

PIPELINE SYMBOL LEGEND

1. THE CONTRACTOR SHALL READ AND FULLY FAMILIARISE THEMSELVES WITH THE HYDRAULIC PLANS, HYDRAULIC SPECIFICATION DOCUMENTS, AUSTRALIAN STANDARDS, AND AUTHORITY REQUIREMENTS APPLICABLE TO THE WORKS. CLAIMS DUE TO IGNORANCE OF THE CONTENTS OF HYDRAULIC SERVICES DOCUMENTS AND / OR REQUIREMENTS OF AUSTRALIAN STANDARDS AUTHORITY REQUIREMENTS WILL NOT BE ENTERED INTO.
2. THE CONTRACTOR IS REQUIRED TO VISIT AND INSPECT EXISTING SITE STRUCTURES, SERVICES AND CONDITIONS OF THE SITE PRIOR TO SUBMITTING THEIR TENDER AND FAMILIARISE THEMSELVES WITH THE VISIBLE NATURE AND CONDITIONS OF THE SITE RELATIVE TO THE WORKS TO BE CARRIED OUT. CLAIMS DUE TO IGNORANCE OF EXISTING SITE CONDITIONS WILL NOT BE ENTERED INTO.
3. THE HYDRAULIC SERVICES DRAWINGS AND SPECIFICATION SET OUT THE PROJECT REQUIREMENTS TO BE MET OVER AND ABOVE THE MINIMUM STANDARDS AS SET OUT BY THE RELEVANT AUSTRALIAN STANDARD APPLICABLE TO THAT SERVICE. THE CONTRACTOR SHALL MAKE DUE ALLOWANCE IN THEIR TENDER AND WARRANTIES THAT THEY HAVE MADE DUE ALLOWANCE FOR ALL REQUIREMENTS NECESSARY FOR THE EXECUTION OF THE WORKS IN ACCORDANCE WITH THE STANDARDS AS SET OUT BY THE RELEVANT AUSTRALIAN STANDARD APPLICABLE TO THAT SERVICE, THE RELEVANT LOCAL AUTHORITY REQUIREMENTS AND PROJECT REQUIREMENTS AS SET OUT IN THE HYDRAULIC SERVICES DRAWINGS AND THE ACCOMPANYING SPECIFICATION.
4. HYDRAULIC SERVICES DRAWINGS ARE TO BE READ IN CONJUNCTION WITH HYDRAULIC SERVICES SPECIFICATION AND DRAWINGS OF ALL OTHER DISCIPLINES FOR THIS PROJECT. IGNORANCE OF THE CONTENTS OF ANY DOCUMENT RELATIVE TO THE PROJECT SHALL NOT PROVIDE A BASIS FOR ANY VARIATION TO THE CONTRACT.
5. ALLOW TO OBTAIN ALL APPROVALS AND PAY ALL FEES AND CHARGES TO ALL AUTHORITIES IN RELATION TO THE PROPOSED SERVICE INSTALLATIONS INDICATED ON THE DRAWINGS.
6. ALLOW TO DISCONNECT & SEAL ALL REDUNDANT HYDRAULIC SERVICES RELATED TO THE INSTALLATION OF THE PROPOSED WORKS TO THE REQUIREMENTS OF THE RELEVANT AUTHORITY.
7. ALL WORK BE CARRIED OUT IN ACCORDANCE WITH WATER & SEWER AUTHORITY REGULATIONS, SUPERINTENDENTS APPROVAL & HYDRAULIC SPECIFICATION.
8. LOCATION OF FIXTURES SHALL BE IN ACCORDANCE WITH LATEST ARCHITECTURAL DRAWINGS.
9. WIRING OF HWWS AND GPO/S FOR BOILING / CHILLED WATER UNIT BY ELECTRICAL CONTRACTOR.
10. LIAISE WITH BUILDING SUPERINTENDENT TO ARRANGE SHUTDOWN AND ASSOCIATED WORKS.
11. ALL PIPE FIXTURES & FITTINGS ARE TO BE FIRST QUALITY AND OF ONE MANUFACTURER. WRITTEN WARRANTIES ON WORKMANSHIP AND MATERIALS OF AT LEAST 1 YEAR REQUIRED FOR EACH UNIT. ALL UNITS SHALL BE SUBJECT TO INSPECTION BY THE SUPERINTENDENT. ALL TO BE VANDAL PROOF.
12. ALL FIXTURES ARE TO BE SUPPLIED AND INSTALLED BY THE HYDRAULICS SERVICES CONTRACTOR UNLESS SPECIFIED OTHERWISE.
13. ON COMPLETION OF THE INSTALLATION ALLOW TO TEST THE FIXTURES FOR NORMAL OPERATION AND ADJUST AS NECESSARY.
14. ALL FIXINGS SHALL BE PLUMB AND LEVEL AND NEATLY FINISHED IN A TRADESMAN LIKE MANNER AND WITHOUT DAMAGE.
15. PROVIDE ALL MATERIALS AND LABOUR NECESSARY TO PROVIDE A COMPLETE, WORKING AND SERVICEABLE INSTALLATION BASED ON THE DRAWINGS. SPECIFICATION COORDINATION WITH THE STRUCTURE AND OTHER SERVICES PLUS ANY RELEVANT AUSTRALIAN STANDARDS.
16. ALL MATERIALS USED IN THE WORK SHALL BE NEW AND OF THE BEST QUALITY AND TYPE AVAILABLE TO CONFORM WITH THE RELEVANT AUSTRALIAN STANDARDS AND BEAR THE REQUIRED STANDARDS MARK.
17. FOR ALL PLUMBING AND DRAINAGE WORKS, AN APPLICATION SHALL BE LODGED AS REQUIRED BY THE SYDNEY WATER REGULATION 2000 SECTION 7 UNDER THE SYDNEY WATER ACT 1994. UPON COMPLETION, THE PLUMBER CARRYING OUT THE WORK SHALL SUBMIT TO THE PROJECT MANAGER THE SIGNED ORIGINAL OWNERS COPY OF THE CERTIFICATE OF COMPLIANCE.
18. ANY DAMAGE TO SERVICES DURING CONSTRUCTION SHALL REPAIRED IMMEDIATELY AT THE CONTRACTORS OWN EXPENSE.
19. REFER TO SPECIFICATION FOR ADDITIONAL SPECIFICATION NOTES, WORK INSTRUCTIONS, MATERIAL SPECIFICATIONS & STANDARDS.
20. PIPE WORK SHALL BE CAPPED OFF AS WORK PROCEEDS TO PREVENT INGRESS OF DIRT, CONCRETE ETC. USE PROPRIETARY CAPS / PLUGS.
21. ALLOW TO MAKE APPLICATION & PAY ALL FEES TO SYDNEY WATER TO OBTAIN A PERMIT TO UNDERTAKE PLUMBING & DRAINAGE WORKS AND FOR ALL SYDNEY WATER INSPECTIONS.
22. PIPING SHOWN FOR CLARITY ONLY, ACTUAL POSITION TO BE DETERMINED AND COORDINATED ON SITE.
23. ALL LEVELS AND DIMENSIONS SHOWN TO BE CHECKED ON SITE PRIOR TO COMMENCING ANY WORKS. REPORT ANY DISCREPANCIES TO THE SUPERINTENDENT.
24. HYDRAULIC DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND ENGINEERING DRAWINGS.
25. COORDINATE SERVICES WITH ALL OTHER TRADES AND WORKS ON SITE. THOROUGHLY INVESTIGATE THE EXTENT OF EXISTING SERVICES PRIOR TO COMMENCING WORKS ON SITE.
26. DURING THE INSTALLATION, RECORD ALL CHANGES TO THE DESIGN DRAWINGS AND DIMENSION OF HIDDEN SERVICES FROM PERMANENT, VISIBLE LANDMARKS, AT THE COMPLETION OF THE WORKS PROVIDE THREE (3) SETS OF AS INSTALLED DRAWINGS AND ELECTRONIC FILES IN AUTOCAD DWG FORMAT ON CD.
27. PROVIDE THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS FOR ALL SYSTEMS. THE MANUALS SHALL INCLUDE A BRIEF DESCRIPTION OF EACH SERVICE AND DETAILS OF ALL EQUIPMENT WARRANTIES AND MAINTENANCE PROCEDURES ASSOCIATED WITH THAT SERVICE. THE AS INSTALLED DRAWINGS AND ELECTRONIC FILES ARE TO BE INCLUDED IN THE MANUALS.
28. ALL PIPEWORK AND ASSOCIATED VALVES AND EQUIPMENT WHICH ARE TO BE INSTALLED IN EXISTING BUILDINGS OR PENETRATING THROUGH EXISTING STRUCTURE ARE TO BE APPROVED BY THE SUPERINTENDENT PRIOR TO COMMENCEMENT OF WORKS.
29. FIT ALL SLEEVES AND FIRE COLLARS WHERE NECESSARY FOR PIPES PASSING THROUGH FIRE RATED STRUCTURE. PIPEWORK SHALL BE HIDDEN FROM VIEW BY INSTALLATION IN WALLS, CEILINGS OR BURYING IN GROUND. WHERE PIPEWORK CANNOT BE HIDDEN FROM VIEW, OBTAIN APPROVAL FROM THE SUPERINTENDENT PRIOR TO INSTALLATION.

