN 900x1800 PIT
IO
300x300 GRATED INSPECTION OPENING
GD1
200mm WIDE GRATED STRIP DRAIN
GD2
200mm WIDE GRATED STRIP DRAIN
GD3
100mm WIDE GRATED STRIP DRAIN
FFD
INGROUND FIRST FLUSH DEVICE
O/F
PROVIDE OVERFLOW SPS SCUPPER DRAIN 80mm



FIRST FLOOR STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

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				Date : 17.07.25		DRAWN	S.M	05.07.2024		Client:		FIRST FLOOR		Project Number:		
B	17.07.25	REVISED FOR NEW DA SUBMISSION	R.M	Rhys Mikhail		CHECKED	R.M	17.07.2025		MMIG DEVELOPMENTS PTY LTD		STORMWATER MANAGEMENT PLAN		Drawing ID:		
A	10.12.24	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M	BEng (Civil) Hons MIEAust OPEng NER RPEQ APEC InPE(Aus)		APPROVED	R.M	17.07.2025						Issue:		
Rev:	Date:	Description:	Reviewed:									240601		SW101		
															B	

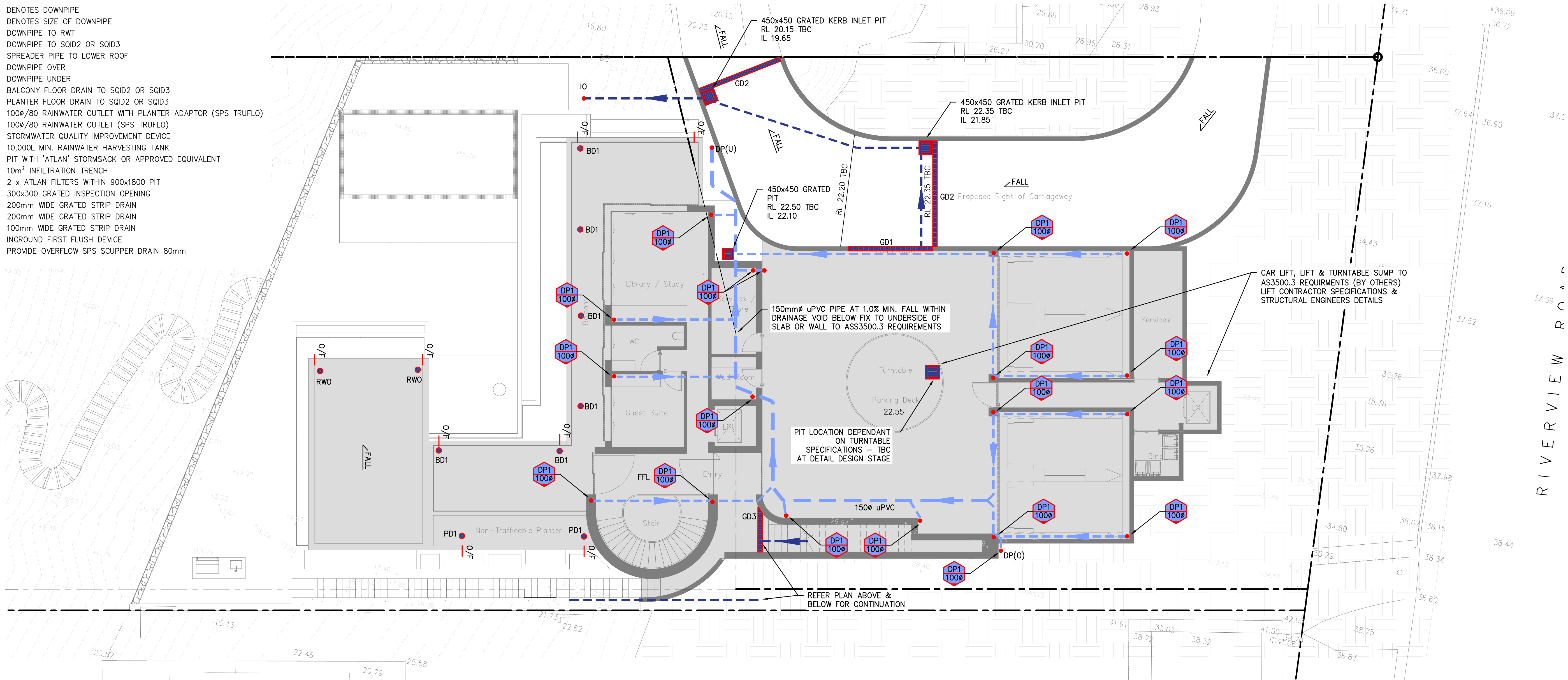
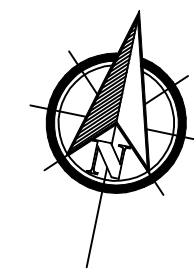
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LEGEND

- STORMWATER PIT
- NEW STORMWATER PIPE
- STORMWATER PIPE FLOW DIRECTION
- STORMWATER PIPE TO RWT
- EXISTING STORMWATER PIPE
- FLUSH-OUT LINE
- BOUNDARY LINE
- S
- EXISTING SEWER MAIN
- OHP
- EXISTING OVERHEAD POWER LINES
- E
- EXISTING ELECTRICITY LINE
- W
- EXISTING WATER MAINS
- T
- EXISTING TELECOMMUNICATIONS LINE
- G
- EXISTING GAS MAINS

- DP1 100% DENOTES DOWNPIPE
- DP1 DOWNPIPE TO RWT
- DP2 DOWNPIPE TO SQID2 OR SQID3
- SP1 SPREADER PIPE TO LOWER ROOF
- DP(O) DOWNPIPE OVER
- DP(U) DOWNPIPE UNDER
- BD1 BALCONY FLOOR DRAIN TO SQID2 OR SQID3
- PD1 PLANTER FLOOR DRAIN TO SQID2 OR SQID3
- PD 100% / 80 RAINWATER OUTLET WITH PLANTER ADAPTOR (SPS TRUFLO)
- BD 100% / 80 RAINWATER OUTLET (SPS TRUFLO)
- SQID STORMWATER QUALITY IMPROVEMENT DEVICE
- RWT/SQID1 10,000L MIN. RAINWATER HARVESTING TANK
- SQID2 PIT WITH 'ATLAN' STORMSACK OR APPROVED EQUIVALENT
- SQID3 10m² INFILTRATION TRENCH
- SQID4 2 x ATLAN FILTERS WITHIN 900x1800 PIT
- IO 300x300 GRATED INSPECTION OPENING
- GD1 200mm WIDE GRATED STRIP DRAIN
- GD2 200mm WIDE GRATED STRIP DRAIN
- GD3 100mm WIDE GRATED STRIP DRAIN
- FFD INGROUND FIRST FLUSH DEVICE
- O/F PROVIDE OVERFLOW SPS SCUPPER DRAIN 80mm

NOT FOR CONSTRUCTION



SECOND FLOOR STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

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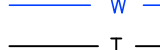








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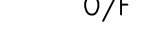

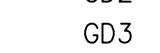
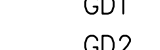
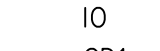
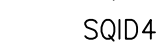
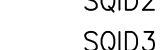
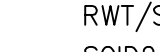

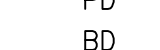
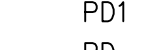

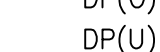
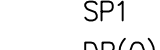



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B	17.07.25	REVISED FOR NEW DA SUBMISSION	R.M	Approved by:	DESIGN	R.M	05.07.2024																																		
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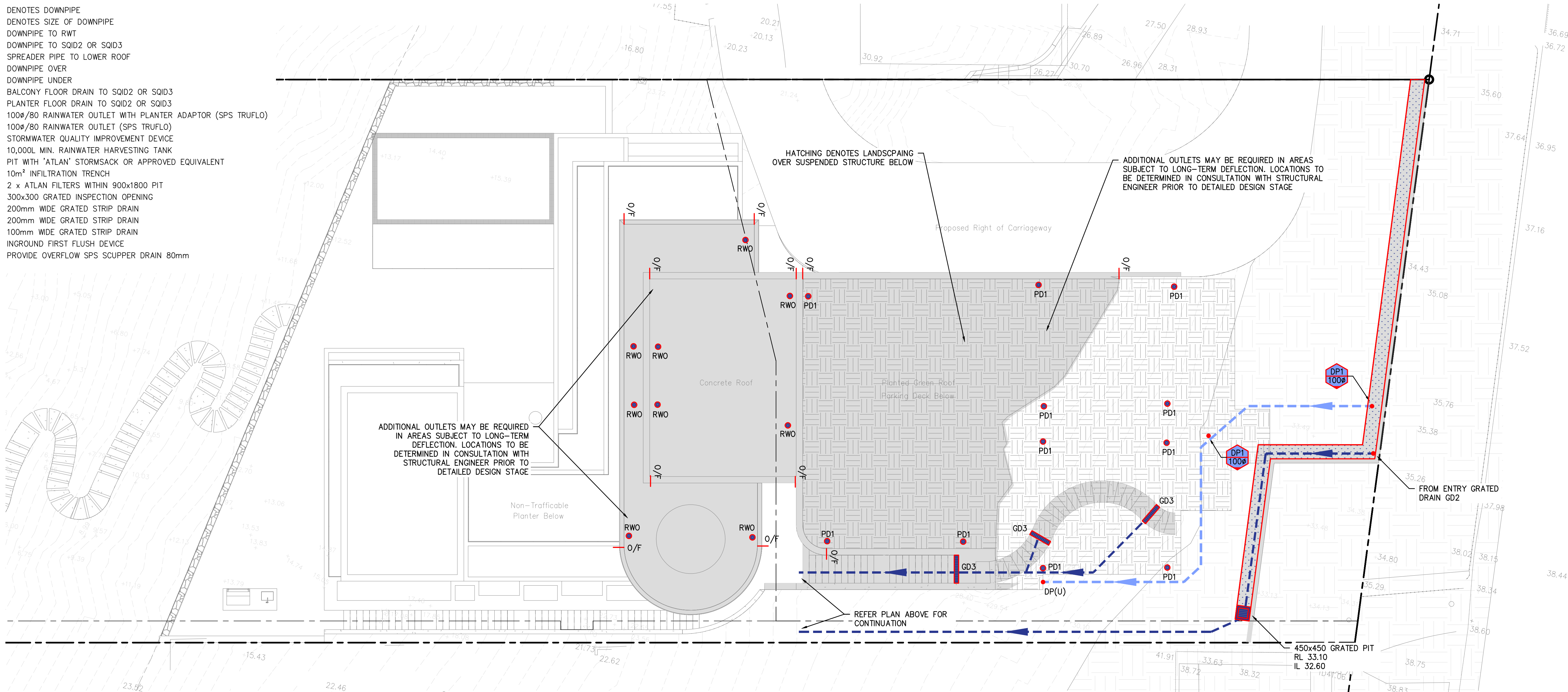
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LEGEND

