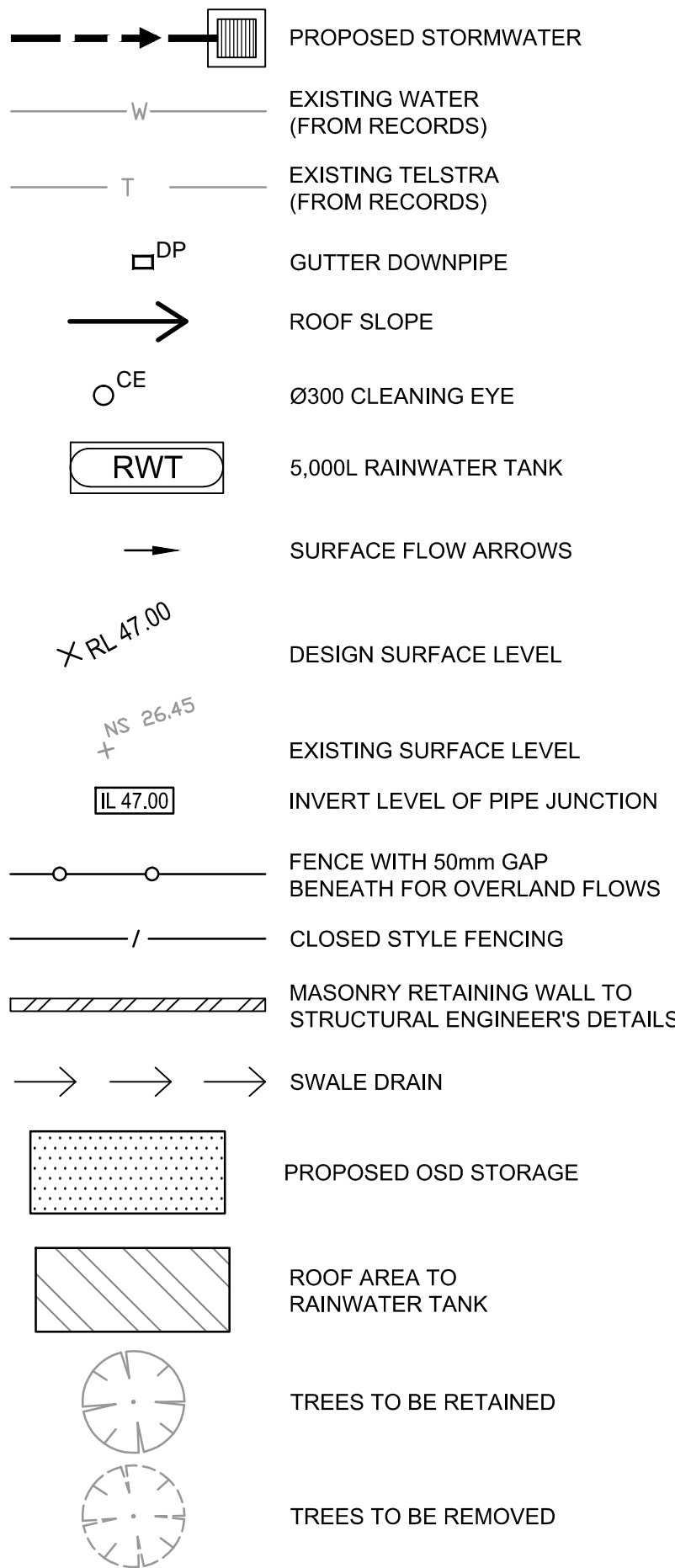


1 LARAPINTA PLACE, GLENHAVEN NSW

PROPOSED MOSQUE

STORMWATER CONCEPT PLANS

LEGEND



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.

LOCALITY PLAN

N.T.S

DRAWING INDEX

Drawing No.	DESCRIPTION
000	COVER SHEET, NOTES & LEGEND
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 DETAILS AND CALCULATION SHEETS SHEET 1 OF 2
105	ON-SITE DETENTION DETAILS AND CALCULATION SHEETS SHEET 2 OF 2
106	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

NOT FOR CONSTRUCTION

E	COUNCIL COMMENTS	03/06/2019	JTF	JAB
D	ARCHITECTURAL AMENDMENTS	01/02/2019	JTF	JAB
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Issue	Description	Date	Design	Checked

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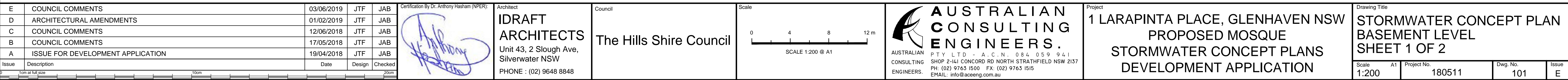
Council
The Hills Shire Council

