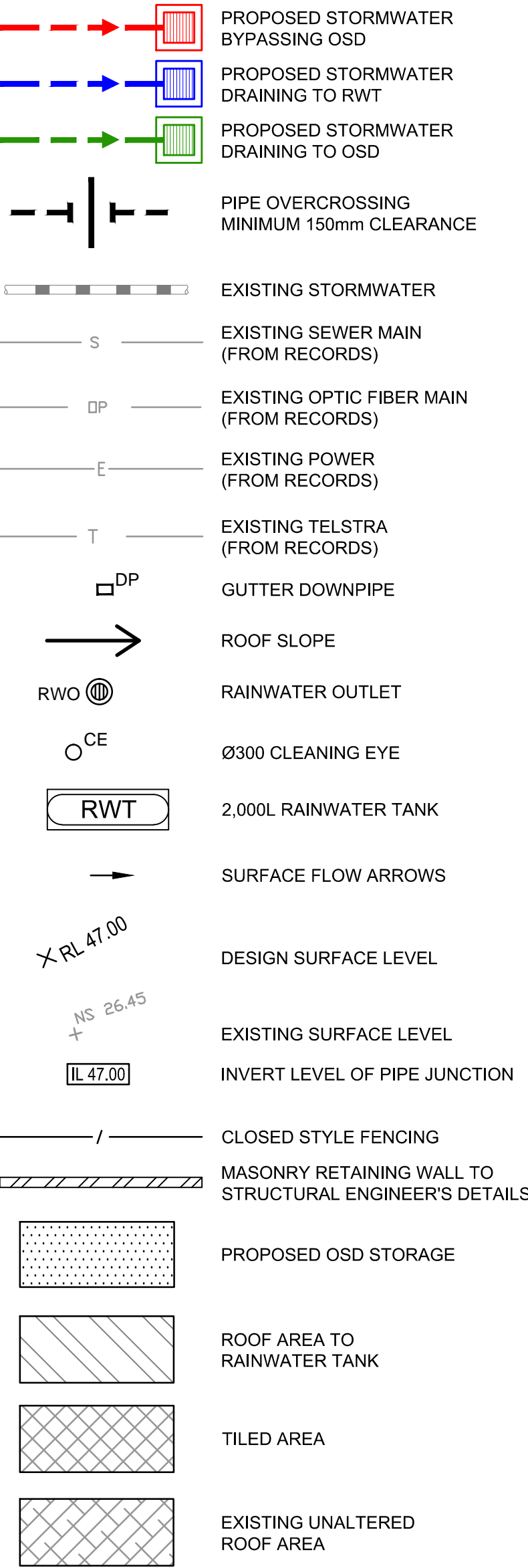


61 RINGROSE AVENUE, GREYSTANES

PROPOSED DUAL OCCUPANCY

STORMWATER MANAGEMENT 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 WALLS FORMING THE DETENTION BASINS SHALL BE CONSTRUCTED WHOLLY WITHIN THE PROPERTY BOUNDARIES OF THE SITE BEING DEVELOPED.
- OSD WARNING SIGN AND SAFETY FENCING SHALL BE PROVIDED TO ABOVE GROUND OSD STORAGE AREA IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
- ENSURE THAT NON FLOATABLE MULCH IS USED IN DETENTION BASINS, ie, USE DECORATIVE ROCK MULCH OR EQUIVALENT.
- 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.

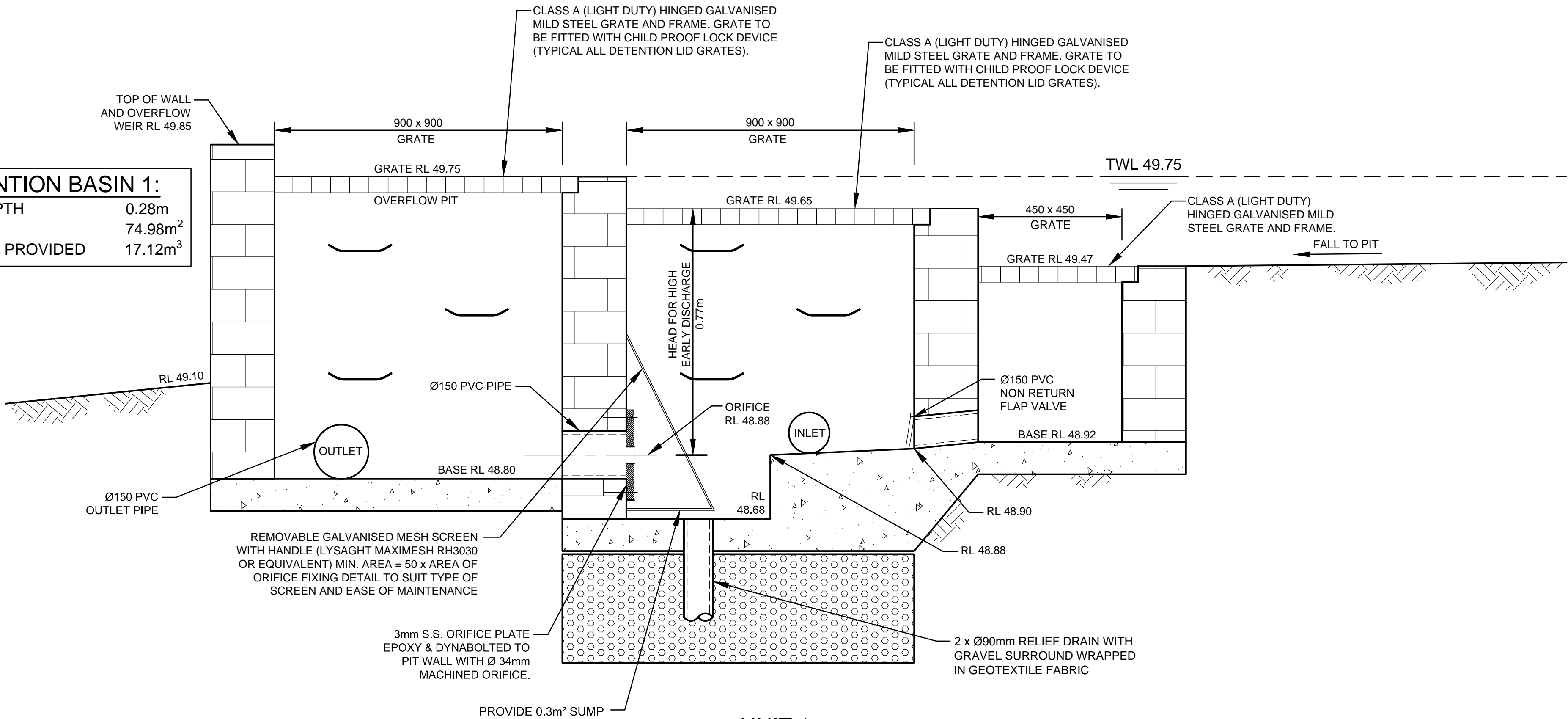
DRAWING INDEX

Drawing No.	DESCRIPTION
000	COVER SHEET, NOTES & LEGEND
101	STORMWATER LAYOUT PLAN GROUND LEVEL
102	ON-SITE DETENTION DETAILS AND CALCULATION SHEET
103	MISCELLANEOUS DETAILS SHEET