- 

STORMWATER PIT
NEW STORMWATER PIPE
STORMWATER PIPE FLOW DIRECTION
STORMWATER PIPE TO RWT
EXISTING STORMWATER PIPE
FLUSH-OUT LINE
BOUNDARY LINE
EXISTING SEWER MAIN
EXISTING OVERHEAD POWER LINES
EXISTING ELECTRICITY LINE
EXISTING WATER MAINS
EXISTING TELECOMMUNICATIONS LINE
EXISTING GAS MAINS
- 

DENOTES DOWNPIPE
DENOTES SIZE OF DOWNPIPE
DOWNPIPE TO RWT
DOWNPIPE TO SQID2 OR SQID3
SPREADER PIPE TO LOWER ROOF
DOWNPIPE OVER
DOWNPIPE UNDER
BALCONY FLOOR DRAIN TO SQID2 OR SQID3
PLANTER FLOOR DRAIN TO SQID2 OR SQID3
100mm/80mm RAINWATER OUTLET WITH PLANTER ADAPTOR (SPS TRUFLO)
100mm/80mm RAINWATER OUTLET (SPS TRUFLO)
STORMWATER QUALITY IMPROVEMENT DEVICE
10,000L MIN. RAINWATER HARVESTING TANK
PIT WITH 'ATLAN' STORMSACK OR APPROVED EQUIVALENT
10m² INFILTRATION TRENCH
2 x ATLAN FILTERS WITHIN 900x1800 PIT
300x300 GRATED INSPECTION OPENING
200mm WIDE GRATED STRIP DRAIN
200mm WIDE GRATED STRIP DRAIN
100mm WIDE GRATED STRIP DRAIN
INGROUND FIRST FLUSH DEVICE
PROVIDE OVERFLOW SPS SCUPPER DRAIN 80mm



ROOF STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

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












WARNING! CARE WHEN DIGGING AROUND TREE ROOTS. HAND DIGGING ONLY! MAY REQUIRE ARBORIST SUPERVISION.




A1 ORIGINAL																			
				Issued for: DEVELOPMENT APPLICATION		Title:	Initial:	Date:	<div><div>RTS</div><div>CIVIL CONSULTING ENGINEERS</div><div>STORMWATER • CIVIL • FLOOD MITIGATION</div><div>ABN: 81 615 065 588 Phone: 0490 507 300 Email: admin@rtscivil.com.au Web: rtscivil.com.au</div></div> <div><div>The document is produced by RTS Civil Consulting Engineers Pty Ltd (RTS) solely for the benefit of and use by the Client in accordance with the terms and conditions of RTS and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.</div></div>	Architect:		Project and Drawing Title:		Local Council:					
				Approved by:		DESIGN	R.M	05.07.2024		CM STUDIO		139–141 RIVERVIEW ROAD, AVALON BEACH		NORTHERN BEACHES COUNCIL					
				<div>Date : 17.07.25</div> <div>Rhys Mikhail</div> <div>Director Principal Engineer NER: 2570082 RPEQ: 17480</div> <div>BEEng (Civl) Hons MIEAust CPEng NER RPEQ APEC IntPE (Aus)</div>		DRAWN	S.M	05.07.2024		Client: MMIG DEVELOPMENTS PTY LTD		ROOF STORMWATER MANAGEMENT PLAN		Project Number: 240601		Drawing ID: SW103		Issue: B	
B	17.07.25	REVISED FOR NEW DA SUBMISSION				R.M													
A	10.12.24	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION				R.M													
Rev:	Date:	Description:		Reviewed:	APPROVED	R.M	17.07.2025												

NOTES:
1. U.N.O REFER TO THE COVERPAGE 001 SERIES FOR DETAILED NOTES AND CALCULATIONS.
2. ALL DIMENSIONS SHALL BE VERIFIED ONSITE BY BUILDER BEFORE COMMENCING WITH WORK.

LEGEND

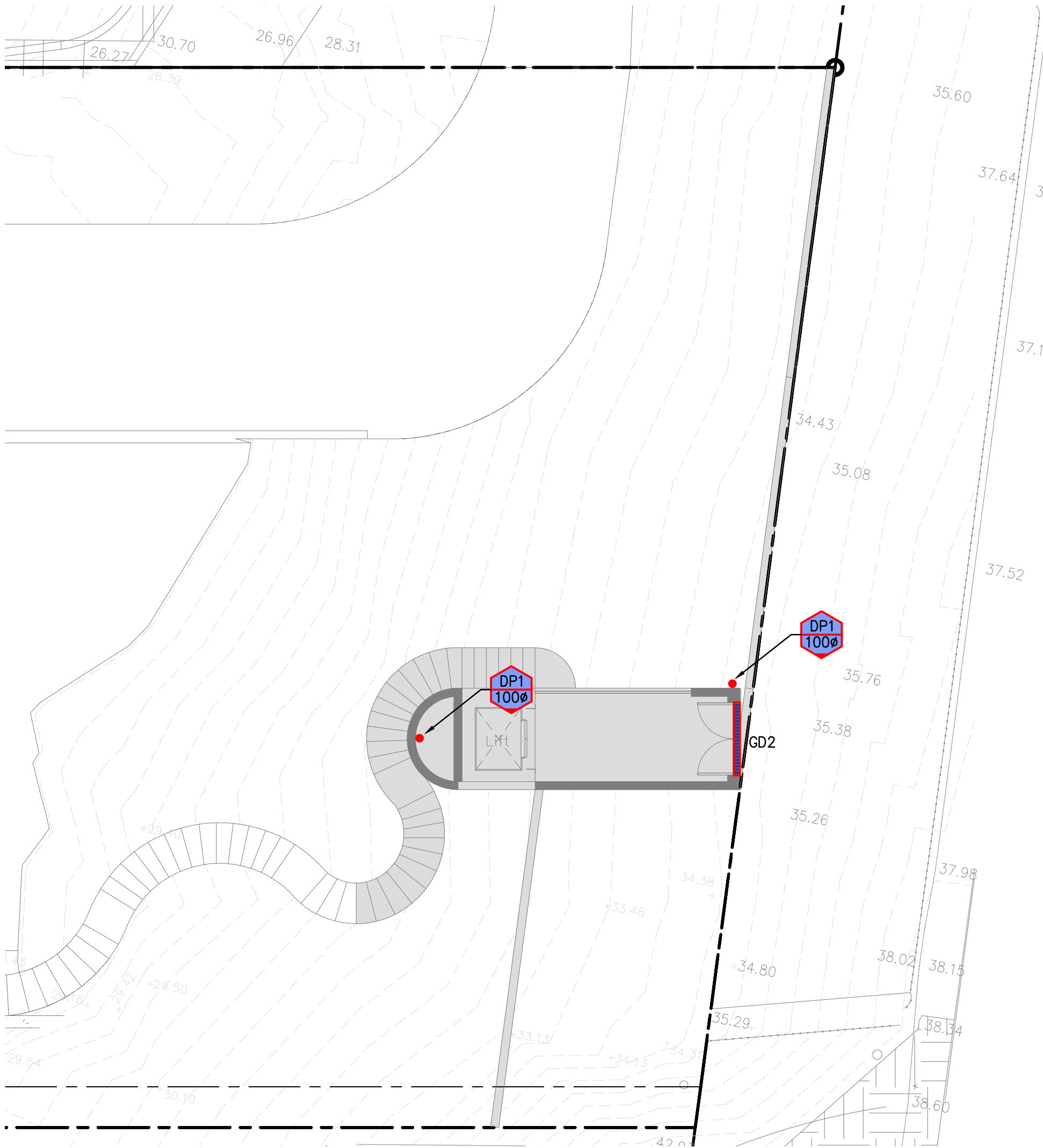
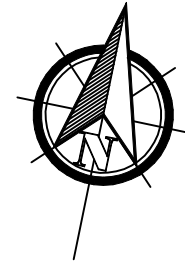
- 

STORMWATER PIT
NEW STORMWATER PIPE
STORMWATER PIPE FLOW DIRECTION
STORMWATER PIPE TO RWT
EXISTING STORMWATER PIPE
FLUSH-OUT LINE
BOUNDARY LINE
EXISTING SEWER MAIN
EXISTING OVERHEAD POWER LINES
EXISTING ELECTRICITY LINE
EXISTING WATER MAINS
EXISTING TELECOMMUNICATIONS LINE
EXISTING GAS MAINS
- 

DP1
1000

DENOTES DOWNPIPE
DENOTES SIZE OF DOWNPIPE
DP1 DOWNPIPE TO RWT
DP2 DOWNPIPE TO SQID2 OR SQID3
SP1 SPREADER PIPE TO LOWER ROOF
DP(O) DOWNPIPE OVER
DP(U) DOWNPIPE UNDER
BD1 BALCONY FLOOR DRAIN TO SQID2 OR SQID3
PD1 PLANTER FLOOR DRAIN TO SQID2 OR SQID3
PD 1000/80 RAINWATER OUTLET WITH PLANTER ADAPTOR (SPS TRUFLO)
BD 1000/80 RAINWATER OUTLET (SPS TRUFLO)
SQID STORMWATER QUALITY IMPROVEMENT DEVICE
RWT/SQID1 10,000L MIN. RAINWATER HARVESTING TANK
SQID2 PIT WITH 'ATLAN' STORMSACK OR APPROVED EQUIVALENT
SQID3 10m² INFILTRATION TRENCH
SQID4 2 x ATLAN FILTERS WITHIN 900x1800 PIT
IO 300x300 GRATED INSPECTION OPENING
GD1 200mm WIDE GRATED STRIP DRAIN
GD2 200mm WIDE GRATED STRIP DRAIN
GD3 100mm WIDE GRATED STRIP DRAIN
FFD INGROUND FIRST FLUSH DEVICE
O/F PROVIDE OVERFLOW SPS SCUPPER DRAIN 80mm

NOT FOR CONSTRUCTION



ENTRY PORTICO

SCALE = 1 : 100



ENTRY PORTICO ROOF


SCALE = 1 : 100

NOTE:
THE BUILDER/CONTRACTOR SHALL LOCATE ALL EXISTING PUBLIC UTILITY SERVICES WITHIN THE SITE, FOOTPATH AREA AND ROAD RESERVE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ALL LOCATIONS AND LEVELS OF SERVICES SHALL BE REPORTED TO THE STORMWATER ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORKS TO ENSURE THAT THERE ARE NO OBSTRUCTIONS IN THE LINE OF THE DRAINAGE DISCHARGE PIPES.

NOTE: PIT, PIPE & DOWNPIPE LOCATIONS ARE INDICATIVE ONLY & MAY VARY DUE TO CONSTRAINTS. IF IN DOUBT, ASK!

