

# 1 EDNA STREET, KINGSWOOD

## PROPOSED NEW GENERATION BOARDING HOUSE

### STORMWATER CONCEPT PLANS

#### LEGEND

- PROPOSED STORMWATER BYPASSING OSD
- PROPOSED STORMWATER DRAINING TO RWT
- PROPOSED STORMWATER DRAINING TO OSD
- SUBSOIL DRAINAGE
- EXISTING SEWER MAIN (FROM RECORDS)
- GUTTER DOWNSPIPE
- ROOF GUTTER HIGH POINT
- PLANTER GRATE
- RAINWATER OUTLET
- Ø300 CLEANING EYE
- 2,000L RAINWATER TANK
- SURFACE FLOW ARROWS
- DESIGN SURFACE LEVEL
- EXISTING SURFACE LEVEL
- PROPOSED OSD STORAGE
- ROOF AREA TO RAINWATER TANK
- TILED AREA
- TREES TO BE RETAINED
- TREES TO BE REMOVED



#### LOCALITY PLAN

N.T.S.

#### DRAWING INDEX

Drawing No.	DESCRIPTION
000	COVER SHEET, LEGEND & NOTES
101	STORMWATER CONCEPT PLAN BASEMENT LEVEL SHEET 1 OF 2
102	STORMWATER CONCEPT PLAN BASEMENT LEVEL SHEET 2 OF 2
103	STORMWATER CONCEPT PLAN
104	ON-SITE DETENTION TANK AND CALCULATION SHEET
105	MISCELLANEOUS DETAILS SHEET

#### PIPES NOTE:

Ø65 PVC @ MIN 1.0%  
Ø90 PVC @ MIN 1.0%  
Ø100 PVC @ MIN 1.0%  
Ø150 PVC @ MIN 1.0%  
Ø225 PVC @ MIN 0.5%  
Ø300 PVC @ MIN 0.4%  
UNLESS NOTED OTHERWISE

#### GENERAL NOTES

- ALL LINES ARE TO BE Ø90 uPVC 1.0% GRADE UNLESS NOTED OTHERWISE. CHARGED LINES TO BE SEWERGRADE & SEALED.
- EXISTING SERVICES LOCATIONS SHOWN INDICATIVE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
- ALL PIPES TO HAVE MIN 150mm COVER IF LOCATED WITHIN PROPERTY.
- ALL PITS IN DRIVEWAYS TO BE 450x450 CONCRETE AND ALL PITS IN LANDSCAPED AREAS TO BE 450x450 PLASTIC.
- PITS LESS THAN 600mm DEEP MAY BE BRICK, PRECAST OR CONCRETE.
- ALL BALCONIES AND ROOFS TO BE DRAINED AND TO HAVE SAFETY OVERFLOWS IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
- ALL EXTERNAL SLABS TO BE WATERPROOFED.
- ALL GRATES TO HAVE CHILD PROOF LOCKS.
- ALL DRAINAGE WORKS TO AVOID TREE ROOTS.
- ALL DPs TO HAVE LEAF GUARDS.
- ALL EXISTING LEVELS TO BE CONFIRMED BY BUILDER PRIOR TO CONSTRUCTION.
- ALL WORK WITHIN COUNCIL RESERVE TO BE INSPECTED BY COUNCIL PRIOR TO CONSTRUCTION.
- COUNCIL'S ISSUED FOOTWAY DESIGN LEVELS TO BE INCORPORATED INTO THE FINISHED LEVELS ONCE ISSUED BY COUNCIL.
- ALL WORK SHALL BE IN ACCORDANCE WITH B.C.A. AND A.S.3500.3.
- REFER TO LANDSCAPE ARCHITECT'S DRAWINGS FOR LANDSCAPING.
- CARE TO BE TAKEN AROUND EXISTING SEWER. STRUCTURAL ADVICE IS REQUIRED FOR SEWER PROTECTION AGAINST ADDITIONAL LOADING FROM NEW PITS, PIPES, RETAINING WALLS AND OSD BASIN WATER LEVELS.
- ALL PIPES IN BALCONIES TO BE Ø65 uPVC CAST IN CONCRETE SLAB. CONTRACTOR TO PROVIDE A BREAK / OPEN VOID IN RAIL / BALLUSTRADE FOR STORMWATER EMERGENCY OVERFLOW. ALL ENCLOSED AREAS/PLANTER BOXES TO BE FITTED WITH FLOOR WASTES & DRAINED TO OSD DOWNPIPES TO BE CHECKED BY ARCHITECT & PLUMBER PRIOR TO CONSTRUCTION
- THE OSD BASIN / TANK IS TO BE BUILT TO THE CORRECT LEVELS & SIZE AS PER THIS DESIGN. ANY VARIATIONS ARE TO BE DONE UNDER CONSULTATION FROM OUR OFFICE ONLY. ANY AMENDMENTS WITHOUT OUR APPROVAL WOULD RESULT IN ADDITIONAL FEES FOR REDESIGN AT OC STAGE OR IF A SOLUTION CANNOT BE FOUND, RECONSTRUCTION IS REQUIRED UNDER THE CONTRACTOR'S EXPENSES.

NOT FOR CONSTRUCTION

A	ISSUE FOR DEVELOPMENT APPLICATION	28/06/2018	SMF	JAB
Issue	Description	Date	Design	Checked

Certification By:

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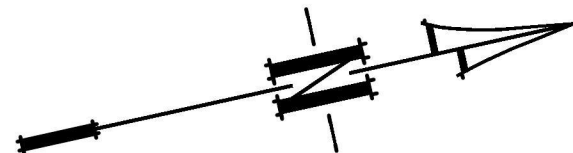
Scale

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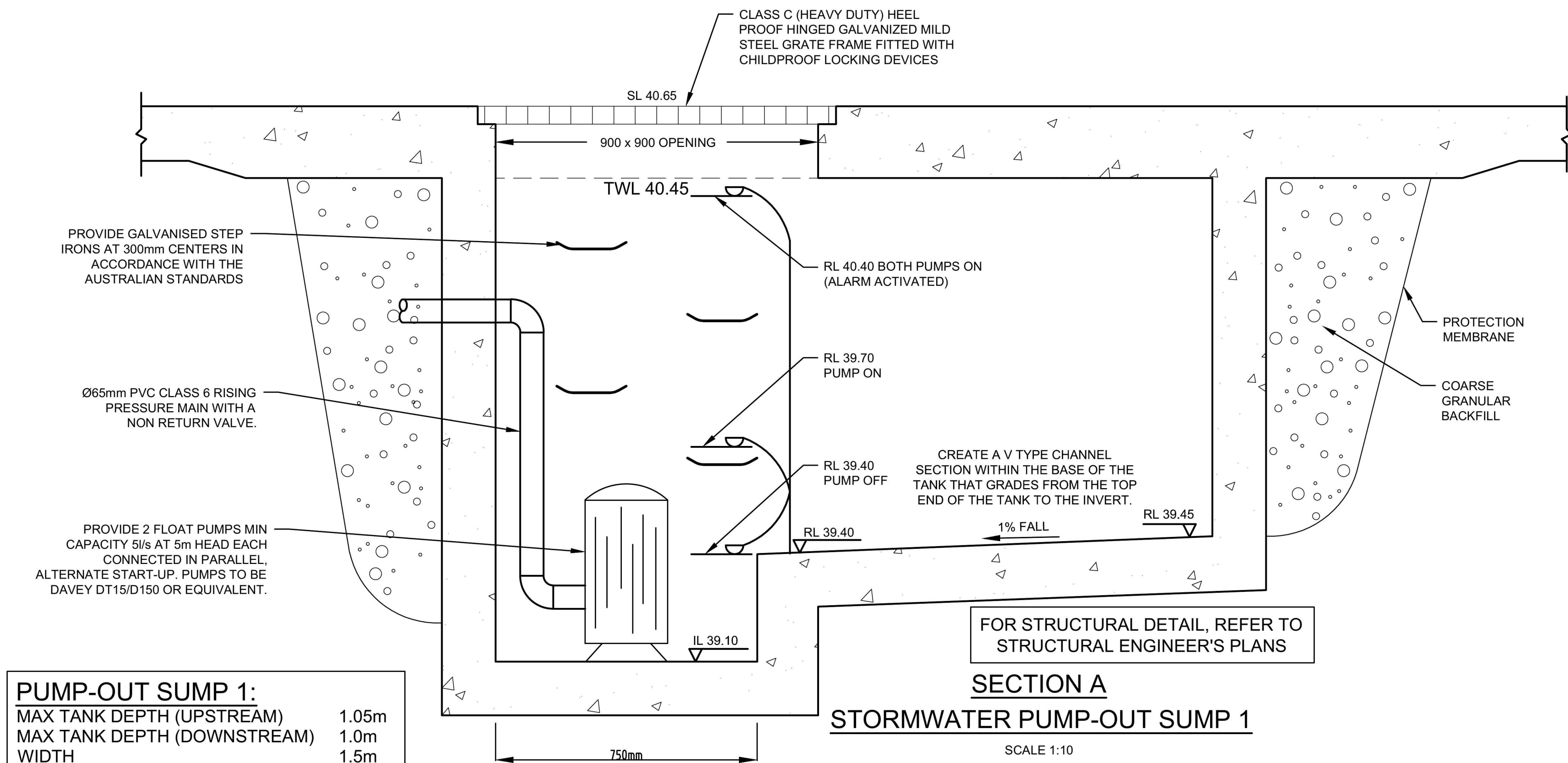
Project  
**1 EDNA STREET, KINGSWOOD  
PROPOSED NEW GENERATION BOARDING HOUSE  
STORMWATER CONCEPT PLANS  
DEVELOPMENT APPLICATION**

Drawing Title	<b>COVER SHEET, LEGEND &amp; NOTES</b>			
Scale	A1	Project No.	Dwg. No.	Issue
N.T.S.		180698	000	A