NOT FOR CONSTRUCTION

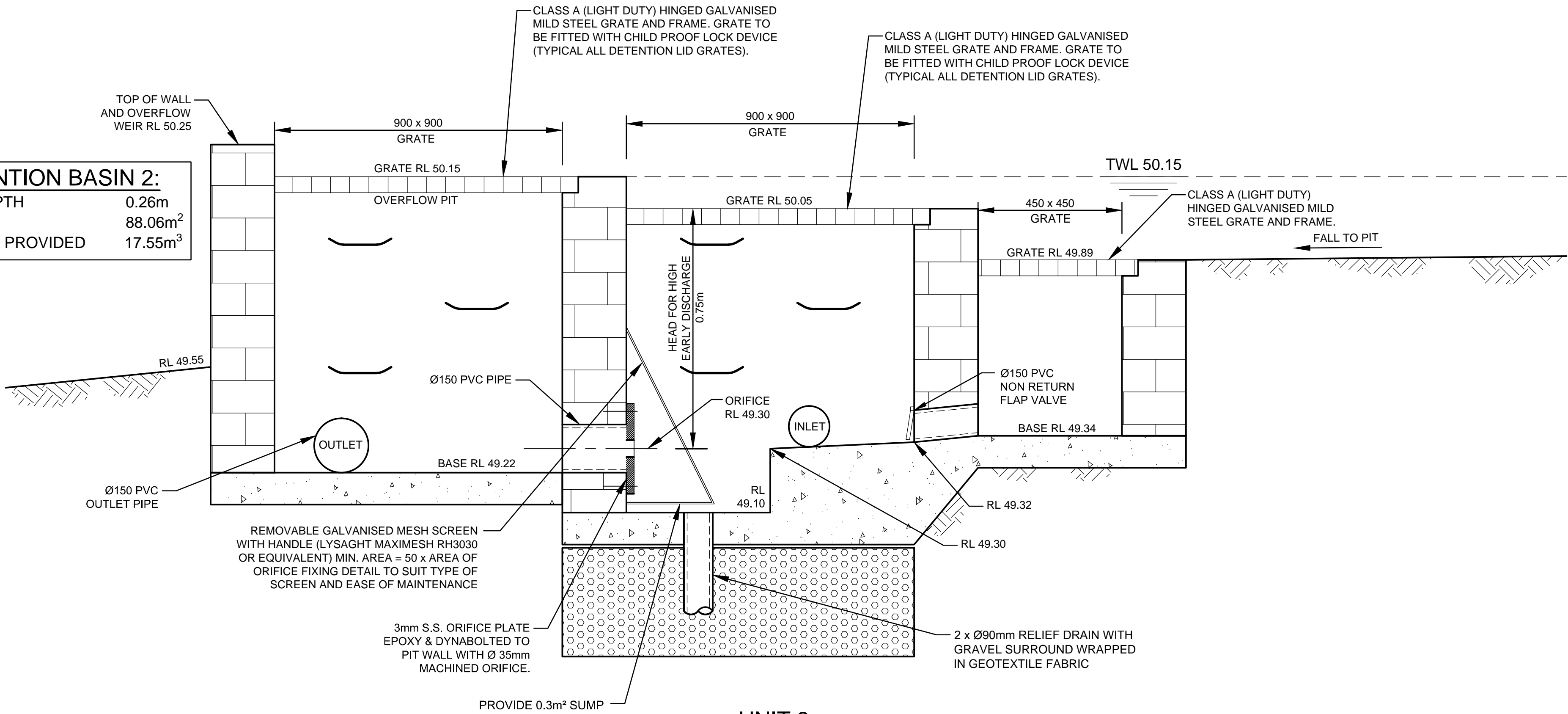
				Certification By Dr. Anthony Hasham (NPER)		Architect		Council		Scale		 AUSTRALIAN CONSULTING ENGINEERS. PTY LTD - A.C.N. 084 059 941 SHOP 2-141 CONCORD RD NORTH STRATHFIELD NSW 2137 PH: (02) 9763 1500 FX: (02) 9763 1515 EMAIL: info@aceeng.com.au		Project 61 RINGROSE AVENUE, GREYSTANES PROPOSED DUAL OCCUPANCY STORMWATER MANAGEMENT PLANS DEVELOPMENT APPLICATION		Drawing Title COVER SHEET, NOTES & LEGEND	
						Designcorp 16 dunlop street north parramattaNSW 2151 PHONE : +61 2 9630 9911 Email :admin@designcorp.com.au.		Cumberland City Council									
A		ISSUE FOR DEVELOPMENT APPLICATION		19/12/2018		JMH		JAB									
Issue		Description		Date		Design		Checked									
0		10m at full size		100m		200m											

DETENTION BASIN 1:	
MAX DEPTH	0.28m
AREA	74.98m ²
VOLUME PROVIDED	17.12m ³



UNIT 1
ON-SITE DETENTION &
DISCHARGE CONTROL PIT DETAIL
SCALE 1:10

DETENTION BASIN 2:	
MAX DEPTH	0.26m
AREA	88.06m ²
VOLUME PROVIDED	17.55m ³



UNIT 2
ON-SITE DETENTION &
DISCHARGE CONTROL PIT DETAIL
SCALE 1:10

ABOVEGROUND OSD BASIN 1 STAGED STORAGE CALCULATIONS

DEPTH (mm)	AREA (m ²)	CUMULATIVE VOLUME (m ³)
0	74.98	0
90	74.98	3.3741
100	74.98	4.1239
200	74.98	11.6219
280	74.98	17.6203

AN ADDITIONAL STORAGE ALLOWANCE OF 0.5m³ HAS BEEN MADE TO COMPENSATE FOR THE OVERFLOW PIT.

AN ADDITIONAL STORAGE ALLOWANCE OF 3.45m³ (25%) HAS BEEN MADE TO COMPENSATE FOR POSSIBLE FUTURE GROWTH OF PLANTS.



ORIFICE PLATE 1 DETAIL
N.T.S.

