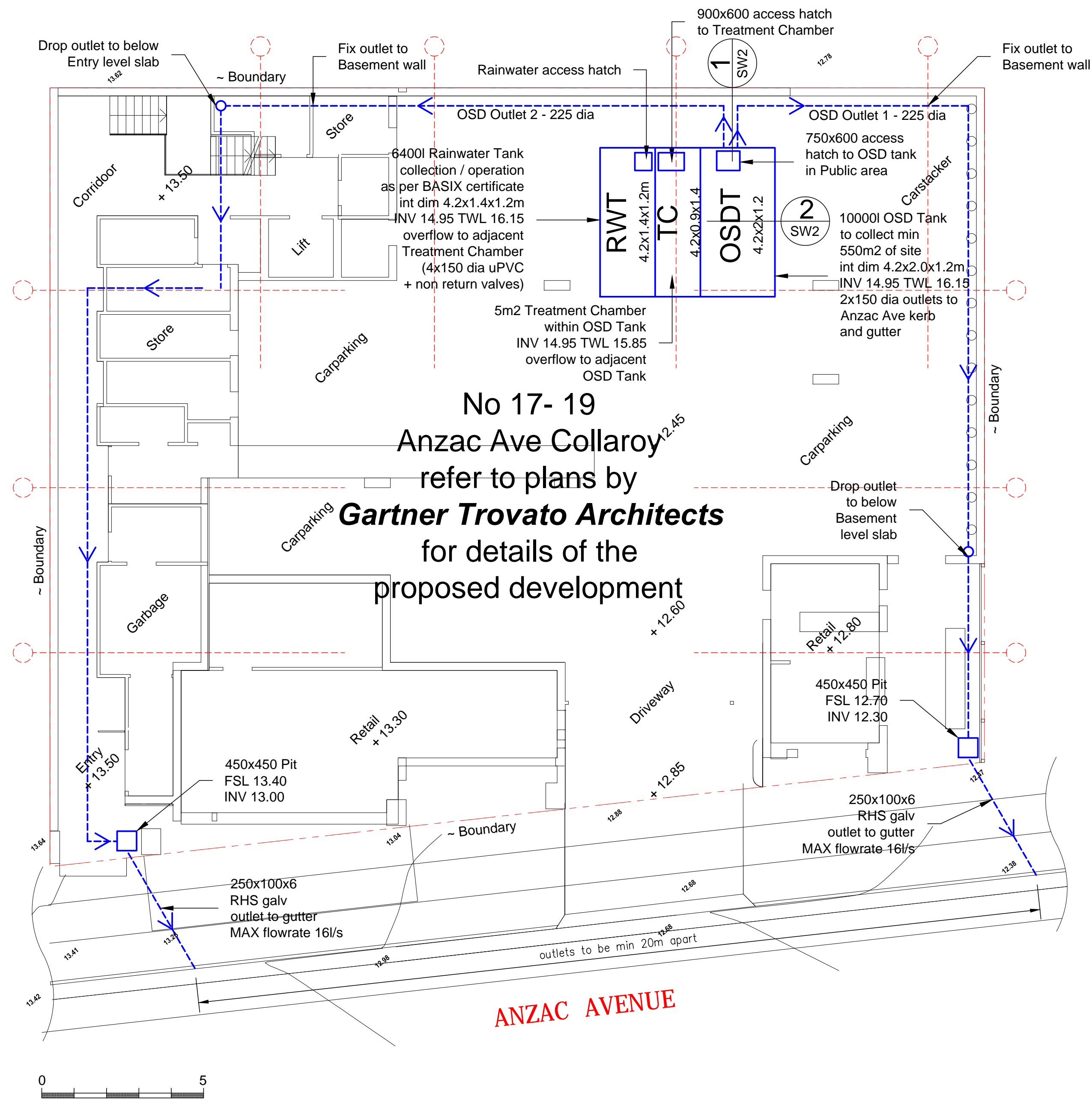


STORMWATER MANAGEMENT
OVERVIEW
1:200

STORMWATER FLOW SUMMARY
(DRAINS ANALYSIS)