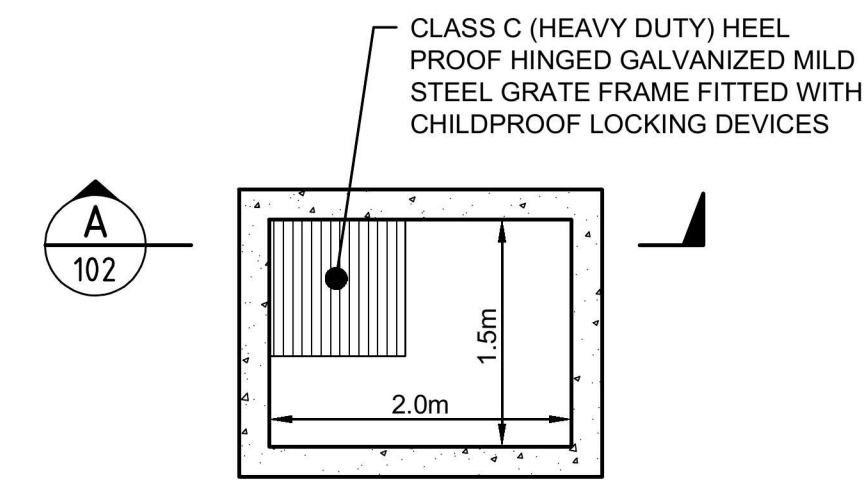








<b>PUMP-OUT SUMP 1:</b>	
MAX TANK DEPTH (UPSTREAM)	1.05m
MAX TANK DEPTH (DOWNSTREAM)	1.0m
WIDTH	1.5m
LENGTH	2.0m
VOLUME PROVIDED	3.08m <sup>3</sup>

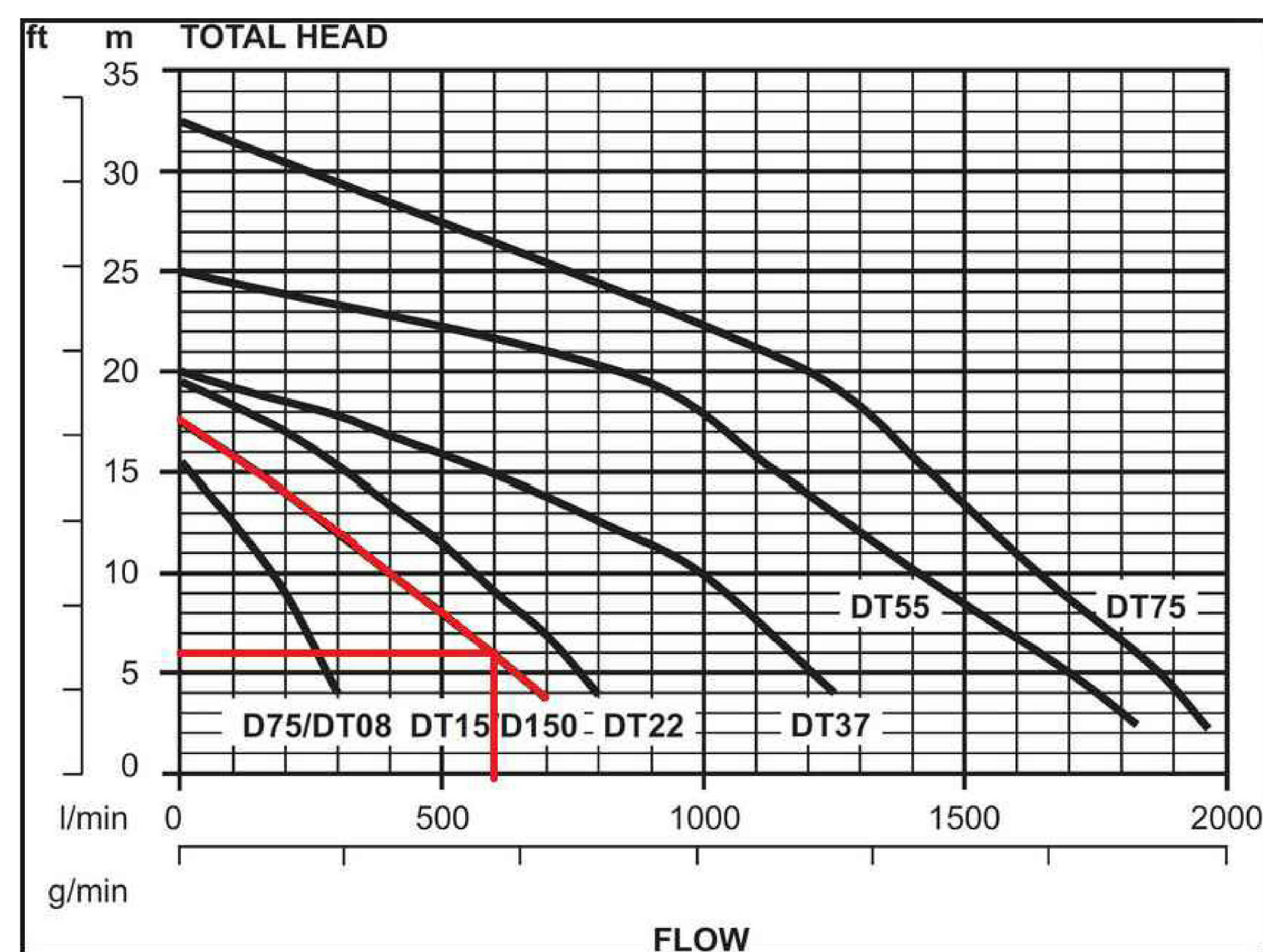


- NOTE:**
- FOR ALL THE STRUCTURAL DETAILS, REFER TO STRUCTURAL ENGINEER'S PLAN.
  - ALL THE AG LINES BEHIND BASEMENT WALLS TO BE CONNECTED TO PUMP-OUT SUMP.

**PUMP-OUT SUMP DETAIL**  
**PLAN VIEW**  
SCALE 1:50

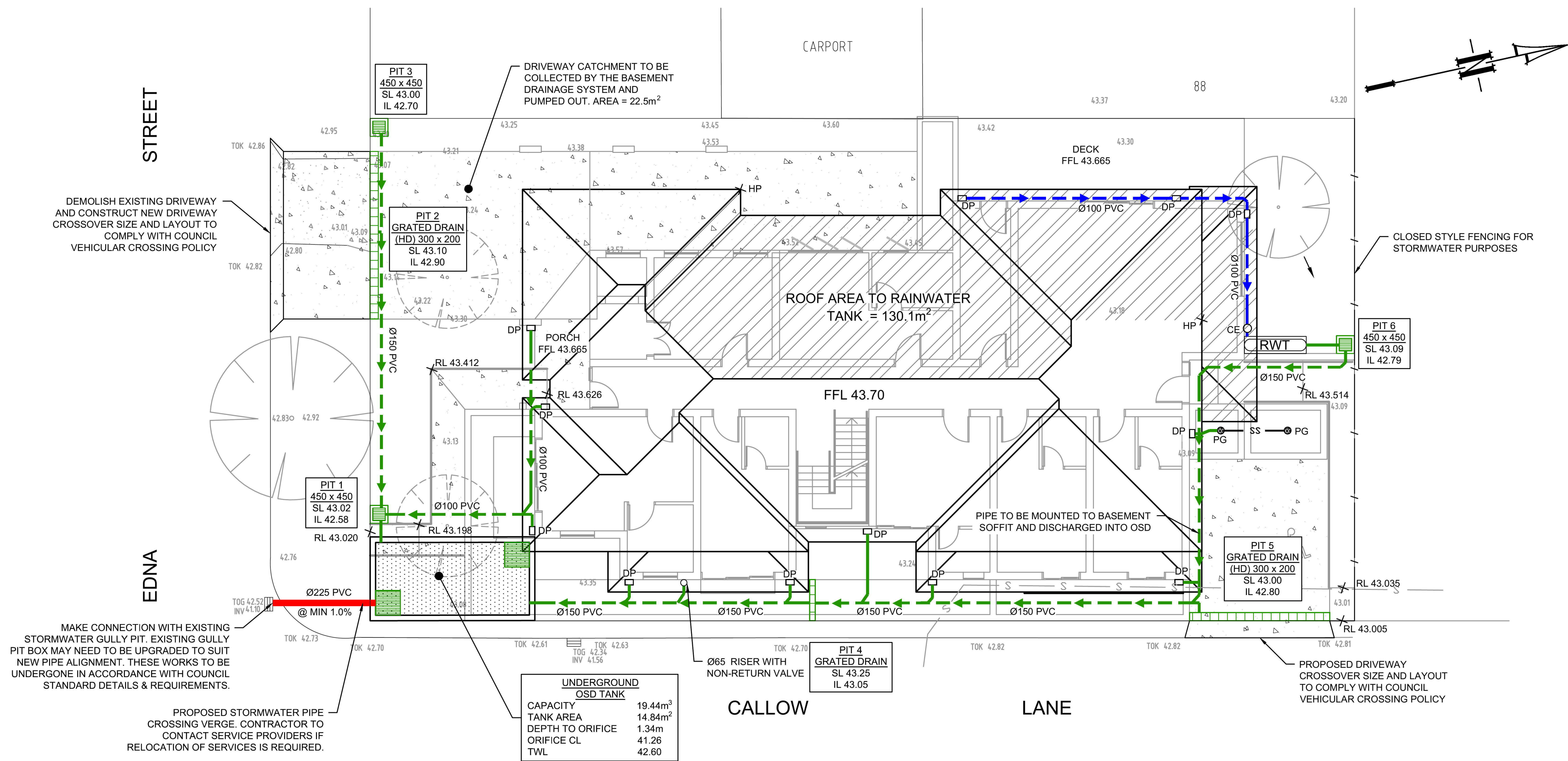
**PUMP STORAGE VOLUME**  
**CALCULATION**

- $I_{100, 90 \text{ min}} = 55.15 \text{ mm/hour}$
- PUMP STORAGE CATCHMENT AREA:  $A = 22.5 \text{ m}^2 = 0.00225 \text{ ha}$
- $Q = C \times I \times A / 360$  WHERE  $C = 1.0$  (REFER TO AS3500.3.5.4.6 (a))  
 $= 1.0 \times 55.15 \times 0.00225 / 360$   
 $= 0.000345 \text{ m}^3/\text{s}$   
 $= 0.345 \text{ L/s}$
- THEREFORE, THE PUMP HOLDING TANK VOLUME IS:  
 $V = 0.345 \times 1.5 \times 3600$   
 $= 1.86 \text{ m}^3$
- TOTAL REQUIRED VOLUME IS  $3.0 \text{ m}^3$