WARNING! CARE WHEN DIGGING AROUND TREE ROOTS. HAND DIGGING ONLY! MAY REQUIRE ARBORIST SUPERVISION.



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A	10.12.24	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M			CHECKED	R.M	17.07.2025			MMIG DEVELOPMENTS PTY LTD		STORMWATER MANAGEMENT PLANS		Drawing ID:	
Rev:	Date:	Description:	Reviewed:	APPROVED	R.M	17.07.2025					240601		SW104		B	

NOTES:

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2. ALL DIMENSIONS SHALL BE VERIFIED ONSITE BY BUILDER BEFORE COMMENCING WITH WORK.

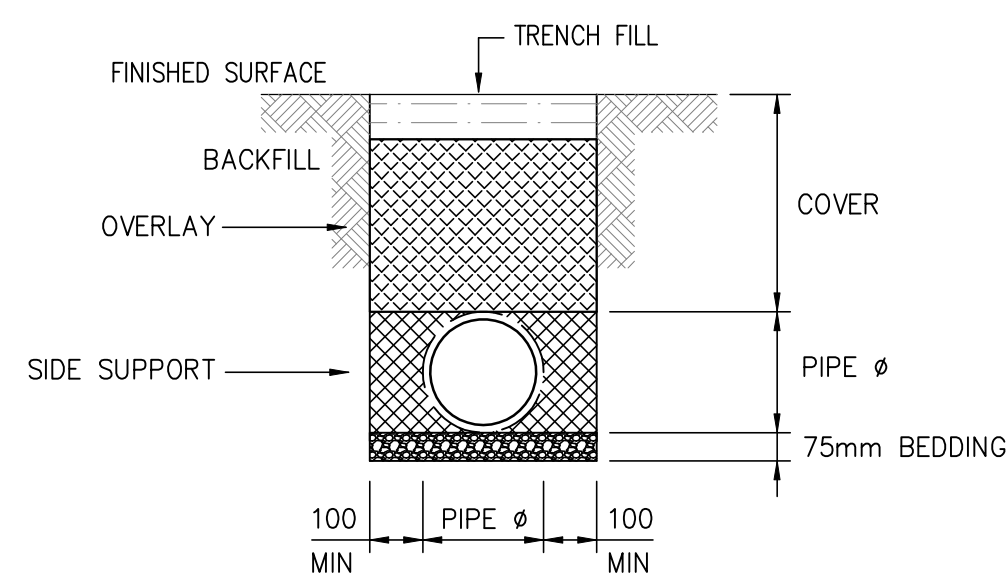
SUITABLE BEDDING TO AS2032:

1. SAND FREE FROM ROCK OR OTHER HARD AND SHARP OBJECTS THAT WOULD BE RETAINED ON 13.2 SIEVE.
2. CRUSHED ROCK OR GRAVEL OF APPROVED GRADING UP TO MAXIMUM SIZE OF 14mm.
3. THE EXCAVATED MATERIAL MAY BE USED IF IT IS FREE FROM ROCK OR HARD MATTER AND BROKEN UP SO THAT IT CONTAINS NO SOIL LUMPS HAVING ANY DIMENSIONS GREATER THAN 75mm WHICH WOULD PREVENT ADEQUATE COMPACTION OF THE BEDDING.

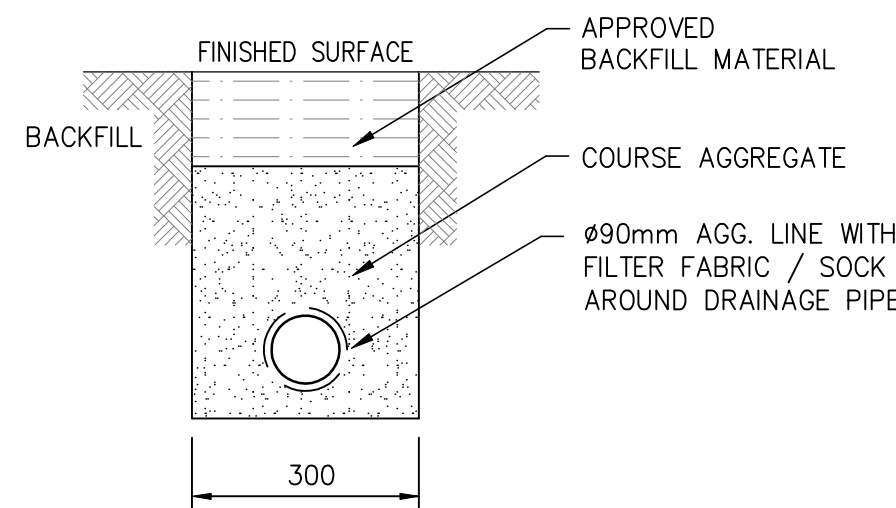
SIDE SUPPORT: MATERIAL FOR PIPE SUPPORT SHOULD BE ADEQUATELY TAMPED IN LAYERS OF NOT MORE THAN 150mm.

OVERLAY: PIPE OVERLAY MATERIAL SHOULD BE LEVELED AND TAMPED IN LAYERS TO A MINIMUM HEIGHT OF 150mm ABOVE THE CROWN OF PIPE.

COVER: FOR MIN COVER REFER TO AS3500.3.

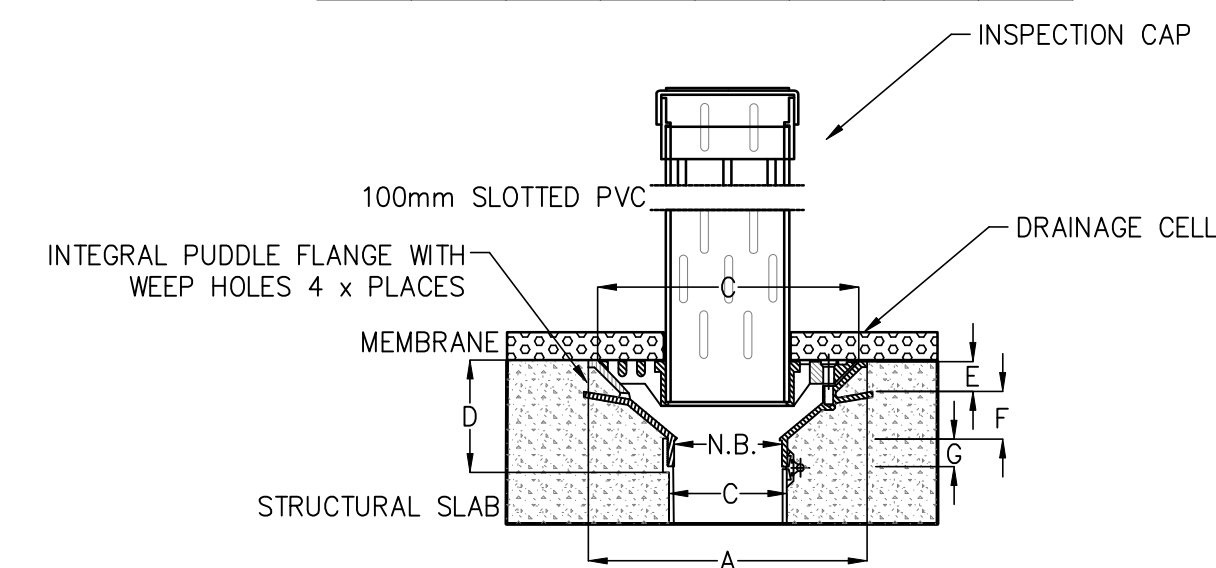


SCALE = N.T.S.