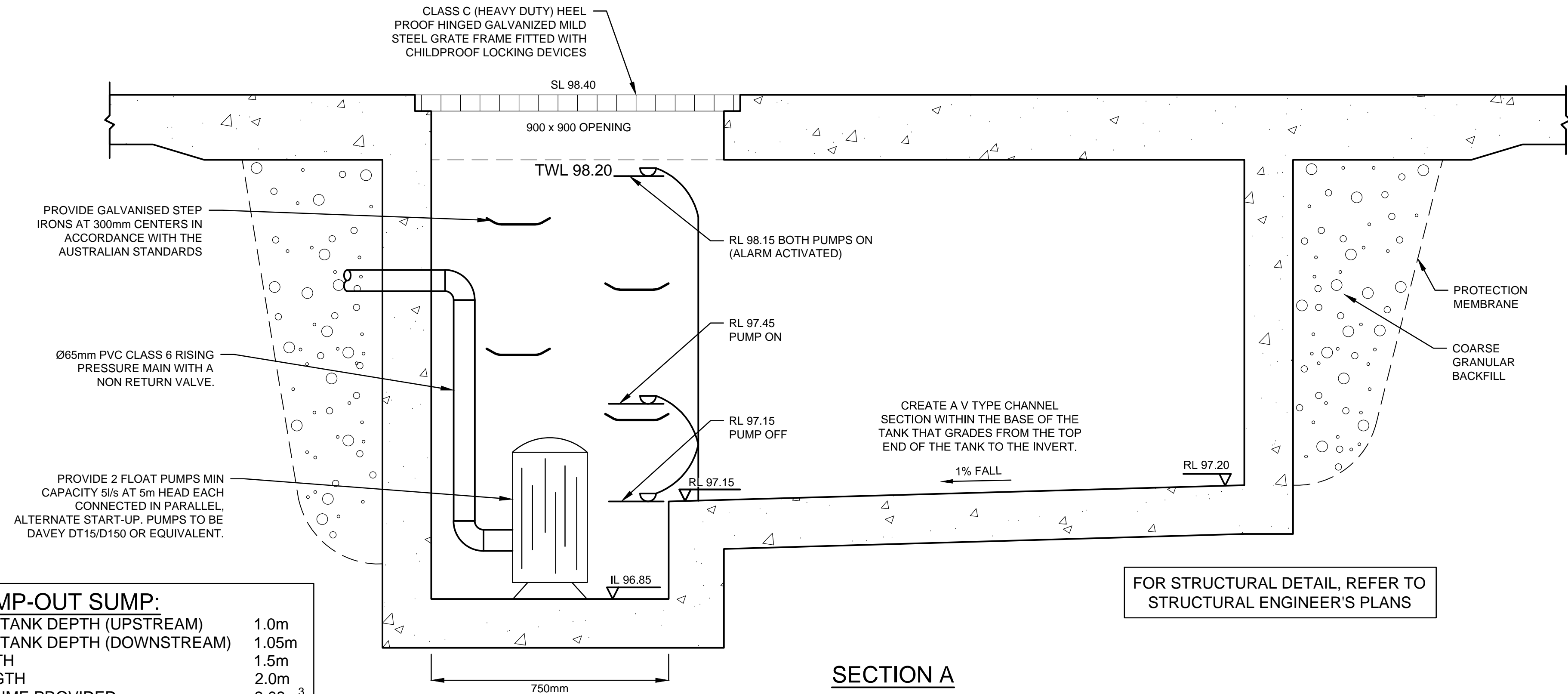
Scale

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Project
1 LARAPINTA PLACE, GLENHAVEN NSW
PROPOSED MOSQUE
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

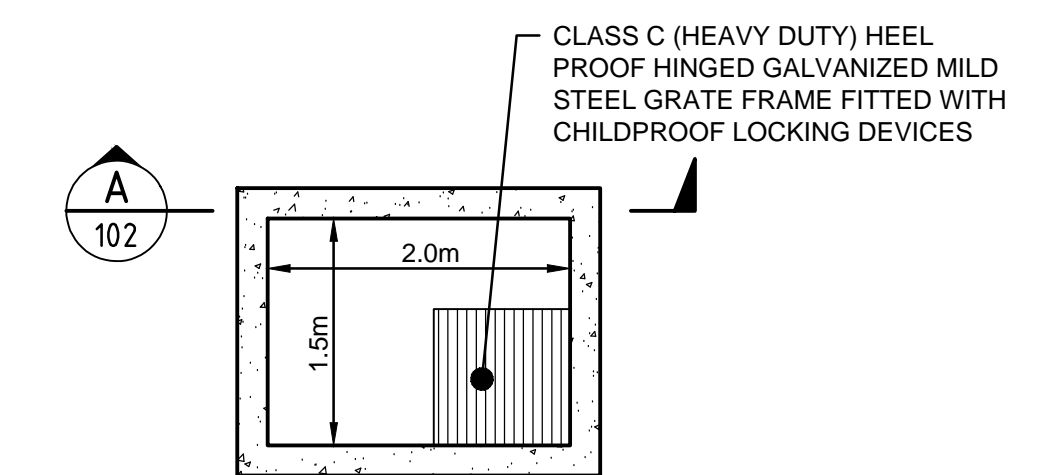
Drawing Title COVER SHEET, NOTES & LEGEND			
Scale N.T.S.	Project No. 180511	Dwg. No. 000	Issue E





PUMP-OUT SUMP:
MAX TANK DEPTH (UPSTREAM) 1.0m
MAX TANK DEPTH (DOWNSTREAM) 1.05m
WIDTH 1.5m
LENGTH 2.0m
VOLUME PROVIDED 3.08m³