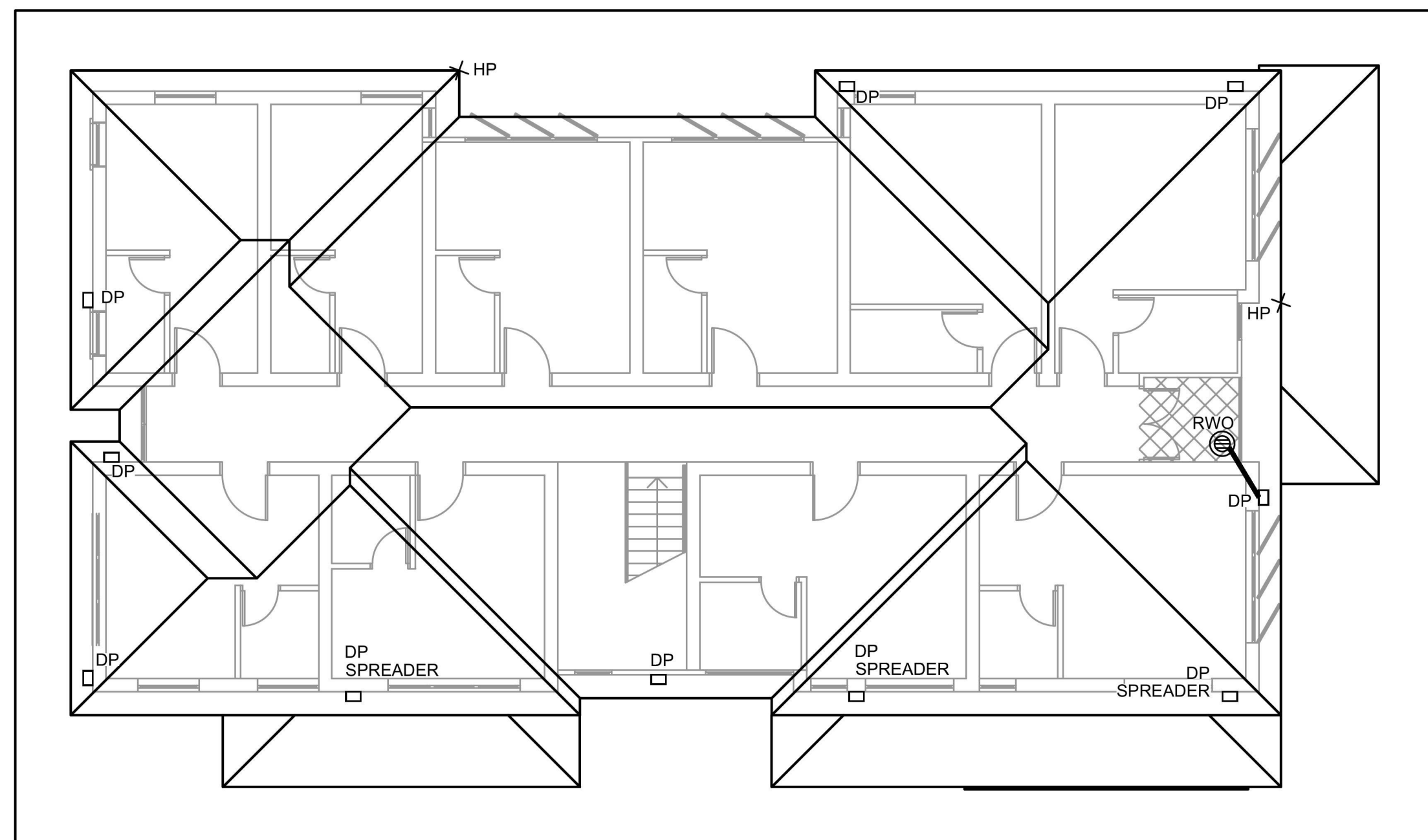


PUMP CALCULATIONS													
Project Address:		1 Edna Street, Kingswood											
HL=(3.35x10e6xQ/(d^2.63xC))^1.852				h1=kv^2/2g				H(total head)=Hf+h1+Elevation Head(static head)					
HL(m/100m), Q(L/s, d(mm))				k(cum), v(m/s), g=9.8(m/s^2)									
				v(m/s)= 0.00				Elevation Head(m)= 10		Pipe Length(m)= 10			
d(mm)= 65				Bend Losses, Kb= 3.06				Hazen - Williams C= 145		Hazen-Williams Constant 125-140 Commercial steel pipe 135-140 Bitumen Lined Cast iron pipe 140-145 Copper Tube 145-150 PVC			
				Valve Losses, Kv= 2.13									
				Entry/Exit Losses, Ke= 5.00									
				Cum Losses, K= 10.19									
Start Flow=		0											
Increment=		1											
Q(L/s)		0	1	2	3	4	5	6	7	8	9	10	
HL(m/100m)		0.00	0.18	0.64	1.36	2.32	3.51	4.92	6.55	8.39	10.44	12.60	
Hf(m)	HL x pipe Length/100	0.00	0.02	0.06	0.14	0.23	0.35	0.49	0.66	0.84	1.04	1.26	
v(m/s)	Q(L/s) / area of pipe crossing section	0.00	0.30	0.60	0.90	1.21	1.51	1.81	2.11	2.41	2.71	3.01	
h1(m)	k(cum) x v(m/s)^2/2xg	0.00	0.05	0.19	0.42	0.76	1.18	1.70	2.31	3.02	3.82	4.71	
H(m)	=Hf+H1+Elevation Head	10.00	10.07	10.25	10.56	10.99	11.53	12.19	12.97	13.86	14.87	15.99	





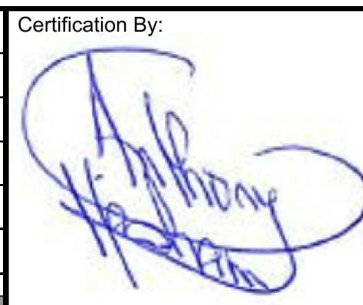
GROUND FLOOR PLAN  
SCALE 1:100



LEVEL 1 PLAN  
SCALE 1:100

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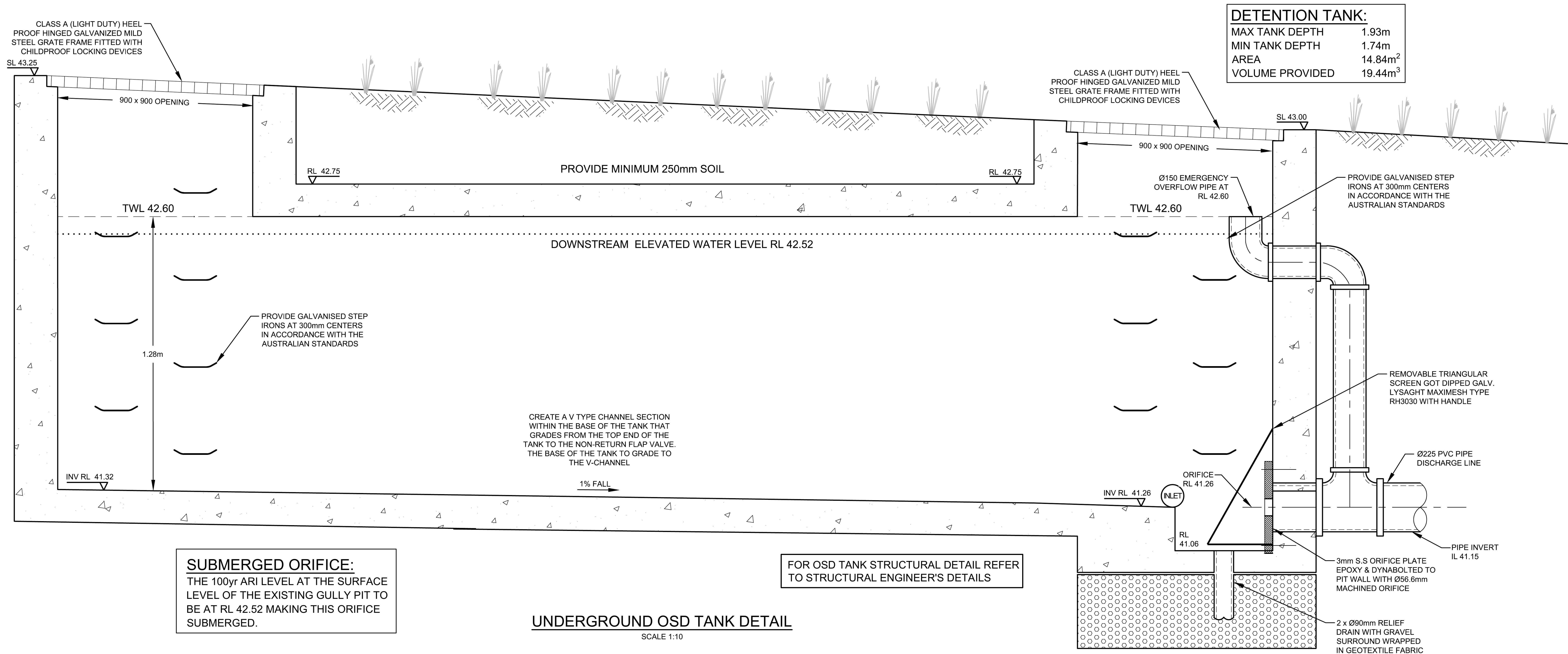
Scale  
0 2 4 6 m  
SCALE 1:100 @ A1

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Scale	A1	Project No.	Dwg. No.	Issue
1:100		180698	103	A