	LOOSE JUMPER CONTROL VALVE		AIR ADMITTANCE VALVE
	CHECK VALVE OR NON RETURN VALVE		FLOOR WASTE
	VALVE AND CAST IRON SURFACE BOX		ENWARE CSQ343 SHROUDED HOSETAP
	BALANCING VALVE		RECESSED IN WALL TRAPPED TUNDISH
	BALL VALVE		RAINWATER OUTLET
	BALANCING VALVE		WINDOW DRENCHER HEAD - 93°C TEMPERATURE RATING
	FLOAT VALVE		CIRCULATING PUMP
	SOLENOID VALVE		BACKFLOW PREVENTION DEVICE
	STRAINER		PRESSURE REDUCING VALVE
	EXPANSION JOINT		PRESSURE LIMITING VALVE
	FIRE HOSE REEL		THERMOSTATIC MIXING VALVE
	EXISTING STREET HYDRANT		WATER METER
	EXTERNAL FIRE HYDRANT		HOT WATER METER
	YARD GULLY / OVERFLOW GULLY		GAS METER
	CLEAROUT		SERVICE RISER / DROPPER
	BOUNDARY TRAP		HOSE TAP
	INDUCT PIPE MICA FLAP		
	REFLUX VALVE		
	FLOW DIRECTION		
	CAPPED PIPE		
	FLOOR WASTE		
	BASKET ARRESTOR		
	INSPECTION / COVERED PIT		
	GRATED PIT		
	KERB INLET PIT		
	GRATED DRAIN		
	MANHOLE		
	HYDRANT BOOSTER VALVE		
	CONTROL PANEL		
	CONTINUATION OF SERVICE		
	OVERFLOW RELIEF GULLY		
	TUNDISH		
	CHECK VALVE/REFLUX VALVE OR NON RETURN VALVE		
	TRAP PRIMING VALVE		

EXISTING STORMWATER DRAINAGE
 EXISTING SEWER DRAINAGE/SANITARY PLUMBING
 EXISTING COLD WATER SERVICE
 EXISTING HOT WATER SUPPLY
 EXISTING GAS SERVICE
 EXISTING FIRE HYDRANT SERVICE
 EXISTING FIRE HOSE/REEL SERVICE
 STORMWATER DRAINAGE
 SUBSOIL DRAINAGE
 COLD WATER SERVICE
 RAINWATER / RECYCLED WATER REUSE SERVICE WATER SERVICE
 HOT WATER SUPPLY
 HOT WATER RETURN
 WARM WATER SERVICE
 GAS SERVICE
 FIRE HYDRANT SERVICE
 FIRE HOSE/REEL SERVICE
 VENT PIPING
 TUNDISH DRAINAGE SERVICE
 SILT FENCE
 DENOTES EXISTING PAVED AREA TO BE SAWCUT AND REINSTATED

SERVICES SHOWN ON HYDRAULIC PLANS HAVE BEEN PLOTTED FROM PLANS AND BY FIELD INSPECTION. THESE SERVICES AND OTHERS MAY NOT BE SITUATED WITHIN REGISTERED EASEMENTS OR WITHIN STANDARD FOOTPATH ALLOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO IDENTIFY THE LOCATIONS OF ALL SERVICES PRIOR TO CONSTRUCTION WORKS AND TO AVOID DISTURBANCE OF THESE SERVICES. THE CONTRACTOR IS ADVISED TO CONTACT THE 'DIAL BEFORE YOU DIG' SERVICE TO ASCERTAIN THE LOCATIONS OF ANY EXISTING AUTHORITY SERVICES.

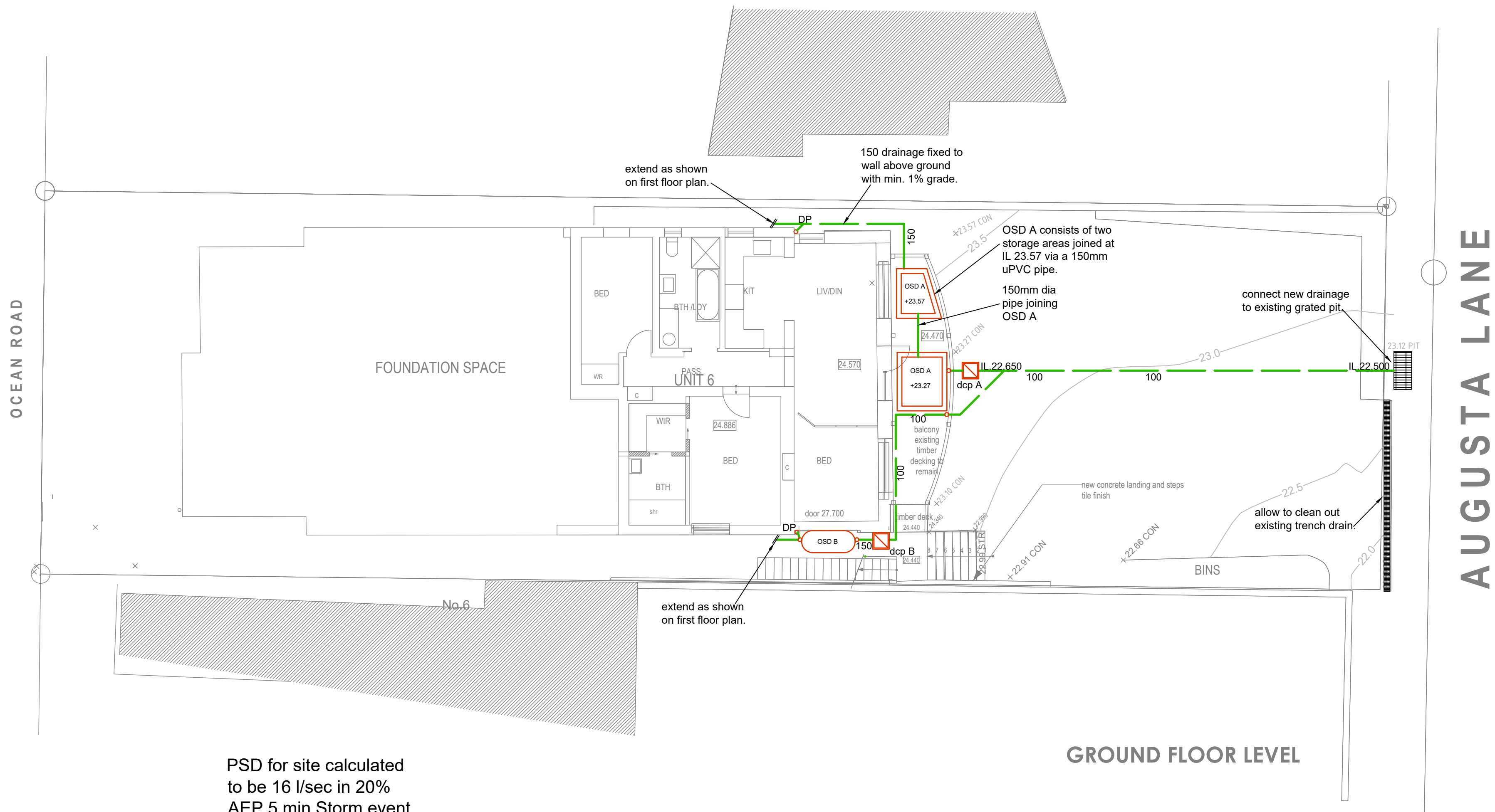
2. THE HYDRAULIC SUBCONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF THEIR PROGRAMME FOR THE RELOCATION/CONSTRUCTION OF TEMPORARY SERVICES.