Site area	- 625m ²
Existing impervious area	- ~600m ² (0m ² modeled)
Proposed impervious area	- ~550 m ²
Detention Volume modeled	- 10000l
PSD modeled	- 27 l/s (note two outlets to Kerb and gutter)
Existing Site Discharge	
5yr ARI Storm	- 23 l/s
100yr ARI Storm	- 39 l/s
Post Development Site Discharge	
5yr ARI Storm	- 22 l/s
100yr ARI Storm	- 32 l/s

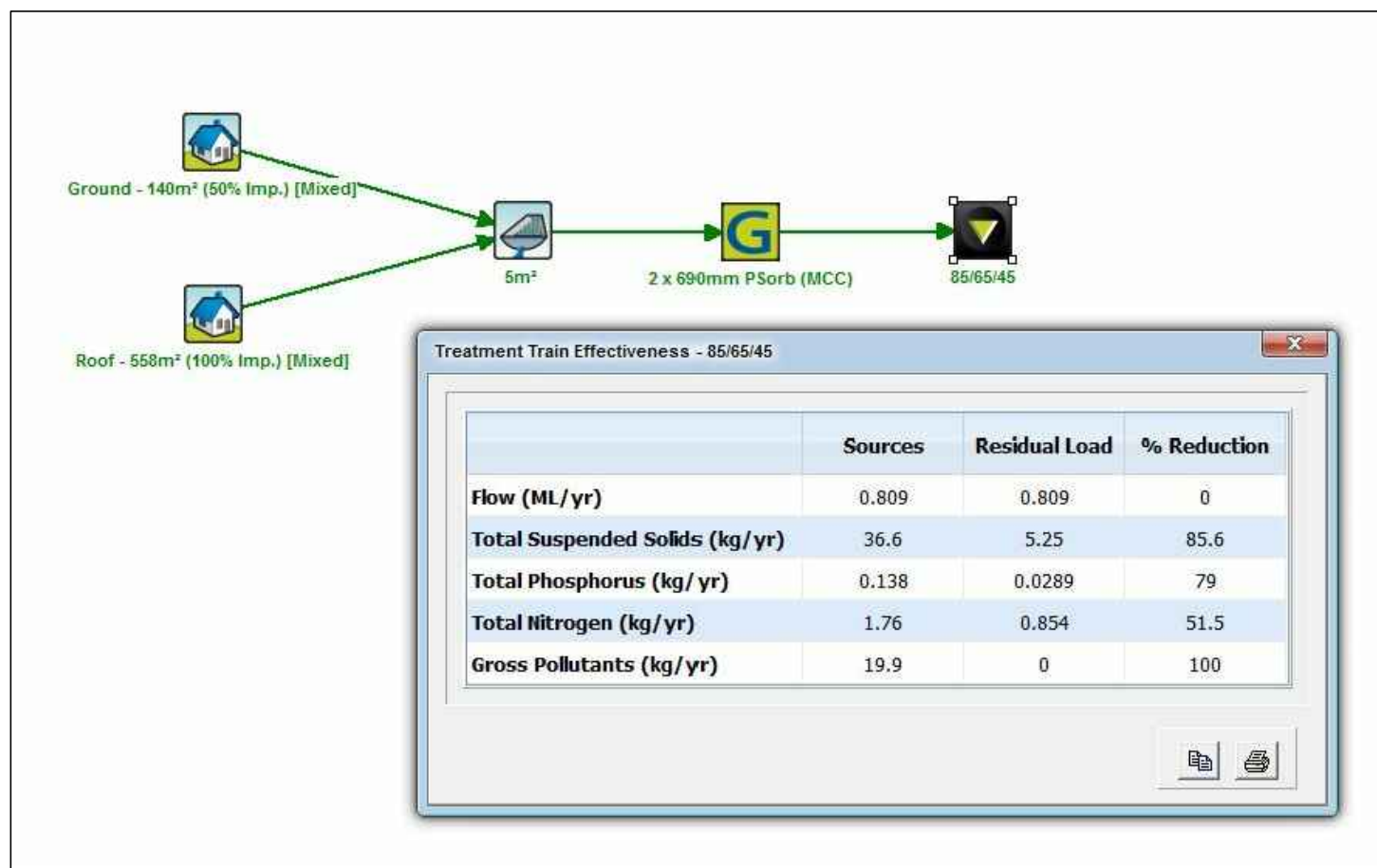


SITE STORMWATER MANAGEMENT PLAN
1:100

All run-off from the developments roof and terrace/balcont areas is to be directed to the OSDT (inc overflow from the RWT). The OSD is designed in accordance with Warringah Councils "On Site Stormwater Detention Technical Specification" to reduce peak storm run-off flowrates to that of a "greenfields" site. System outlets (ie 2 of approx 22m apart) to the Anzac Ave kerb and gutter with max design flowrates of 16l/s each. All roof drainage is to be sized by the developments hydraulic engineer for a 1% AEP event and to be documented with the construction certificate works. Drive run-off and any seepage flows collected at Basement Level are to be pumped / discharged directly to the rainwater tank for recycling. Variations to layout to be reviewed and approved by Barrenjoey Consulting Engineers before construction.

STORMWATER NOTES

- All roof collection components (ie gutters / DPs etc) are to be located / sized by the Developments Hydraulic Consultant for a 1% AEP event capacity.
- All Trunk Drainage pipes, as shown on this plan are to be minimum of 150mm dia uno.
- All pipes to be uPVC to AS 1254:2002.
- All pipes to be laid at the grade required to match pit invert levels.
- All pipes to be installed and laid in accordance with AS 3500.3:2003.
- Thrust blocks to be installed to the trunk drainage pipes in accordance with AS 3500.3:2003.
