

PROPOSED DEVELOPMENT 25 RUTLEDGE ST, EASTWOOD STORMWATER MANAGEMENT AND SEDIMENTAL CONTROL PLANS

GENERAL NOTES

- THESE PLANS SHALL BE READ IN CONJUNCTION WITH OTHER RELEVANT CONSULTANTS' PLANS, SPECIFICATIONS, CONDITIONS OF DEVELOPMENT CONSENT AND CONSTRUCTION CERTIFICATE REQUIREMENTS.
- WHERE THESE PLANS ARE NOTED FOR DEVELOPMENT APPLICATION PURPOSES ONLY, THEY SHALL NOT BE USED FOR OBTAINING A CONSTRUCTION CERTIFICATE NOR USED FOR CONSTRUCTION PURPOSES.
- SUBSOIL DRAINAGE SHALL BE DESIGNED AND DETAILED BY THE STRUCTURAL ENGINEER. SUBSOIL DRAINAGE SHALL NOT BE CONNECTED INTO THE STORMWATER SYSTEM IDENTIFIED ON THESE PLANS.

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LEGENDS

	DENOTES UNDERGROUND RAINWATER PIPE LINE
	DENOTES DOWNPIPE
	DENOTES STORMWATER PIT WITH GRATED COVER
	DENOTES SOLID COVER
	DENOTES GRATED TRENCH DRAIN
	DENOTES SIZE AND GRADE OF PIPES
RL	DENOTES PIT SURFACE LEVEL
IL	DENOTES INVERT LEVEL
DP1/RWH	DENOTES RAINWATER HEAD

RAINWATER RE-USE SYSTEM NOTES

- RAINWATER SUPPLY PLUMBING TO BE CONNECTED TO OUTLETS WHERE REQUIRED BY BASIX CERTIFICATE (BY OTHERS)
- TOWN WATER CONNECTION TO RAINWATER TANK TO BE TO THE SATISFACTION OF THE REGULATORY AUTHORITY. THIS MAY REQUIRE PROVISION OF: 2.1 PERMANENT AIR GAP 2.2 BACK FLOW PREVENTION DEVICE WHERE REQUIRED BY THE DESIGN.
- NO DIRECT CONNECTION BETWEEN TOWN WATER SUPPLY AND THE RAIN WATER SUPPLY.
- AN APPROVED STOP VALVE AND/OR PRESSURE LIMITING VALVE AT THE RAINWATER TANK WHERE REQUIRED BY THE DESIGN.
- PROVIDE AT LEAST ONE EXTERNAL HOSE COCK ON THE TOWN WATER SUPPLY FOR FIRE FIGHTING.
- PROVIDE APPROPRIATE FLOAT VALVES AND/OR SOLENOID VALVES TO CONTROL TOWN WATER SUPPLY INLET TO TANK IN ORDER TO ACHIEVE THE TOP-UP INDICATED ON THE TYPICAL DETAIL WHERE REQUIRED BY THE DESIGN.
- ALL PLUMBING WORKS ARE TO BE CARRIED OUT BY LICENSED PLUMBERS IN ACCORDANCE WITH AS/NZS3500.1 NATIONAL PLUMBING AND DRAINAGE CODE
- PRESSURE PUMP ELECTRICAL CONNECTION TO BE CARRIED OUT BY A LICENSED ELECTRICIAN WHERE REQUIRED BY THE DESIGN
- ONLY ROOF RUN-OFF IS TO BE DIRECTED TO THE RAINWATER TANK. SURFACE WATER INLETS ARE NOT TO BE CONNECTED
- PIPE MATERIALS FOR RAINWATER SUPPLY PLUMBING ARE TO BE APPROVED MATERIALS TO AS/NZS3500 PART 1 SECTION 2 AND TO BE CLEARLY AND PERMANENTLY IDENTIFIED AS 'RAINWATER'. THIS MAY BE ACHIEVED FOR BELOW GROUND PIPES USING IDENTIFICATION TAPE (MADE IN ACCORDANCE WITH AS2648) OR FOR ABOVE GROUND PIPES BY USING ADHESIVE PIPE MARKERS (MADE IN ACCORDANCE WITH AS1345).
- EVERY RAINWATER SUPPLY OUTLET POINT AND THE RAINWATER TANK ARE TO BE LABELED 'RAINWATER' ON A METALLIC SIGN IN ACCORDANCE WITH AS1319
- ALL INLETS AND OUTLETS TO THE RAINWATER TANK ARE TO HAVE SUITABLE MEASURES PROVIDED TO PREVENT MOSQUITO AND VERMIN ENTRY.

STORMWATER CONSTRUCTION NOTES

- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500 (CURRENT EDITION) AND THE REQUIREMENTS OF THE LOCAL COUNCIL'S POLICIES AND CODES.
- THE MINIMUM SIZES OF THE STORMWATER DRAINS SHALL NOT BE LESS THAN DN90 FOR CLASS 1 BUILDINGS AND DN100 FOR OTHER CLASSES OF BUILDING OR AS REQUIRED BY THE REGULATORY AUTHORITY.
- THE MINIMUM GRADIENT OF STORMWATER DRAINS SHALL BE 1%, UNLESS NOTED OTHERWISE.
- COUNCIL'S TREE PRESERVATION ORDER IS TO BE STRICTLY ADHERED TO. NO TREES SHALL BE REMOVED UNTIL PERMIT IS OBTAINED.
- PUBLIC UTILITY SERVICES ARE TO BE ADJUSTED AS NECESSARY AT THE CLIENT'S EXPENSE.
- ALL PITS TO BE BENCHED AND STREAMLINED. PROVIDE STEP IRONS FOR ALL PITS OVER 1.2m DEEP.
- MAKE SMOOTH JUNCTION WITH ALL EXISTING WORK.
- VEHICULAR ACCESS AND ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION.
- SERVICES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND FIELD INVESTIGATIONS AND ARE NOT GUARANTEED COMPLETE NOR CORRECT. IT IS THE CLIENT & CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL PRIOR TO CONSTRUCTION.



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A	ISSUE FOR DA SUBMISSION	L.Z.	A.C.	01/09/21

Rev	Description	Eng	Draft	Date
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Client
BRIAN ZHAO