SECTION A
STORMWATER PUMP-OUT SUMP
SCALE 1:10

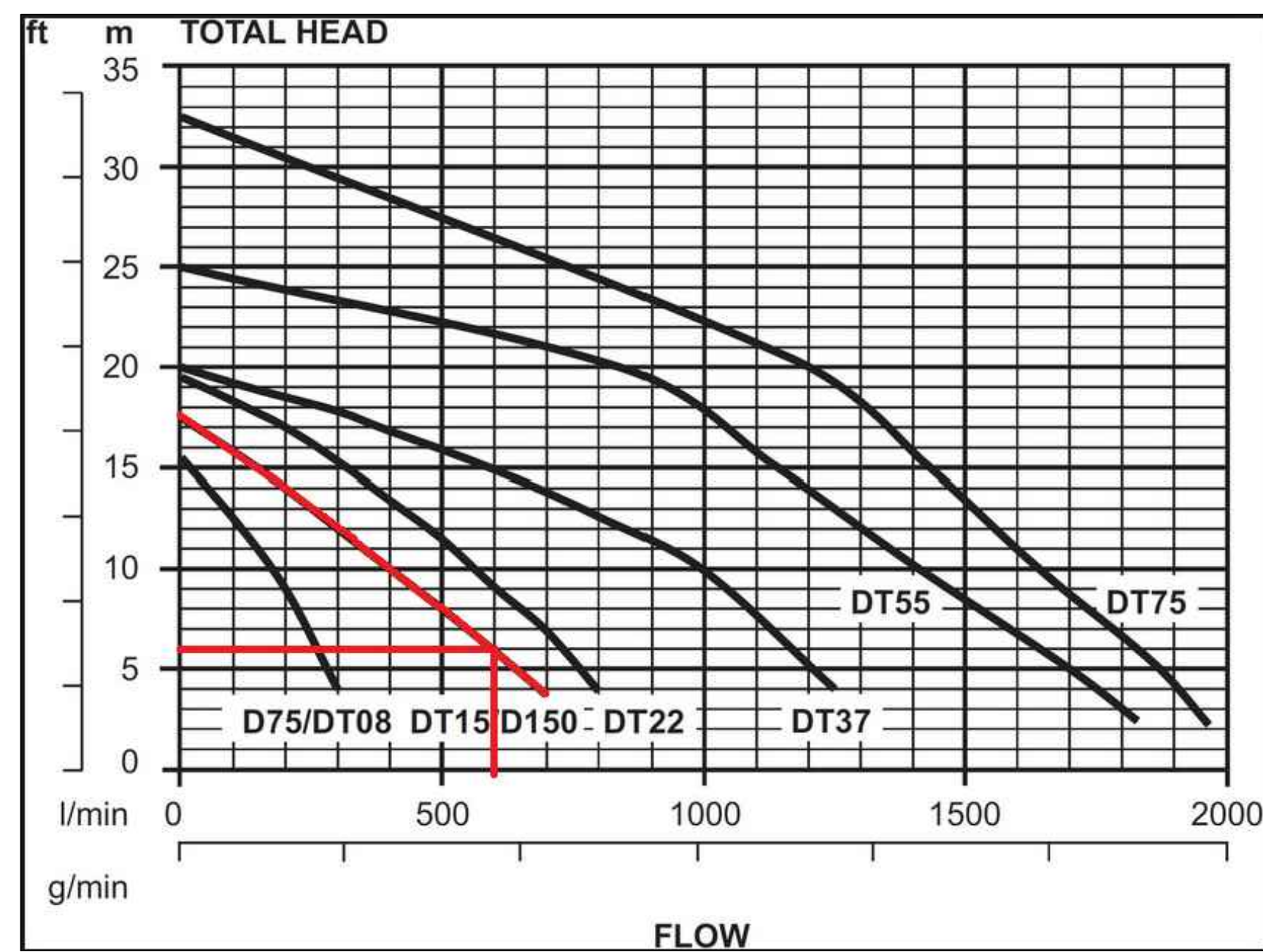


NOTE:
1- FOR ALL THE STRUCTURAL DETAILS, REFER TO STRUCTURAL ENGINEER'S PLAN.
2- ALL THE AG LINES BEHIND BASEMENT WALLS TO BE CONNECTED TO PUMP-OUT SUMP.

PUMP-OUT SUMP DETAIL
PLAN VIEW
SCALE 1:50

PUMP STORAGE VOLUME
CALCULATION

- $I_{100, 90 \text{ min}} = 56 \text{ mm/hour}$
- PUMP STORAGE CATCHMENT AREA: $A = 32.3 \text{ m}^2 = 0.00323 \text{ ha}$
- $Q = C \times I \times A / 360$ WHERE $C = 1.0$ (REFER TO AS3500.3.5.4.6 (a))
 $= 1.0 \times 56 \times 0.00323 / 360$
 $= 0.000502 \text{ m}^3/\text{s}$
 $= 0.502 \text{ L/s}$
- THEREFORE, THE PUMP HOLDING TANK VOLUME IS:
 $V = 0.5002 \times 1.5 \times 3600$
 $= 2.71 \text{ m}^3$
- TOTAL REQUIRED VOLUME IS 2.71 m^3



PUMP CALCULATIONS											
Project Address:	1 Larapinta Place, Glenhaven										
$HL = (3.35 \times 10^6 \times Q) / (d^{2.63} \times C)^{1.852}$ HL(m/100m), Q(L/s), d(mm)			$h1 = kv^2 / 2g$ k(cum), v(m/s), g=9.8(m/s ²)			$H(\text{total head}) = H_f + h1 + \text{Elevation Head (static head)}$					
d(mm) = 65			v(m/s) = 0.00			Elevation Head(m) = 5			Pipe Length(m) = 10		
			Bend Losses, Kb = 3.06			Hazen - Williams C = 145			Hazen-Williams Constant		
			Valve Losses, Kv = 2.13						125-140 Commercial steel pipe		
			Entry/Exit Losses, Ke = 5.00						135-140 Bitumen Lined Cast iron pipe		
			Cum Losses, K = 10.19						140-145 Copper Tube		
									145-150 PVC		
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	12.68
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	1.27
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	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	4.72
H(m)	=Hf+H1+Elevation Head	5.00	5.07	5.25	5.56	5.99	6.53	7.19	7.97	8.86	10.99

UNDERGROUND PUMP - OUT SUMP
STAGED STORAGE CALCULATIONS

DEPTH (mm)	AREA (m ²)	CUMULATIVE VOLUME (m ³)
0	3.0	0
100	3.0	0.225
200	3.0	0.525
300	3.0	0.825
400	3.0	1.125
500	3.0	1.425
600	3.0	1.725
700	3.0	2.025
800	3.0	2.325
900	3.0	2.625
1000	3.0	2.925
1050	3.0	3.075

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Issue	Description	Date	Design	Checked
10m at full size				
20m				

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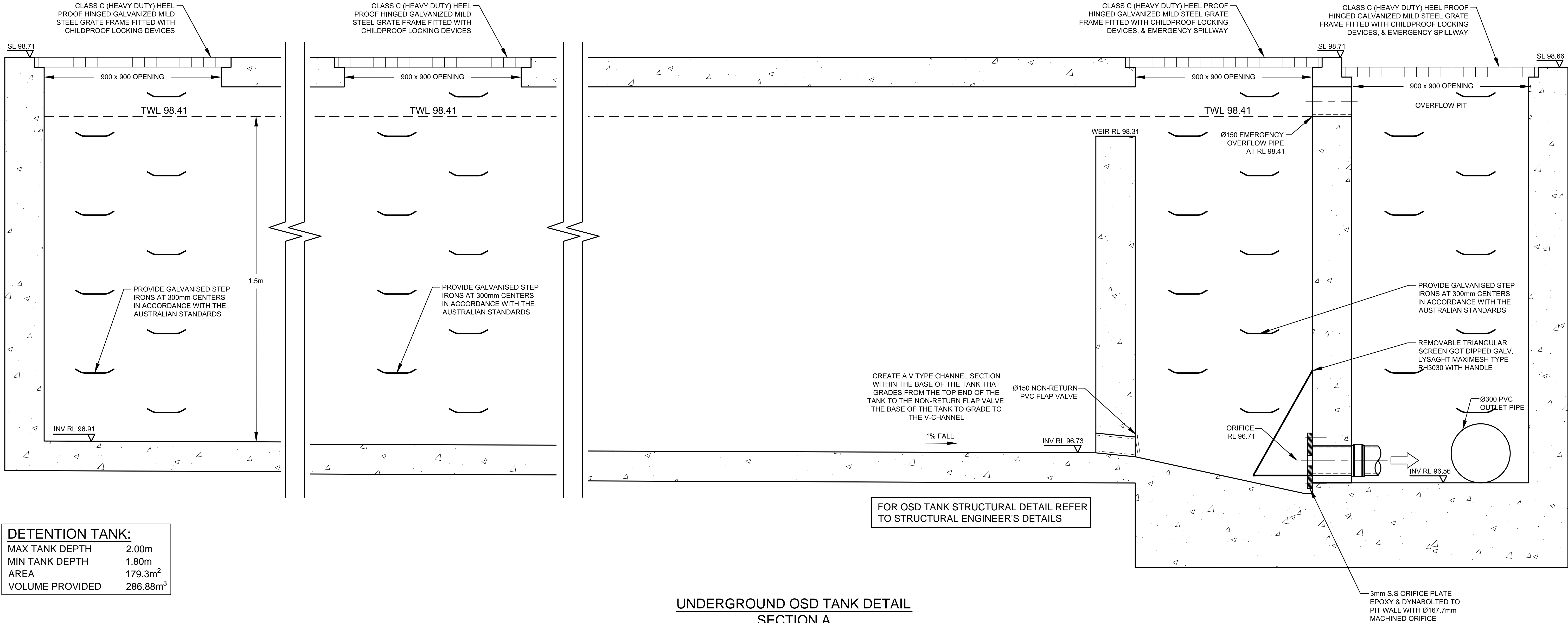
Council
The Hills Shire Council