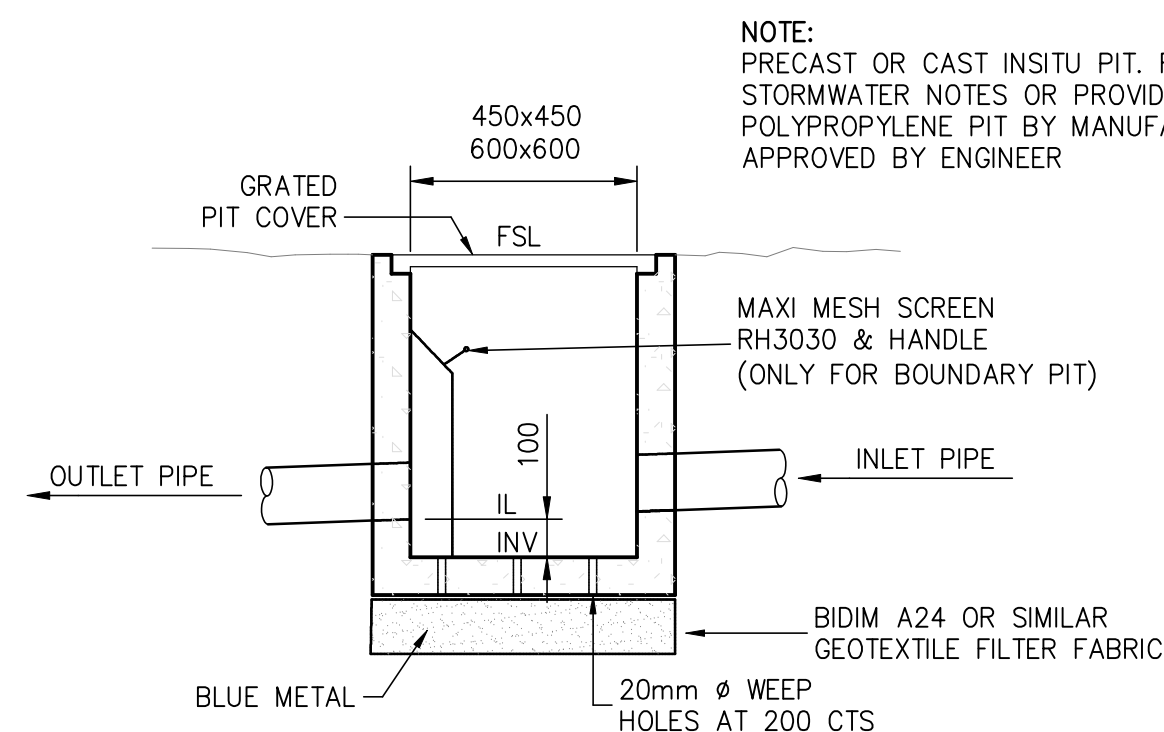


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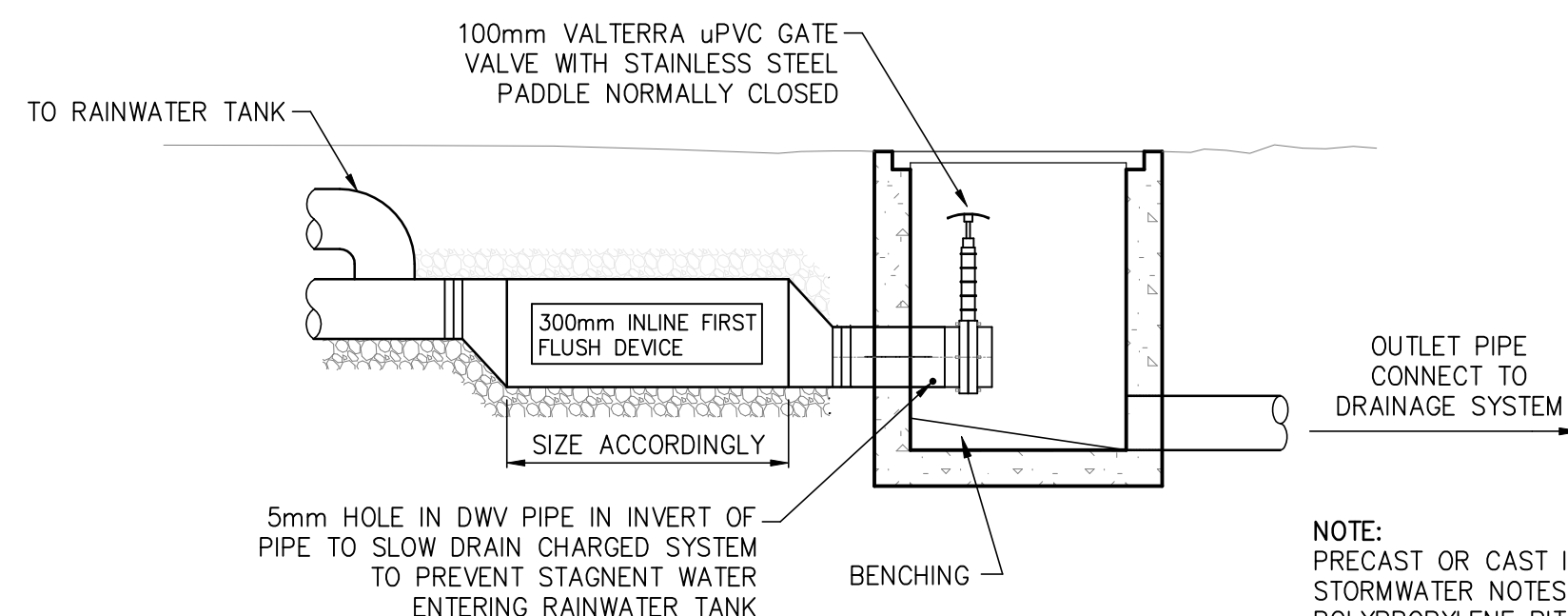
N.B.	A	B	C	D	E	F	G
100	260	240	103	106	28	45	25



SCALE = N.T.S.



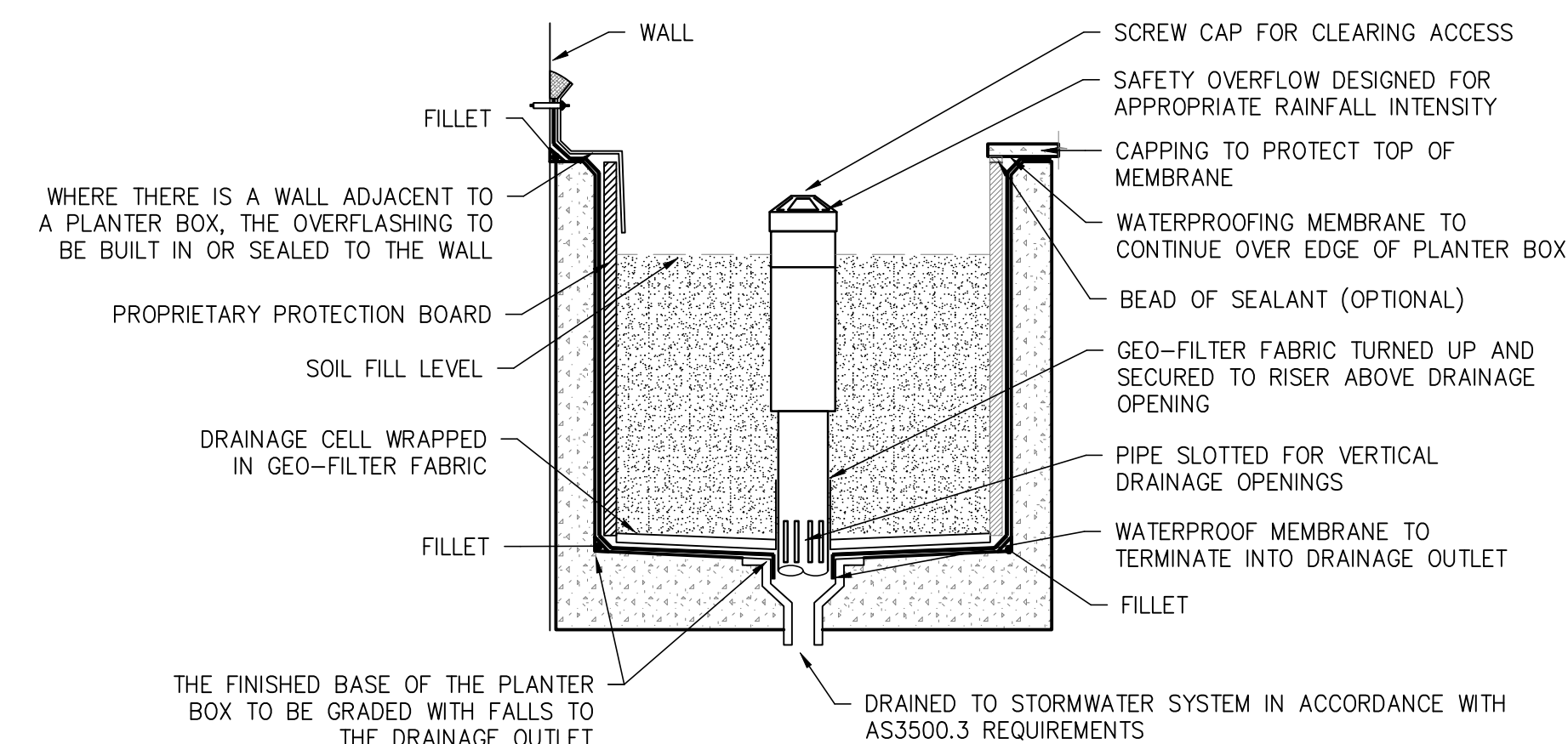
SCALE = 1 : 20



SCALE = 1 : 20

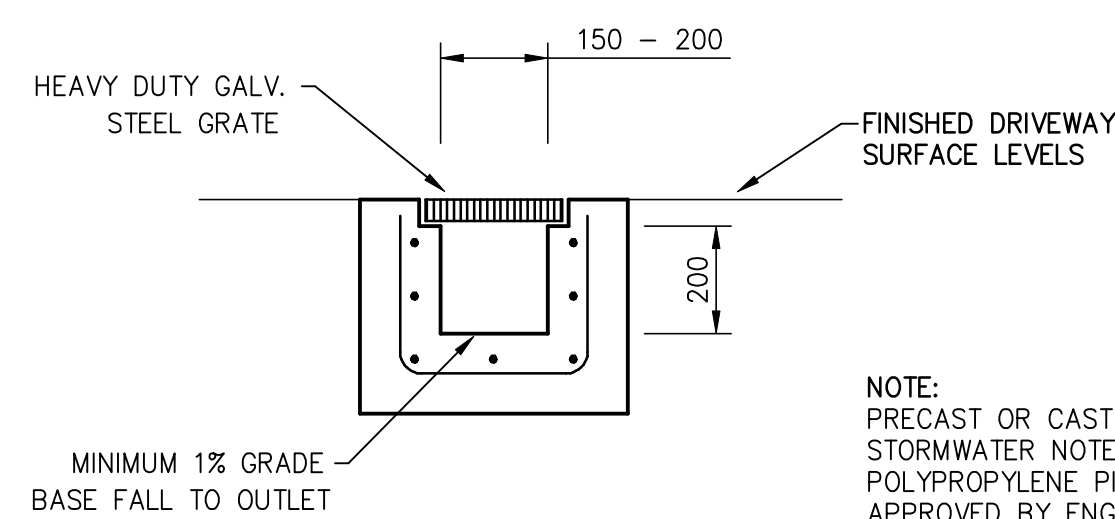
NOTE:
PRECAST OR CAST INSITU PIT. REFER
STORMWATER NOTES OR PROVIDE ALTERNATE
POLYPROPYLENE PIT BY MANUFACTURER IF
APPROVED BY ENGINEER

NOTE:
THIS CAN BE ANY TYPICAL PIT PROVIDED
OR IF NEEDED TO BE FITTED AT LOW POINT
OF SITE AND THERE IS NO ADEQUATE
DISCHARGE POINT NEARBY, PROVIDE 300mm
SUMP. CONTACT ENGINEER IF IN DOUBT.