Project
25 RUTLEDGE STREET, EASTWOOD

Sheet Subject

GENERAL NOTES

Architect

AC DESIGN GROUP

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Scale : A1	Drawn A.C.	Authorised J.S.
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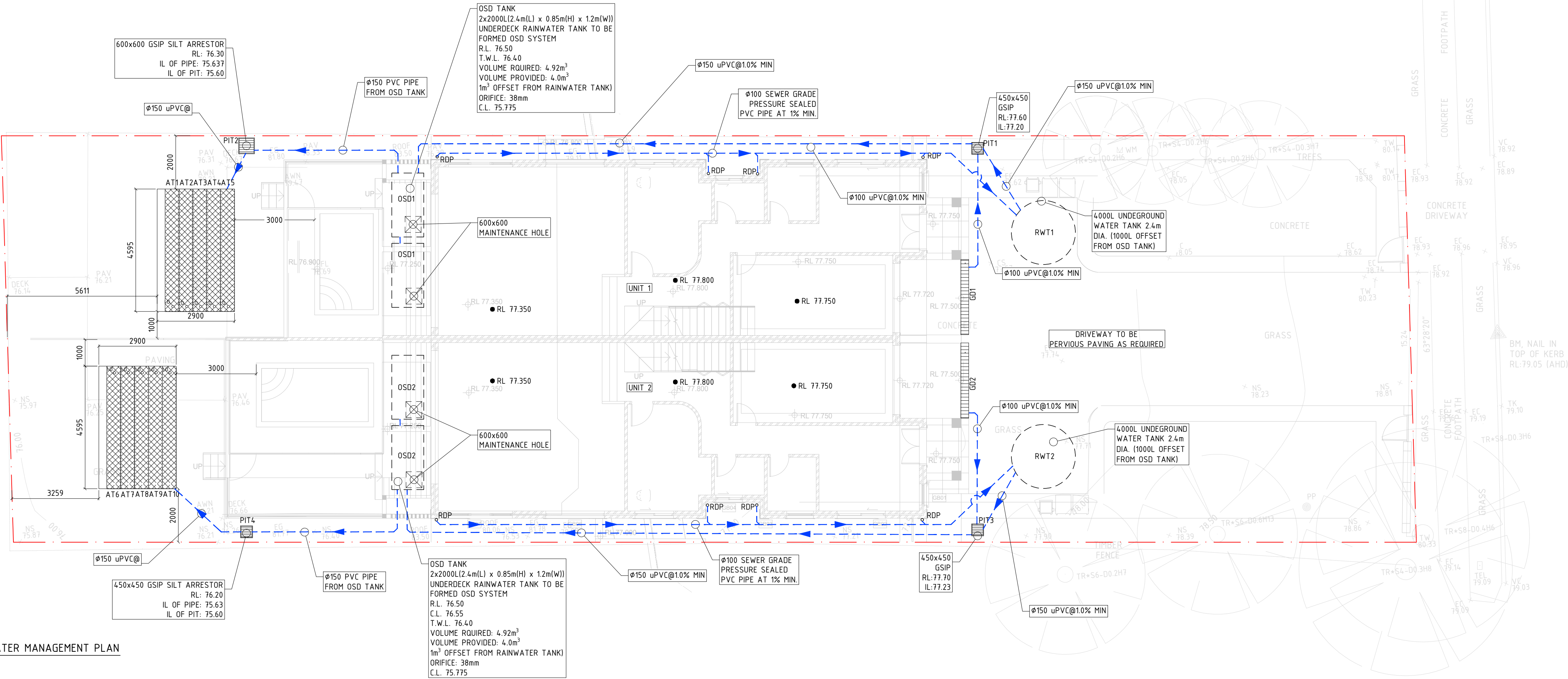
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MARK	SIZE/TYPE	FSL	INV.
RDP	100 DIAMETER PVC SEWER GRADE PRESSURE SEALED CHARGED DOWNPIPE	-	-
PIT1	450x450 GSIP	77.60	77.20
PIT2	600x600 GSIP SILT ARRESTOR PIT	76.30	75.60
PIT3	450x450 GSIP	77.70	77.23
PIT4	450x450 GSIP SILT ARRESTOR PIT	76.20	75.60
RWT1	4000L UNDERGROUND WATER TANK 2.4m DIA.	-	-
RWT2	1000L OFFSET FROM OSD TANK	-	-
AT1	ABSORPTION TRENCHES 410 JUMBO	-	-
AT10	4595x520W	-	-
EG	160x75 LEAVES GUTTER	-	-
GD1	200W x MIN. 200D GRATED DRAIN	77.50	77.30
GD2	200W x MIN. 200D GRATED DRAIN	77.50	77.30