Scale
0 200 400 600mm
SCALE 1:10 @ A1
0 1 2 3 m
SCALE 1:50 @ A1

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Project
1 LARAPINTA PLACE, GLENHAVEN NSW
PROPOSED MOSQUE
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
STORMWATER CONCEPT PLAN
BASEMENT LEVEL
SHEET 2 OF 2
Scale As Shown A1 Project No. 180511 Dwg. No. 102 Issue E



DETENTION TANK:	
MAX TANK DEPTH	2.00m
MIN TANK DEPTH	1.80m
AREA	179.3m ²
VOLUME PROVIDED	286.88m ³

UNDERGROUND OSD TANK DETAIL
SECTION A
SCALE 1:10

UNDERGROUND OSD TANK
STAGED STORAGE CALCULATIONS

DEPTH (mm)	AREA (m ²)	CUMULATIVE VOLUME (m ³)
0	179.3	0
200	179.3	17.93
300	179.3	35.86
400	179.3	53.79
500	179.3	71.72
600	179.3	89.65
800	179.3	125.51
1000	179.3	161.37
1200	179.3	197.23
1400	179.3	233.09
1600	179.3	268.95
1700	179.3	286.88

OSD CALCULATION:

SITE AREA = 7497.3m²
= 0.74973ha

SITE SLOPE = (103.85 - 97.21) / 84.8m = 7.8%

USING THE TABLE 4.14 OF DESIGN GUIDELINES:

PSD₁₀₀ = 104 l/s/ha
SSR₁₀₀ = 362 m³/ha

THEREFORE:

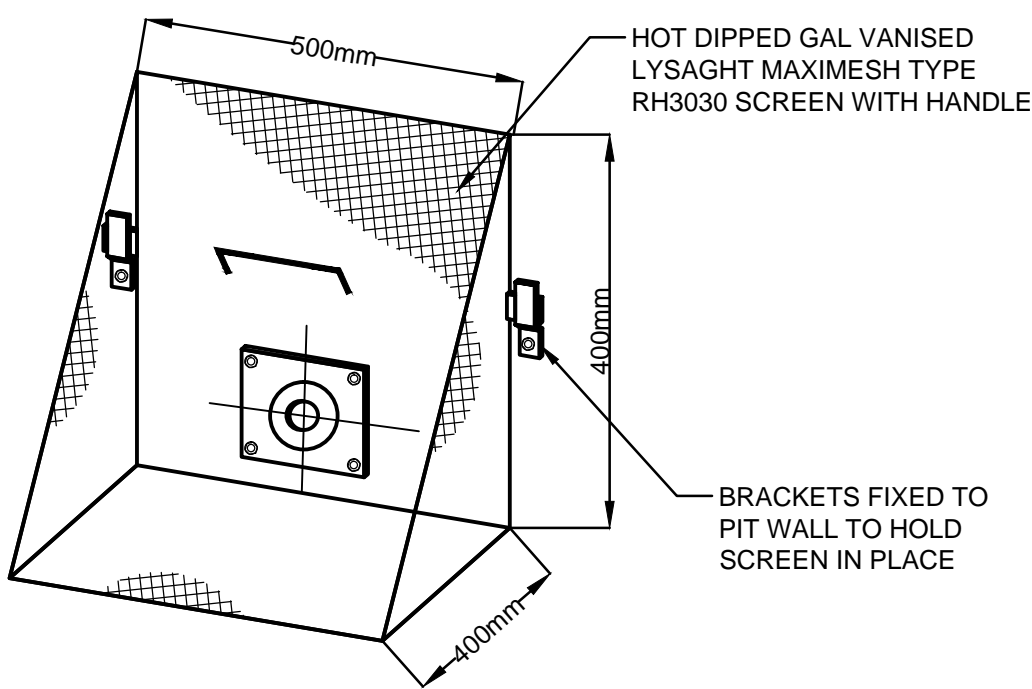
PSD₁₀₀ = 77.97 l/s
SSR₁₀₀ = 271.40m³

ORIFICE CALCULATION

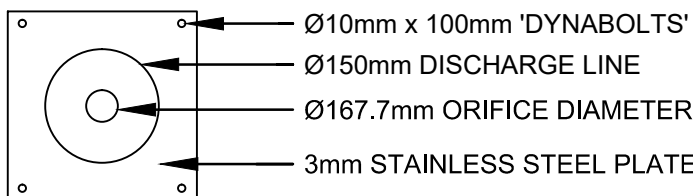
$$Q = C \times A \times (2 \times g \times h)^{0.5}$$

$$\begin{aligned} \text{SO: } A &= Q / (C \times \text{sqrt}(2 \times g \times h)) \\ &= 0.07797 / (0.61 \times \text{sqrt}(2 \times 9.81 \times 1.70)) \\ &= 0.0221\text{m}^2 \end{aligned}$$

$$\begin{aligned} \text{THEREFORE: } d &= \text{sqrt}(4 \times A / \pi) \\ &= \text{sqrt}(4 \times 0.0221 / 3.14159) \\ &= 167.7\text{mm} \end{aligned}$$



TRASH SCREEN DETAIL
N.T.S.



ORIFICE PLATE DETAIL
N.T.S.