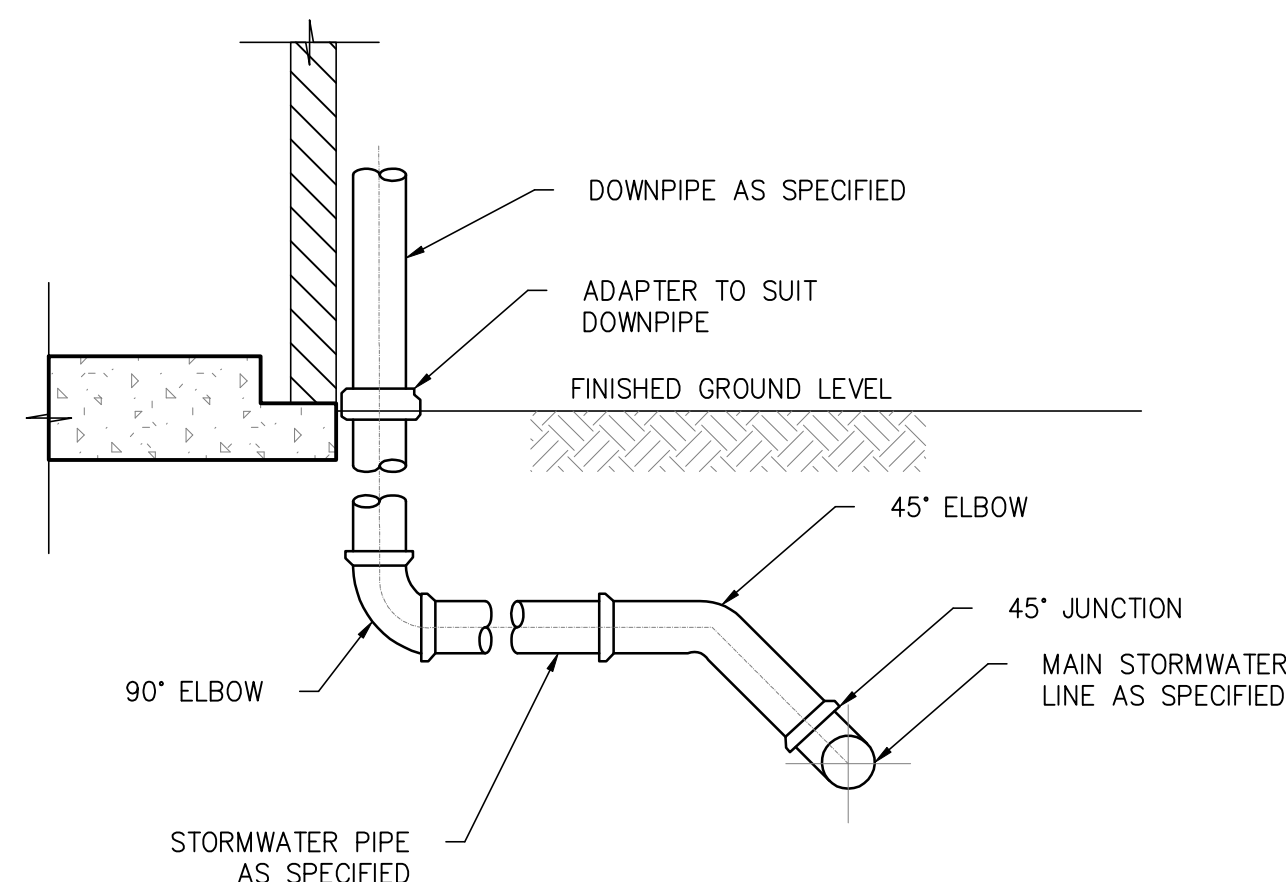


SCALE = NTS

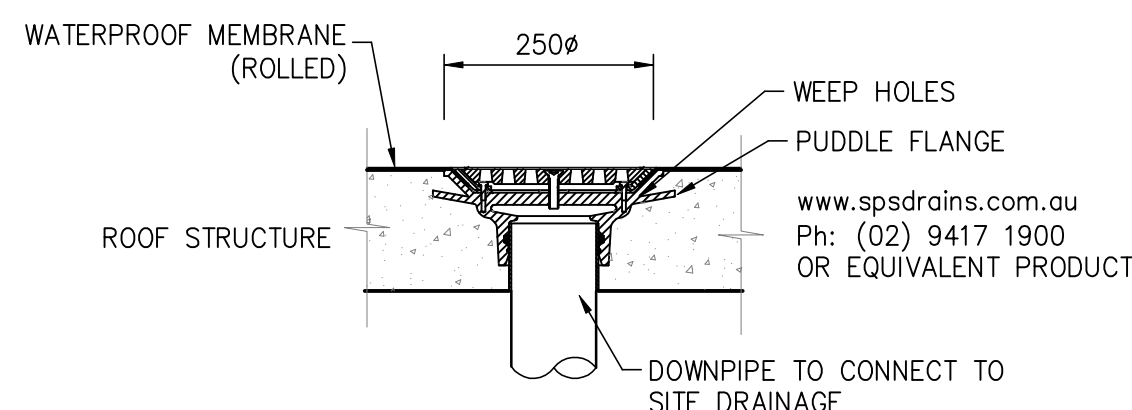
NOTE:
REFER TO ARCHITECT FOR
SITE SPECIFIC DETAILS.



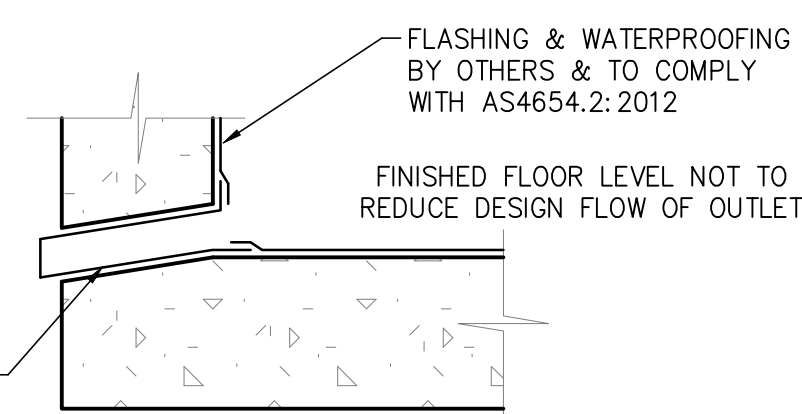
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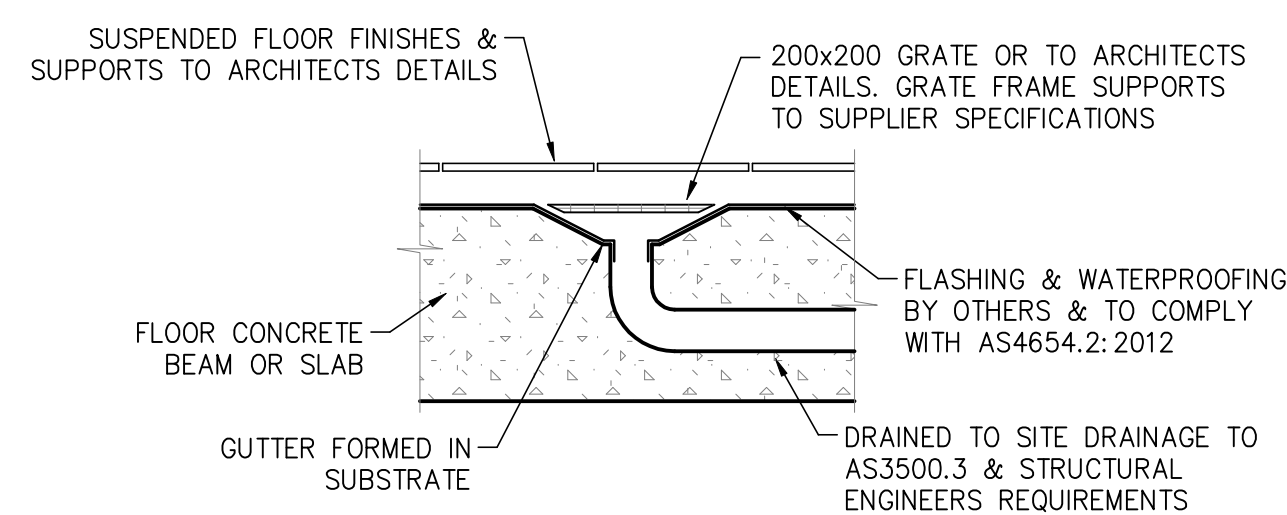
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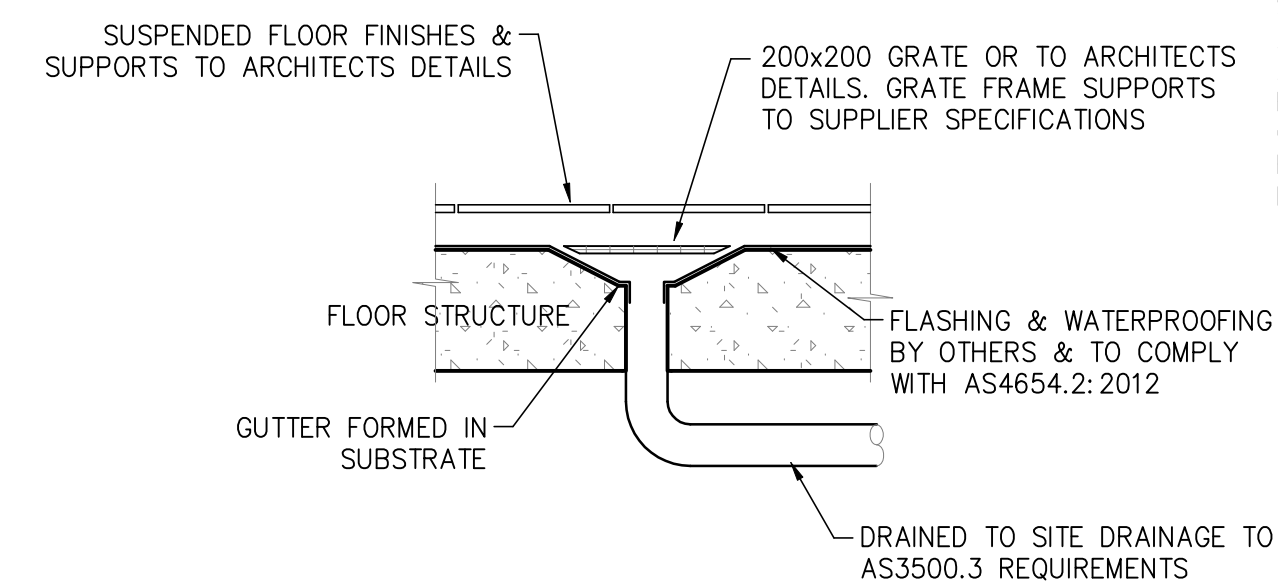
SCALE = 1 : 20



NOT TO SCALE



SCALE = 1 : 20



SCALE = 1 : 20

NOTE:
FLOOR DRAINS TO BE INSTALLED WITHIN ALL PLANTERS AND PATIOS TO ARCHITECTS DETAILS AND AS3500.3 REQUIREMENTS. FLOOR DRAINS ARE TO DRAIN BY GRAVITY TO THE NEAREST DRAINAGE STRUCTURE AND MUST BE LOCATED AT LEAST 500mm ABOVE CONNECTION POINT. BALCONY HOB TO ARCHITECT DETAILS. ENSURE ALL BALCONIES ARE FITTED WITH 2 x 50mmØ SPLITTER PIPES TO ACT AS OVERFLOW POINT IN ACCORDANCE WITH AS4564.2:2012 REQUIREMENTS.
IF IN DOUBT, CONTACT THE ENGINEER.



NOTE:

THE BUILDER/CONTRACTOR SHALL LOCATE ALL EXISTING PUBLIC UTILITY SERVICES WITHIN THE SITE, FOOTPATH AREA AND ROAD RESERVE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ALL LOCATIONS AND LEVELS OF SERVICES SHALL BE REPORTED TO THE STORMWATER ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORKS TO ENSURE THAT THERE ARE NO OBSTRUCTIONS IN THE LINE OF THE DRAINAGE DISCHARGE PIPES.