ABOVEGROUND OSD BASIN 2 STAGED STORAGE CALCULATIONS

DEPTH (mm)	AREA (m ²)	CUMULATIVE VOLUME (m ³)
0	88.06	0
110	88.06	4.8433
200	88.06	12.7687
260	88.06	18.0523

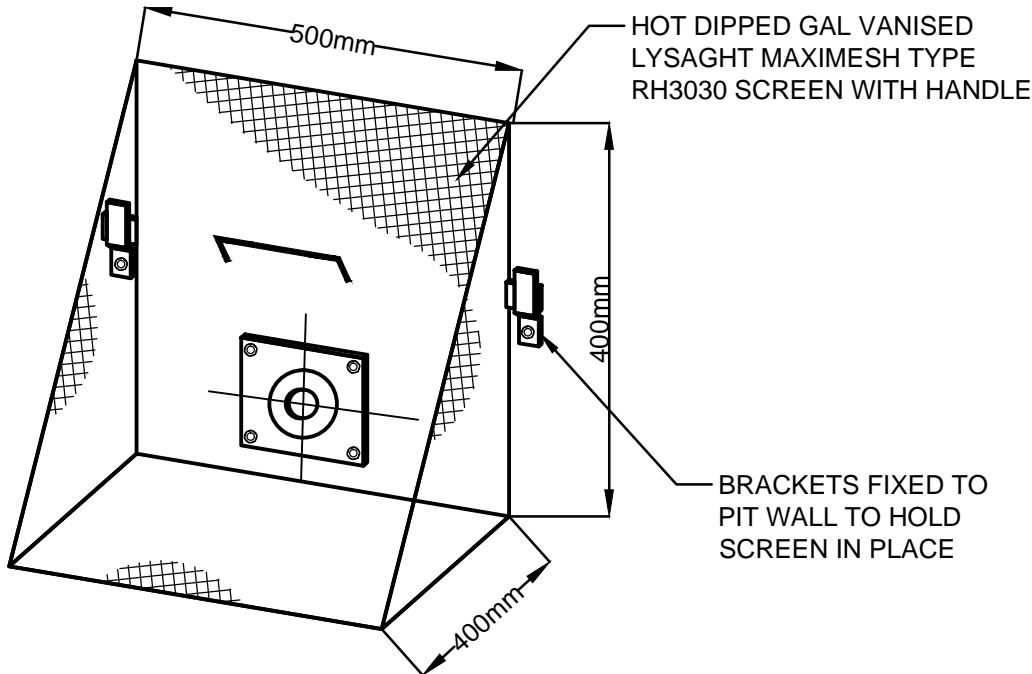
AN ADDITIONAL STORAGE ALLOWANCE OF 0.5m³ HAS BEEN MADE TO COMPENSATE FOR THE OVERFLOW PIT.

AN ADDITIONAL STORAGE ALLOWANCE OF 3.2m³ (22%) HAS BEEN MADE TO COMPENSATE FOR POSSIBLE FUTURE GROWTH OF PLANTS.



ORIFICE PLATE 2 DETAIL
N.T.S.

CUMBERLAND CITY COUNCIL On-Site Detention Calculation Sheet			
Project:	ACE181658.SW.DA	Lot No. 4	
Location:	Unit 1 - 61 Ringrose Avenue, Greystanes	DP No. 31284	
Designer:	Joe Bacha	D.A. No.	
Phone:	02 9763 1500		
OSD Area:	Front Lot	UPRCT	UPRCT
Site Area		0.028	0.028
Basic Storage Volume	13.29	13.29	
Basic Discharge	2.26	2.26	
Area of Site to Storage	0.028	100%	0.028 100%
Percentage of Site	100.00	100.00	
Storage per ha of contributing area	470.00	470.00	
Volume/PSD Adjustment	80.15	80.15	
PSD for site	2.26	2.26	
Maximum Head to Orifice Centre	0.870	0.870	
Calculated Orifice Diameter	0.034	0.034	
Maximum discharge	2.265	2.265	
Head for high early discharge	0.770	0.770	
High Early Discharge	2.131	94%	2.132 94%
Mean Discharge	2.198		2.199
Average Discharge per Hectare	77.708		77.755
Final Site Storage Ratio	483		483
Site Storage Volume	13.67		13.6
Volume Provided	17.12	125%	17.10 125%
Checked By:	Joe Bacha		
Date Checked:	18-Dec-18		
OSD Plan Number:	101-103		



TRASH SCREEN DETAIL
N.T.S.

CUMBERLAND CITY COUNCIL On-Site Detention Calculation Sheet			
Project:	ACE181658.SW.DA	Lot No. 4	
Location:	Unit 2 - 61 Ringrose Avenue, Greystanes	DP No. 31284	
Designer:	Joe Bacha	D.A. No.	
Phone:	02 9763 1500		
OSD Area:	Front Lot	UPRCT	UPRCT
Site Area		0.030	0.030
Basic Storage Volume	13.94	13.94	
Basic Discharge	2.37	2.37	
Area of Site to Storage	0.030	100%	0.030 100%
Percentage of Site	100.00	100.00	
Storage per ha of contributing area	470.00	470.00	
Volume/PSD Adjustment	80.15	80.15	
PSD for site	2.38	2.38	
Maximum Head to Orifice Centre	0.850	0.850	
Calculated Orifice Diameter	0.035	0.035	
Maximum discharge	2.376	2.377	
Head for high early discharge	0.750	0.750	
High Early Discharge	2.232	94%	2.133 94%
Mean Discharge	2.304		2.105
Average Discharge per Hectare	77.650		77.198
Final Site Storage Ratio	483		483
Site Storage Volume	14.35		14.4
Volume Provided	17.55	122%	17.50 122%
Checked By:	Joe Bacha		
Date Checked:	18-Dec-18		
OSD Plan Number:	101-103		

NOT FOR CONSTRUCTION

Issue	Description	Date	Design	Checked
A	ISSUE FOR DEVELOPMENT APPLICATION	19/12/2018	JMH	JAB

Certification By Dr. Anthony Hasham (NPER)	Architect

Designcorp
16 dunlop street
north parramattaNSW 2151
PHONE : +61 2 9630 9911
Email : admin@designcorp.com.au.