- All roof guttering/ down pipes / valley gutters / box gutters etc are to be sized and installed in accordance with AS 3500.3:2003.
- All pits are to be proprietary uv resistant polypropylene or similar unless noted (approved by the Engineer)and are to include a min 50mm sediment trap in the base and a maximesh screen laid at 45° across the pit to protect the outlet pipe .
- All pits greater than 600mm in depth are to be proprietary precast concrete (approved by the Engineer).
- All pits greater than 1000mm in depth are to have adequate access requirements in accordance with OH&S/Workcover requirements (ie; minimum dimensions 900x600mm with step irons).
- All works are to be inspected and certified by the Principle Certifying Authority prior to backfilling.
- All works requiring certification by the Engineer will require a works as executed survey prepared by a registered Surveyor detailing all levels etc as on the Engineering plans.
- The system is too be flushed and cleaned of all sediment and debris annually.
- The system will require regular cleaning and maintenance to ensure its ability to function is maintained.
- To ensure the system's ability to function is maintained it is to be inspected and certified as operating effectively by a licensed plumber every 5 years, and a engineer every 20yrs.



MUSIC MODEL SUMMARY
by OCEAN PROTECT
MUSIC Version 6.3.0

- MUSIC Version 6.3.0
- Rainfall Station 66062 Sydney Observatory Hill, 6 Minute Time Step 1981 To 1985
- Northern Beaches Council's source nodes utilizing modified % impervious area, rainfall threshold, soil properties & pollutant concentration
- No drainage routing between nodes.
- 85% Total Suspended Solids Reduction
- 65% Total Phosphorus Reduction
- 45% Total Nitrogen Reduction
- 90% Gross Pollutant Reduction