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The Hills Shire Council

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

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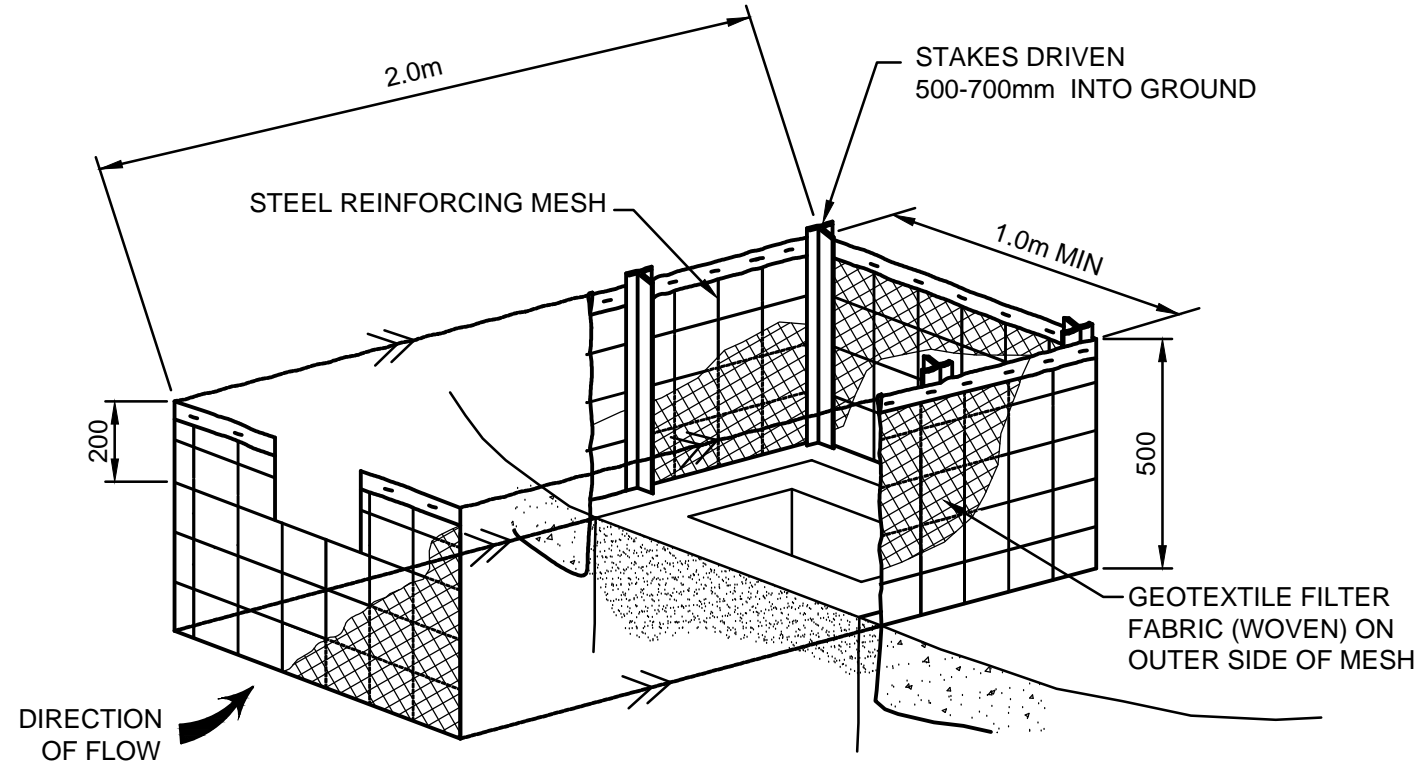
Project
1 LARAPINTA PLACE, GLENHAVEN NSW
PROPOSED MOSQUE
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION

Drawing Title
ON-SITE DETENTION DETAILS
AND CALCULATION SHEETS
SHEET 1 OF 2

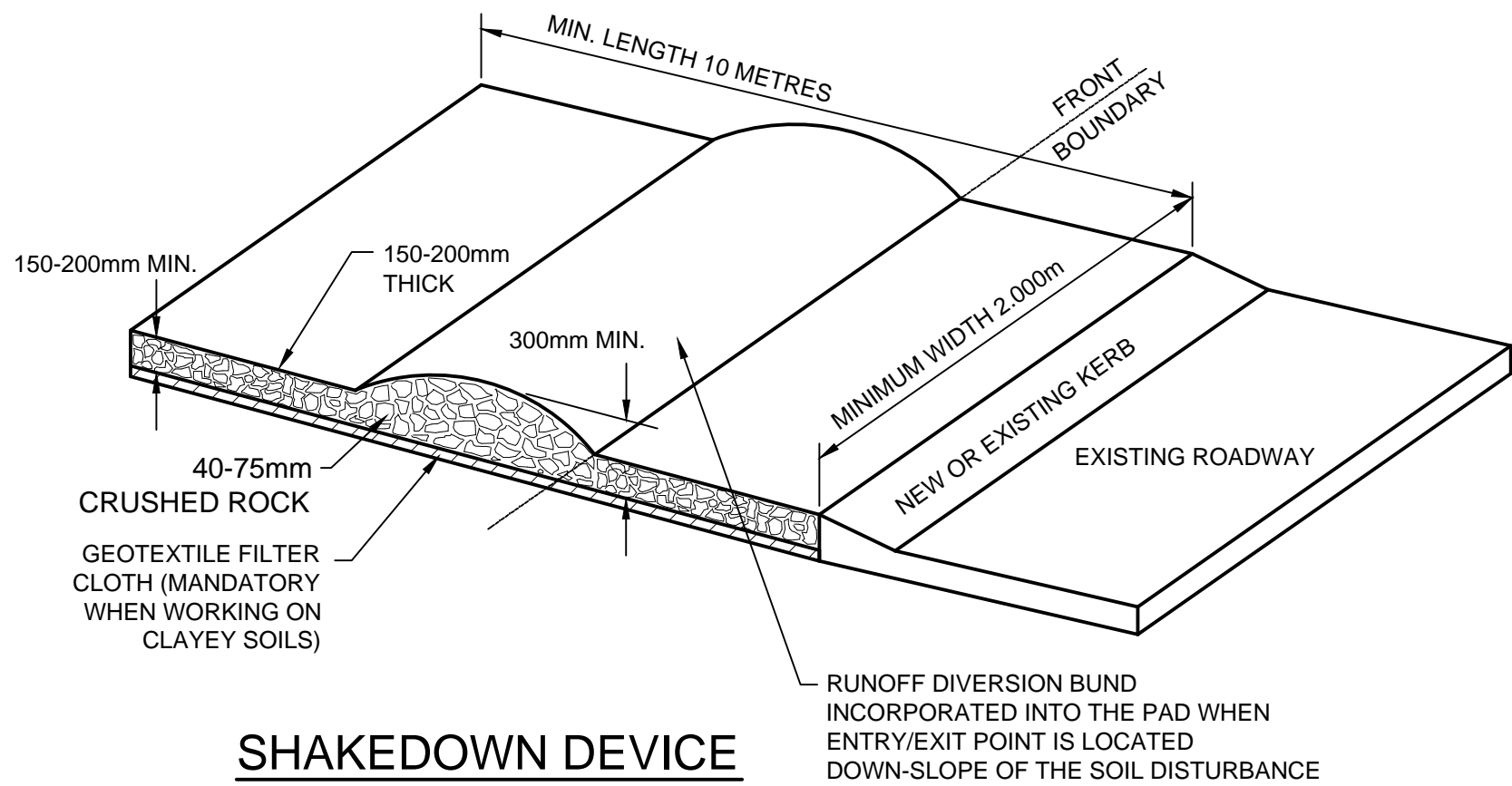
Scale 1:10	A1	Project No. 180511	Dwg. No. 104	Issue E
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SEDIMENT & EROSION NOTES