3. HYDRAULIC SUBCONTRACTOR SHALL ALLOW TO CONSTRUCT NECESSARY SERVICES TO MAINTAIN SUPPLY TO EXISTING BUILDINGS REQUIRED TO REMAIN IN OPERATION TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL ALLOW TO REMOVE ALL TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.

4. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL OF SUPERINTENDENT FOR TIME OF INTERRUPTION.

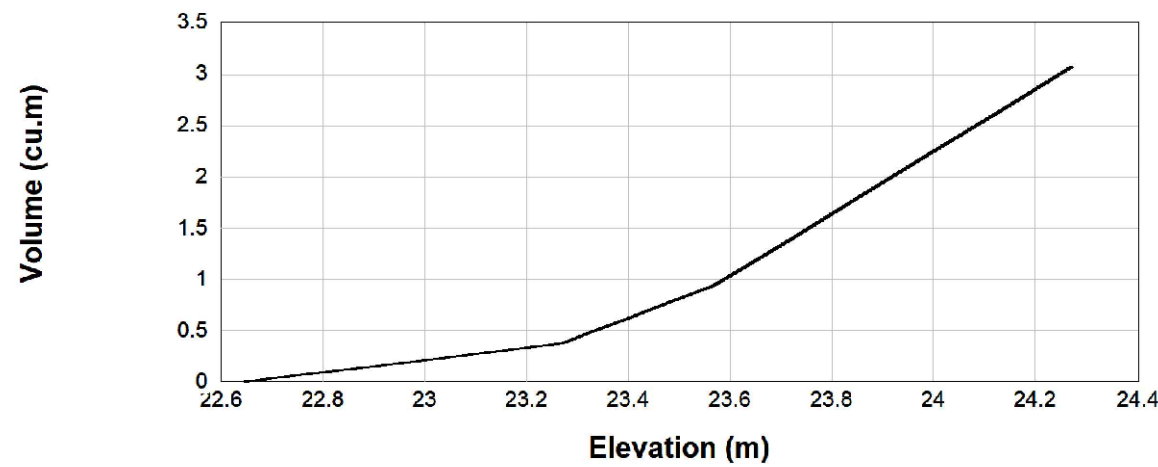
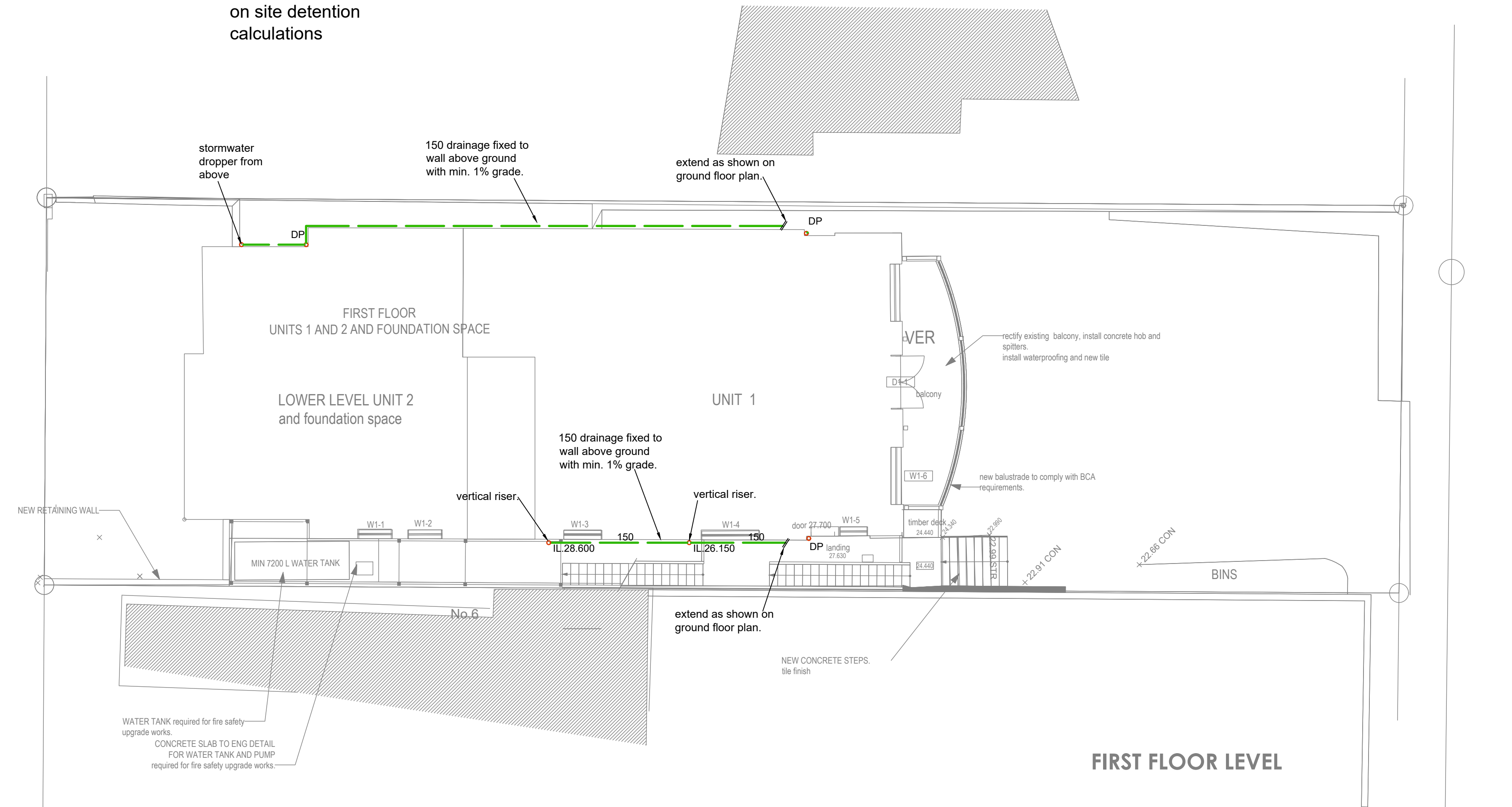
Note
Hydraulic design plans
to be read in conjunction
with architectural plans.

			PROJECT ARCHITECT				ENGINEER		CLIENT:		PROJECT:		TITLE:	
			KUBANYI ARCHITECTS NSW REG 4087 DEP 0000592 LEVEL 1, 122 VICTORIA ROAD DRUMMOYNE 2047 PH 0412 500 240 JUDITHKUBANYI@IINET.NET.AU				ABEL & BROWN PTY. LTD. 23 WARUNG STREET YAGOONAH, NSW 2199 M: 0403 380 810 T: 9769-5705 FAX: 9796-2272 E: mail@nevillebrown.com.au W: www.nevillebrown.com.au		FOR THE OWNERS SP 14402		PROPOSED NEW STORMWATER DRAINAGE		DA Issue STORMWATER CONCEPT PLAN LEGEND & SERVICE NOTES	
B	Aug 23	DA Issue											STATUS: DA Issue	
A	July 23	DA Issue											DATE: July 23 SCALE: mts@A1 PROJ: 3507	
REV	DATE	NOTATION/AMENDMENT											NO IN SET: 4 DRAWN: SB RB NB	
DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE.													FILE: PLOTTED: SHEET: H-01 REV: B	