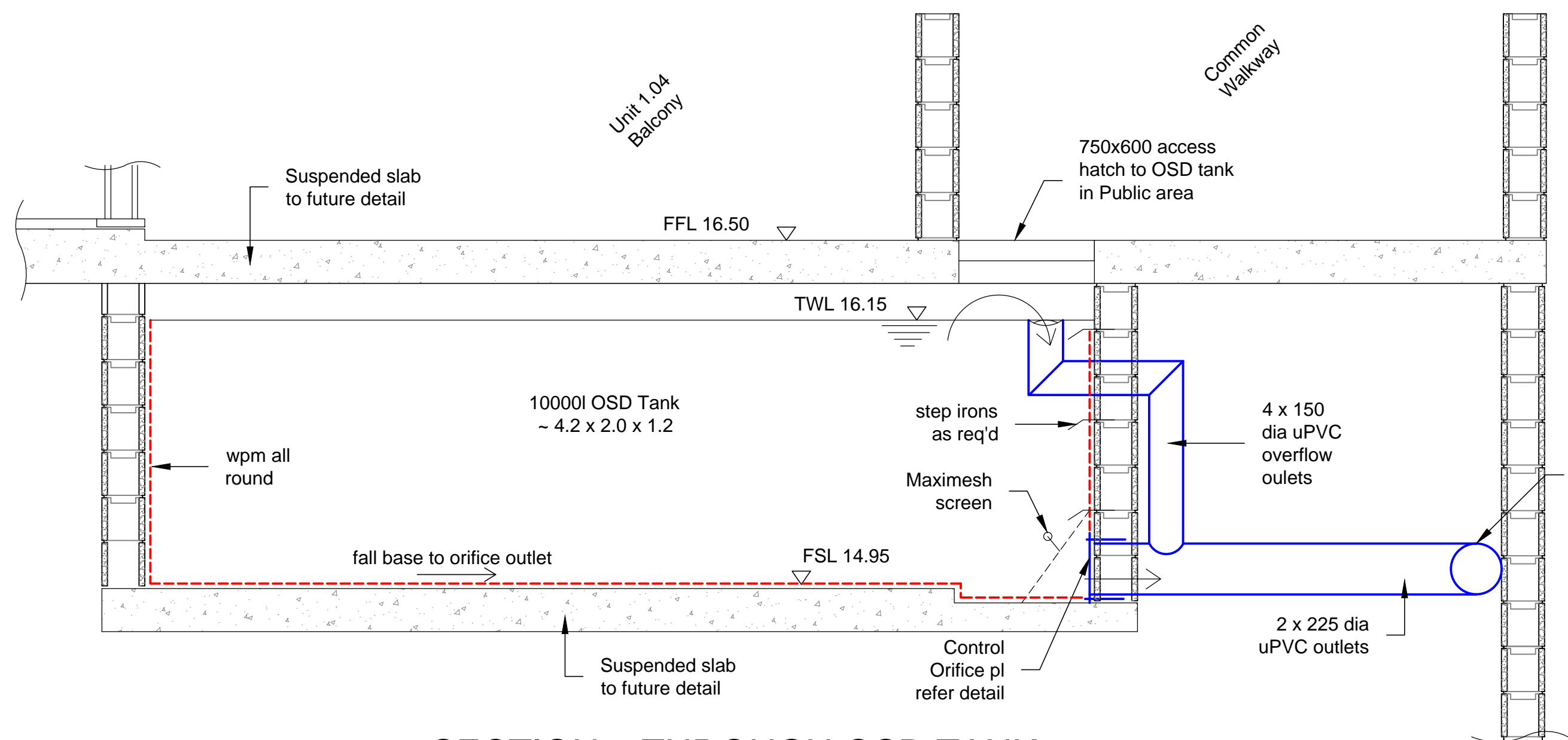
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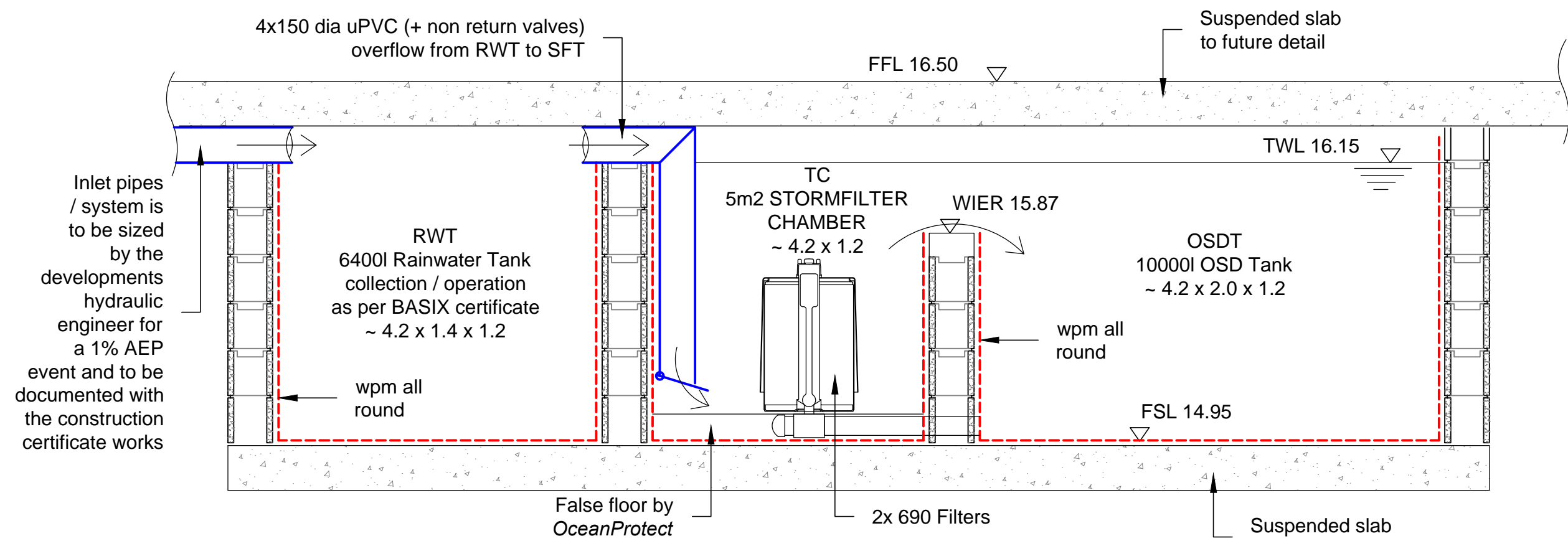
PROJECT:
PROPOSED RESIDENTIAL &
COMMERCIAL DEVELOPMENT
17-19 ANZAC RD
COLLARROY
for ~ B. SANDVOSS