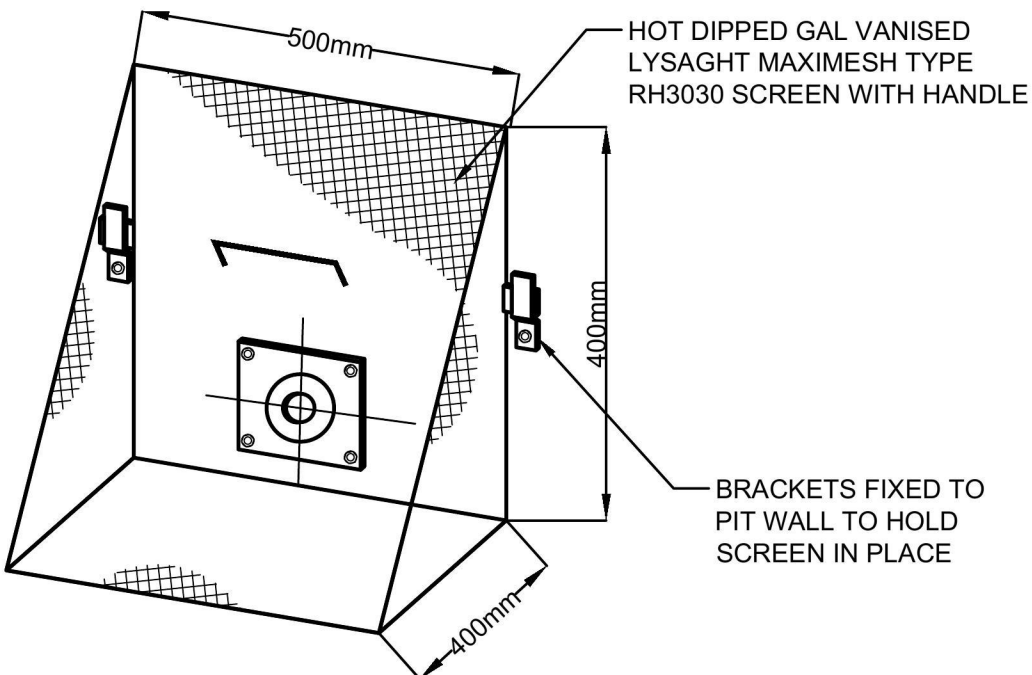
**SUBMERGED ORIFICE:**  
THE 100yr ARI LEVEL AT THE SURFACE LEVEL OF THE EXISTING GULLY PIT TO BE AT RL 42.52 MAKING THIS ORIFICE SUBMERGED.

FOR OSD TANK STRUCTURAL DETAIL REFER TO STRUCTURAL ENGINEER'S DETAILS

**UNDERGROUND OSD TANK DETAIL**  
SCALE 1:10

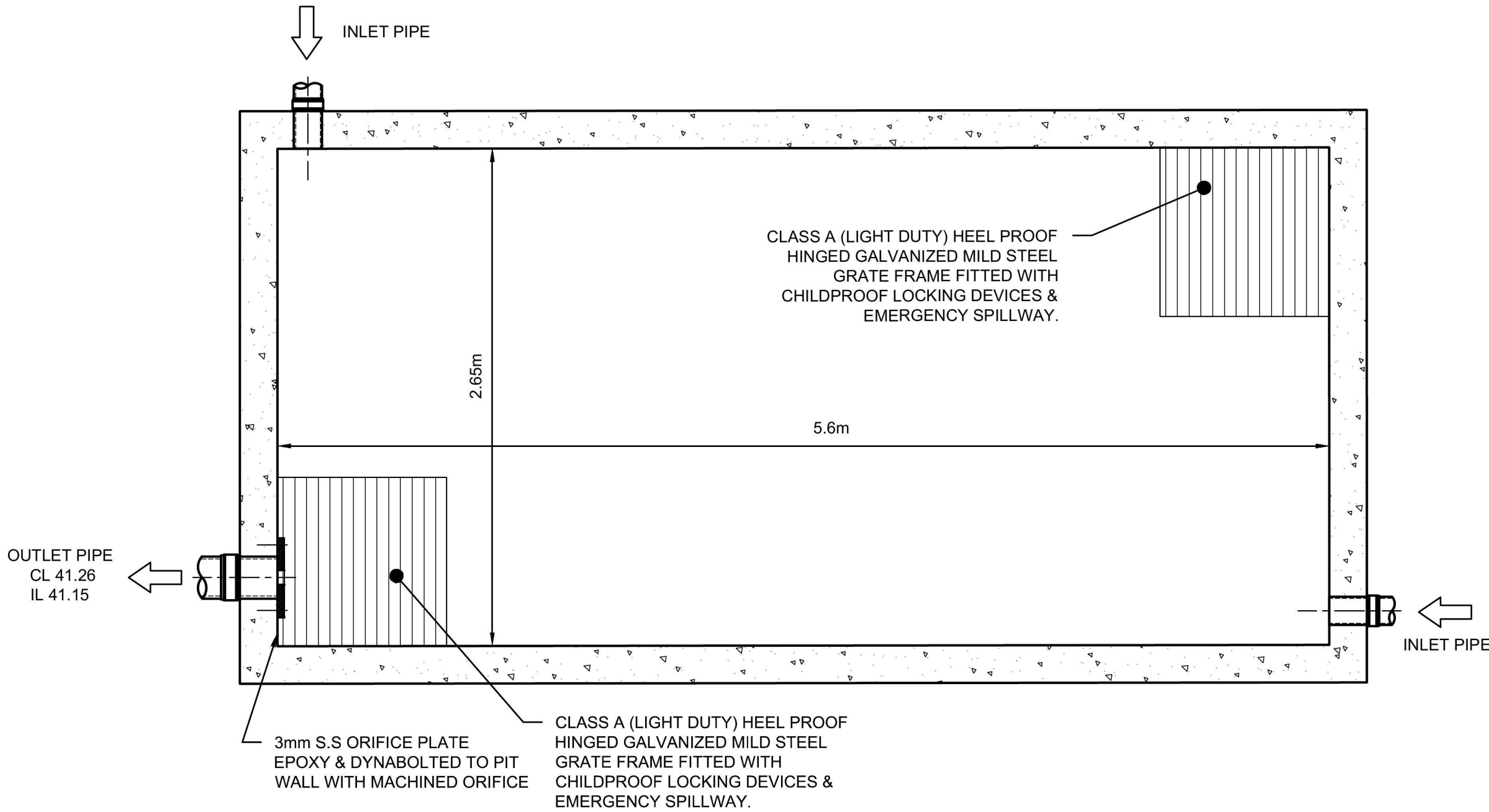
**UNDERGROUND OSD TANK STAGED STORAGE CALCULATIONS**

DEPTH (mm)	AREA (m <sup>2</sup> )	CUMULATIVE VOLUME (m <sup>3</sup> )
0	14.84	0
100	14.84	1.0388
200	14.84	2.5228
300	14.84	4.0068
400	14.84	5.4908
500	14.84	6.9748
600	14.84	8.4588
700	14.84	9.9428
800	14.84	11.4268
900	14.84	12.9108
1000	14.84	14.3948
1100	14.84	15.8788
1200	14.84	17.3628
1300	14.84	18.8468
1340	14.84	19.4404



**TRASH SCREEN DETAIL**  
N.T.S.

NOT FOR CONSTRUCTION



**UNDERGROUND OSD TANK PLAN VIEW**  
SCALE 1:25

**OSD CALCULATIONS:**

SITE AREA = 655.5 m<sup>2</sup>  
= 0.06555 ha  
AREA BYPASSING OSD = 0 m<sup>2</sup> (0%)  
FOLLOWING COUNCIL'S STORMWATER DRAINAGE SPECIFICATION TABLE 8 FOR PERMISSIBLE OSD DISCHARGE AND REQUIRED STORAGE,

PSD = 120 l/s/ha  
SSR = 280 m<sup>3</sup>/ha

THEREFORE:  
PSD = 120 x 0.06555  
= 7.87 l/s

SSR = 280 x 0.06555  
= 18.35 m<sup>3</sup>

**ORIFICE CALCULATIONS:**

$Q = C \times A \times (2 \times g \times h)^{0.5}$   
SO:  $A = Q / (C \times \text{sqrt}(2 \times g \times h))$   
= 0.00787 / (0.61 x sqrt(2 x 9.81 x 1.34))  
= 0.00252 m<sup>2</sup>

THEREFORE:  
 $d = \text{sqrt}(4 \times A / \pi)$   
= sqrt(4 x 0.00252 / 3.14159)  
= 56.6 mm



**ORIFICE PLATE DETAIL**  
N.T.S.

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Scale  
0 200 400 600mm  
SCALE 1:10 @ A1  
0 0.2 0.4 0.6 0.8 1.0 1.2m  
SCALE 1:25 @ A1

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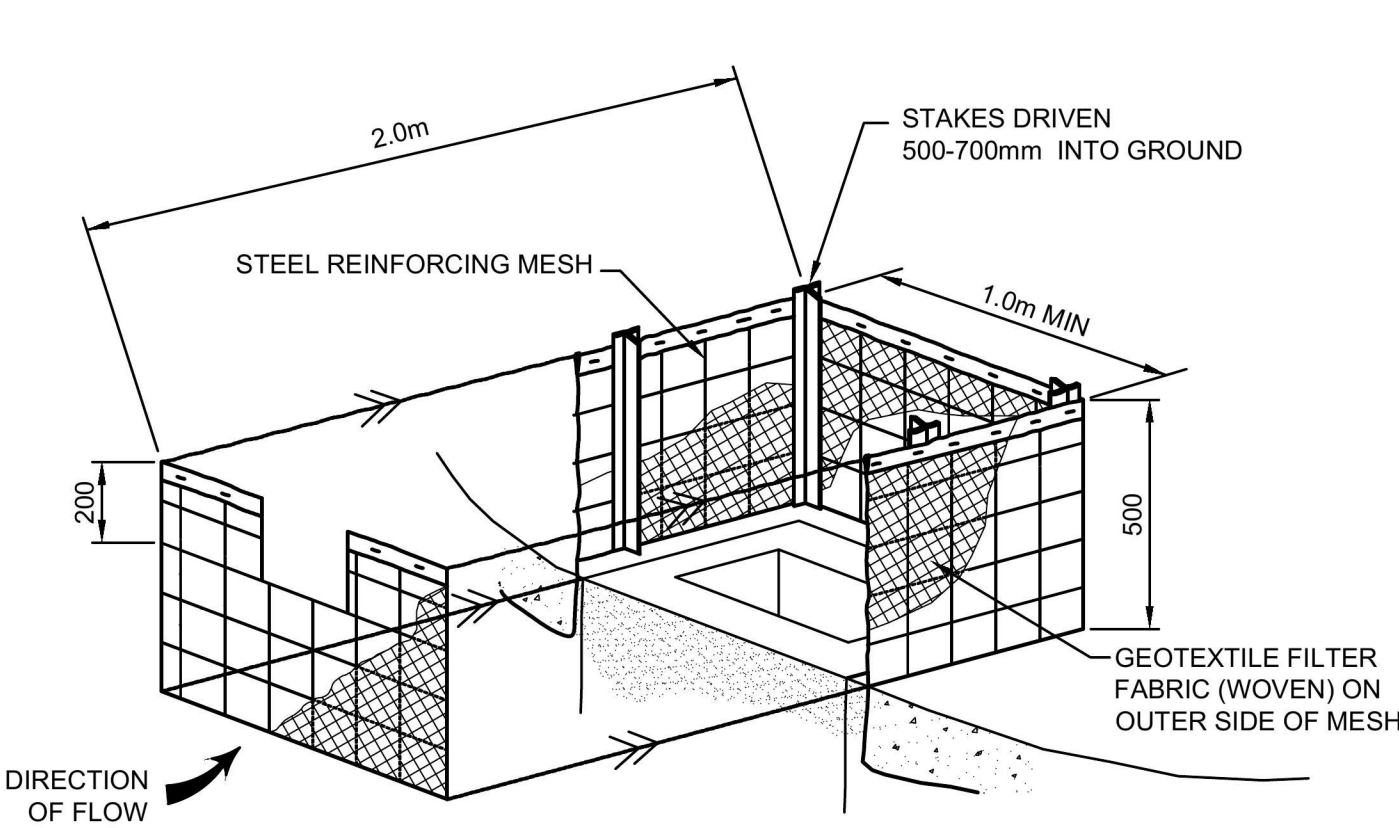
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**1 EDNA STREET, KINGSWOOD  
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STORMWATER CONCEPT PLANS  
DEVELOPMENT APPLICATION**