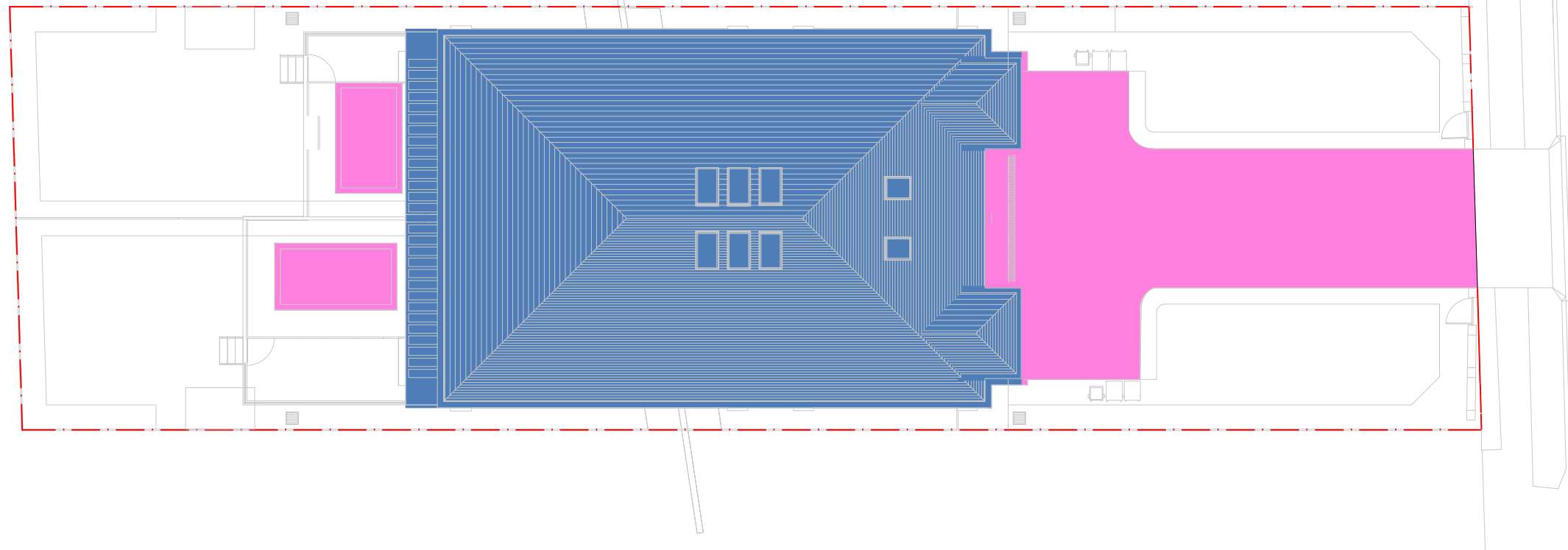
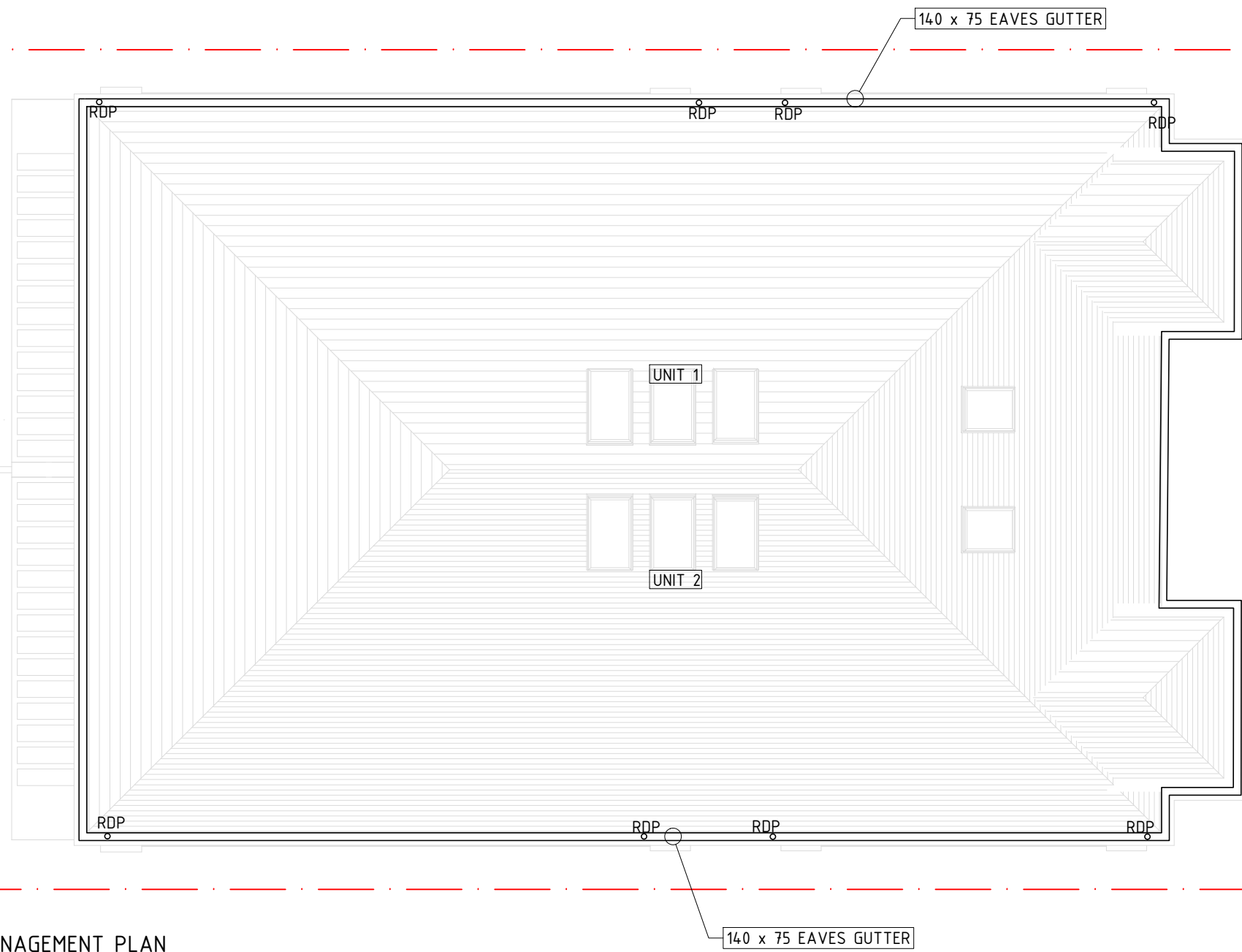
- STORMWATER NOTES:
1. ALL PIPES TO BE 100mm Ø UNLESS NOTED OTHERWISE.
 2. ALL PIPES TO BE uPVC UNLESS NOTED OTHERWISE.
 3. ALL PIPES TO BE LAYED AT 1% MINIMUM GRADE UNLESS NOTED OTHERWISE.
 4. ALL PIPES SHALL BE LAID ON A 75mm SAND BED, COMPACTED TO 100% S.M.D.D. BELOW PAVEMENTS. (NO COMPACTION REQUIRED 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.
 5. ALL PIPES SHOWN ON PLAN ARE SHOWN INDICATIVELY ONLY & MINIMUM CLEARANCES FROM THE EXTERNAL WALLS OF BUILDINGS, FOR THE EXCAVATION OF TRENCHES, ARE TO BE PROVIDED IN ACCORDANCE WITH AS3500.
 6. ALL DOWN PIPES TO BE 100mm Ø UNLESS NOTED OTHERWISE.
 7. DOWN PIPE LOCATIONS ARE INDICATIVE ONLY. LOCATIONS TO BE CONFIRMED WITH ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
 8. PROVIDE CLEANING EYES AT ALL DOWNPIPES U.N.O.
 9. ALL PITS GREATER THAN 1000mm DEEP SHALL HAVE STEP IRONS AS PER COUNCIL STANDARDS.
 10. ALL WORK TO BE IN ACCORDANCE WITH LOCAL COUNCIL STANDARDS AND SPECIFICATIONS.
 11. ALL LEVELS SHOWN ARE TO AHD.
 12. ENSURE THAT ALL PITS AND STORMWATER PIPES ARE LOCATED CLEAR FROM TREE ROOT SYSTEMS.
 13. EXCAVATION OF TRENCHES ADJACENT TO TREES TO BE CARRIED OUT USING HAND TOOLS ONLY.
 14. ALL EXISTING EARTHENWARE PIPES TO BE UPGRADED TO uPVC.
 15. ALL WORKS TO BE IN ACCORDANCE WITH AS 3500.
 16. THE FOLLOWING ABBREVIATION DENOTES:
FSL - FINISHED SURFACE LEVEL
INV - INVERT