DRAWING :
STORMWATER MANAGEMENT
PLAN

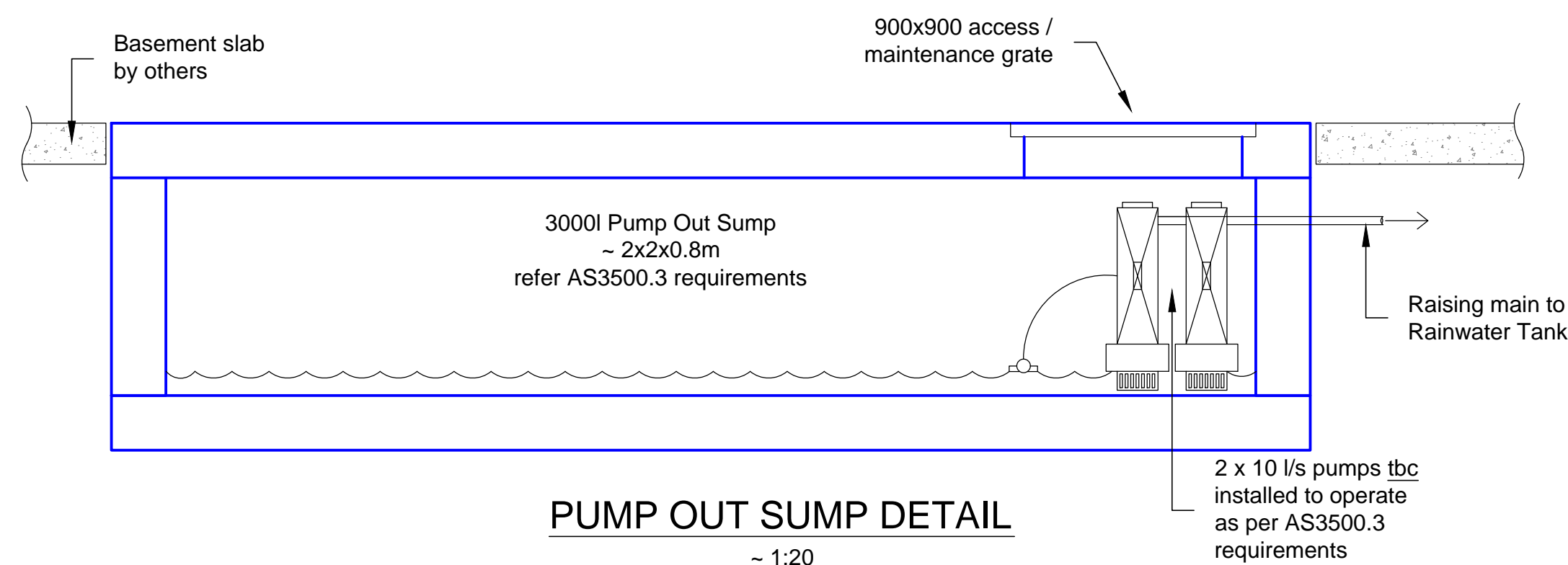
Job No :
200307
Drawing No
SW1DA
Document Certification
Barrenjoey Consulting Engineers Pty Ltd
per
Lucas Molloy MIEA CPEng NER Director