Drawing Title  
**ON-SITE DETENTION DETAILS  
AND CALCULATION SHEET**  
Scale A1 Project No. 180698 Dwg. No. 104 Issue A

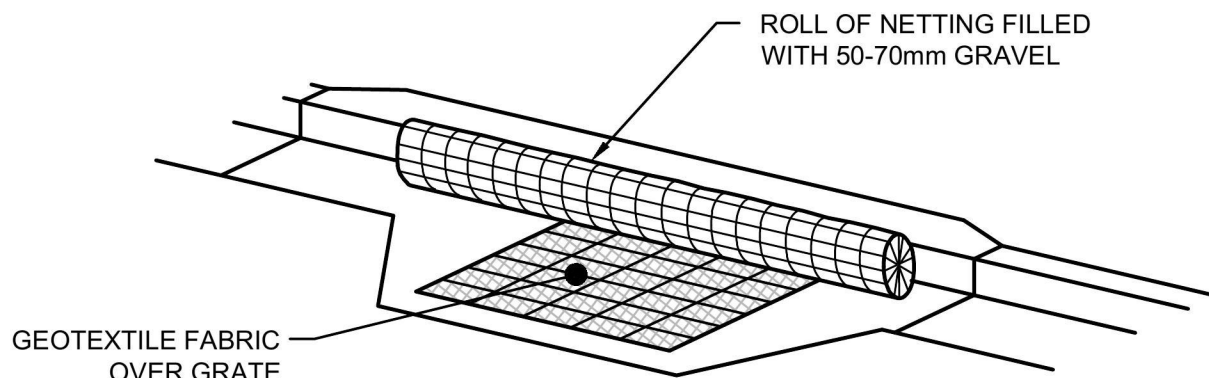


SEDIMENT & EROSION NOTES

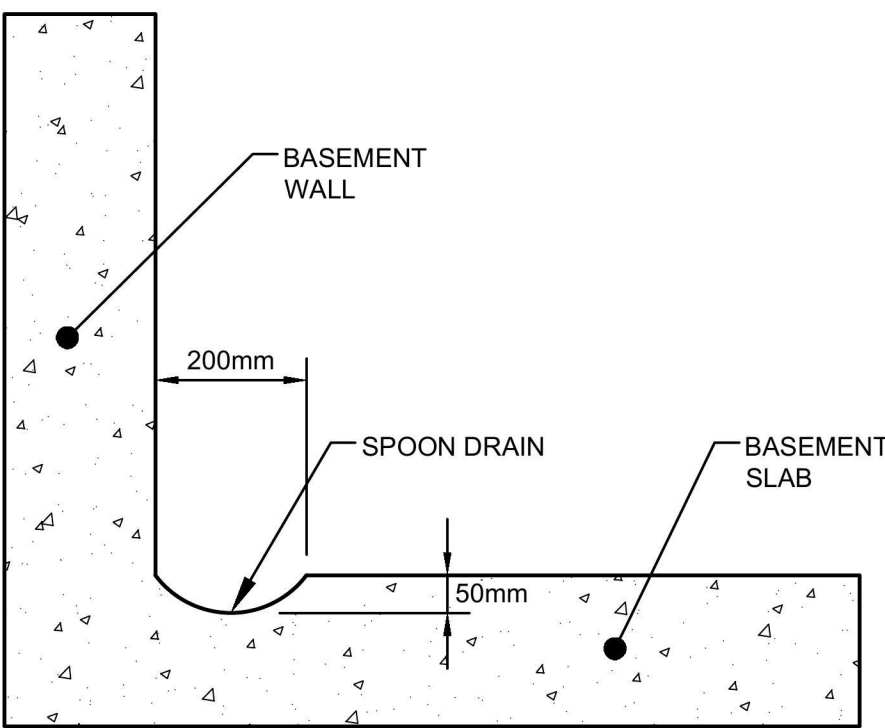
1. IMMEDIATELY FOLLOWING SETTING OUT OF THE WORKS, BUT PRIOR TO COMMENCEMENT OF ANY CLEARING OR EARTHWORKS, THE CONTRACTOR AND SUPERINTENDENT SHALL WALK THE SITE TO NOMINATE THE LOCATIONS AND TYPES OF SEDIMENT AND EROSION CONTROL MEASURES TO BE ADOPTED. THESE MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CLEARING OR EARTHWORKS AND MAINTAINED UNTIL THE WORKS ARE COMPLETED AND NO LONGER POSE AN EROSION HAZARD, UNLESS OTHERWISE APPROVED BY THE SUPERINTENDENT.
2. IMMEDIATELY FOLLOWING SETTING OUT OF THE WORKS, BUT PRIOR TO COMMENCEMENT OF ANY CLEARING OR EARTHWORKS, THE CONTRACTOR AND SUPERINTENDENT SHALL WALK THE SITE TO IDENTIFY AND MARK TREES WHICH ARE TO BE PRESERVED. NOTWITHSTANDING THE ABOVE, THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO MINIMISE DISTURBANCE TO EXISTING VEGETATION AND GROUND COVER OUTSIDE THE MINIMUM AREAS REQUIRED TO COMPLETE THE WORKS AND SHALL BE RESPONSIBLE FOR RECTIFICATION, AT ITS OWN COST, OF ANY DISTURBANCE BEYOND THOSE AREAS.
3. PROVIDE GULLY GRATE INLET SEDIMENT TRAPS AT ALL GULLY PITS.
4. PROVIDE SILT FENCING ALONG PROPERTY LINE AS DIRECTED BY SUPERINTENDENT.
5. ADDITIONAL CONTROL DEVICES TO BE PLACED WHERE DIRECTED BY THE PRINCIPLE.
6. ALTERNATIVE DESIGNS TO BE APPROVED BY SUPERINTENDENT PRIOR TO CONSTRUCTION.
7. WASH DOWN/RUMBLE AREA TO BE CONSTRUCTED WITH PROVISIONS RESTRICTING ALL SILT AND TRAFFICKED DEBRIS FROM ENTERING THE STORMWATER SYSTEM.
8. NO WORK OR STOCKPILING OF MATERIALS TO BE PLACED OUTSIDE OF SITE WORK BOUNDARY.
9. APPROPRIATE EROSION AND SEDIMENT CONTROLS TO BE USED TO PROTECT STOCKPILES AND MAINTAINED THROUGH OUT CONSTRUCTION.
10. IT IS THE CONTRACTORS RESPONSIBILITY TO TAKE DUE CARE OF NATURAL VEGETATION. NO CLEARING IS TO BE UNDERTAKEN WITHOUT PRIOR APPROVAL FROM THE SUPERINTENDENT.
11. TO AVOID DISTURBANCE TO EXISTING TREES, EARTHWORKS WILL BE MODIFIED AS DIRECTED ON-SITE BY THE SUPERINTENDENT.
12. THE LOCATION OF EROSION AND SEDIMENTATION CONTROLS WILL BE DETERMINED ON SITE BY THE SUPERINTENDENT.
13. ACCESS TRACKS THROUGH THE SITE WILL BE LIMITED TO THOSE DETERMINED BY THE SUPERINTENDENT AND THE CONTRACTOR PRIOR TO ANY WORK COMMENCING.
14. ALL SETTING OUT IS THE RESPONSIBILITY OF THE CONTRACTOR PRIOR TO WORKS COMMENCING ON SITE. THE SUPERINTENDENT'S SURVEYOR SHALL PEG ALL ALLOTMENT BOUNDARIES, PROVIDE COORDINATE INFORMATION TO THESE PEGS AND PLACE BENCH MARKS. THE CONTRACTOR SHALL SET OUT THE WORKS FROM AND MAINTAIN THESE PEGS.
15. PLANS ARE MINIMUM REQUIREMENTS AND ARE TO BE USED AS A GUIDE ONLY. EXACT MEASURES USED SHALL BE DETERMINED ON SITE IN CONJUNCTION WITH PROGRAM OF CONTRACTORS WORKS etc.