	DENOTES EXISTING LEVELS
	DENOTES PROPOSED LEVELS

SITE STORMWATER MANAGEMENT PLAN
1:100



ROOF STORMWATER MANAGEMENT PLAN
1:100



PROPOSED SITE

TERRAIN	TOTAL AREA (m ²)	AREA PER LOT (m ²)
ROOF AREA	294	147
PERVIOUS DRIVEWAY AREA	132	66

STORMWATER MANAGEMENT PLAN - GROUND LEVEL

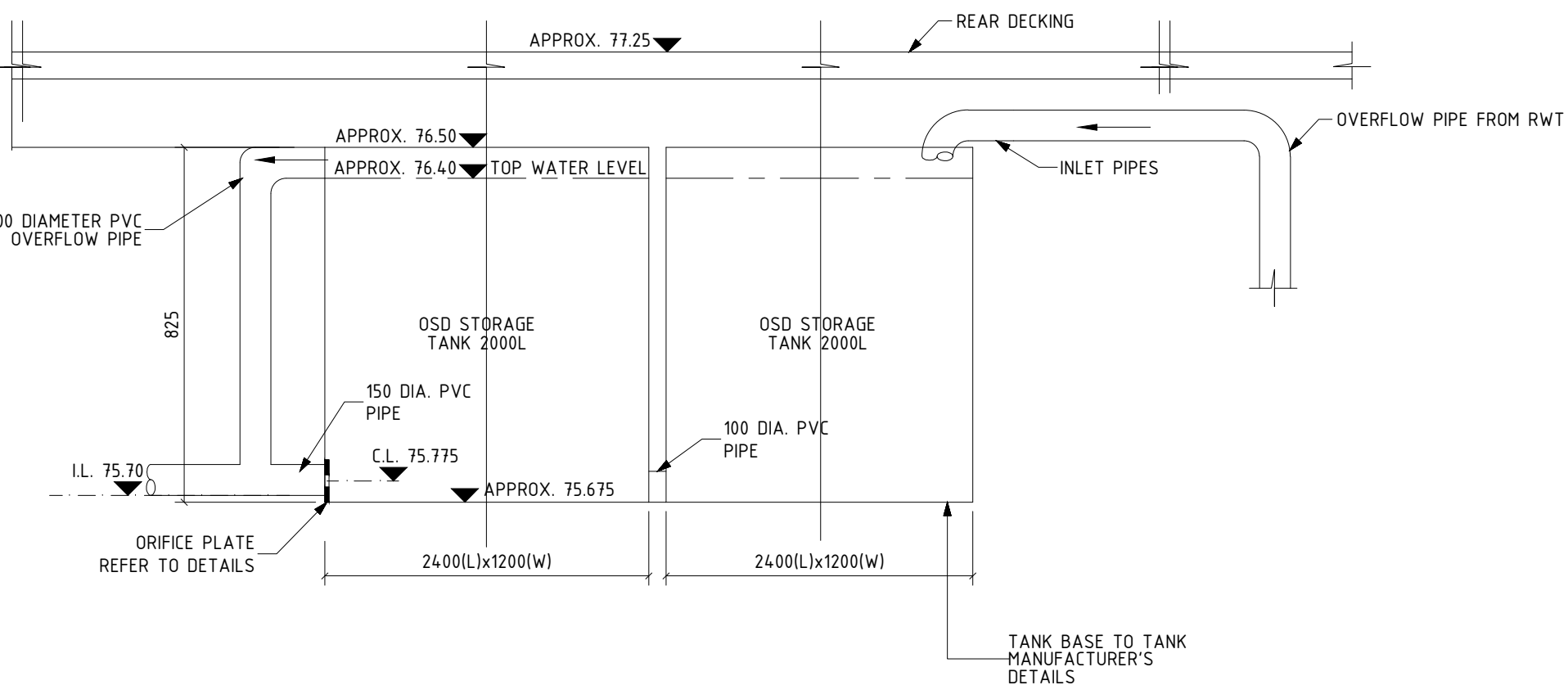
Architect

AC DESIGN GROUP

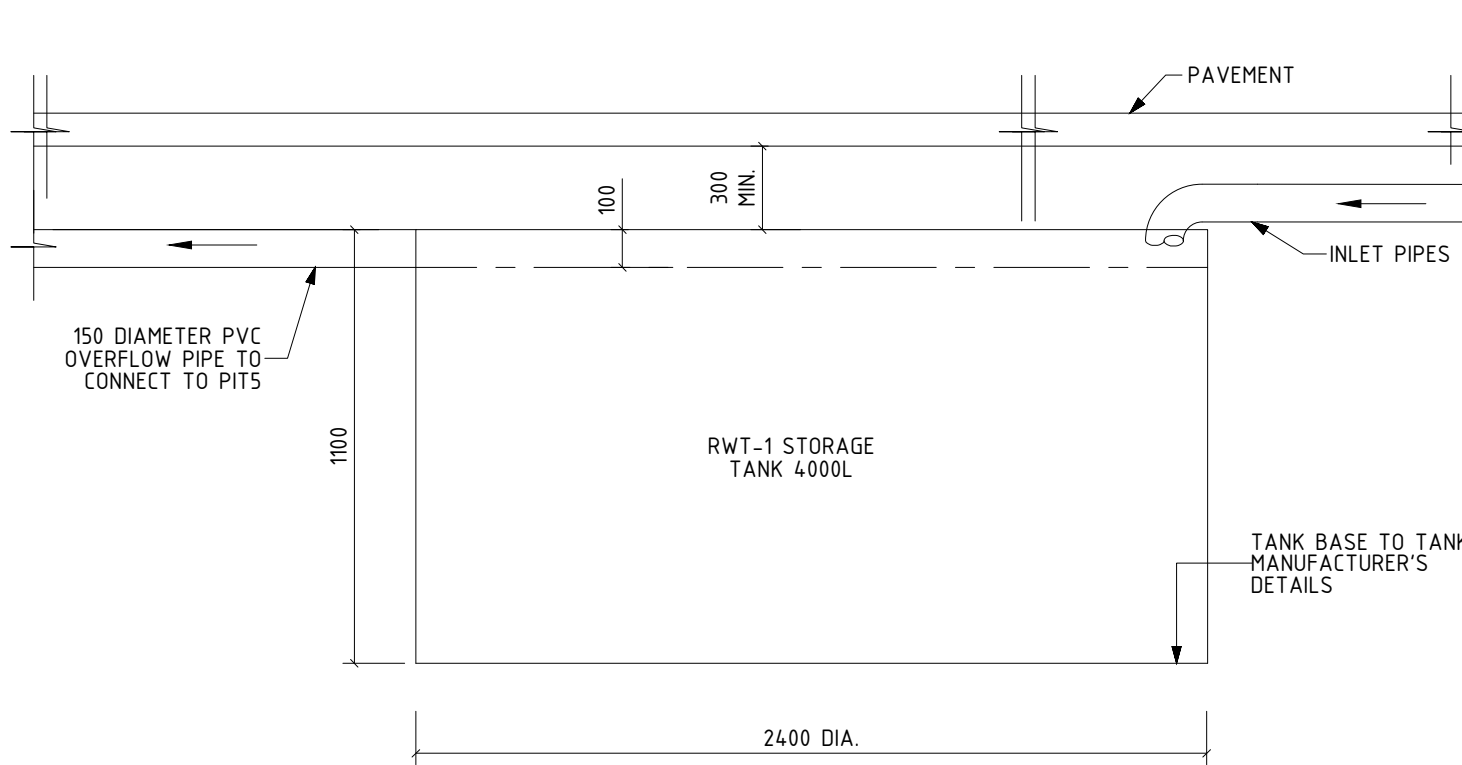
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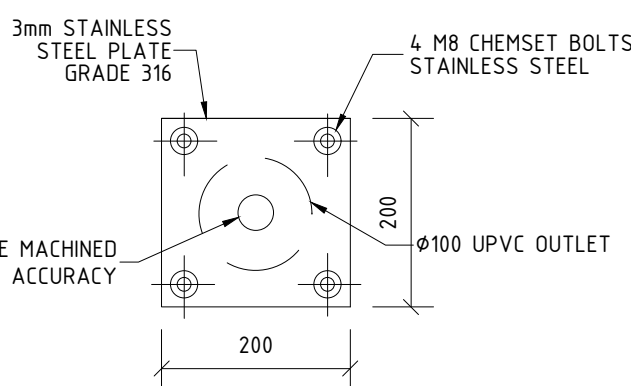
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Job No 210331	Drawing No D02	Revision D