Council
Cumberland City Council

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

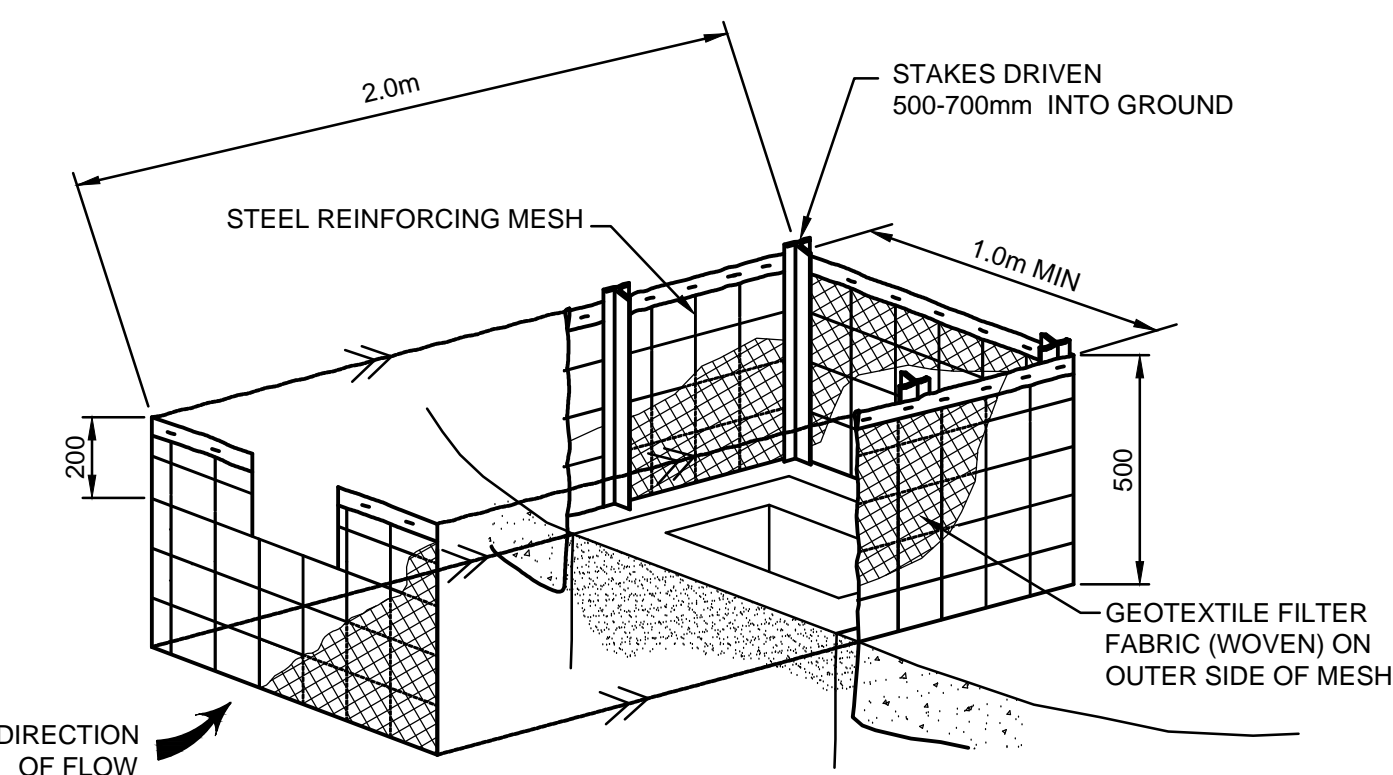
AUSTRALIAN CONSULTING ENGINEERS.
PTY LTD - A.C.N. 084 059 941
SHOP 2-161 CONCORD RD NORTH STRATHFIELD NSW 2137
PH: (02) 9763 1500 FX: (02) 9763 1515
EMAIL: info@aceeng.com.au

Project
61 RINGROSE AVENUE, GREYSTANES
PROPOSED DUAL OCCUPANCY
STORMWATER MANAGEMENT PLANS
DEVELOPMENT APPLICATION

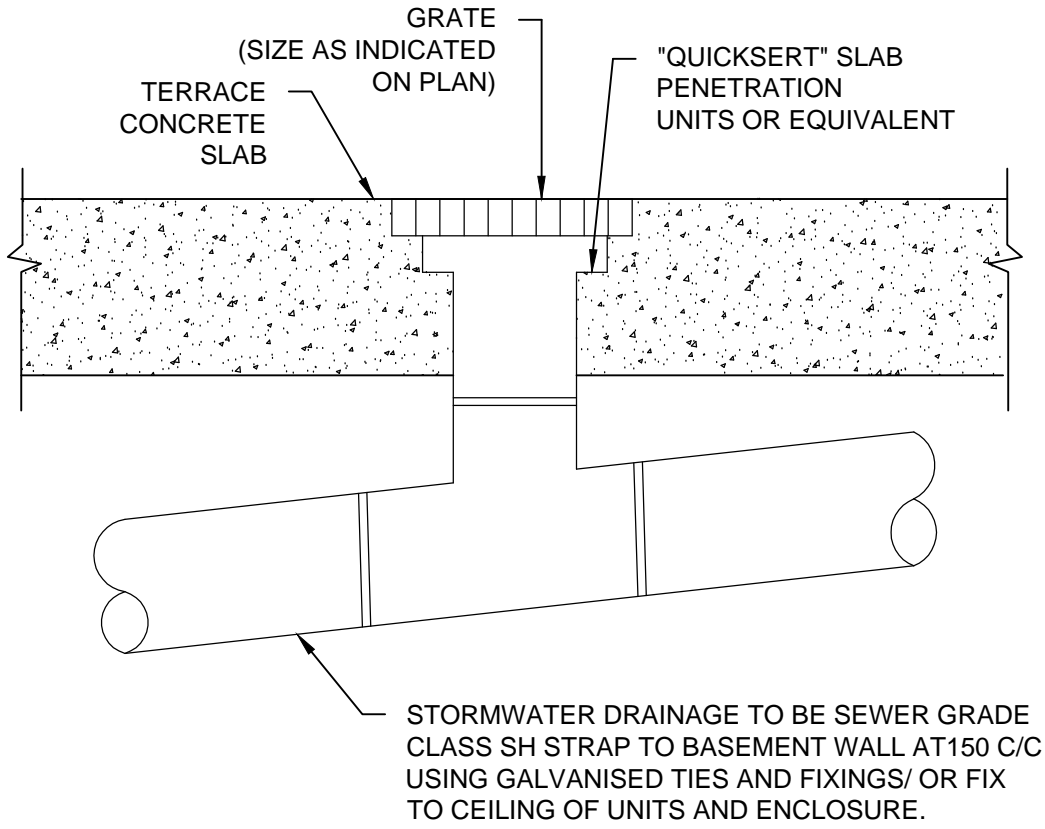
Drawing Title
ON-SITE DETENTION DETAILS AND CALCULATION SHEET
Scale A1
Project No. 181658
Dwg. No. 102
Issue A