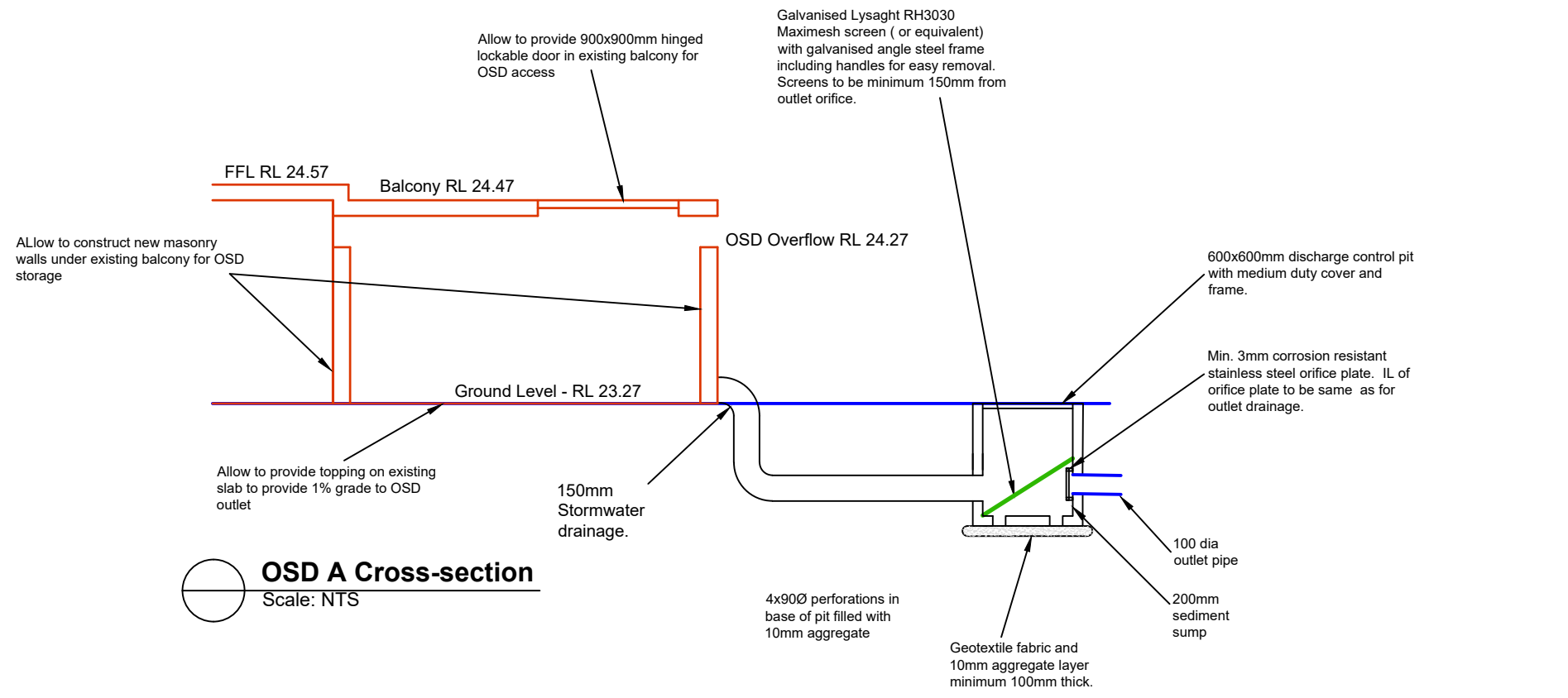


PSD for site calculated to be 16 l/sec in 20% AEP 5 min Storm event.

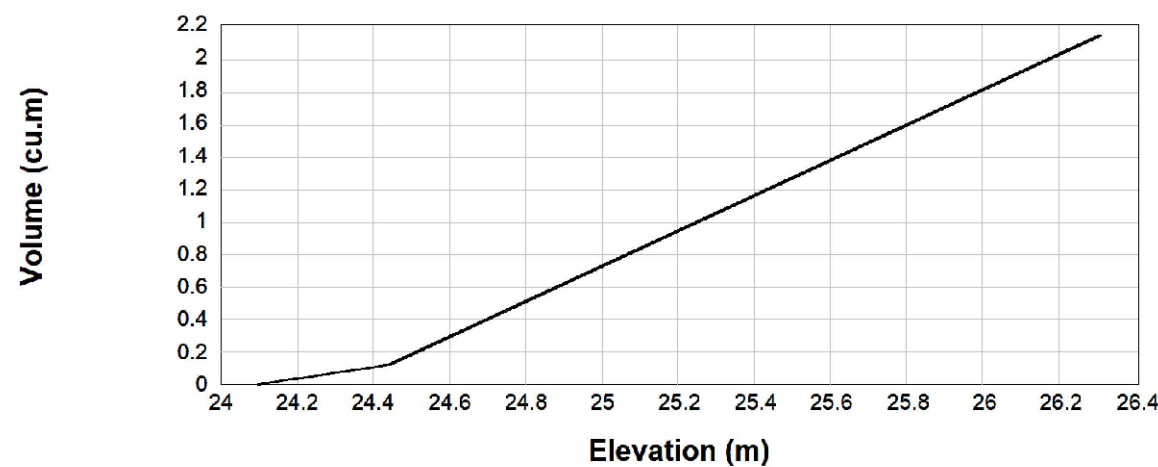
Refer to Drains file for on site detention calculations