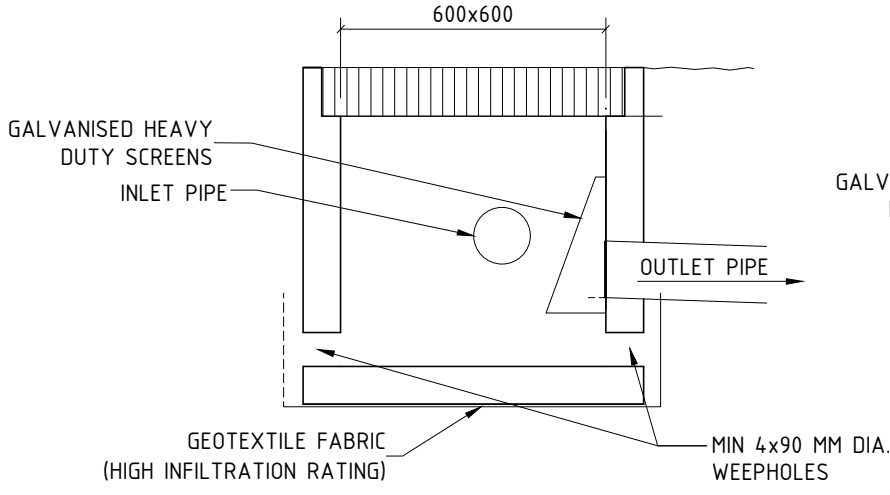
TYPICAL SECTION UNDERGROUND OSD TANK-1
NOT TO SCALE
NOTE: OSD-2 SECTION SIMILAR.



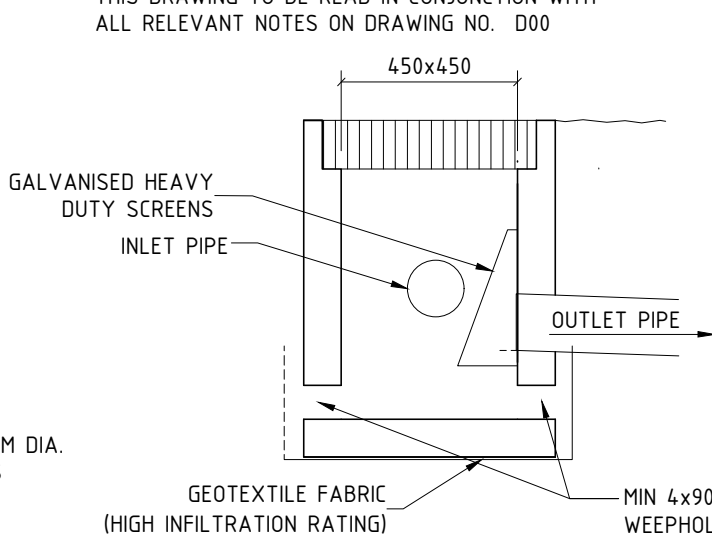
TYPICAL SECTION UNDERGROUND RAINWATER TANK-1
NOT TO SCALE
NOTE: RWT-2 SECTION SIMILAR.



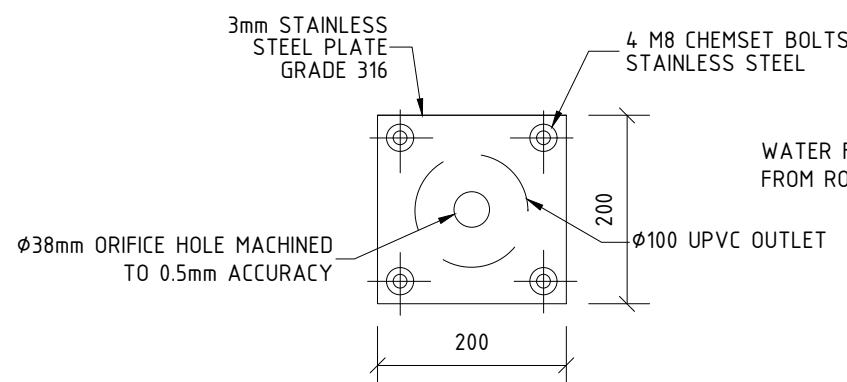
ORIFICE-1 PLATE DETAIL (TYPICAL)
SCALE 1:10