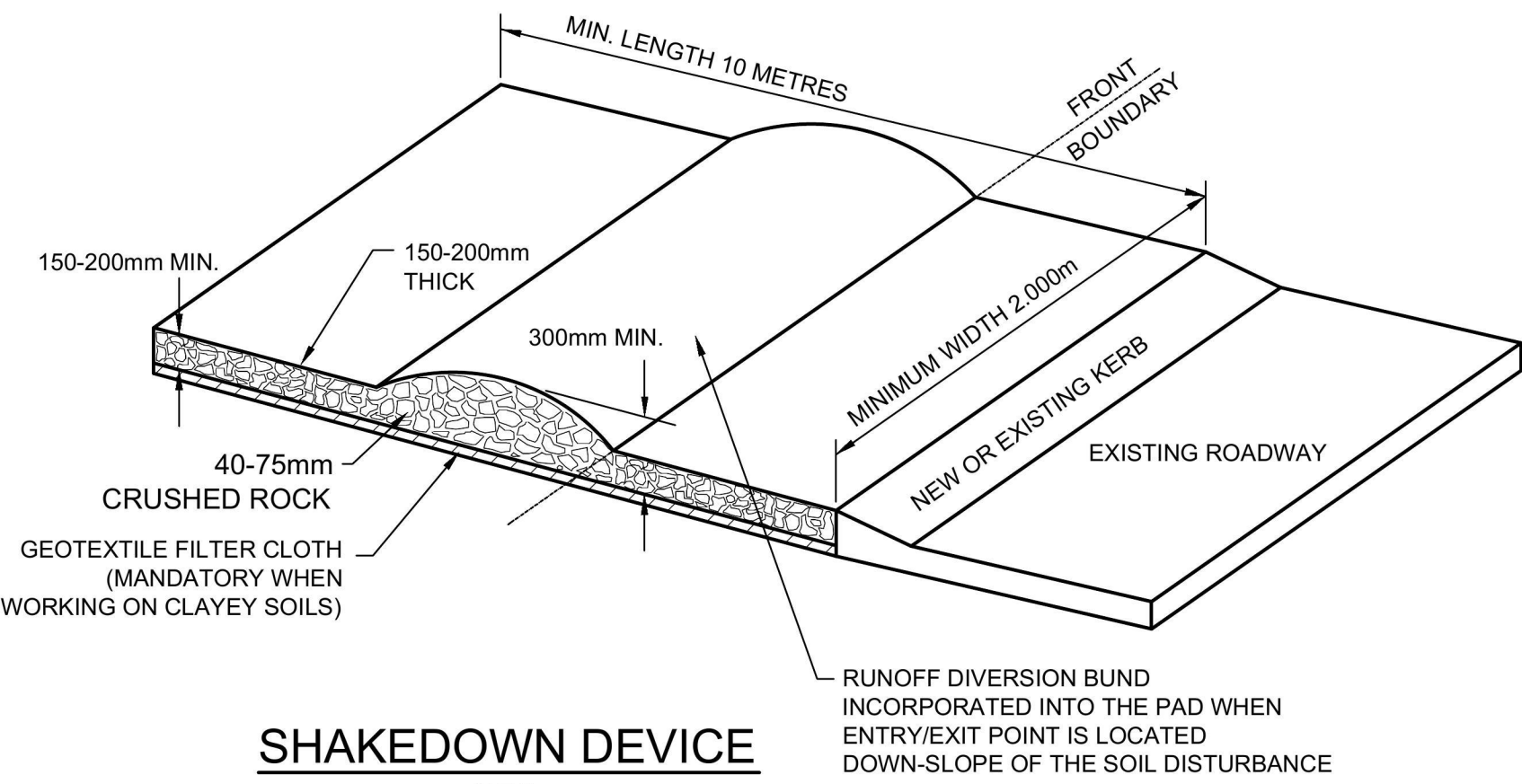
FIELD INLET SEDIMENT TRAP  
N.T.S.



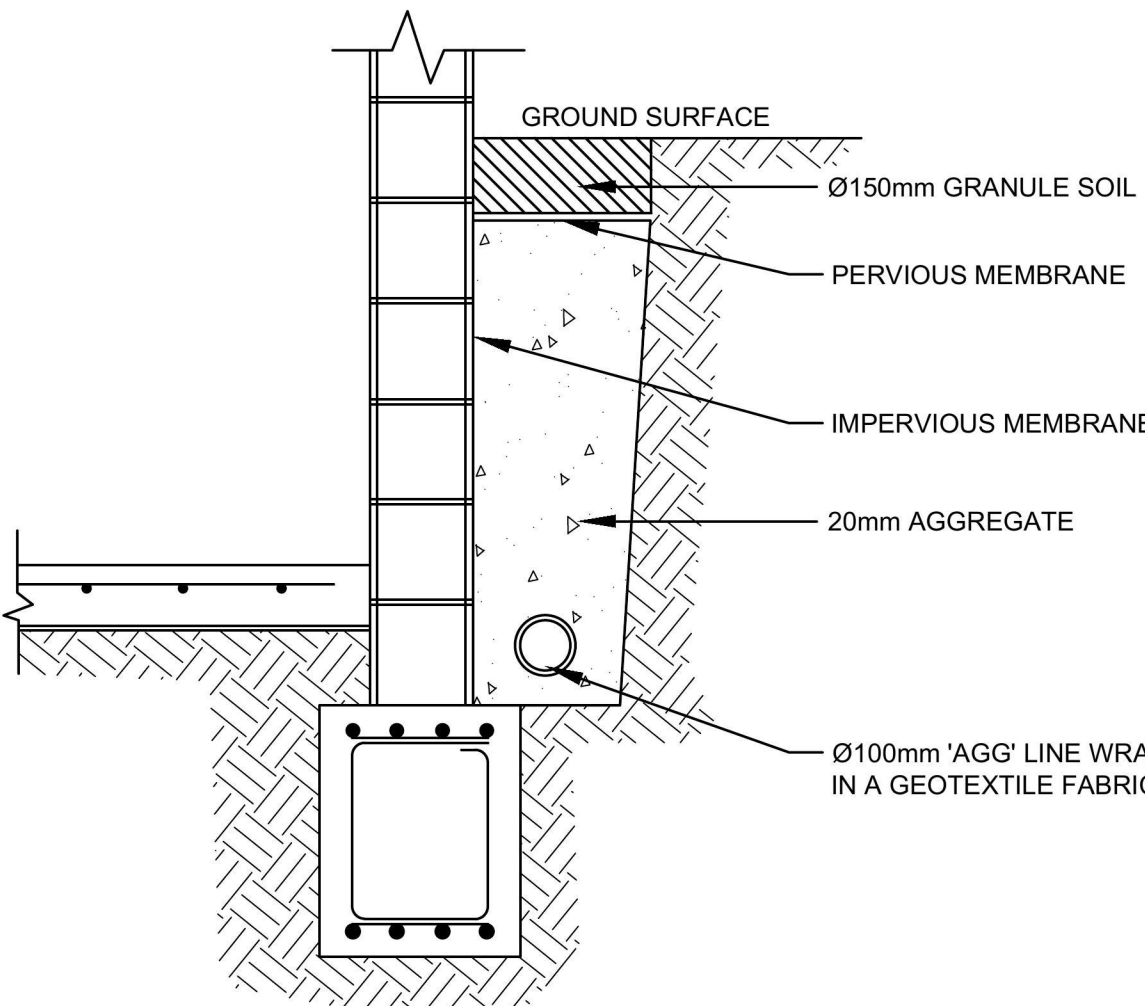
KERB INLET PROTECTION  
SAG GULLIES  
N.T.S.