PREFORMED OUTLET WITH FACE FLANGE
TO AS3500.3, AS4654.2:2012 &
STRUCTURAL ENGINEERS REQUIREMENTS

A1 ORIGINAL																				
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				Approved by:		DESIGN		R.M		05.07.2024				CM STUDIO				NORTHERN BEACHES COUNCIL		
B		17.07.25		REVISED FOR NEW DA SUBMISSION		R.M														
A		10.12.24		STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION		R.M								Client:		Project Number: Drawing ID: Issue:				
Rev:		Date:		Description:		Reviewed:		Date : 17.07.25 Rhys Mikhail		DRAWN S.M 05.07.2024 CHECKED R.M 17.07.2025 APPROVED R.M 17.07.2025		The document is produced by RTS Civil Consulting Engineers Pty Ltd (RTS) solely for the benefit of and use by the client in accordance with the terms and conditions of RTS. RTS does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance on the content of this document.		MMIG DEVELOPMENTS PTY LTD		240601 SW200 B				

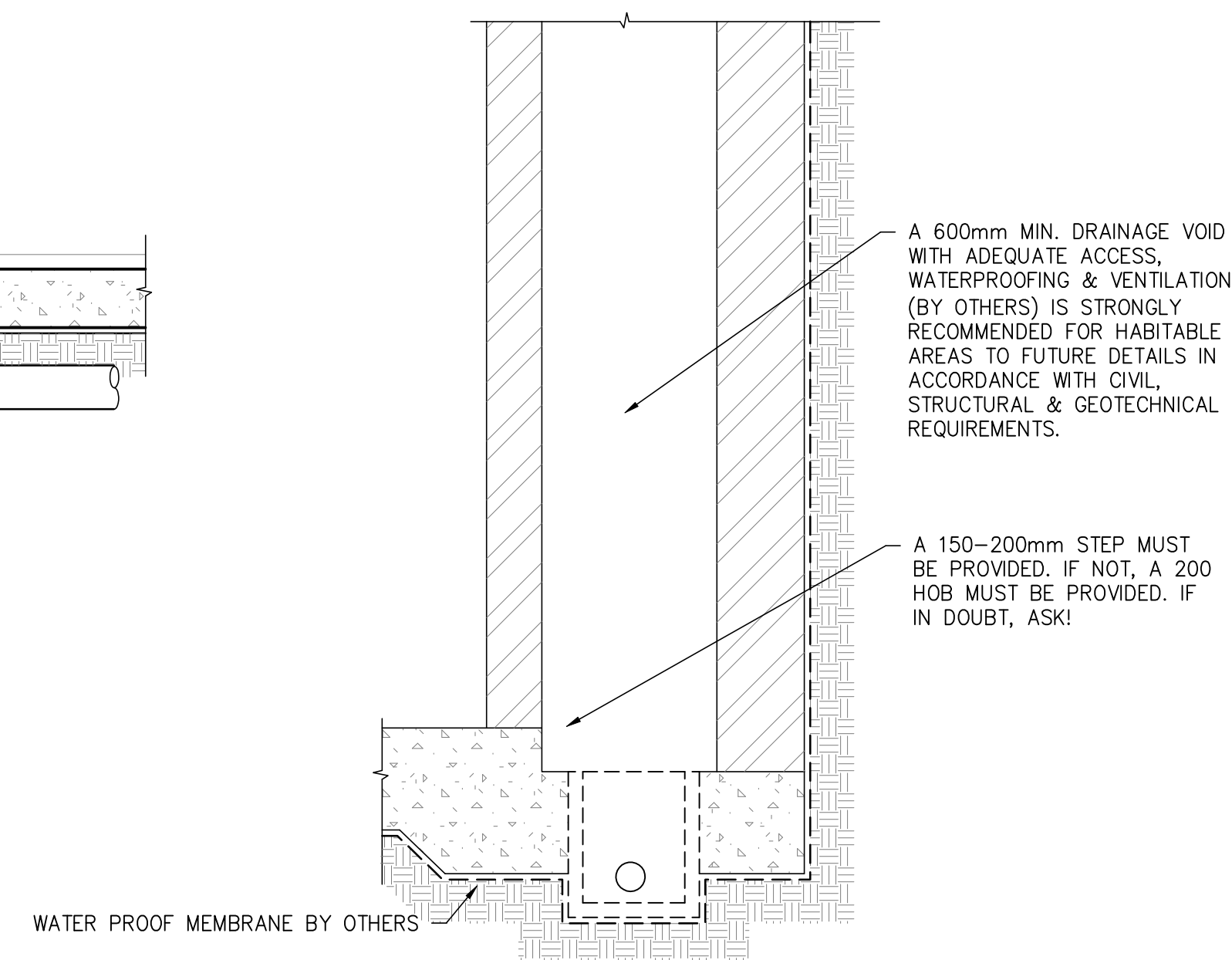
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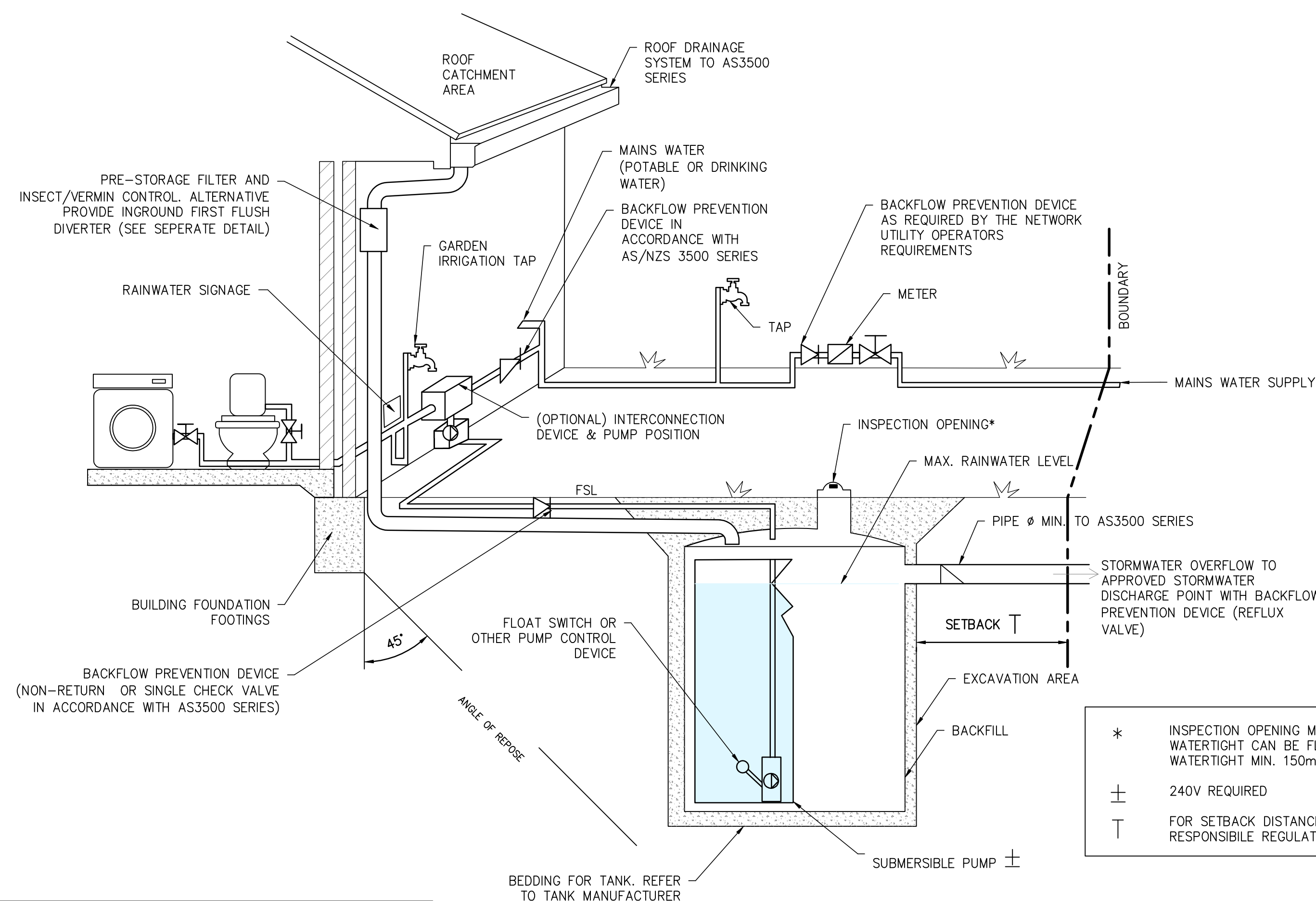
Diagram illustrating the cross-section of a rainwater tank structure, showing internal components and elevations:

- Top Surface:** SUSPENDED FLOOR FINISHES, SUPPORTS & TO ARCHITECT'S DETAILS
- Top Edge:** UNO GRADE TO FLOOR DRAIN AT 1:80 MIN. FALL
- Access Lid:** 900x900 GALV. SEALED ACCESS LID WITH CHILD PROOF LOCKING SYSTEM AND STEP IRONS
- Internal Structure:** 10,000L MIN. DWELLING RAINWATER TANK
- Overflow Pipe:** 150 ϕ OVERFLOW PIPE TO NEAREST PIT
- Inlet Pipe:** 150mm ϕ uPVC INLET PIPE VIA FIRST FLUSH SYSTEM
- Waterproofing:** WATER PROOF MEMBRANE BY OTHERS
- Elevations:**
 - RL 15.05 (Top Floor Finish)
 - TWL 14.50 (Tank Water Level)
 - RL 13.70 (Bottom of Tank)

SCALE 1:20



SCALE = N.T.S.



* INSPECTION OPENING MUST BE LOCKABLE. IF WATERTIGHT CAN BE FLUSH WITH FSL. IF NOT WATERTIGHT MIN. 150mm ABOVE FSL.