SEDIMENT & EROSION NOTES

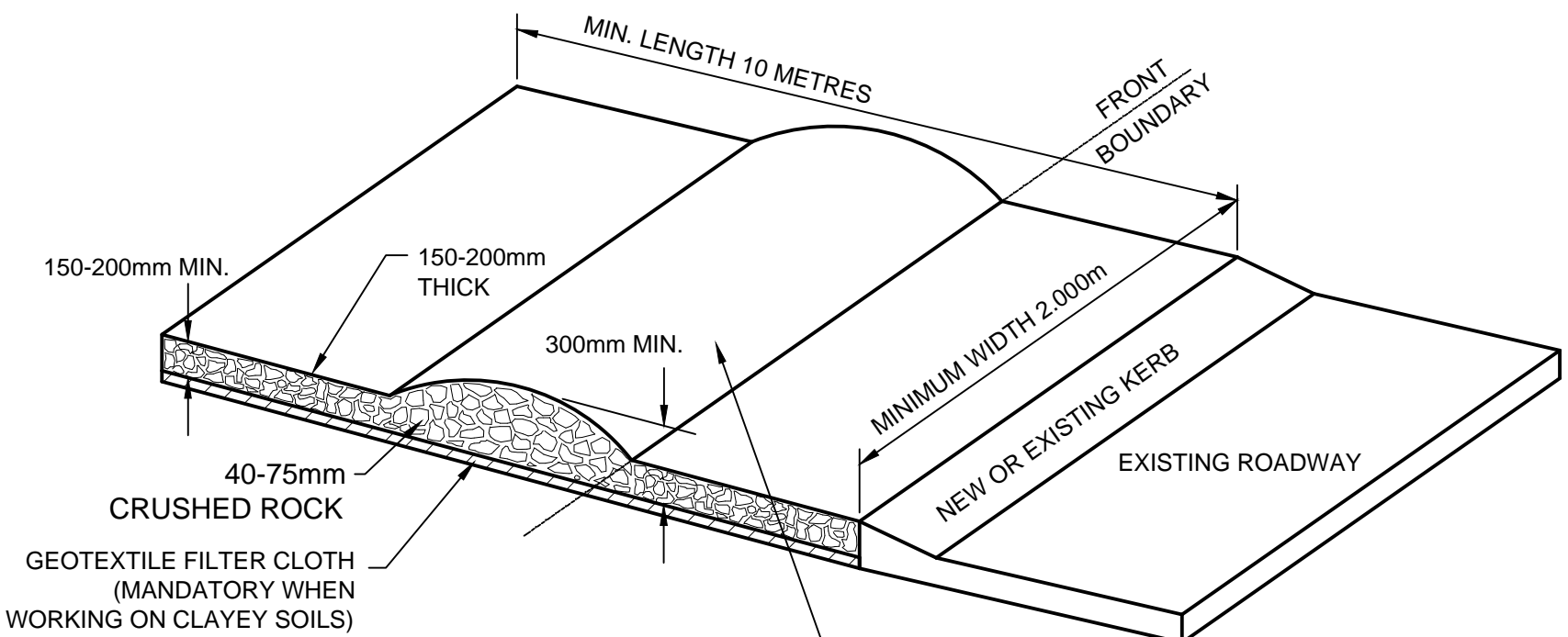
1. IMMEDIATELY FOLLOWING SETTING OUT OF THE WORKS, BUT PRIOR TO COMMENCEMENT OF ANY CLEARING OR EARTHWORKS, THE CONTRACTOR AND SUPERINTENDENT SHALL WALK THE SITE TO NOMINATE THE LOCATIONS AND TYPES OF SEDIMENT AND EROSION CONTROL MEASURES TO BE ADOPTED. THESE MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY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



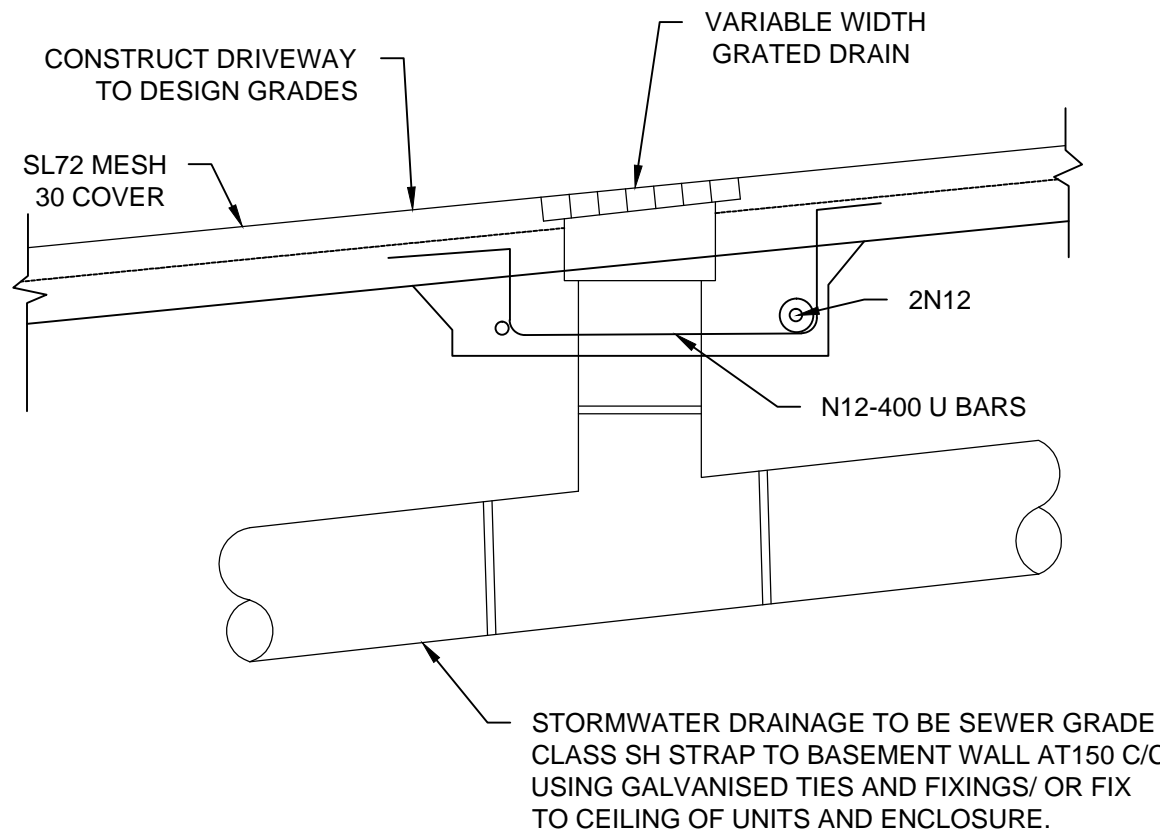
FIELD INLET SEDIMENT TRAP
N.T.S.