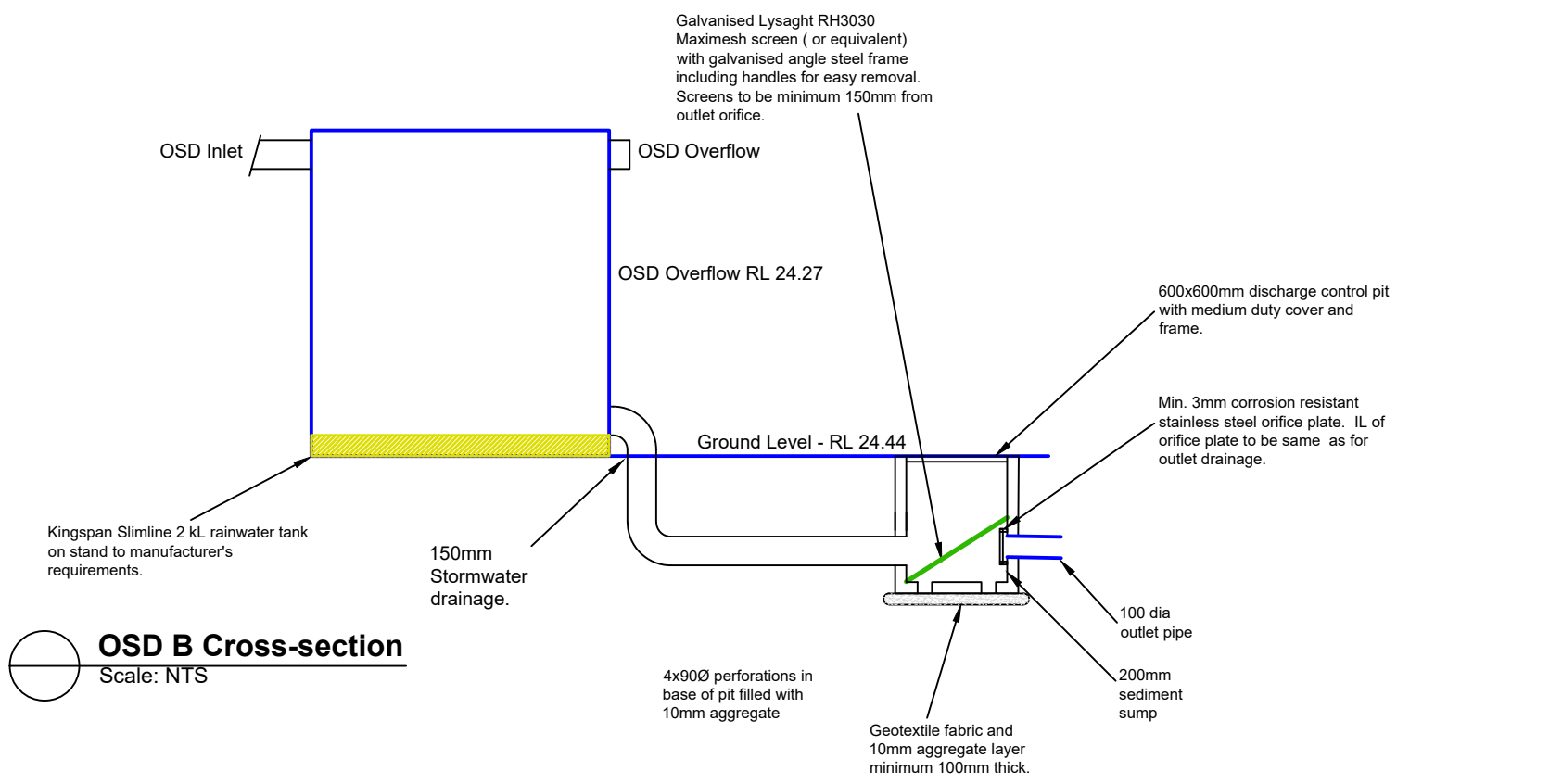
OSD A Stage - Volume Graph
Scale: nts



OSD A Cross-section
Scale: NTS



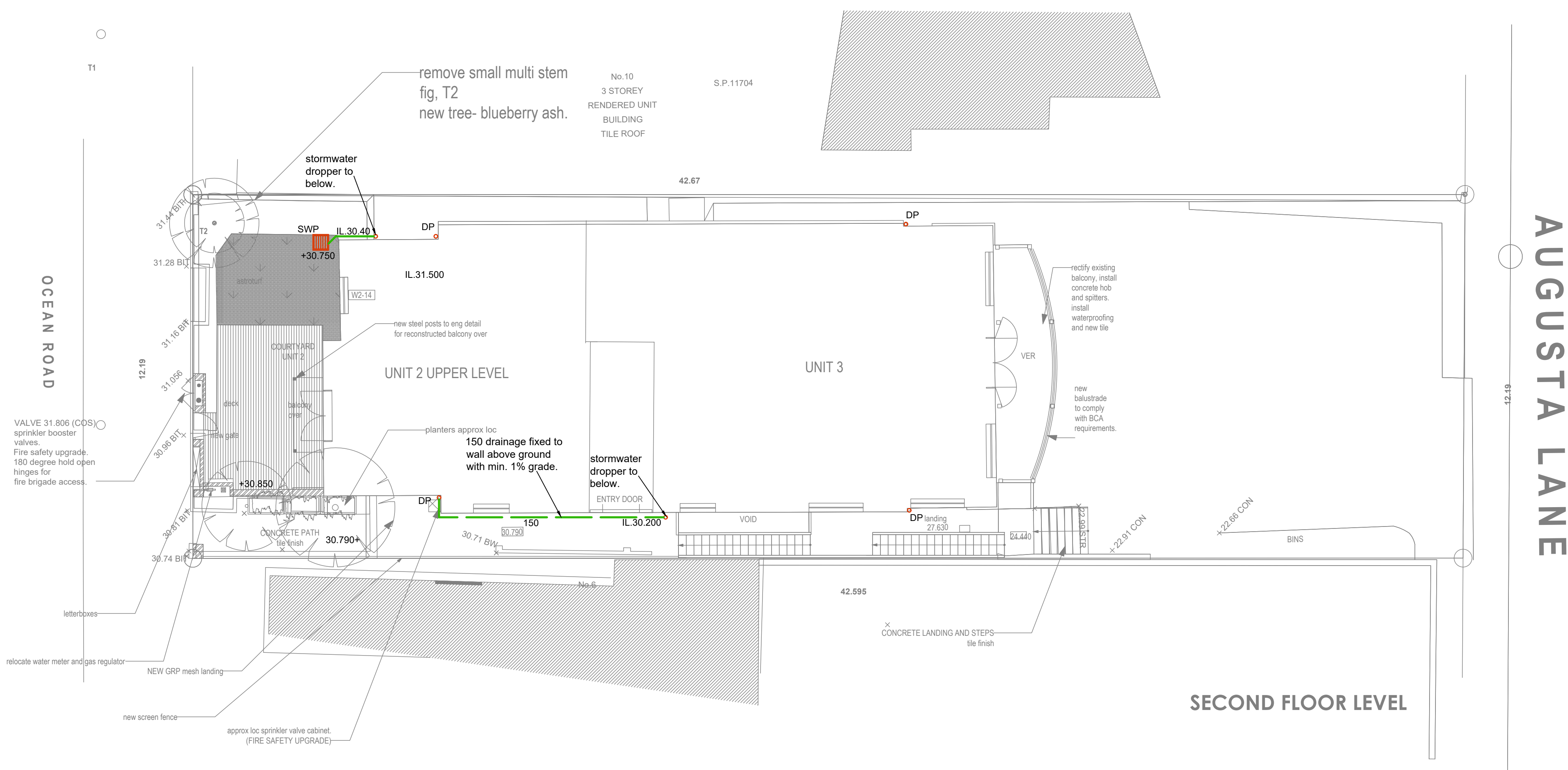
OSD A Stage - Volume Graph
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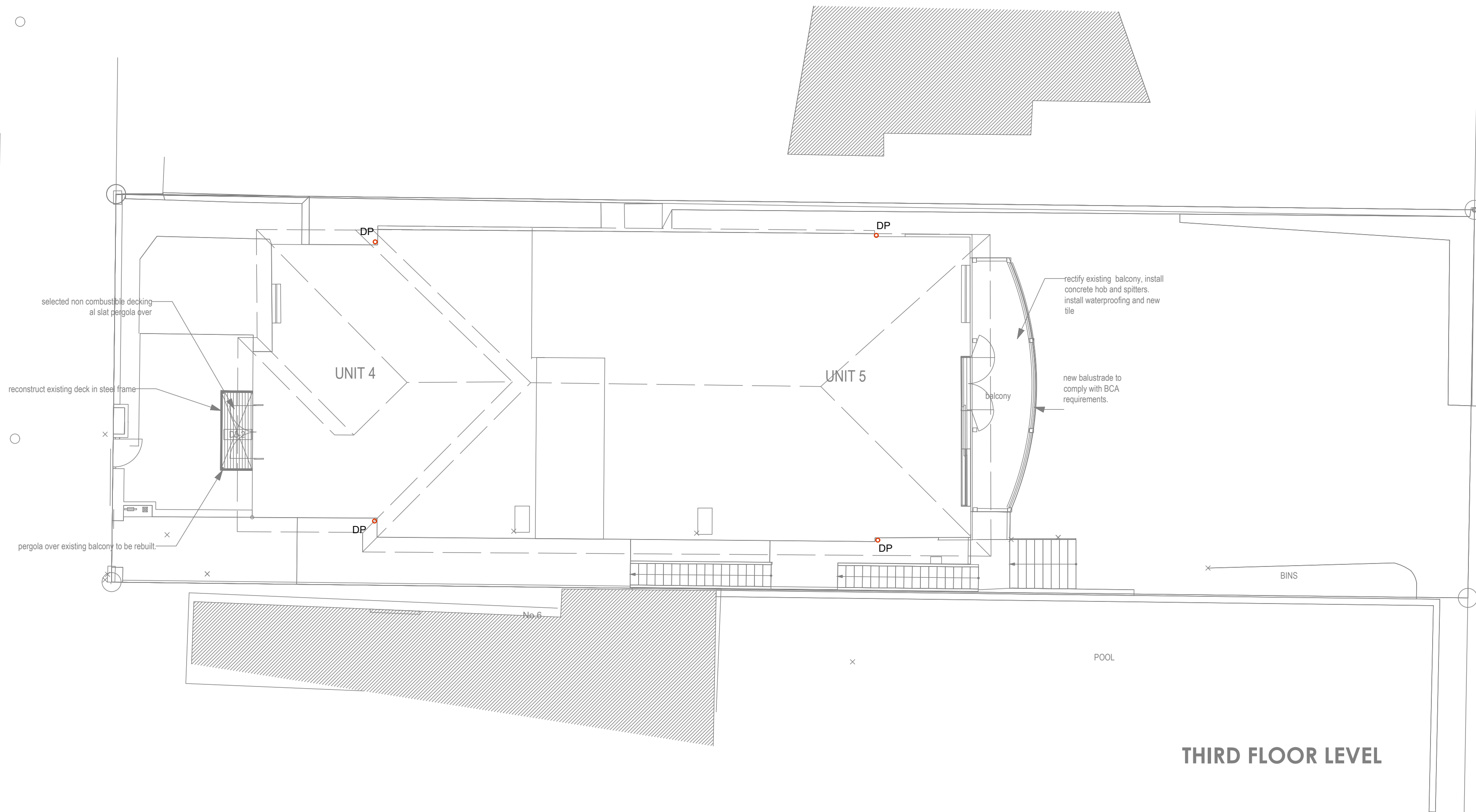
OSD B Cross-section
Scale: NTS



PROJECT ARCHITECT			ENGINEER			CLIENT:			PROJECT:			TITLE:			STATUS:		
KUBANYI ARCHITECTS			ABEL & BROWN PTY. LTD.			FOR THE OWNERS			PROPOSED NEW STORMWATER DRAINAGE			STORMWATER CONCEPT PLAN			DA Issue		
LEVEL 1, 122 VICTORIA ROAD DRUMMOYNE 2047			23 WARUNG STREET YAGOONA, NSW 2109			SP 14402			at			SITE & GROUND FLOOR PLAN			DATE: July23		
PH 0412 500 240 JUDITHKUBANYI@IINET.NET.AU			M: 0403 390 810 T: 0109-9700 FAK 9786-2272						8 OCEAN RD., MANLY NSW 2095			NO IN SET: 4			SCALE: 1:100@A1		
DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE.			E-mail:nevillebrown.com.au W: www.nevillebrown.com.au									DRAWN: SB			CHECKED: RB		
									FILE:			PLOTTED:			SHEET: H-02		
															REV: B		