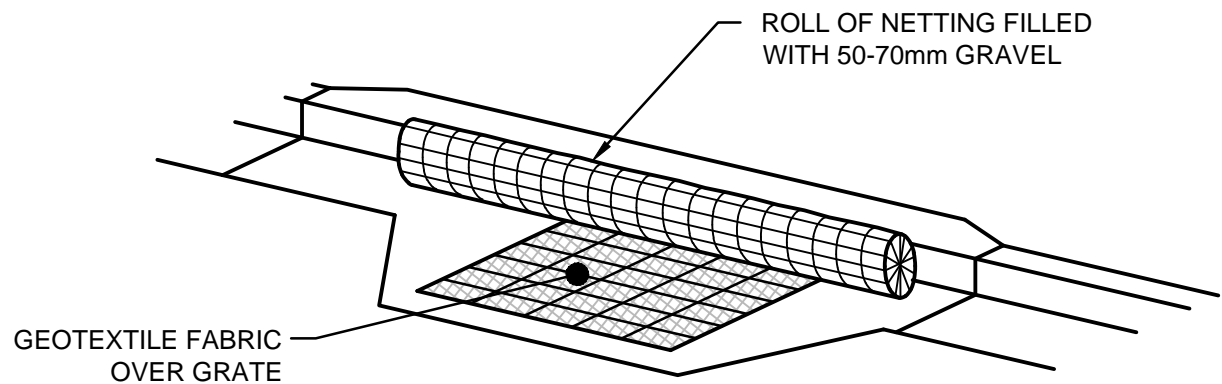
1. IMMEDIATELY FOLLOWING SETTING OUT OF THE WORKS, BUT PRIOR TO COMMENCEMENT OF ANY CLEARING OR EARTHWORKS, THE CONTRACTOR AND SUPERINTENDENT SHALL WALK THE SITE TO NOMINATE THE LOCATIONS AND TYPES OF SEDIMENT AND EROSION CONTROL MEASURES TO BE ADOPTED. THESE MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY 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.



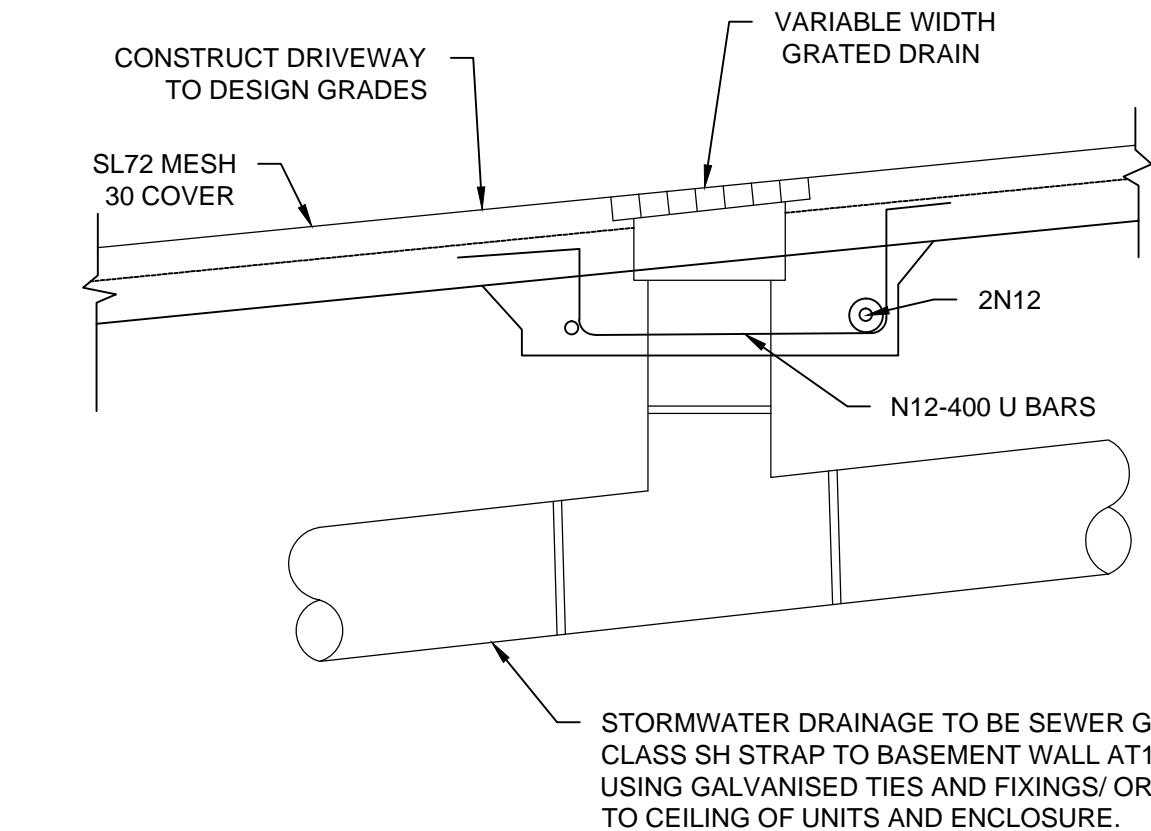
SHAKEDOWN DEVICE
N.T.S.