⊕ 240V REQUIRED

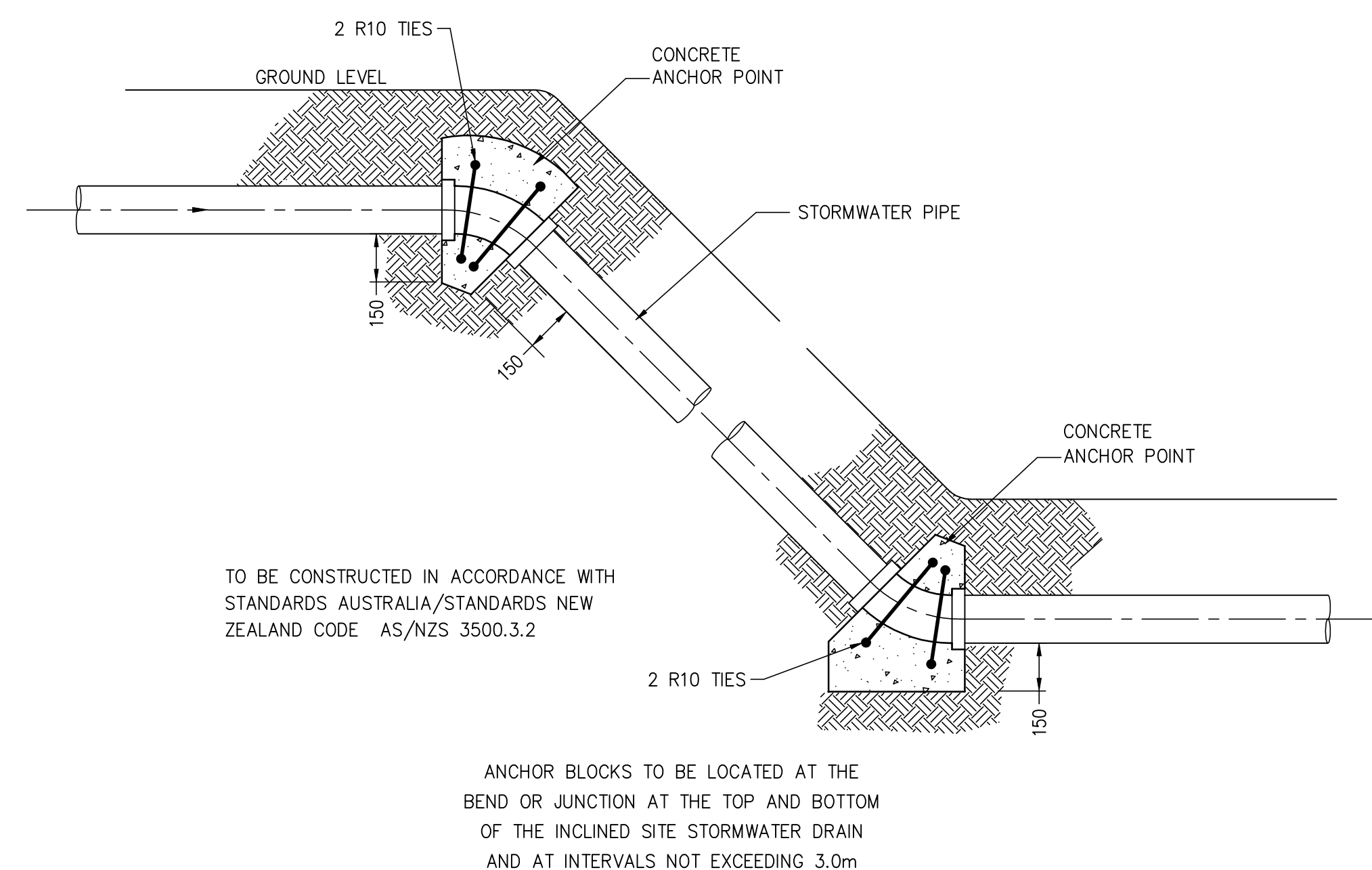
FOR SETBACK DISTANCE PLEASE CONTACT RESPONSIBLE REGULATORY AUTHORITY

NOTE:

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TYPICAL BELOWGROUND RAINWATER TANK INSTALLATION WITH RAINWATER SUPPLIED TO GARDEN AND APPLIANCES IN THE HOUSEHOLD (HB 230-2008)

NOT TO SCALE



CONCRETE ANCHOR POINT DETAIL
FOR EARTH SLOPE GREATER THAN 1 V. TO 3 H.

SCALE = 1 : 20



A1 ORIGINAL			
B	17.07.25	REVISED FOR NEW DA SUBMISSION	R.M
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Rev:	Date:	Description:	Reviewed:

Issued for: DEVELOPMENT APPLICATION	Title:	Initial:	Date:
Approved by:	DESIGN	R.M	05.07.2024
	DRAWN	S.M	05.07.2024
Date : 17.07.25 Rhys Mikhail	CHECKED	R.M	17.07.2025
Director Principal Engineer NER: 2570082 RPEQ: 17480 BEng (Civil) Hons MIEAust CPEng NER RPEQ APEC IntPE(Aus)	APPROVED	R.M	17.07.2025



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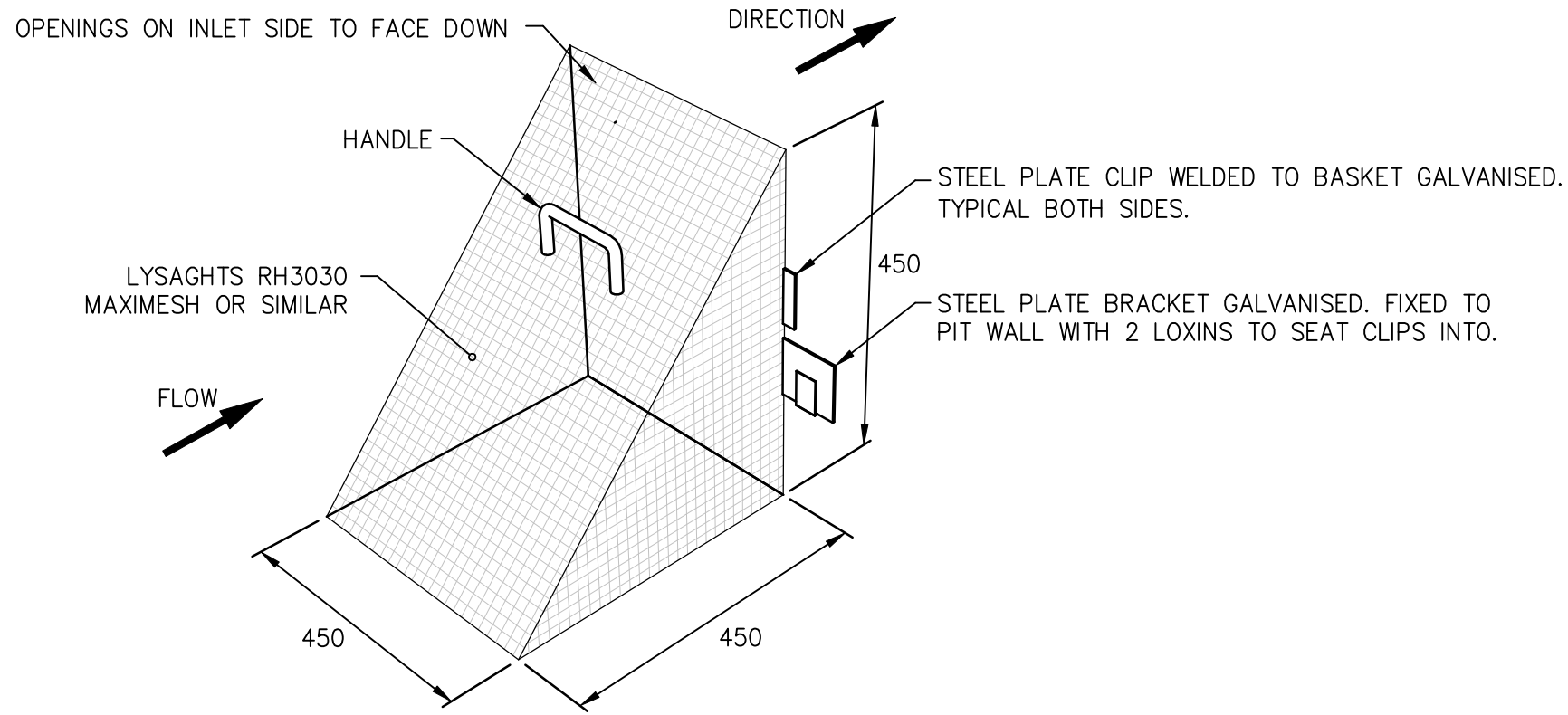
Architect:	CM STUDIO
Client:	MMIG DEVELOPMENTS PTY LTD

Project and Drawing Title:	Local Council:
139-141 RIVERVIEW ROAD, AVALON BEACH STORMWATER DRAINAGE DETAILS SHEET 2 OF 3	NORTHERN BEACHES COUNCIL

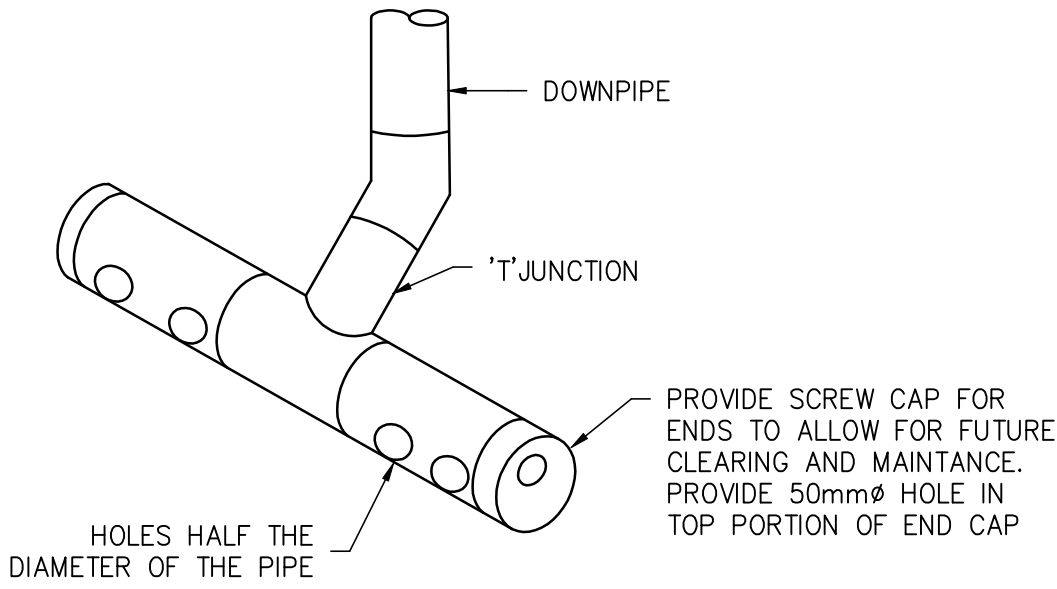
Project Number:	Drawing ID:	Issue:
240601	SW201	B