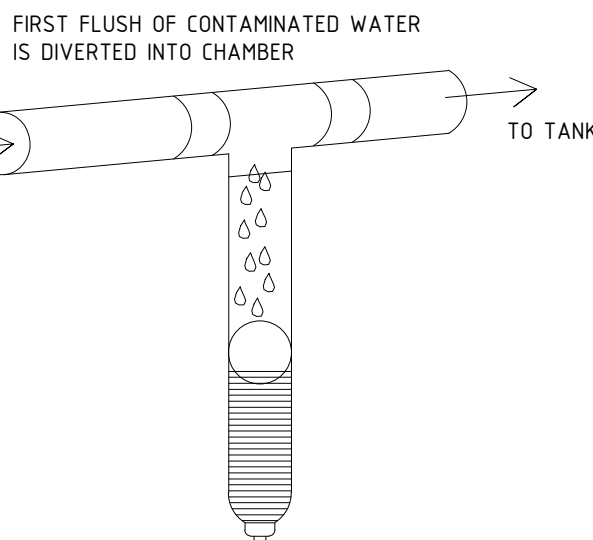
SEDIMENT SILT ARRESTOR PIT2 DETAIL
1:20



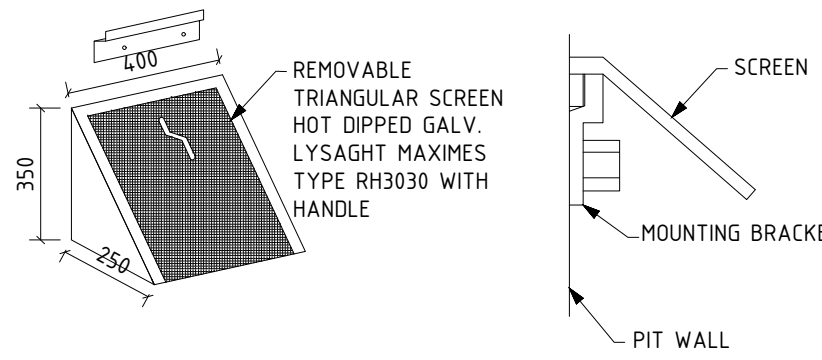
SEDIMENT SILT ARRESTOR PIT4 DETAIL
1:20



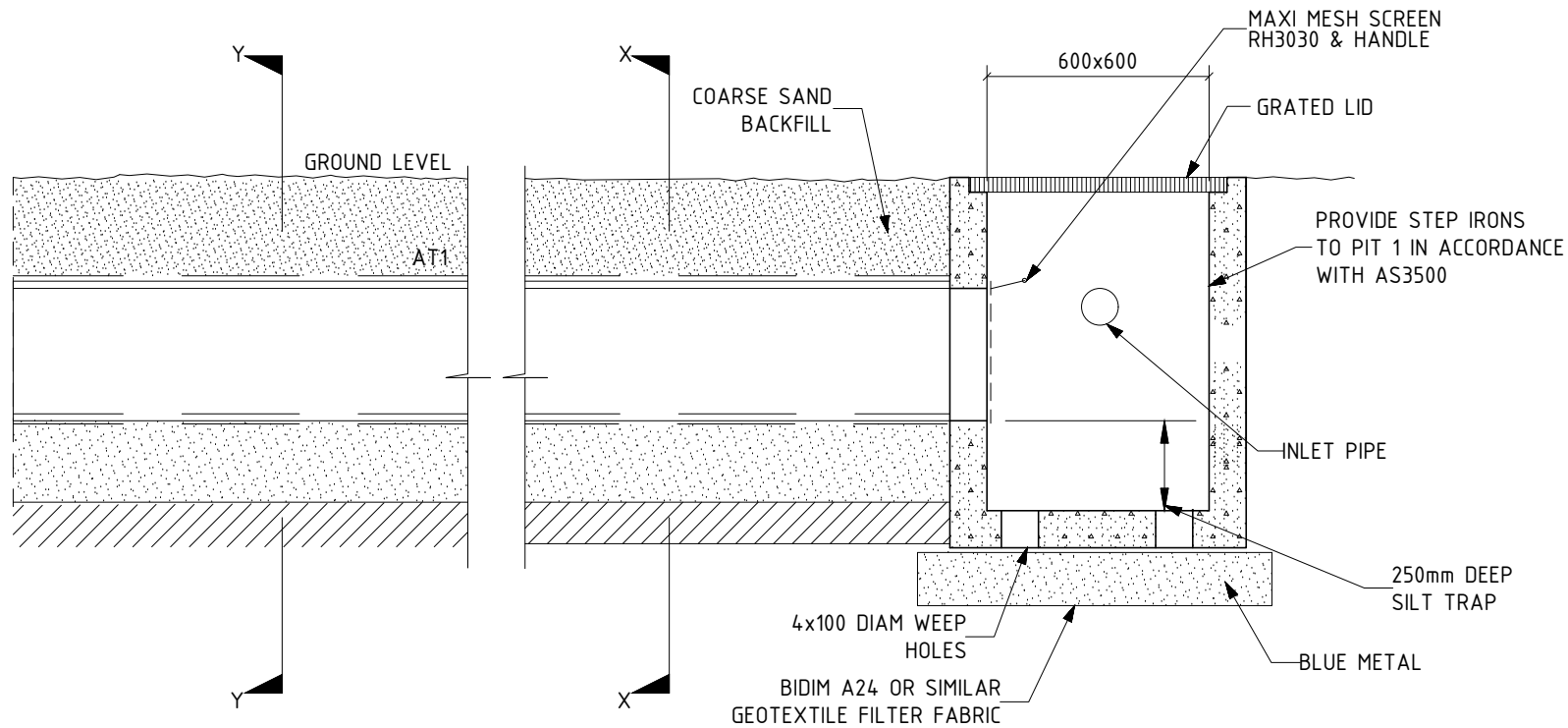
ORIFICE-2 PLATE DETAIL (TYPICAL)
SCALE 1:10