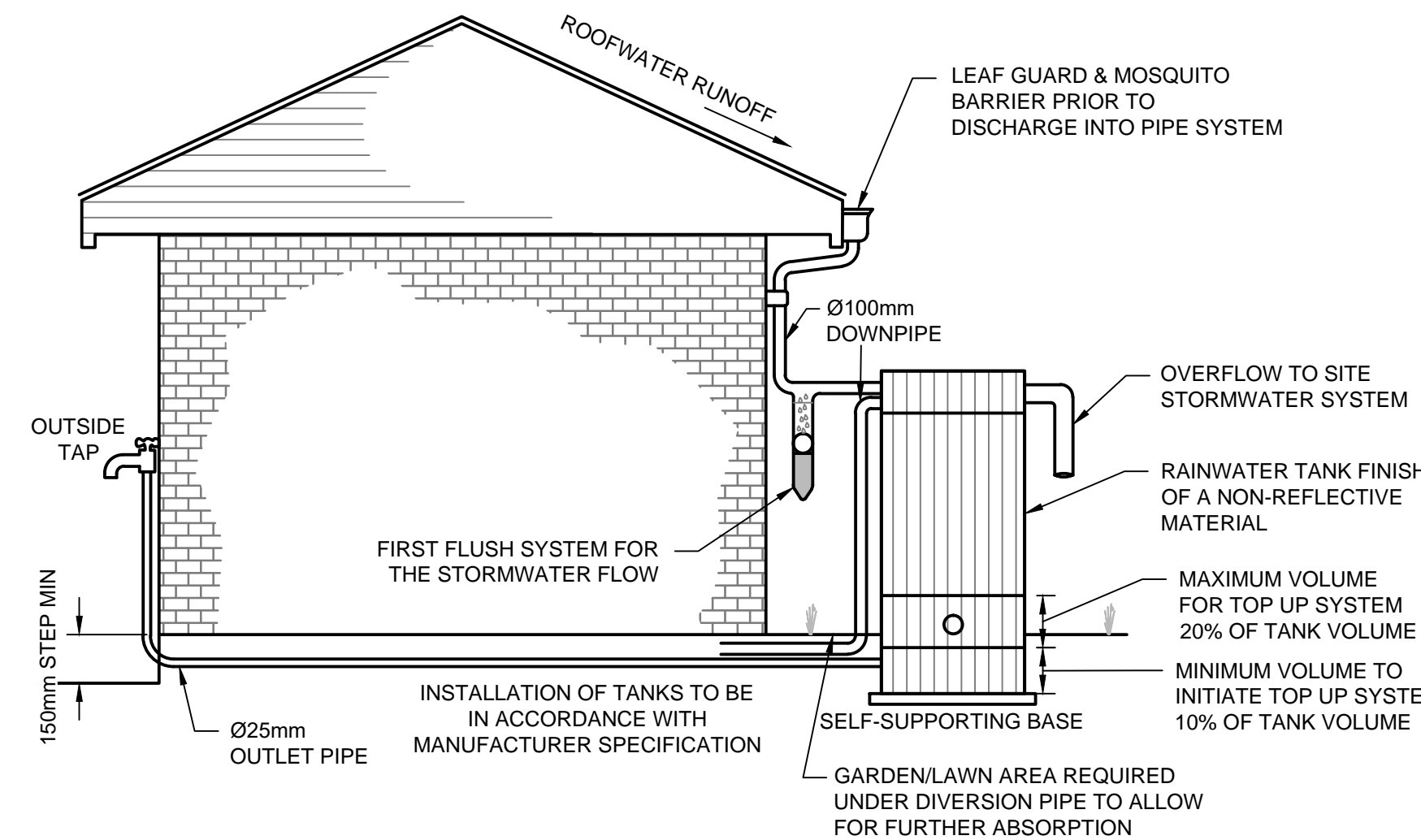
KERB INLET PROTECTION
SAG GULLIES
N.T.S.

STORAGE TANK NOTES:

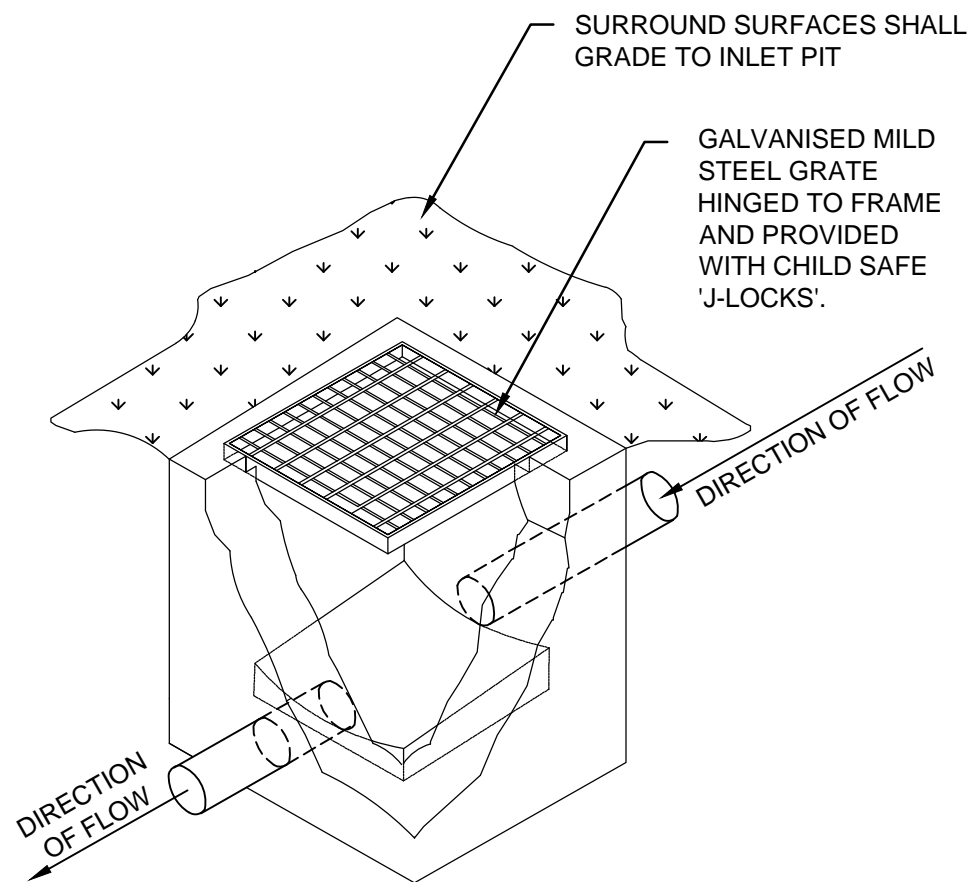
1. TANK WATER TAPS SHALL BE MARKED "RAINWATER NOT TO HUMAN CONSUMPTION".
2. RAINWATER TANKS SHALL BE CONNECTED TO MAINS WATER SUPPLY AS BACKUP.
3. THE PUMPS ARE TO BE INSULATED IN ACCORDANCE WITH COUNCIL POLICY.
4. PUMPS SHALL PROVIDE MINIMUM 150 kPa PRESSURE.
5. EACH TANK TO BE CONNECTED TO AN OUTDOOR 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.