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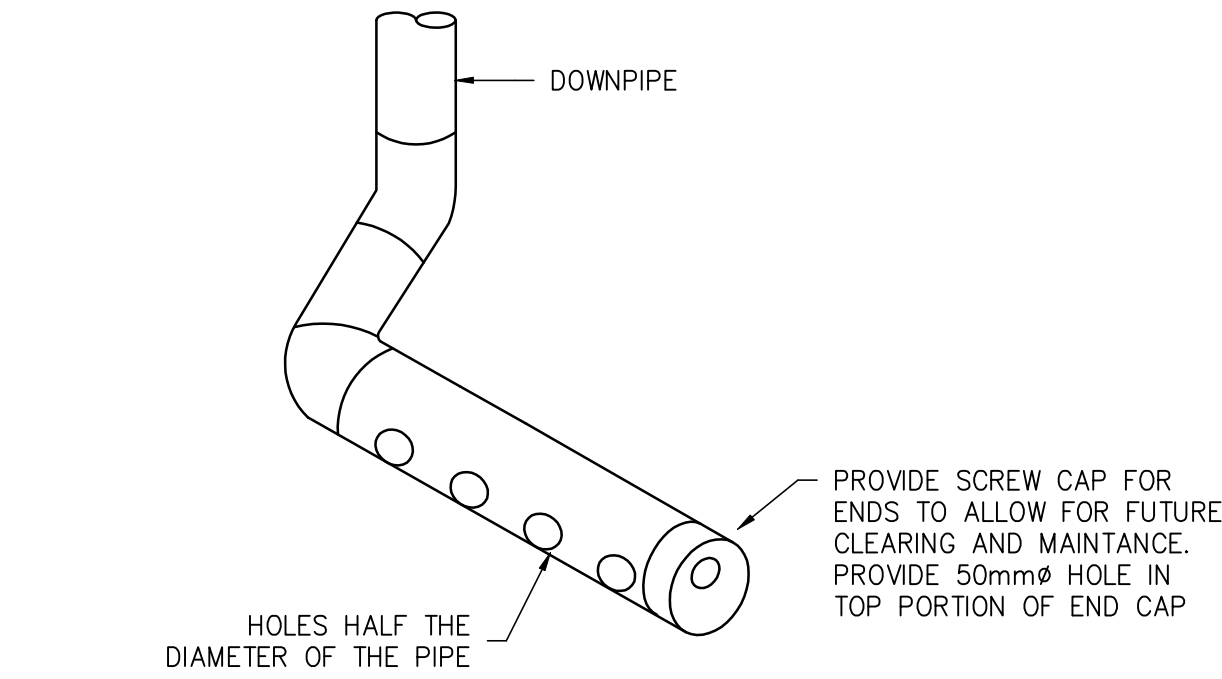
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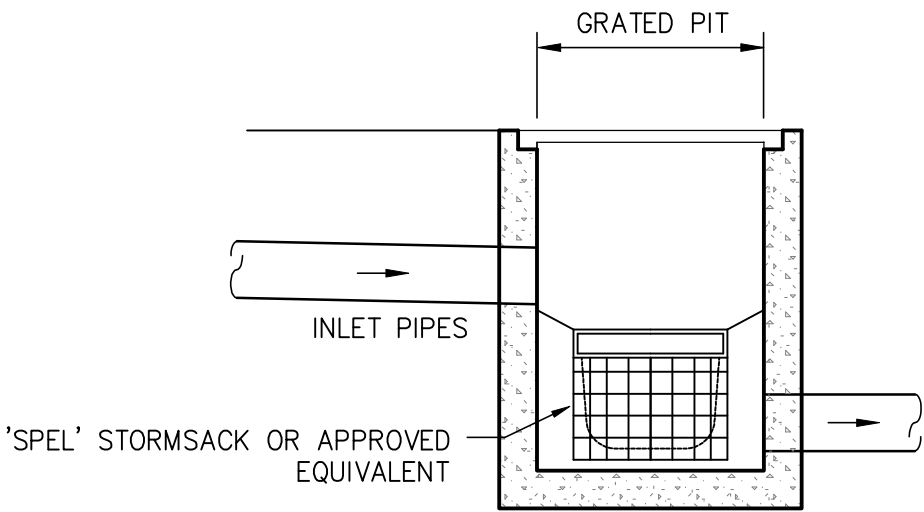
MAXI MESH SCREEN DETAIL
SCALE = N.T.S.



SPREADER PIPE 'SP1' DETAIL OPTION 1
SCALE = NTS



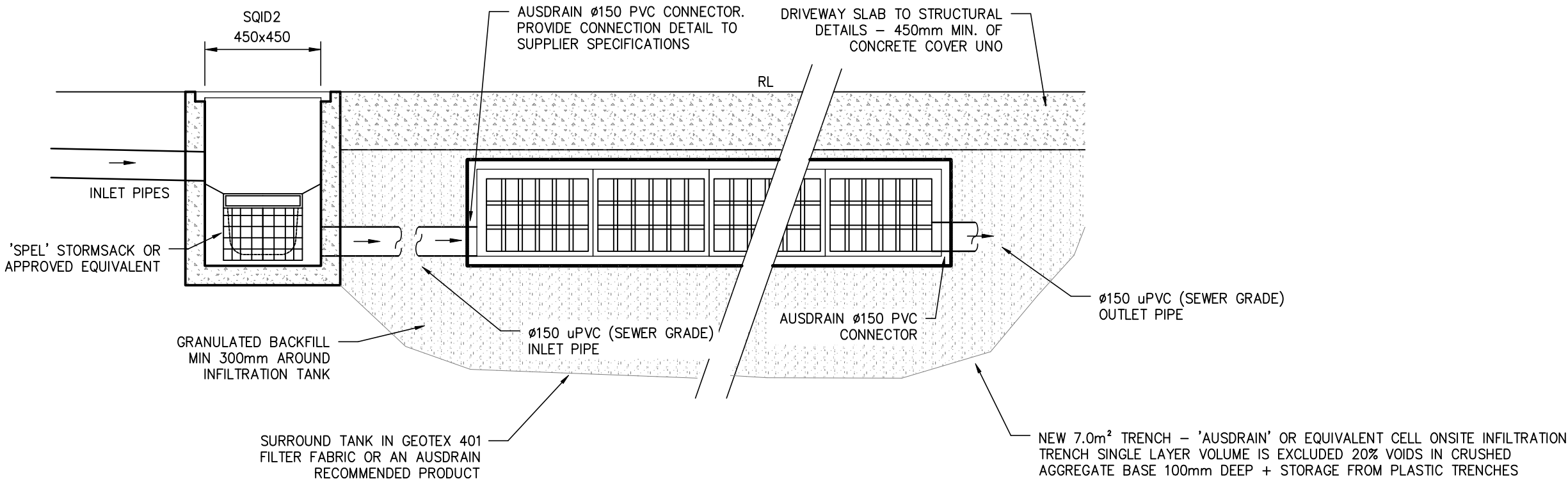
SPREADER PIPE 'SP1' DETAIL OPTION 2
SCALE = NTS



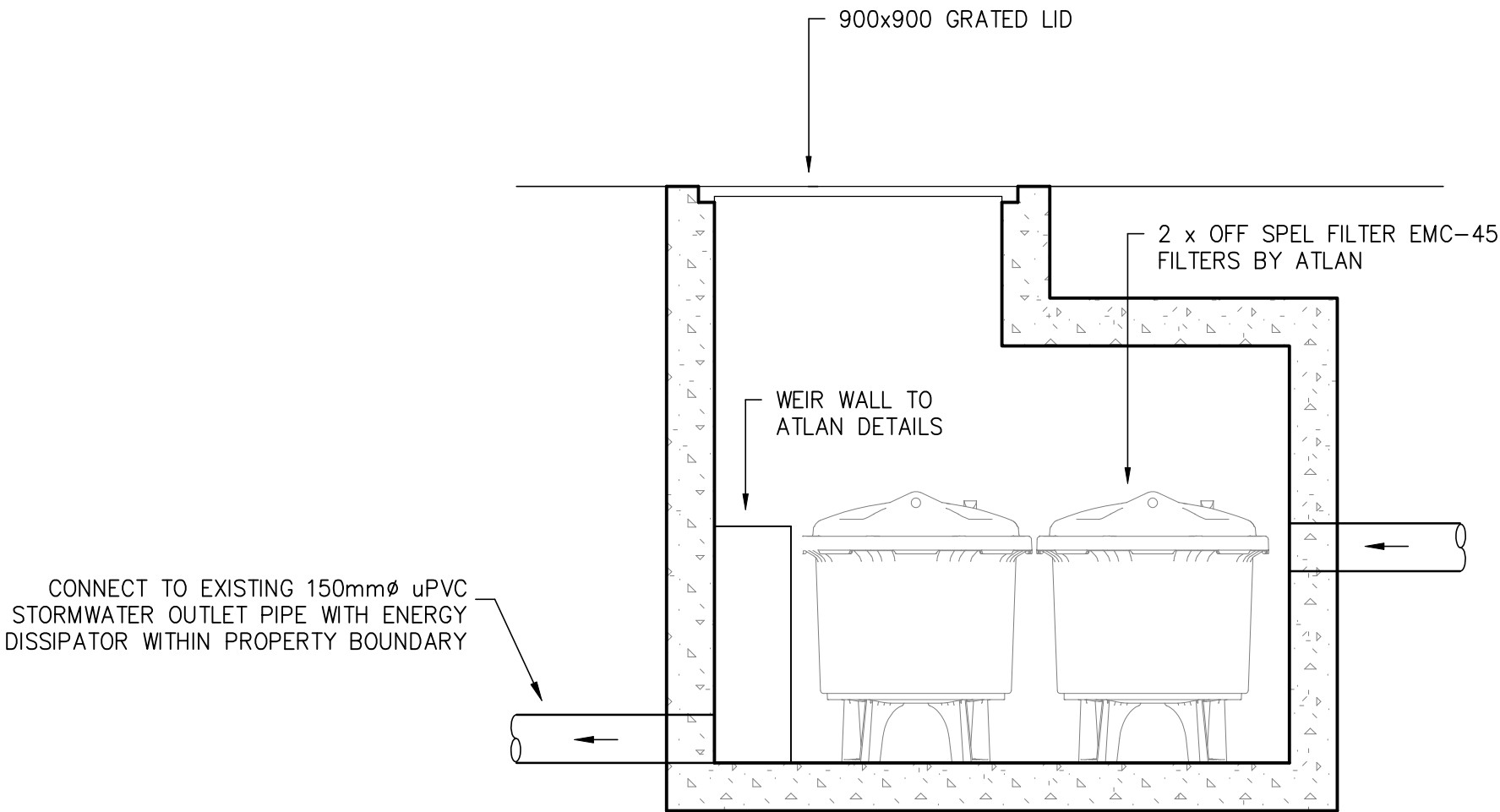
TYPICAL SQID2 PIT DETAIL
SCALE = 1 : 20

NOTE:
PRECAST OR CAST INSITU PIT. REFER STORMWATER NOTES OR PROVIDE ALTERNATE POLYPROPYLENE PIT BY MANUFACTURER IF APPROVED BY ENGINEER

NOTE:
THE SUBSTITUTION OF AN "EQUIVALENT" DEVICE FOR THE STORMWATER TREATMENT MEASURE APPROVED UNDER THE DEVELOPMENT CONSENT **MUST** SUBMITTED TO THE PRINCIPAL CERTIFYING AUTHORITY FOR APPROVAL PRIOR TO INSTALLATION.



(SQID3) ONSITE INFILTRATION TRENCH
SCALE: 1:50



PIT STRUCTURE TO ATLAN APPROVED ALTERNATIVE
900 x 1800 PIT DETAIL
SCALE = 1 : 20

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