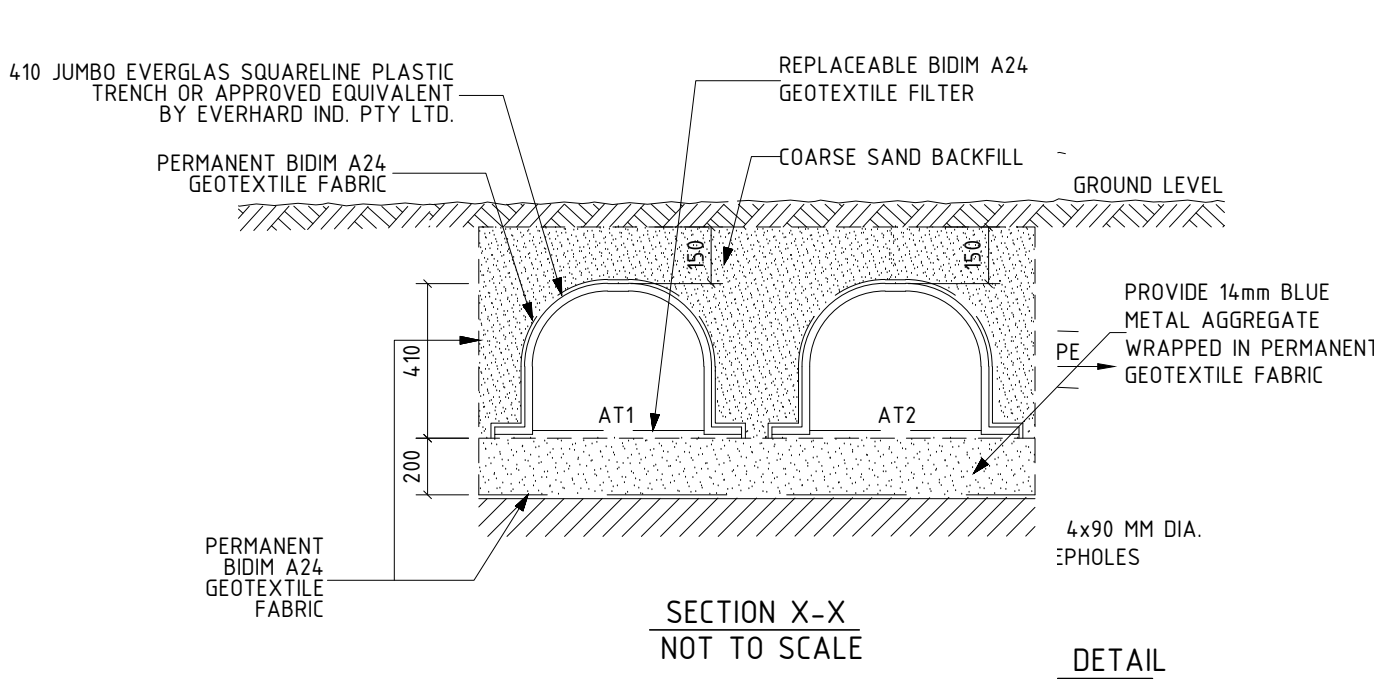
FIRST FLUSH WATER DIVERTER DETAIL
NOT TO SCALE



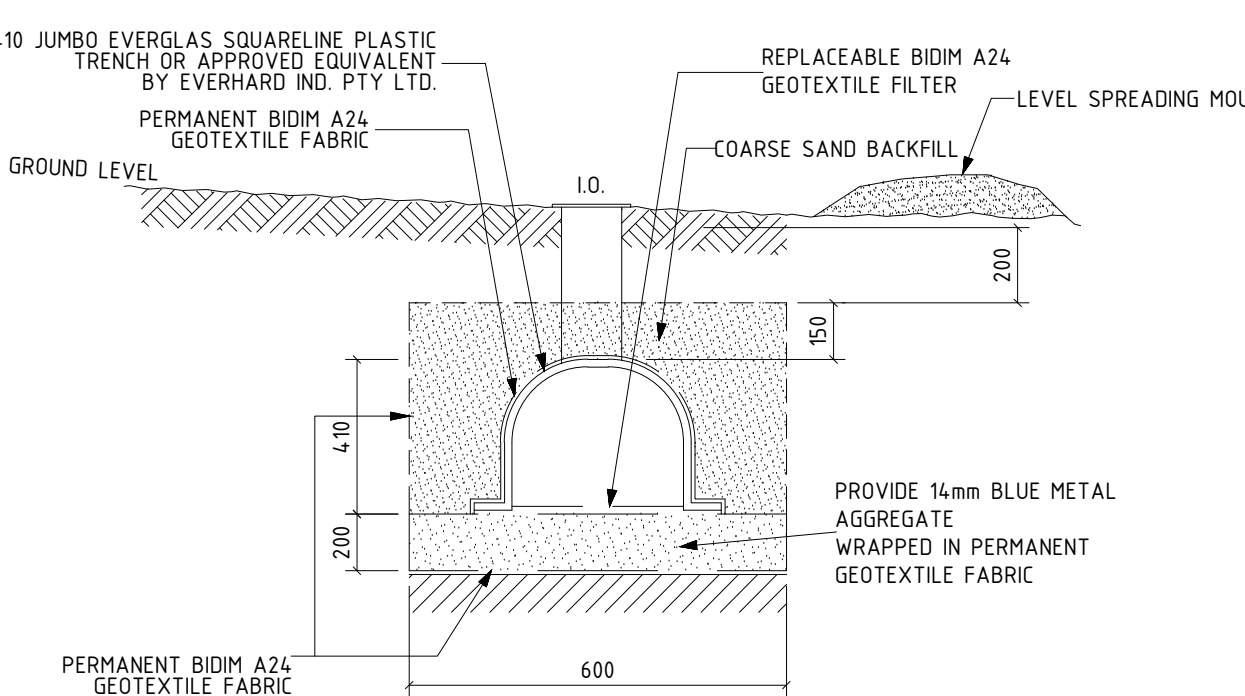
MULTI PURPOSE FILTER SCREEN
NOT TO SCALE
PRODUCT CODE: MMMPS (MASCOT ENGINEERING)



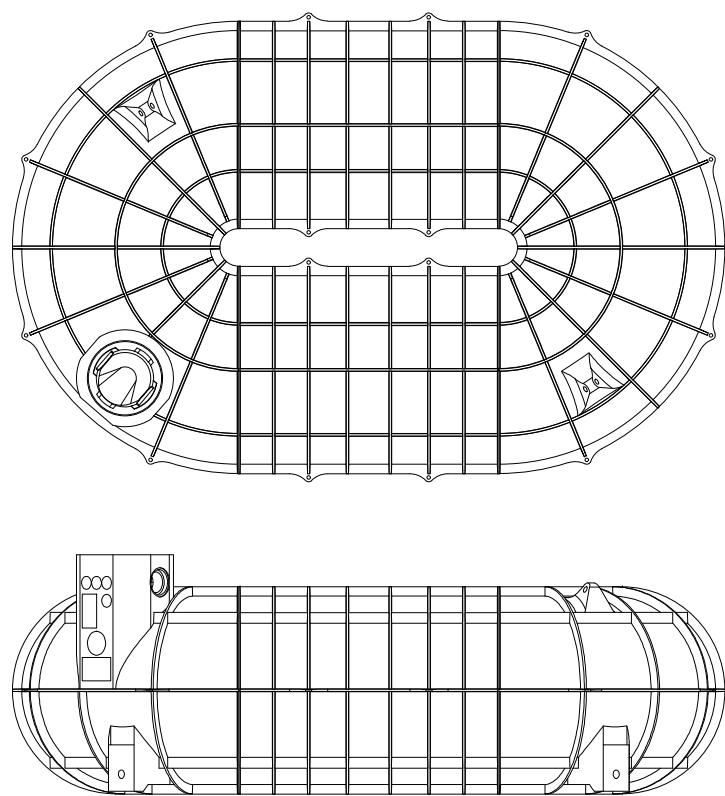
AT1 - ABSORPTION PIT LONGITUDINAL SECTION
NOT TO SCALE (AT2 SIMILAR)



SECTION X-X
NOT TO SCALE

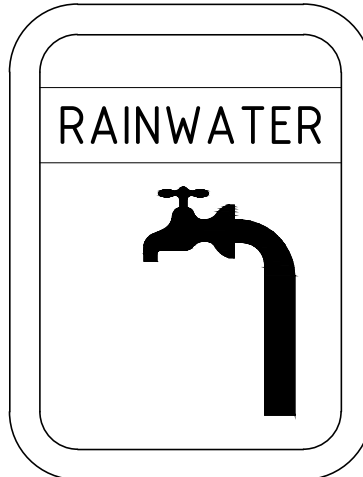


SECTION Y-Y
NOT TO SCALE



BELOW GROUND RAINWATER TANK
1:20

LEGEND:
BACKGROUND IS YELLOW
TEXT IS WHITE ON BLACK
BACKGROUND



RAINWATER SIGN
NOT TO SCALE

NOTE: RAINWATER TANKS

1. RAINWATER TANK CAPACITY AS PER BASIX CERTIFICATE
2. THE SYSTEM TO BE DESIGNED WITH FOLLOWING GUIDELINES
 - A 'FIRST FLUSH' DIVERSION TO REMOVE ROOF CONTAMINATES
 - ADEQUATE SCREENING TO PREVENT MOSQUITO BREEDING AND ENTRY OF ANIMALS OR FOREIGN MATTER
3. TANKS TO BE PLUMBED TO TOP-UP FROM THE POTABLE WATER SUPPLY DURING DRY PERIODS WHEN THE TANKS ARE 80% EMPTY.
4. NO DIRECT CROSS-CONNECTION WITH THE SYDNEY WATER POTABLE SUPPLY AND AN AIR GAP MAINTAINED ABOVE THE OVERFLOW IN THE TANK.
5. A SIGN TO BE INSTALLED STATING 'NOT FOR HUMAN CONSUMPTION'
6. RAINWATER TANK TO BE CONNECTED AS PER BASIX REQUIREMENTS.
7. OVERFLOW FROM THE TANK SHALL BE PIPED TO THE DRAINAGE SYSTEM.