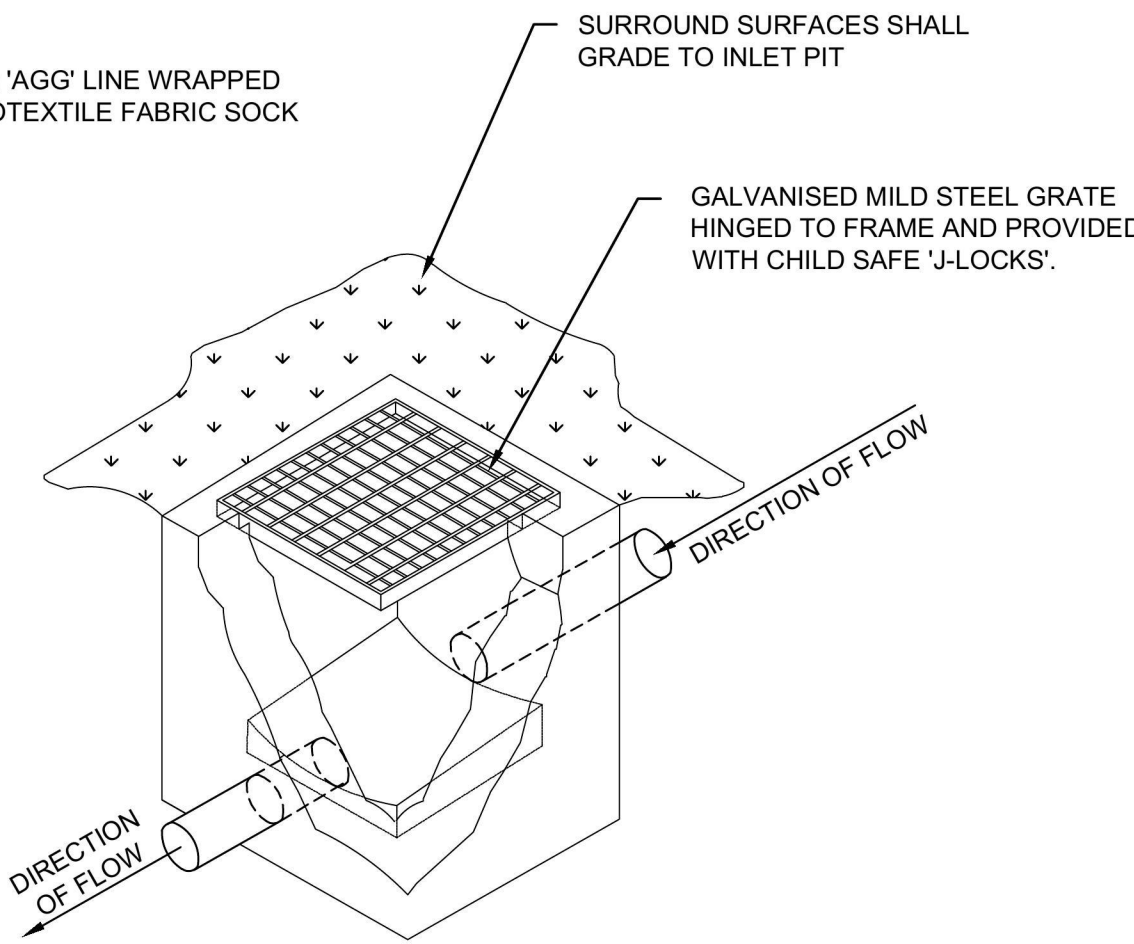
SPOON DRAIN SECTION DETAIL  
SCALE 1:10



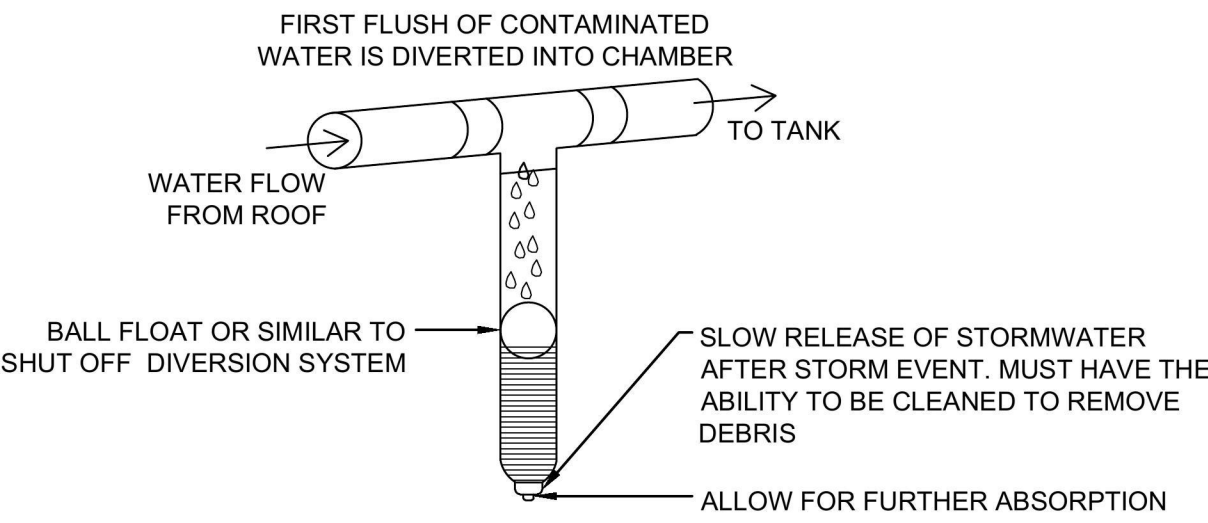
SHAKEDOWN DEVICE  
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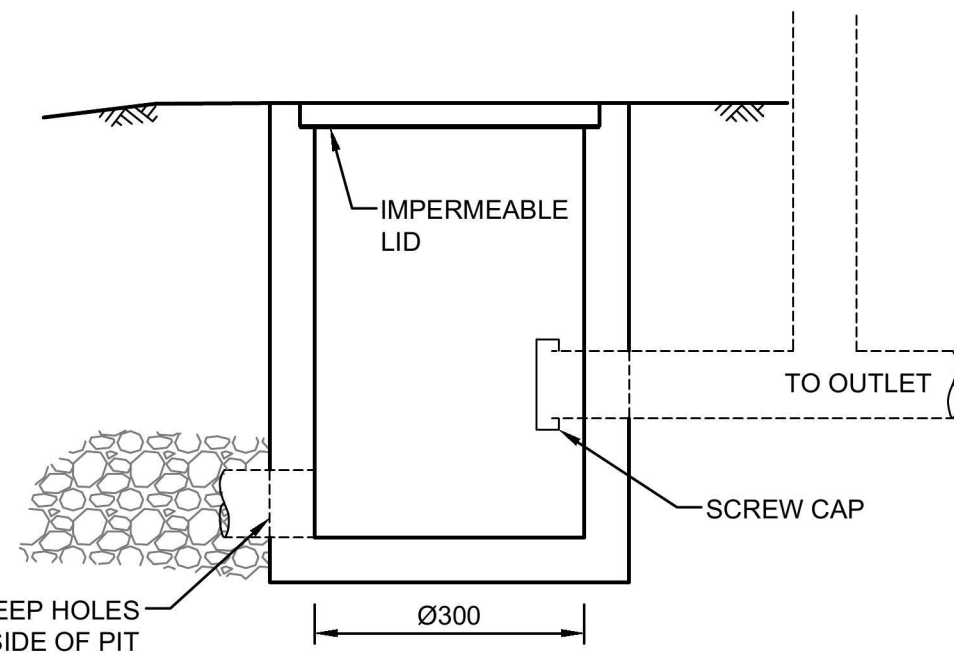
TYPICAL SUBSOIL DRAIN  
N.T.S.



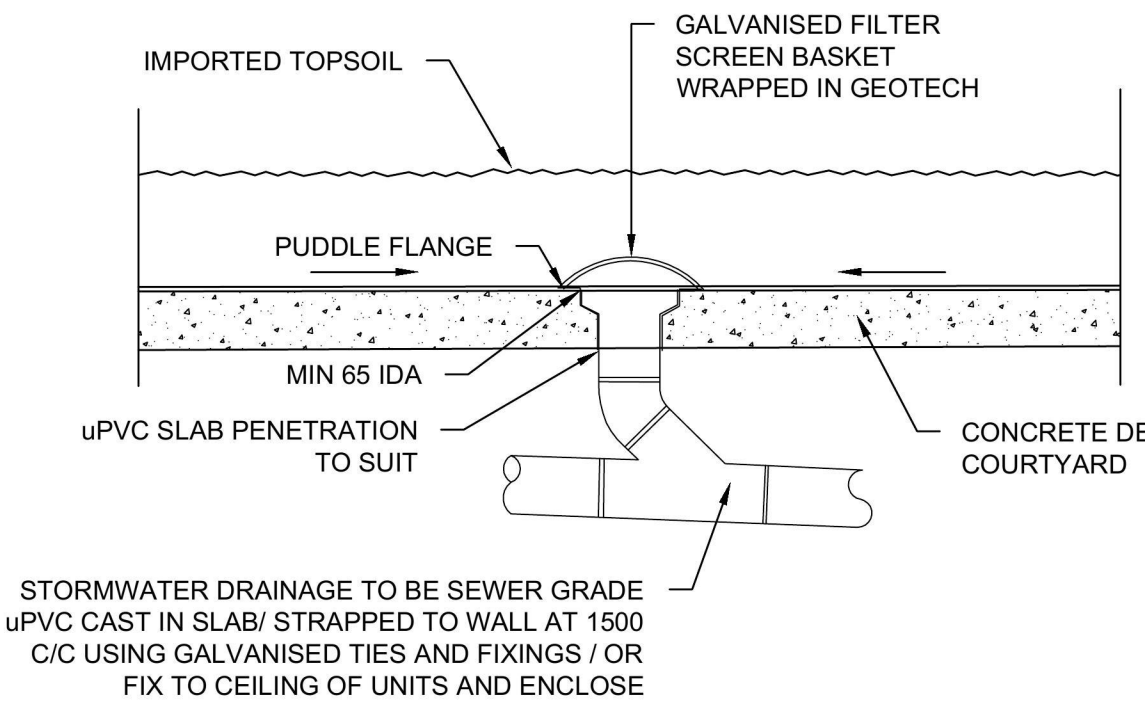
TYPICAL GRATED  
INLET PIT DETAIL  
N.T.S.



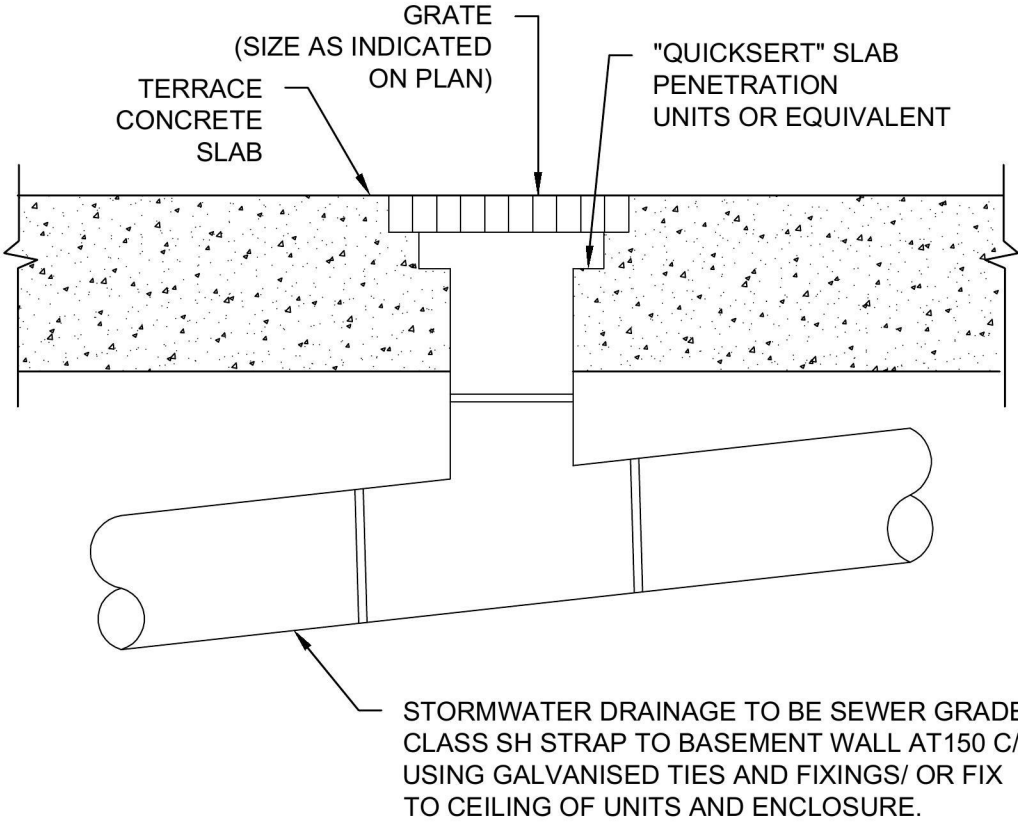
FIRST FLUSH WATER  
DIVERTER DETAIL  
N.T.S.