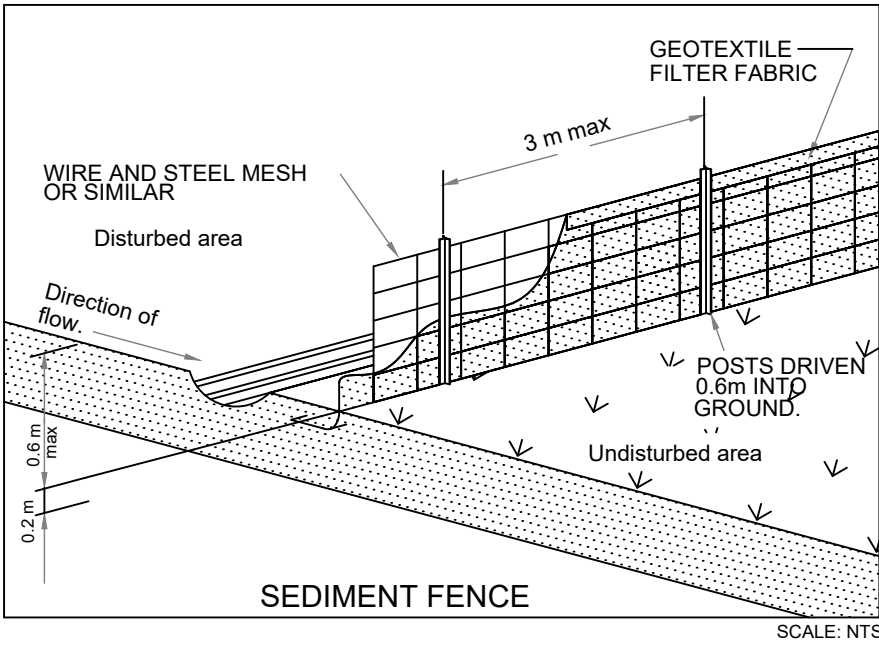
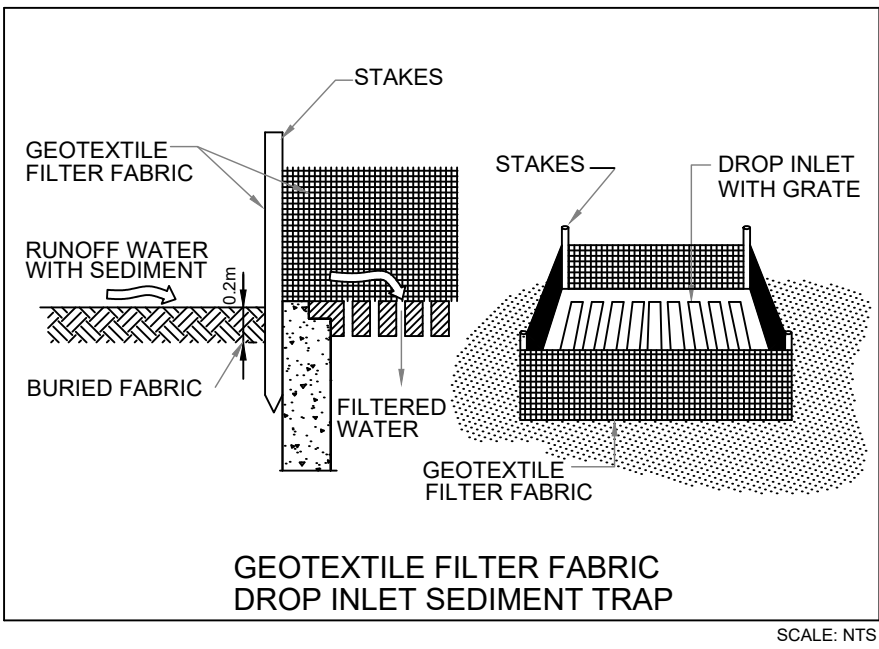
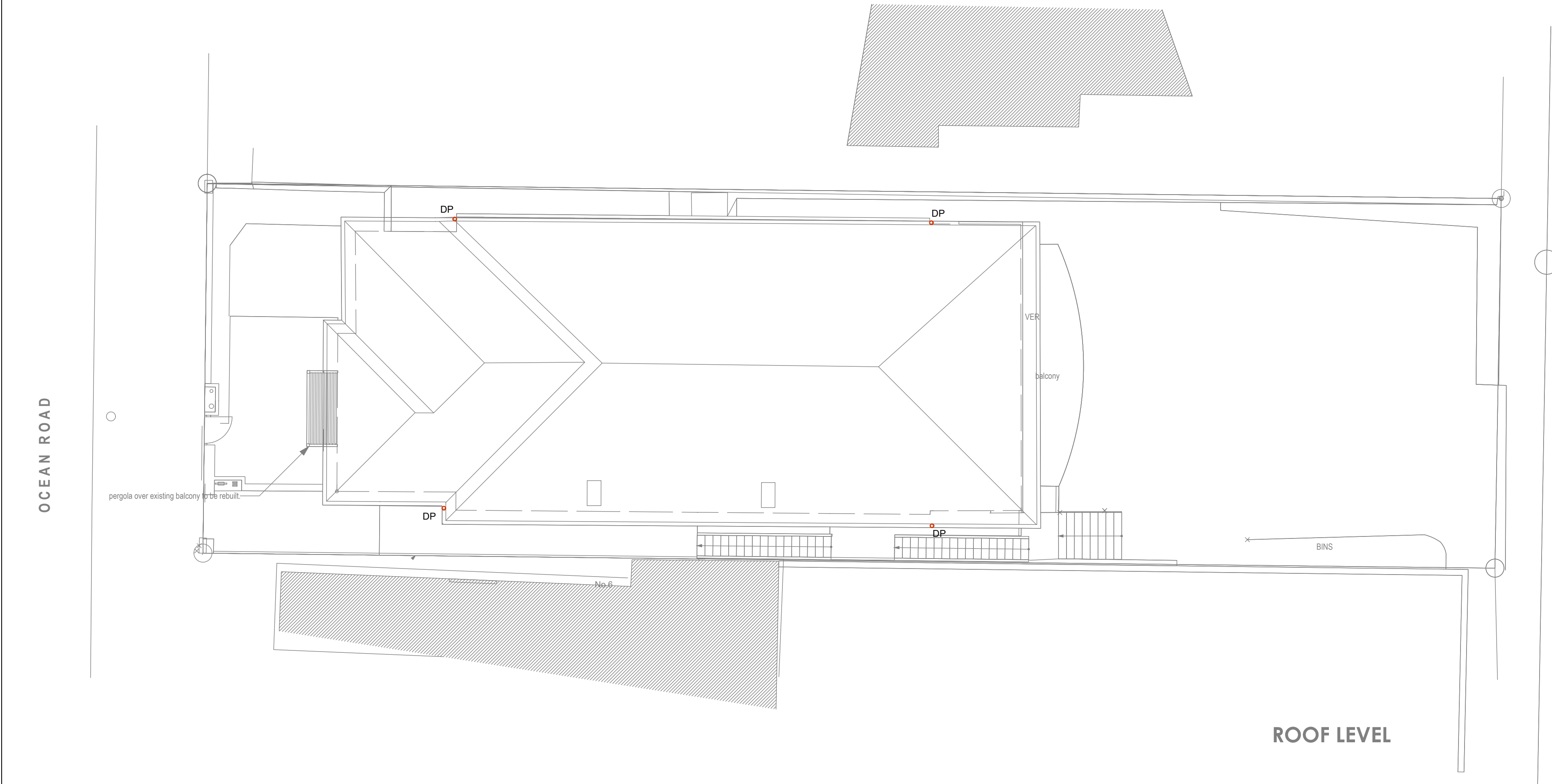
SECOND FLOOR LEVEL



THIRD FLOOR LEVEL



PROJECT ARCHITECT			ENGINEER			CLIENT:			PROJECT:			TITLE:			STATUS:		
KUBANYI ARCHITECTS NSW REG 4087 DEP 0000592			ABEL & BROWN PTY. LTD.			FOR THE OWNERS			PROPOSED NEW STORMWATER DRAINAGE			STORMWATER CONCEPT PLAN			DA Issue		
LEVEL 1, 122 VICTORIA ROAD DRUMMOYNE 2047			23 WARUNG STREET YAGOONA, NSW 2109			SP 14402			at			FIRST FLOOR PLAN			DATE: July23		
PH 0412 500 240 JUDITHKUBANYI@IINET.NET.AU			M: 0403 390 810 T: 0709 5705 F: 0709 2272			SCALE: 1:100@A1			NO IN SET: 4			DRAWN: SB			PROJ: 3507		
DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE.			E: mail@nevillebrown.com.au W: www.nevillebrown.com.au			FILE:			8 OCEAN RD., MANLY NSW 2095			CHECKED: RB			APPROVED: NB		
						PLOTTED:			SHEET: H-03			REV: B					