SECTION 1 THROUGH OSD TANK
~ 1:20

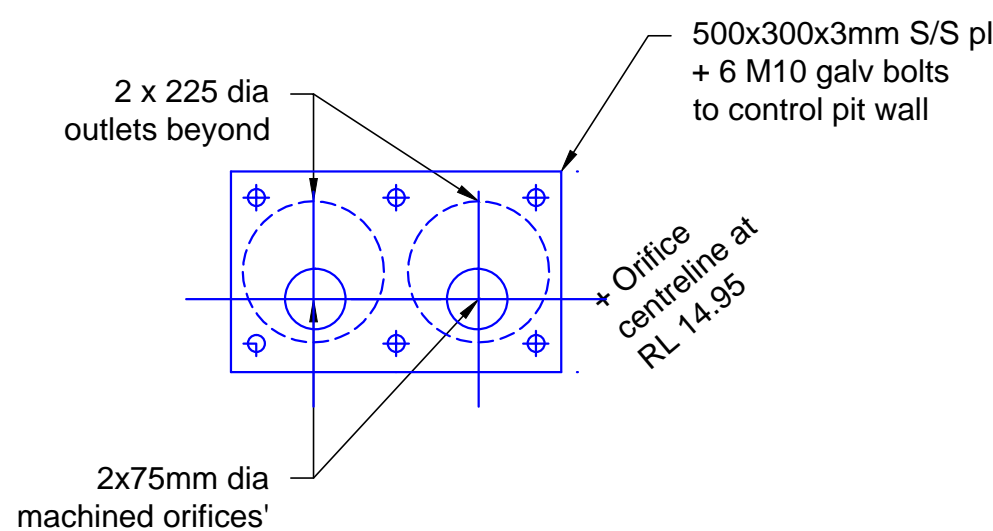


SECTION 2 THROUGH ALL TANKS
~ 1:20



PUMP OUT SUMP DETAIL
~ 1:20

Sump to collect seepage (tbc), drive / parking area runoff.
System to include a proprietary oil and grease separator (+ continuing service/cleaning schedule) .
refer to AS3500.3 requirements re pump out capacity, volume and alarm requirements etc.
All to be reviewed / confirmed during construction based on site conditions encountered



OSD CONTROL ORIFICE PLATE DETAIL
1:10

STORMFILTER DESIGN TABLE	
<ul style="list-style-type: none"> STORMFILTER TREATMENT CAPACITY VARIES BY NUMBER OF FILTER CARTRIDGES INSTALLED. THE STANDARD CONFIGURATION IS SHOWN. ACTUAL CONFIGURATION OF THE SPECIFIED STRUCTURE(S) PER CERTIFYING ENGINEER WILL BE SHOWN ON SUBMITTAL DRAWING(S). FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 178mm. 	
CARTRIDGE NAME / SIPHON HEIGHT (mm)	690
CARTRIDGE PHYSICAL HEIGHT (mm)	840
TYPICAL WEIR HEIGHT [H] (mm)	920
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9