ON-SITE DETENTION CALCULATION SHEET

DEVELOPMENT TYPE: Dual Occupancy
ADDRESS: 25 Rutledge st Eastwood

Catchment Zone	3	Eastwood
Site Area	400.5	m ² (A)
65% Site Area	260.325	m ²
Total Proposed Impervious Area (roofs, driveways, hardstand etc)	164	m ² (B)
% of site impervious	40.9%	
Impervious area draining to the Storage Facility	147.1	m ² (C)
Pervious area draining to the Storage Facility	0	m ² (D)
Rainwater Storage (Total vol. if OSD+RWT combined)	BASIX Reqmnt	3 m ³
	Total Proposed	4 m ³
Total Area draining to the Storage Facility (impervious and pervious)	147.1	m ² (E)
Pervious area bypassing the Storage Facility	236.5	m ² (F)
Impervious area bypassing the Storage Facility	16.9	m ² (G)

OK

OK

$$\frac{(C) + (G)}{(C)} \text{ equals } 1.11 \text{ (L)}$$

Must not be greater than 1.25 (Min 80% of impervious area must drain to OSD)

Permitted Site Discharge (PSD) rate per m² 0.0181 (J)

PERMITTED SITE DISCHARGE (E) x (J) 2.66 l/s

Storage Volume per m² 0.03 (K)

SITE STORAGE REQUIREMENT ((E) + (G)) x (K) x (1.2)**

Storage Volume per m² 0.03 (K)

MIN. TOTAL DETENTION STORAGE (TANK) 4.92 m³
MIN. TOTAL DETENTION STORAGE (BASIN) 5.90 m³

COMBINED OSD+RWT SYSTEMS RWT VOLUME AVAIL TO OFFSET STORAGE. 1.00 m³
MIN DETENTION VOLUME REQ (RWT + OSD TANK) 3.92 m³
MIN DETENTION VOLUME REQ (RWT + OSD BASIN) 4.70 m³

NOTES:

- ** OSD is provided in a landscaped surface basin the volume must be increased by 20%
- *** Above figures take into account rainwater tank vol. (BASIX requirements) located prior to control discharge point and (for single residential dwellings) the rainwater tank is connected to water re-use (toilets, etc).

OUTLET CONTROL

Height Difference between top water level and Centre of Orifice (m) 0.75 m (H)

ORIFICE DIAMETER (mm) 38 mm

NOTES:

- * Should pipe and pit losses be used to control outflow, the calculations are to be attached.
- ** Calc above based on sharp edged orifice plate.

Ryde Council Calculation Sheet for On-Site Dispersal

Address: 25 Rutledge street, Eastwood

Total Site Area 400.5 m² (a)

Roof Area 147 m²

Driveway Area 0 m²

Other Paved Area 0 m²

Area Draining to Dispersal Trench 147 m² (b)

Other Paved Area Not Connected to Trench 0 m² (b1)

Pervious Paving Area 66 m² x 25% = 16.5 m² (b2)

Total Impervious Area b + b1 + b2 163.5 m² (c)

Area Percentage c/a x 100 (must be less than 40% of site area) 40 %

Area available for dispersal (Must be 3 metres from dwelling and a Minimum of 5 metres from down-slope boundary and equivalent or greater then (c) 13.3 m²

Rainfall Intensity

For 1 in 5 year, 20 min Storm 29.4 mm (d)

88 mm/hr (29.4)

Volume of Runoff (b) x (d) 4321.8 L (e)

Storage Required (e)/1000 4.3 m³ (f)

Length of Trench Required

Example

Volume of 410 Jumbo = 0.175m³

Volume of gravel in 600x600 trench

with 20% void = 0.013

Total volume available = 0.212m³/metre

Total Volume of Trench 0.212 m³/m (g)

Length of Trench (f)/(g) 20.4 m



DESIGN SUMMARY	
DEVELOPMENT TYPE:	SINGLE DWELLING
SITE AREA:	400.5m ²
TOTAL AREA TO BE DRAINED INTO ABSORPTION TRENCH	163.5m ²
AREA AVAILABLE FOR ABSORPTION TRENCH	13.32m ²
PROVIDED 5x4.595m EVERTRENCH JUMBO 410, VOLUME PROVIDED:	4.89m ³
5x4.595mx0.41mx0.52m=	
20mm AGGREGATE UNDER INFILTRATION TRENCH WITH	
20% VOID, VOLUME PROVIDED: 13.32m ² x0.2x0.2=	0.53m ³
TOTAL VOLUME REQUIRED*	4.30m ³
TOTAL VOLUME PROVIDED: 4.89m ³ +0.53m ³ =	5.42m ³ >4.30m ³

*REFER TO CALCULATION SHEET ATTACHED ON D03.

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BRIAN ZHAO

Project

25 RUTLEDGE STREET,
EASTWOOD

Sheet Subject

STORMWATER MANAGEMENT PLAN
DETAILS

Architect

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Scale : A1	Drawn	Authorised
As	A.C.	J.S.
indicated		

Job No	Drawing No	Revision
210331	D03	C

SEDIMENT AND EROSION CONTROL NOTES

1. SEDIMENT AND EROSION CONTROL SHALL BE EFFECTIVELY MAINTAINED AT ALL TIMES DURING THE COURSE OF CONSTRUCTION AND SHALL NOT BE REMOVED UNTIL THE SITE HAS BEEN STABILISED OR LANDSCAPED TO THE SUPERINTENDENT'S SATISFACTION.
2. A SINGLE ALL WEATHER ACCESS WAY WILL BE PROVIDED AT THE FRONT OF THE PROPERTY CONSISTING OF 50-75 AGGREGATE OR SIMILAR MATERIAL AT A MINIMUM THICKNESS OF 150 LAID OVER NEEDLE-PUNCHED GEOTEXTILE FABRIC AND CONSTRUCTED PRIOR TO COMMENCEMENT OF WORKS.
3. THE CONTRACTOR SHALL ENSURE THAT NO SPOIL OR FILL ENCLOSES UPON ADJACENT AREAS FOR THE DURATION OF WORKS.
4. THE CONTRACTOR SHALL ENSURE THAT KERB INLETS AND DRAINS RECEIVING STORMWATER SHALL BE PROTECTED AT ALL TIMES DURING DEVELOPMENT. KERB INLET SEDIMENT TRAPS SHALL BE INSTALLED ALONG THE IMMEDIATE VICINITY ALONG THE STREET FRONTAGE.
5. SEDIMENT FENCING SHALL BE SECURED BY POST (WHERE METAL STAR PICKETS ARE USED PLASTIC SAFETY CAPS SHALL BE USED) AT 2000 INTERVALS WITH GEOTEXTILE FABRIC EMBEDDED 200 IN SOIL.
6. ALL TOPSOIL STRIPPED FROM THE SITE AND STOCKPILED DOES NOT INTERFERE WITH DRAINAGE LINES AND STORMWATER INLETS AND WILL BE SUITABLY COVERED WITH AN IMPERVIOUS MEMBRANE MATERIAL AND SCREENED BY SEDIMENT FENCING.

SOIL CONSERVATION NOTE:

1. PRIOR TO COMMENCEMENT OF CONSTRUCTION PROVIDE 'SEDIMENT FENCE,' 'SEDIMENT TRAP' AND WASHOUT AREA TO ENSURE THE CAPTURE OF WATER BORNE MATERIAL GENERATED FROM THE SITE.
2. MAINTAIN THE ABOVE DURING THE COURSE OF CONSTRUCTION, AND CLEAR THE 'SEDIMENT TRAP' AFTER EACH STORM.

SEDIMENT TRAP

1. 1000 x 1000 WIDE 500 DEEP PIT, LOCATED AT THE LOWEST POINT TO THE TRAP SEDIMENT.
2. WASHOUT AREA TO BE 1800 x 1800 ALLOCATED FOR THE WASHING OF TOOL & EQUIPMENT.

GEOTEXTILE INLET FILTER

- FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
- IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING
- DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.
- FOR DROP INLETS AT NON-SAG POINTS, SANDBAGS, EARTH BANK OR EXCAVATION USED TO CREATE ARTIFICIAL SAG POINT