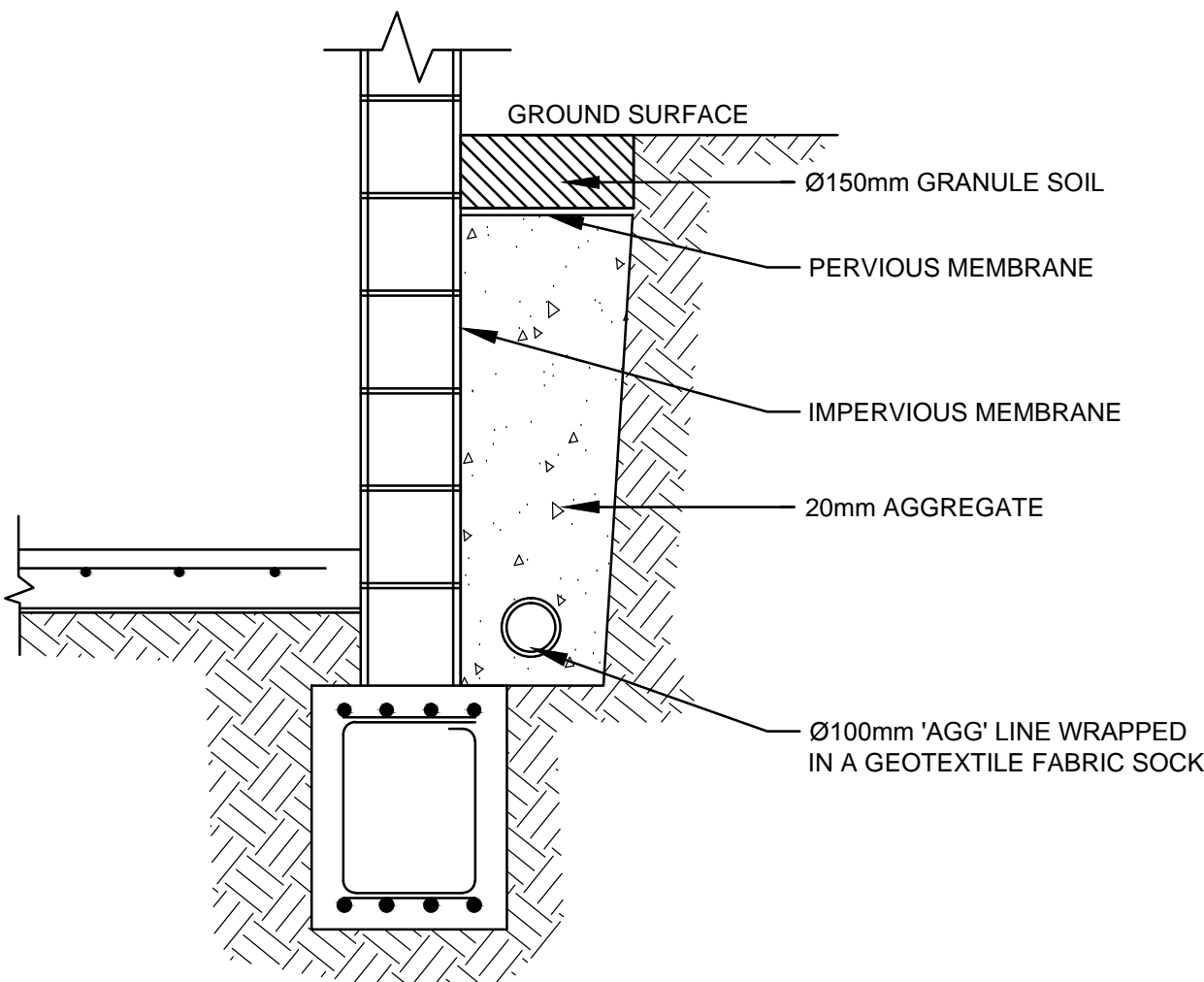
RAINWATER OUTLET DETAIL
N.T.S.



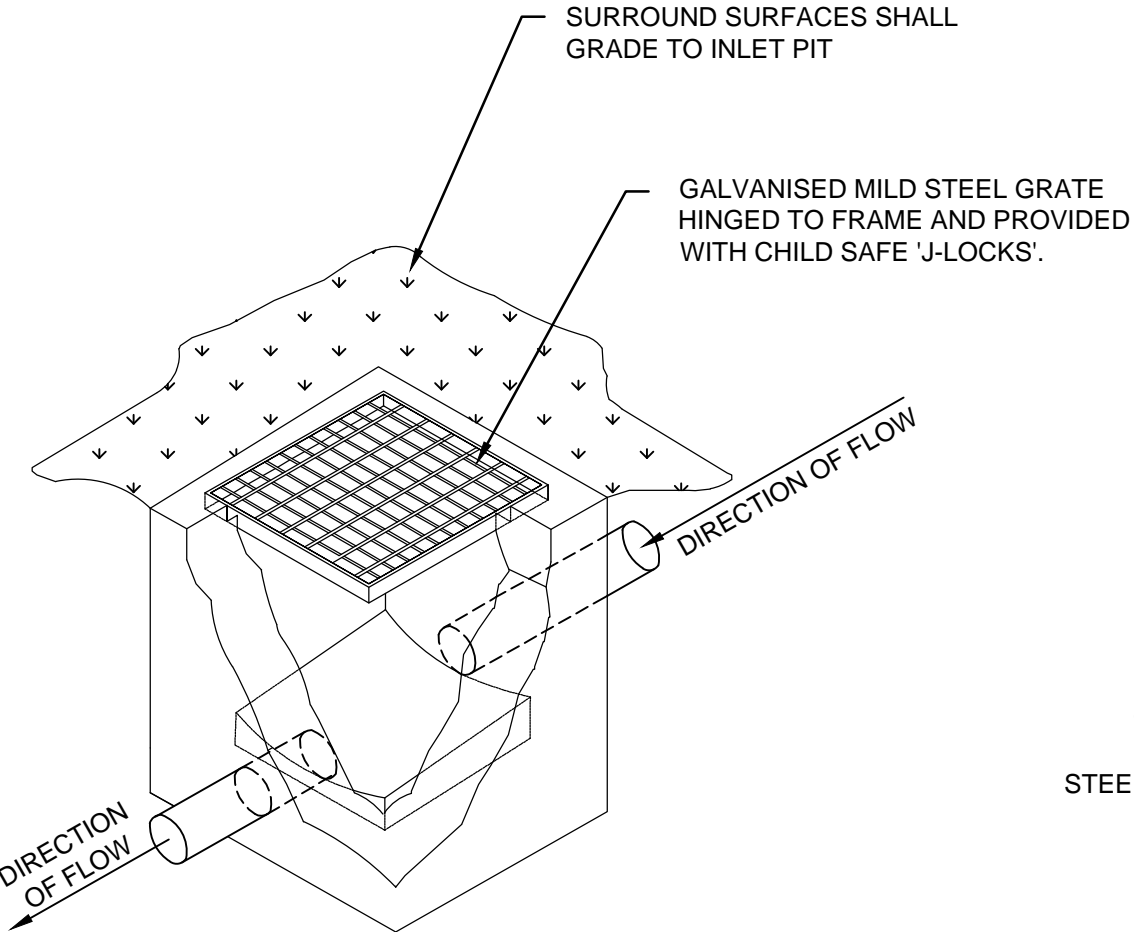
SHAKEDOWN DEVICE
N.T.S.