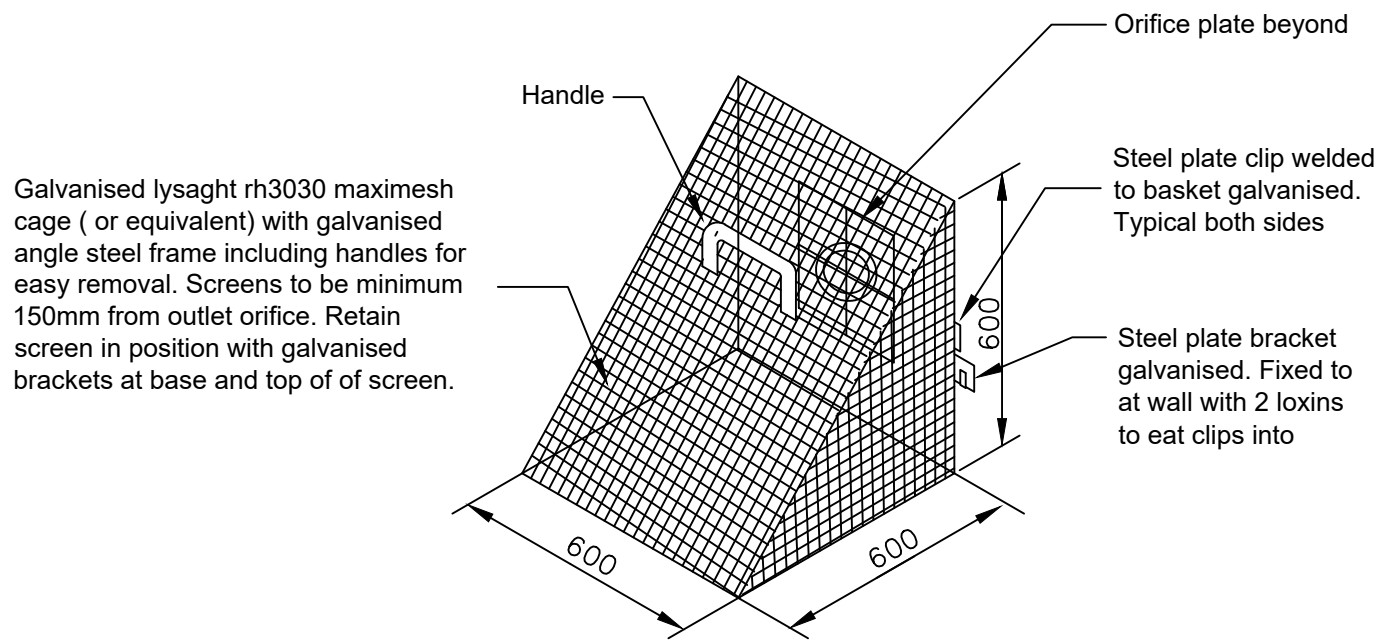


Sediment & Erosion Control Notes

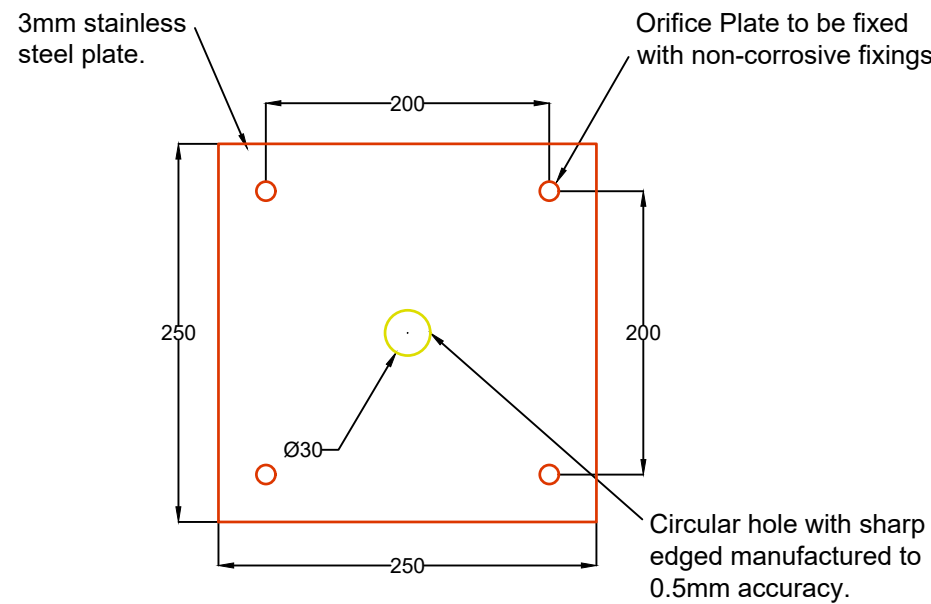
- The contractor shall implement all soil erosion and sediment control measures relating to a particular upstream catchment prior to stripping of topsoil from that catchment. Where it is necessary to undertake stripping in order to construct a sediment control device only sufficient ground shall be stripped to allow construction.
- All soil erosion and sediment control measures shall be constructed and maintained as indicated on these drawings. Location and extent of soil and water management devices is diagrammatic only.
- Conformity with this plan shall in no way reduce the responsibility of the contractor to protect against water damage during the course of the contract. It shall be the contractors responsibility to ensure that any necessary control is in place even though such control may not be shown on the plan.
- The contractor shall inform all subcontractors and all employees of their responsibility in minimising the potential for soil erosion and pollution to downstream areas.
- The contractor shall regularly maintain sediment and erosion control structures and desilt such structures prior to the reduction in capacity of 30% due to accumulated silt. The sediment shall be disposed of on site in a manner approved by Penrith City Council Erosion and Sediment Control Policy.
- Topsoil and spoil shall be stockpiled in non hazard areas and protected from surface runoff by diversion drains or similar. Stockpiles shall be surrounded on downstream sides by silt fencing. Stockpiles shall be suitable compacted to inhibit erosion. Where the stockpiling period exceeds four(4) weeks, the stockpile shall be seeded to encourage vegetation growth.
- Topsoil shall be respread and stabilised as soon as possible.
- The contractor shall temporarily rehabilitate within 40 days any disturbed areas. Where final shaping has occurred the contractor shall provide final rehabilitation within 20 days.
- The contractor shall provide a turf strip behind all kerb and gutter at completion of footpath formation.
- The contractor shall maintain gross cover until all works have been completed, including the maintenance period, by frequent watering and mowing where required. Plant machinery and vehicles shall not be driven over grassed areas unless on an approved haulage route.
- Seed mixtures and stabilisation procedures shall be in accordance with the NSW department of housing "Soil and water management for Urban Development", January 1993 and construction specification.
- The contractor shall provide inlet sediment traps at all pits during construction.
- All drainage works shall be constructed and stabilised as quickly as possible to minimise risk of erosion.
- Vehicular traffic shall be controlled during construction confining access where possible to proposed or existing road alignments plus 3 metres where necessary areas to be left undisturbed shall be marked off.
- Site access shall be restricted to a nominated point. The construction of a shake down area may be required depending upon soil conditions.
- The contractor shall maintain dust control throughout the duration of the project.