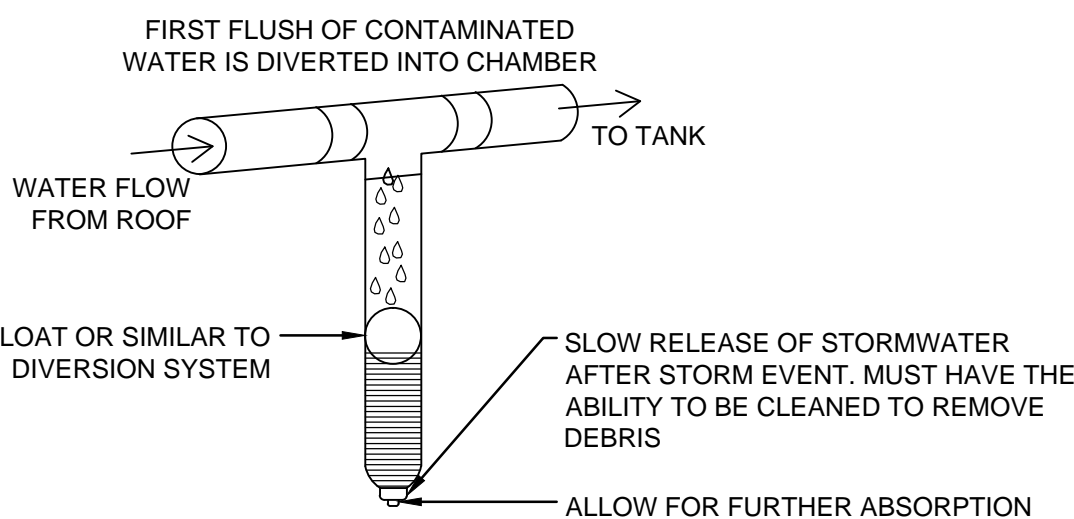
GRATED DRAIN DETAIL
N.T.S.



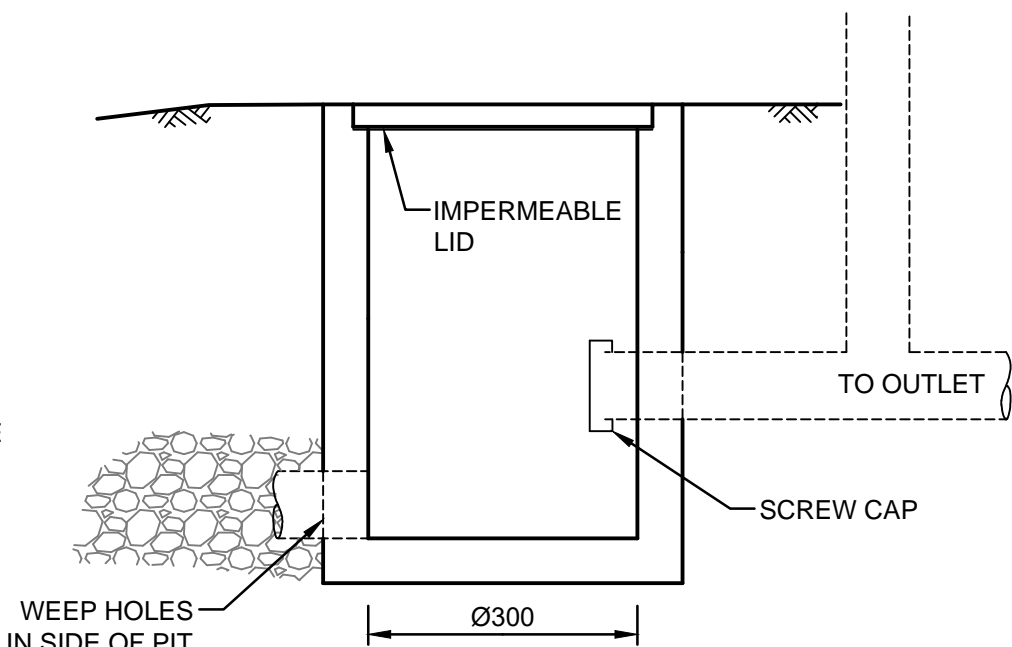
RAINWATER TANK DETAIL
N.T.S.



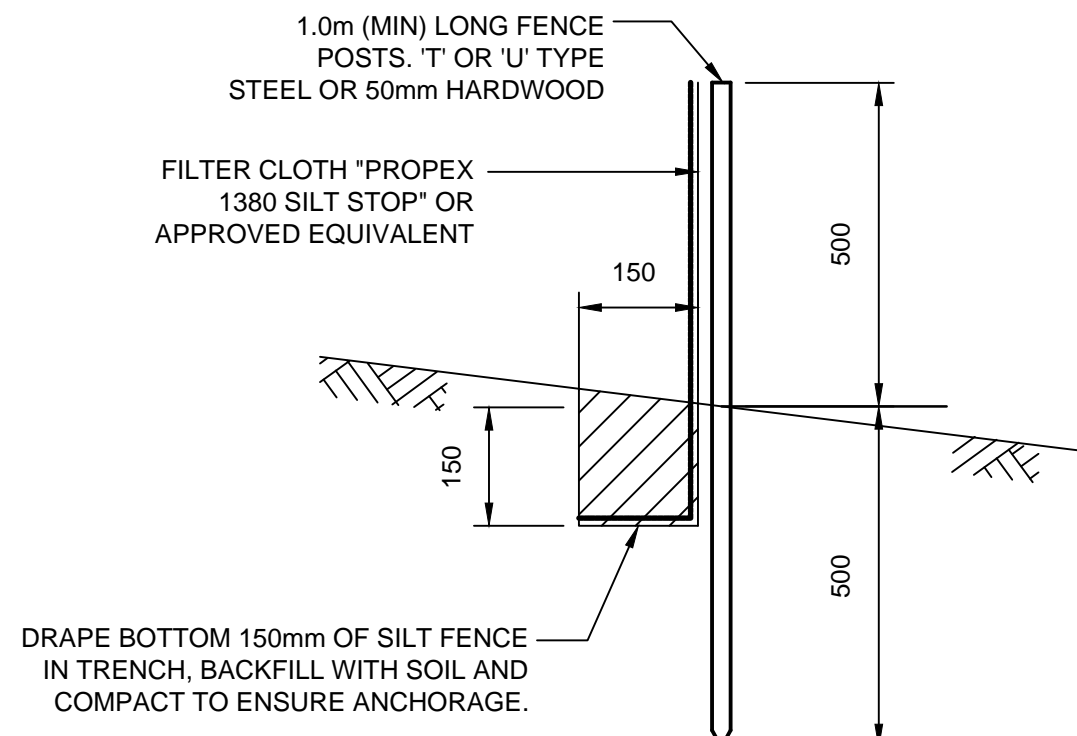
TYPICAL GRATED
INLET PIT DETAIL
N.T.S.



FIRST FLUSH WATER
DIVERTER DETAIL
N.T.S.



CLEANING EYE DETAIL
N.T.S.



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.

NOT FOR CONSTRUCTION

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1	From at full size	100m		200m

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Council
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Scale
0 4 8 12 m
SCALE 1:200 @ A1

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Project
**1 LARAPINTA PLACE, GLENHAVEN NSW
PROPOSED MOSQUE
STORMWATER CONCEPT PLANS
DEVELOPMENT APPLICATION**

Drawing Title MISCELLANEOUS DETAILS SHEET	Scale As Shown	Project No. 180511	Dwg. No. 106	Issue E
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