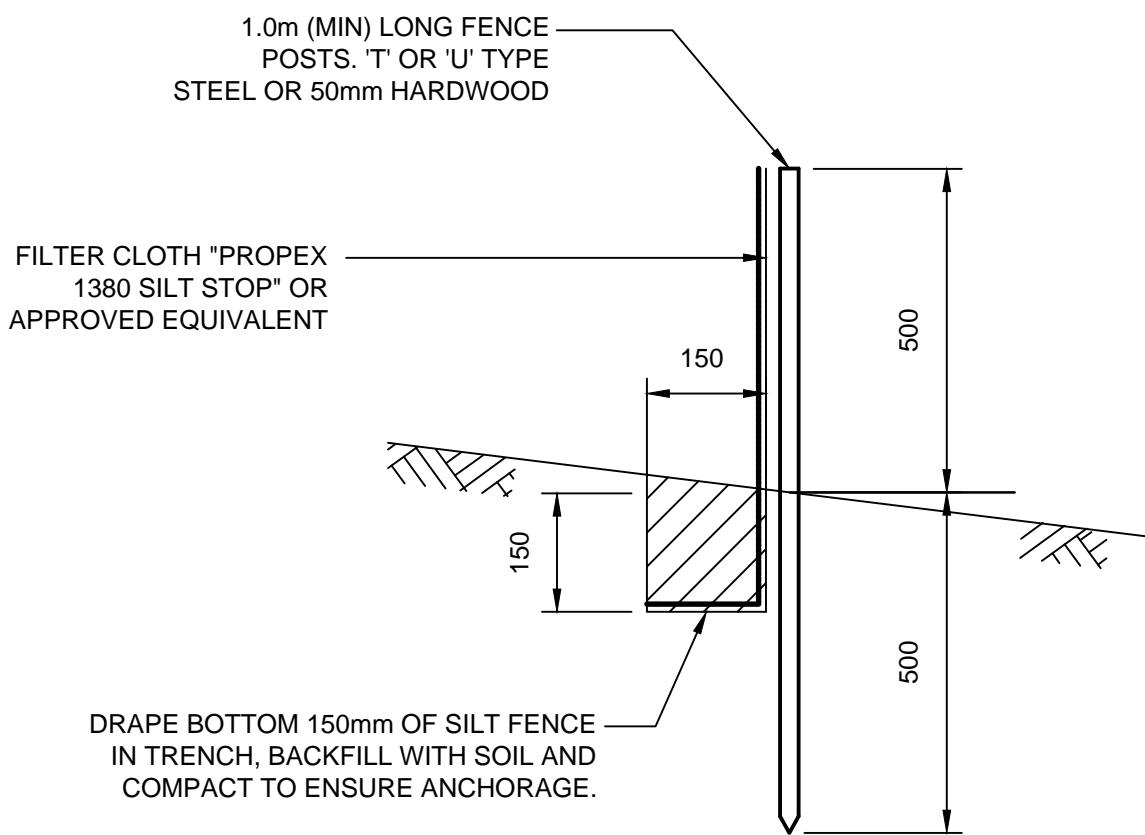
GRATED DRAIN DETAIL
N.T.S.



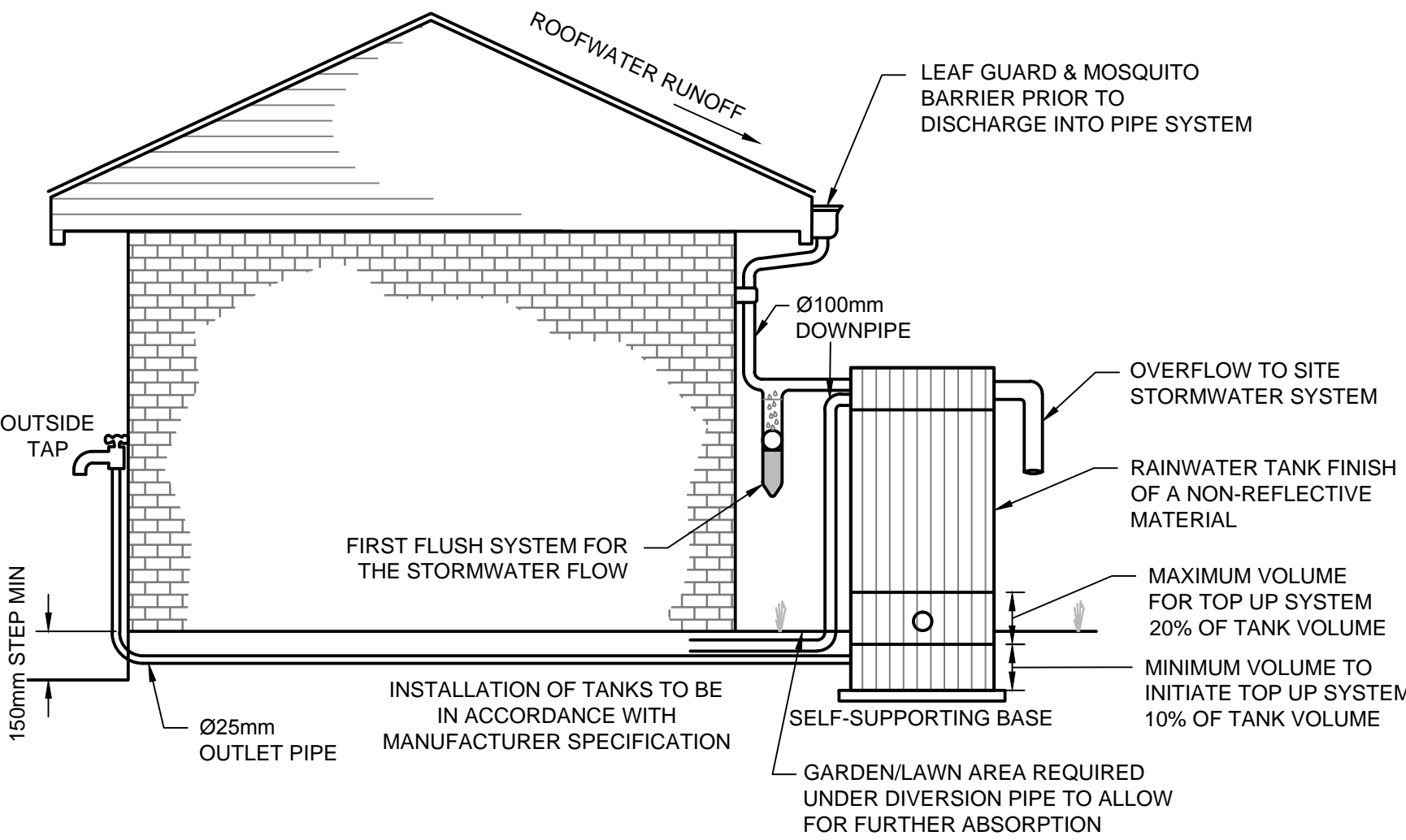
TYPICAL SUBSOIL DRAIN
N.T.S.