OSD Maintenance Requirements

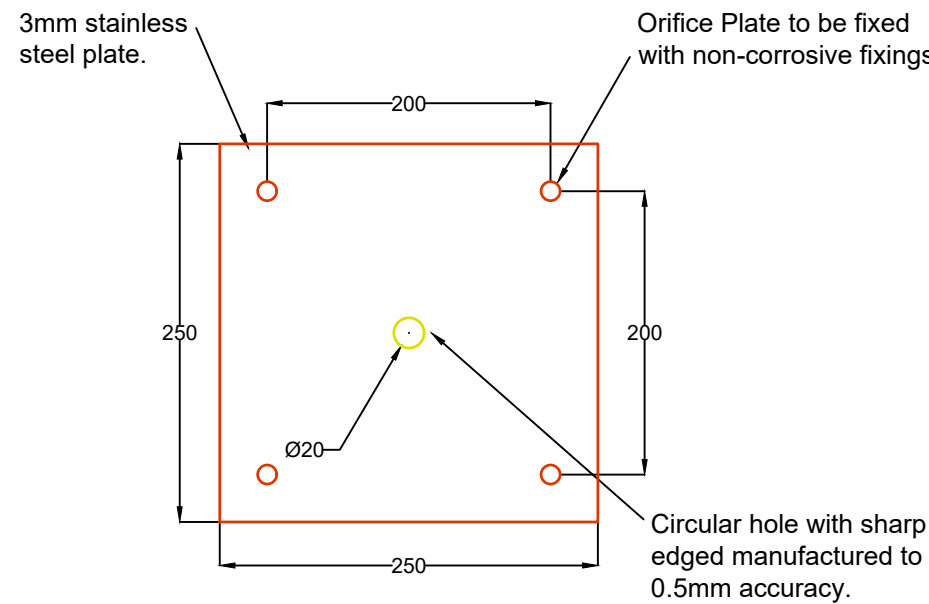
Maintenance Action	Frequency	Responsibility	Procedure
Discharge Control Pit			
Inspect D walls for cracks or spalling	Annually	Maintenance Contractor	Remove grate to inspect internal walls. Repair as required. Clear vegetation from external walls and repair as required.
Inspect D sump & remove any sediment	Six monthly	Owner	Remove grate and screen. Remove sediment and check orifice and flap valve are clear.
Inspect grate for damage or blockage	Six monthly	Owner	Check both sides of the grate for corrosion, damage or blockage.
Inspect return pipe from storage & remove any blockage.	Six monthly	Owner	Remove grate and screen. Ventilate underground storage if present. Open flap valve and remove any blockages in return line. Check for any sediment on upstream side of return line.
Inspect outlet pipe & remove any blockage	Six monthly	Maintenance Contractor	Remove grate and screen. Ventilate underground storage if present. Check orifice and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge on upstream side of outlet pipe.
Check step irons for corrosion	Annually	Maintenance Contractor	Remove grate. Examine step irons and repair any corrosion or damage.
Check fixing of step irons is secure	Six monthly	Maintenance Contractor	remove grate and ensure fixings are secure prior to placing weight on step irons.
Storage			
Inspect return pit & remove any sediment in pit.	Annually	Maintenance Contractor	Remove Grate. Remove built up sediment.
Inspect internal return pit walls for cracks or spalling	Annually	Maintenance Contractor	Remove grate to inspect internal walls. Repair as required. Clear vegetation from external walls and repair as required.
Inspect and remove any debris blocking grates of pits.	Six monthly	Owner	Remove blockages from grate and check if pit is blocked.



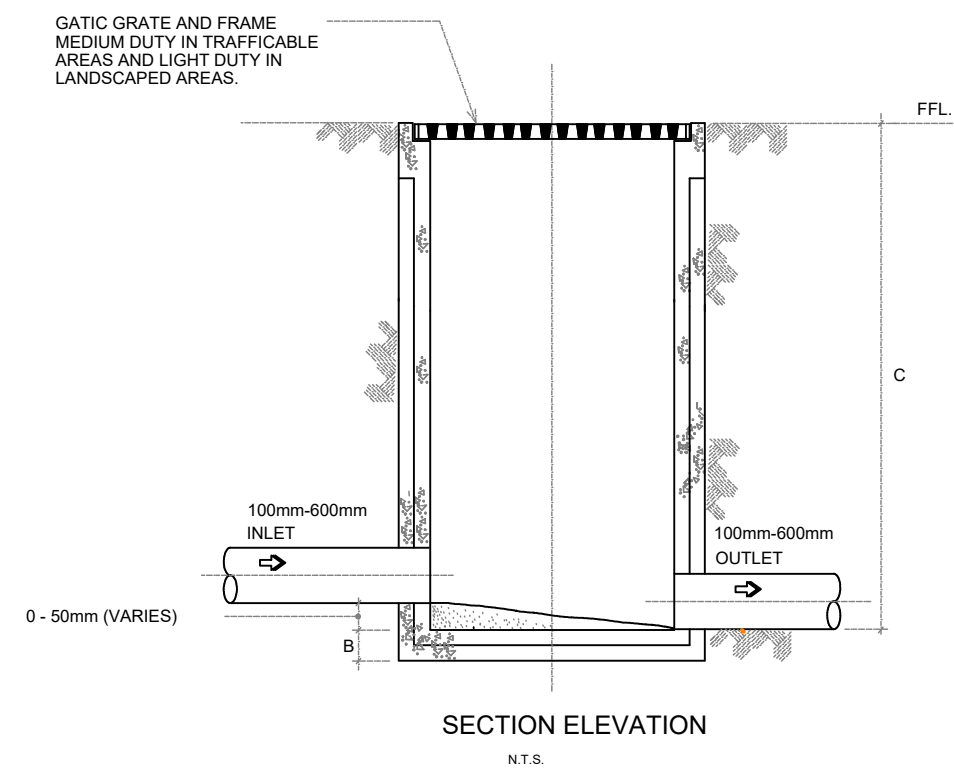
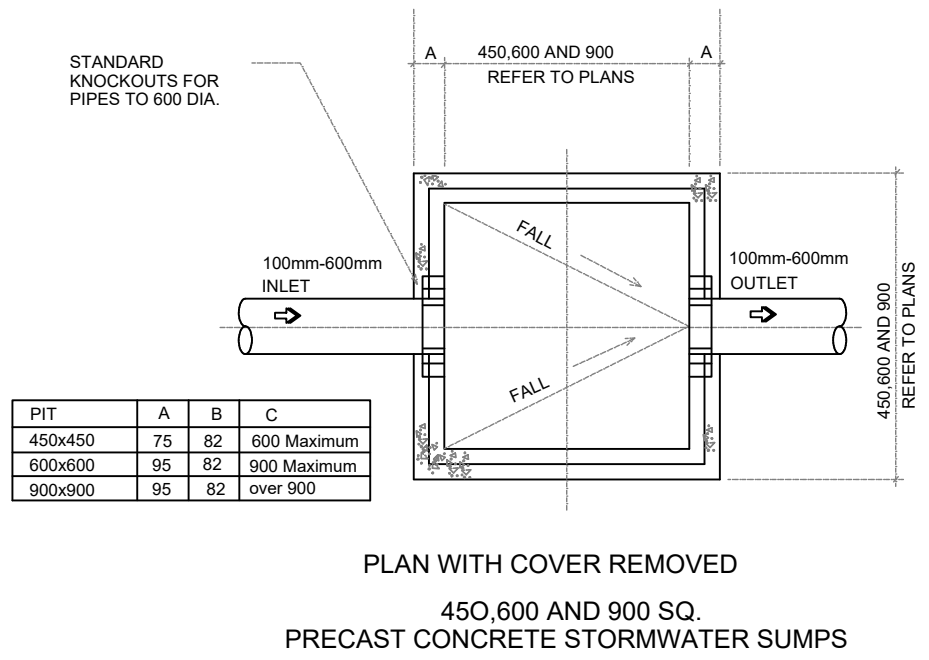
Trash Rack Detail for OSD Basin
Scale - NTS



Orifice Plate Detail for OSD A
Scale: 1:5



Orifice Plate Detail for OSD B
Scale: 1:5



Stormwater Pit Detail
Scale: nts



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KUBANYI ARCHITECTS NSW REG 4087 DEP 0000592				ABEL & BROWN PTY. LTD.				FOR THE OWNERS				PROPOSED NEW STORMWATER DRAINAGE				STORMWATER CONCEPT PLAN			
LEVEL 1, 122 VICTORIA ROAD DRUMMOYNE 2047				23 WARUNG STREET YAGOONA, NSW 2199				SP 14402				at				DETAIL SHEET			
PH 0412 500 240 JUDITHKUBANYI@IINET.NET.AU				M: 0403 390 810 T: 9709-5705 FAX: 9796-2272				8 OCEAN RD., MANLY NSW 2095				STATUS: DA Issue				DATE: July23			
NOTATION/AMENDMENT				A & B CIVIL HYDRAULIC FIRE				NO IN SET: 4				SCALE: NTS@1				PROJ: 3507			
DO NOT SCALE DRAWINGS. CHECK ALL DIMENSIONS ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE.				E-mail: neville@brown.com.au W: www.nevillebrown.com.au				DRAWN: SB				CHECKED: RB				APPROVED: NB			
												SHEET: H-04				REV: B			