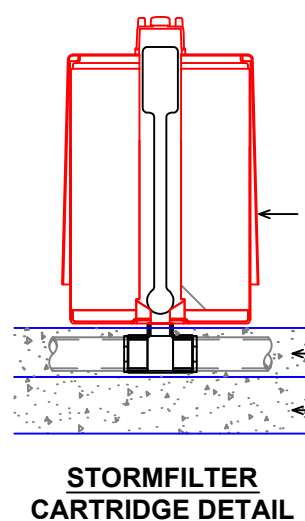
SITE SPECIFIC DATA REQUIREMENTS	
STRUCTURE ID	STRUCT_ID
NUMBER OF CARTRIDGES	2
SIPHON HEIGHT	690
MEDIA TYPE (ZPG / PSORB)	MEDIA
WATER QUALITY FLOW RATE (L/S)	WQFR
DIMENSION A	4.2
DIMENSION B	1.2

GENERAL NOTES

- INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
- A HIGH FLOW BYPASS ARRANGEMENT OR DISSIPATION STRUCTURE MAY BE REQUIRED TO MINIMISE RE-SUSPENSION OF SOLIDS OR ANY SIGNIFICANT INERTIAL FORCES ON THE CARTRIDGES.
- ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
- SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
- THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
- CONCRETE STRUCTURE AND ACCESS COVERS DESIGNED AND PROVIDED BY OTHERS. ACCESS COVERS TO BE A MINIMUM 900 X 900 ABOVE CARTRIDGES. OH&S REGARDING ACCESS COVERS AND TANK ACCESS TO BE ASSESSED BY OTHERS ON SITE.
- THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES.
- DRAWINGS NOT TO SCALE.

INSTALLATION NOTES

- UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.

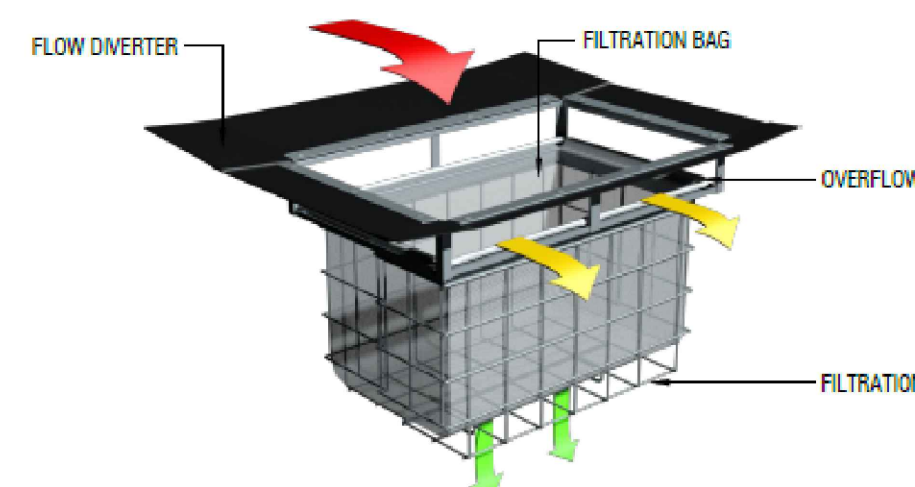


STORMFILTER CARTRIDGE DETAIL

PLAN ID	MAXIMUM PIT PLAN DIMENSIONS
S	460mm x 460mm
M	600mm x 600mm
L	900mm x 900mm
XL	1200mm x 1200mm