TYPICAL GRATED INLET PIT DETAIL
N.T.S.



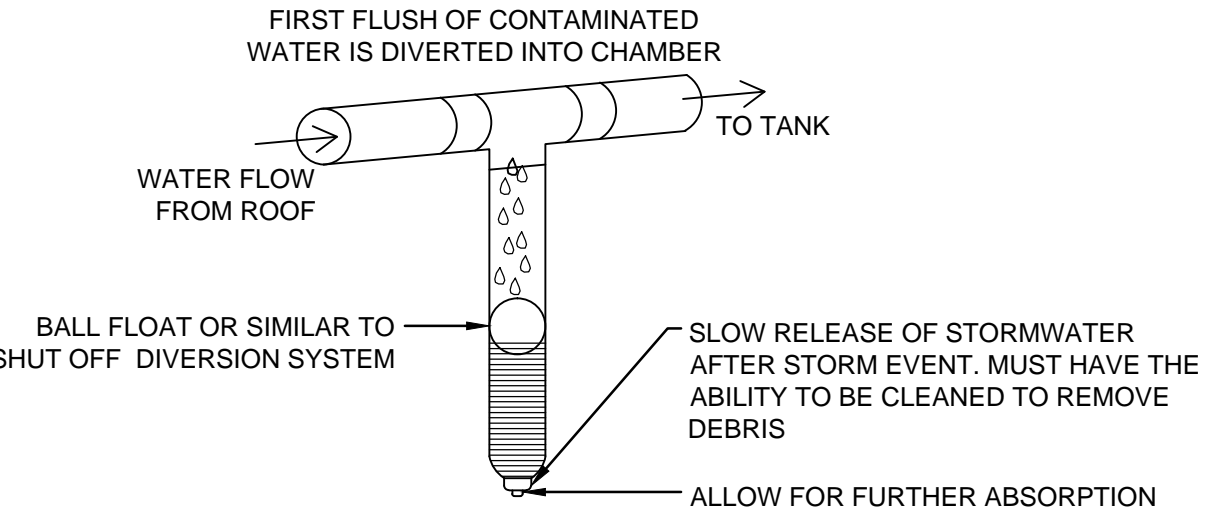
SILT FENCE DETAIL
N.T.S.



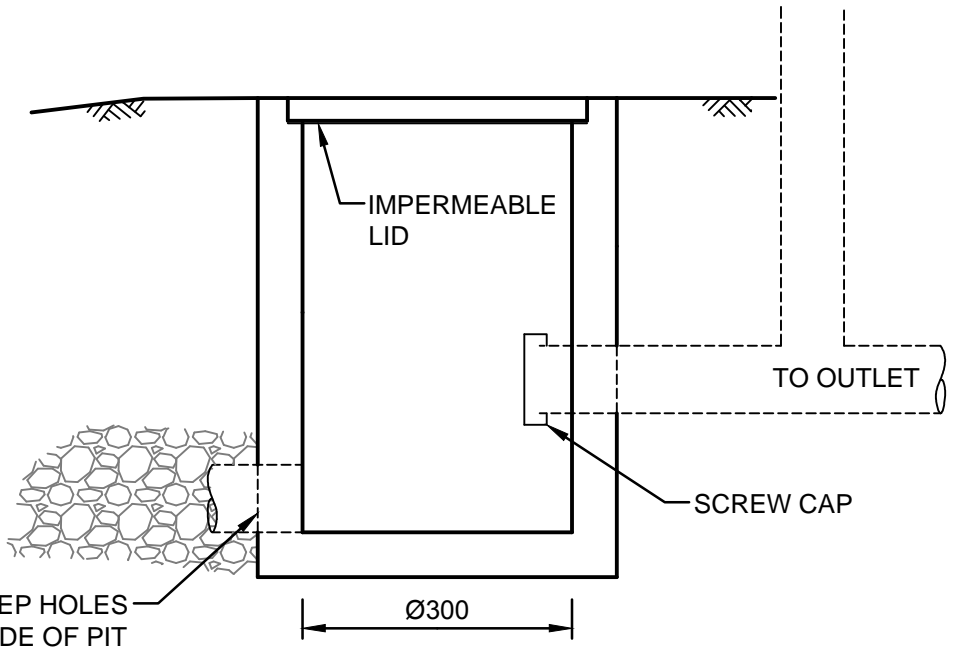
RAINWATER TANK DETAIL
N.T.S.

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.



FIRST FLUSH WATER DIVERTER DETAIL
N.T.S.



CLEANING EYE 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

A	ISSUE FOR DEVELOPMENT APPLICATION	19/12/2018	JMH	JAB	
Issue	Description	Date	Design	Checked	
1	From full size	100m		200m	

Certification By Dr. Anthony Hasham (NPER)

[Signature]

Architect

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Council

Cumberland City Council

Scale

AUSTRALIAN CONSULTING ENGINEERS.

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Project

**61 RINGROSE AVENUE, GREYSTANES
PROPOSED DUAL OCCUPANCY
STORMWATER MANAGEMENT PLANS
DEVELOPMENT APPLICATION**

Drawing Title	MISCELLANEOUS DETAILS SHEET			
Scale	A1	Project No.	Dwg. No.	Issue
N.T.S.		181658	103	A