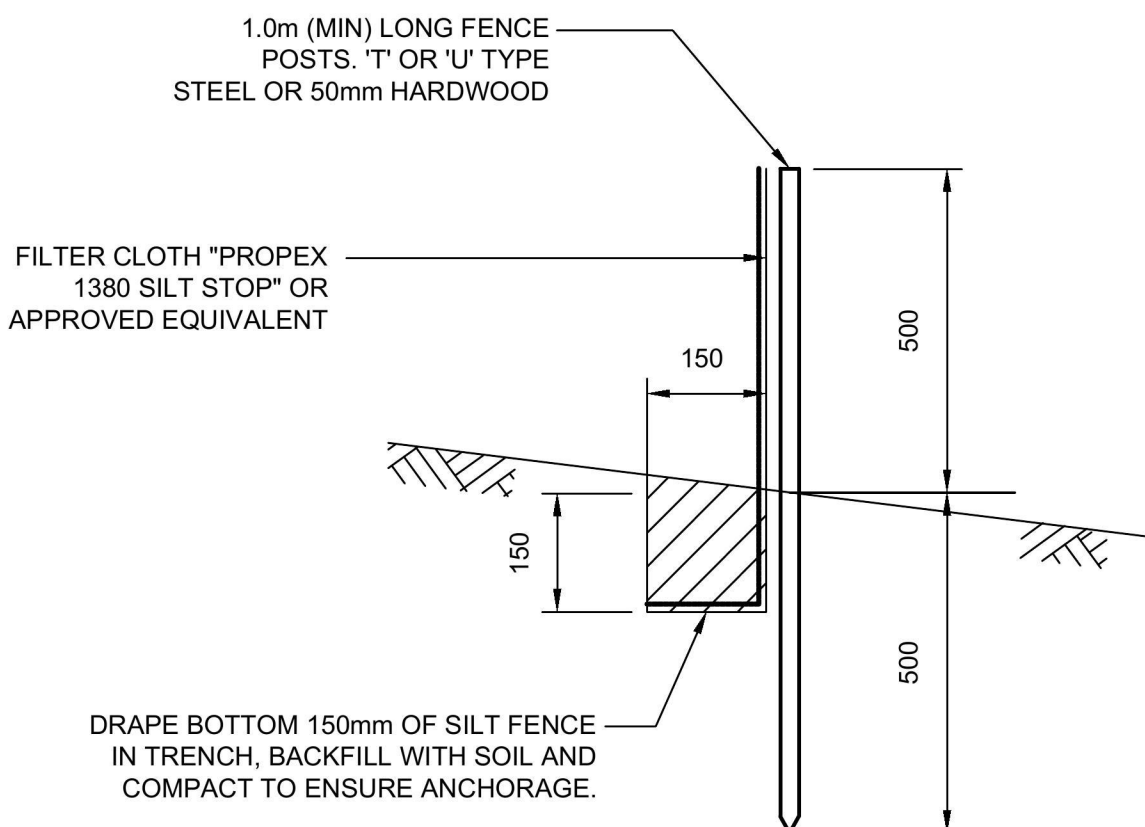
CLEANING EYE DETAIL  
N.T.S.



PLANTER GRATE DETAIL  
N.T.S.



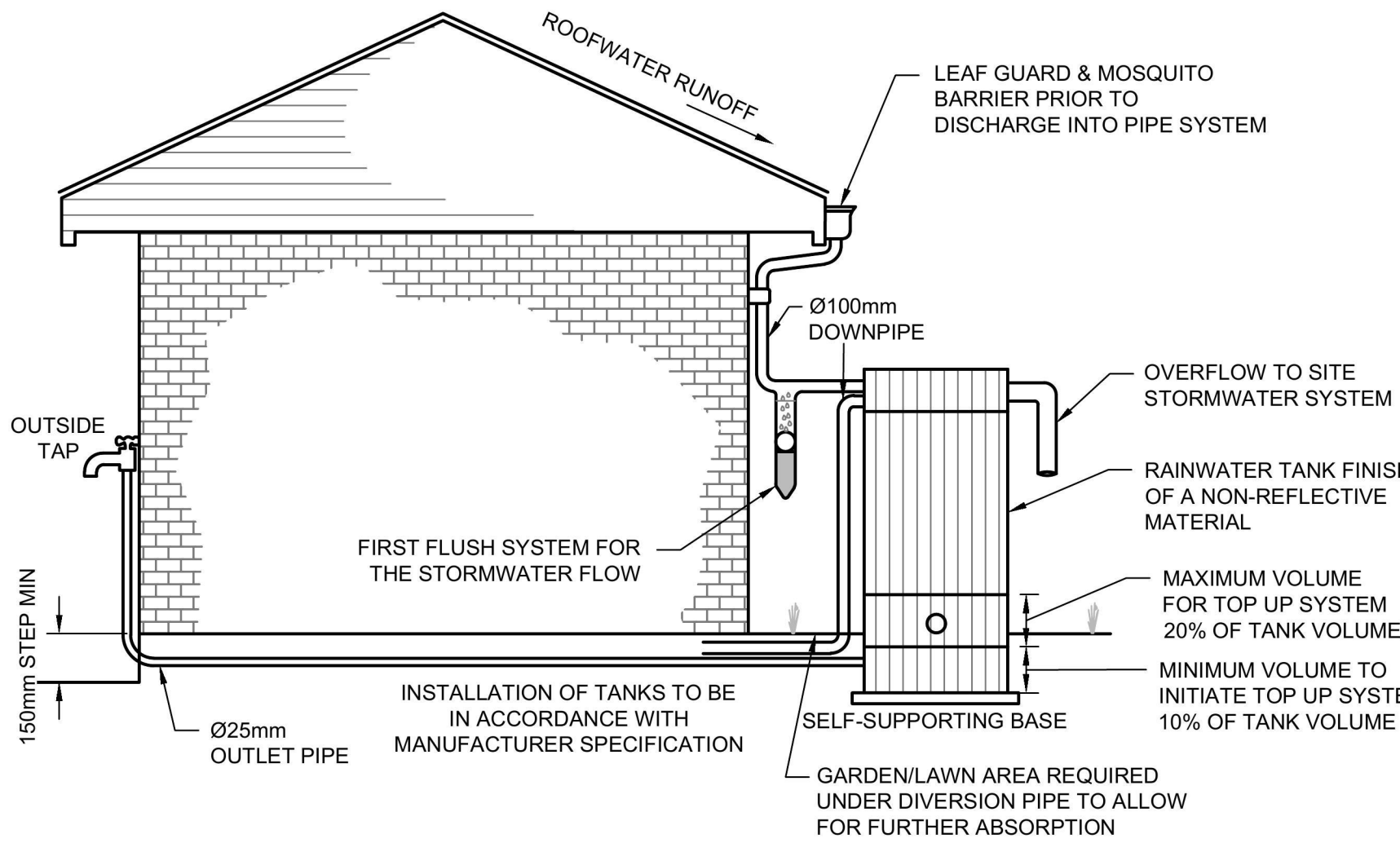
RAINWATER OUTLET DETAIL  
N.T.S.



SILT FENCE DETAIL  
N.T.S.

SILT FENCE NOTES:

1. FILTER CLOTH TO BE FASTENED SECURELY TO POSTS WITH GALVANISED WIRE TIES, STAPLES OR ATTACHMENT BELTS.
2. POSTS SHOULD NOT BE SPACED MORE THAN 3.0m APART.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 150mm AND FOLDED.
4. FOR EXTRA STRENGTH TO SILT FENCE, WOVEN WIRE (14mm GAUGE, 150mm MESH SPACING) TO BE FASTENED SECURELY BETWEEN FILTER CLOTH AND POSTS BY WIRE TIES OR STAPLES
5. INSPECTIONS SHALL BE PROVIDED ON A REGULAR BASIS, ESPECIALLY AFTER RAINFALL AND EXCESSIVE SILT DEPOSITS REMOVED WHEN "BULGES" DEVELOP IN SILT FENCE
6. SEDIMENT FENCES SHALL BE CONSTRUCTED WITH SEDIMENT TRAPS AND EMERGENCY SPILLWAYS AT SPACINGS NO GREATER THAN 40m ON FLAT TERRAIN DECREASING TO 20m SPACINGS ON STEEP TERRAIN.



RAINWATER TANK DETAIL  
N.T.S.

STORAGE TANK NOTES:

1. TANK WATER TAPS SHALL BE MARKED "RAINWATER NOT TO HUMAN CONSUMPTION".
2. RAINWATER TANKS SHALL BE CONNECTED TO MAINS WATER SUPPLY AS BACKUP.
3. THE PUMPS ARE TO BE INSULATED IN ACCORDANCE WITH COUNCIL POLICY.
4. PUMPS SHALL PROVIDE MINIMUM 150 kPa PRESSURE.
5. EACH TANK TO BE CONNECTED TO AN OUTDOOR TAP FOR IRRIGATION USE.
6. RAINWATER TANKS TO BE CLEANED OUT EVERY 6 MONTHS.
7. WATER TANK AND ASSOCIATED STRUCTURE TO BE THE SAME COLOR, OR A COLOR COMPLEMENTARY TO THE DWELLING.
8. TOP TANK TO BE BELOW TOP OF NEAREST FENCE, OR 1.8 METERS WHICHEVER IS LESS.
9. THE WATER TANK SHOULD BE LOCATED AT LEAST 900mm FROM ANY PROPERTY BOUNDARY
10. PLUMBING FROM THE WATER TANK IS TO BE KEPT SEPARATED FROM THE RETICULATED WATER SUPPLY SYSTEM.
11. TANK TO BE BUILT ON SELF-SUPPORTING BASE.
12. PROVIDE BACK-FLOW PREVENTION DEVICE AT MAINS WATER METER.
13. ROOF DRAINING TO TANK MUST NOT CONTAIN LEAD, TAR BASED PAINTS OR ASBESTOS.
14. WATER TO BE DRAWN FROM ANAEROBIC ZONE OF TANK.

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Client  
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Council  
**Penrith City Council**

Scale  
0 200 400 600mm  
SCALE 1:10 @ A1



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DEVELOPMENT APPLICATION**

Drawing Title  
**MISCELLANEOUS  
DETAILS SHEET**  
Scale A1 Project No. 180698 Dwg. No. 105 Issue A

NOT FOR CONSTRUCTION