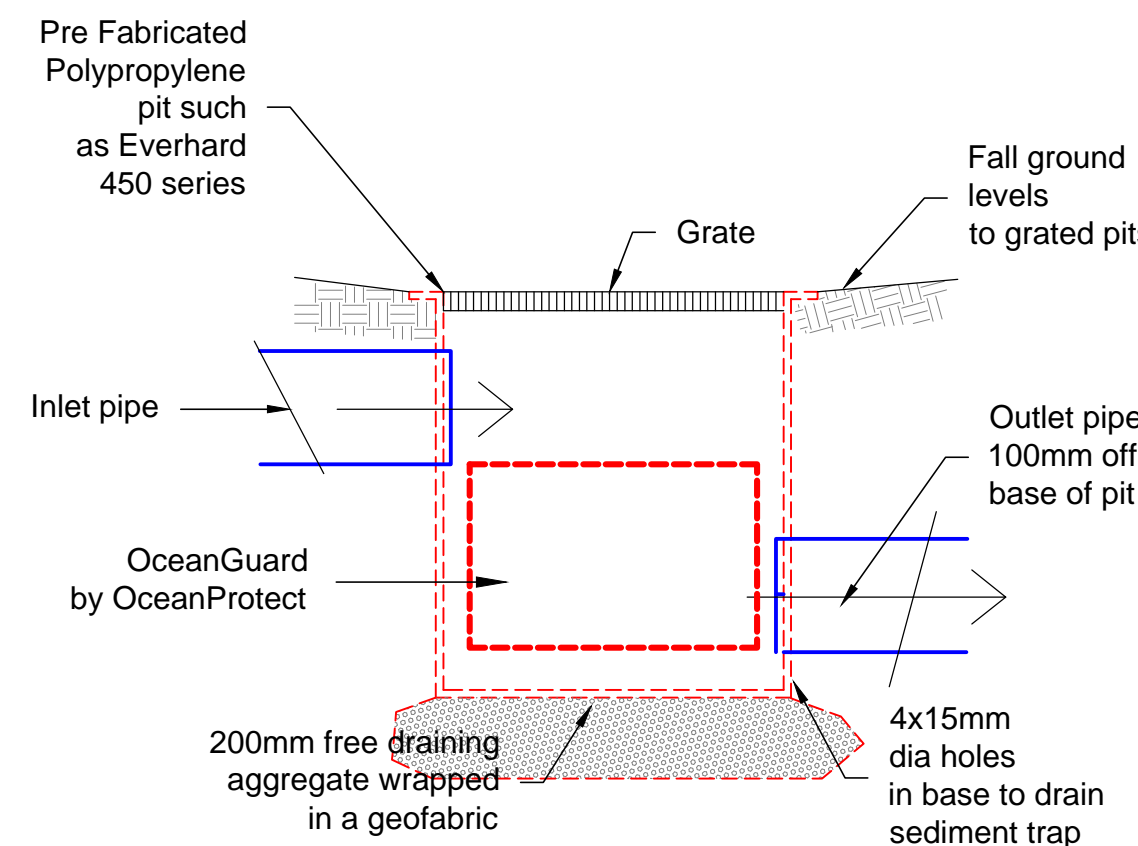
DEPTH ID	BAG DEPTH	OVERALL DEPTH
1	170	270
2	300	460
3	600	700

PLAN ID	DEPTH ID			
	1	2	3	
	S	■	■	■
	M	■	■	■
	L	■	■	■



GENERAL NOTES

- THE MINIMUM CLEARANCE DEPENDS ON THE CONFIGURATION (SEE NOTE 2) AND THE LOCAL COUNCIL REQUIREMENTS.
- CLEARANCE FOR ANY PIT WITHOUT AN INLET PIPE (ONLY USED FOR SURFACE FLOW) CAN BE AS LOW AS 50mm. FOR OTHER PITS, THE RECOMMENDED CLEARANCE SHOULD BE GREATER OR EQUAL TO THE PIPE OBVERT SO AS NOT TO INHIBIT HYDRAULIC CAPACITY.
- OCEAN PROTECT PROVIDES TWO FILTRATION BAG TYPES:- 200 MICRON BAGS FOR HIGHER WATER QUALITY FILTERING AND A COARSE BAG FOR TARGETING GROSS POLLUTANTS.
- DRAWINGS NOT TO SCALE.



TYPICAL PIT DETAIL
NTS

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