

STORMWATER CONCEPT PLAN AT 1 STATION LANE, PENRITH NSW

NOTE RE. SERVICES
APPROXIMATE LOCATIONS OF EXISTING SERVICES SHOWN ON LONGITUDINAL SECTION. EXACT LOCATIONS & DEPTHS TO BE ACURATELY LOCATED BY BUILDER CONTRACTOR BY CONTACTING THE RELEVANT AUTHORITIES BEFORE COMMENCEMENT OF ANY WORKS



GENERAL NOTES

- ALL LINES ARE TO BE MIN. 1000 UPVC @ MIN 1.0% GRADE UNLESS NOTED OTHERWISE.
- IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS. ALL DESIGN LEVELS SHOWN ON PLAN SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
- ALL PIPES TO HAVE MIN 200mm COVER IF LOCATED WITHIN PROPERTY.
- ALL PITS IN DRIVEWAYS BE HEAVY DUTY GRATES. DIRECT SURFACE FLOW TO ALL GRATED SURFACE INLET PITS.
- ALL WORK DO BE DONE IN ACCORDANCE WITH COUNCIL'S DCP AND TO COUNCIL'S SATISFACTION.
- LOCATION OF DOWNPIPES & FLOOR WASTES ARE INDICATIVE ONLY. DOWNPIPE & FLOOR WASTE SIZE, LOCATION & QUANTITY TO BE DETERMINED BY BUILDER & IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
- THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, LANDSCAPE AND STRUCTURAL PLANS.
- ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE DESIGN ENGINEER AND COUNCIL ENGINEER FOR RESOLUTION.
- ALL PITS OR GRATES IN TRAFFICABLE AREAS TO BE HEAVY DUTY.
- ALL GUTTERS WILL BE FITTED WITH LEAF GUARDS AND SHOULD BE INSPECTED AND CLEANED TO ENSURE LEAF LITTER CANNOT ENTER THE DOWNPIPES
- ALL PIT GRATES ON SITE MUST BE HINGED WITH J-BOLT LOCKDOWN SYSTEM.
- PITS DEEPER THAN 1m REQUIRE STEP IRONS IN A STAGGERED MANNER. THE DEPTH OF ANY PIT IN EXCESS OF 2m SHALL BE STRUCTURALLY DESIGNED AND CERTIFIED BY A STRUCTURAL ENGINEER AND SUBMITTED TO COUNCIL FOR APPROVAL.
- PROVIDE GRATED DRAIN IN ALL OPEN AREAS TO THE SKY INCLUDING STAIRS AND CONNECT TO NEAREST STORMWATER SYSTEM.
- PROVIDE EMERGENCY SPITTERS TO ALL BALCONIES.
- PROVIDE AGG PIPE IN ALL LANDSCAPE AREA AND CONNECT TO THE STORMWATER DRAINAGE SYSTEM.
- PROVIDE AGG PIPE BEHIND THE RETAINING WALL AND CONNECT TO THE STORMWATER DRAINAGE SYSTEM
- TOP OF KERB AND INVERT OF GUTTER LEVELS ARE TO BE CHECKED ON SITE PRIOR CONSTRUCTION. CONTACT ENGINEER IMMEDIATELY IF LEVEL VARIES FROM DESIGN DRAWINGS.
- ALL RETAINING WALL FOR ABOVE GROUND OSD/ BIO-RETENTION BASIN TO BE FULLY CONSTRUCTED WITHIN THE PROPERTY BOUNDARY.

DEPTH TO INVERT OF OUTLET	MINIMUM INTERNAL DIMENSIONS (mm)		
	RECTANGULAR		CIRCULAR
	WIDTH	LENGTH	DIAMETER
≤600	450	450	600
>600 ≤900	600	600	900
>900 ≤1200	600	900	1000
>1200	900	900	1000

NOTE:
- ALL WALLS FORMING THE BIO-RETENTION BASIN SHALL BE CONSTRUCTED WHOLLY WITHIN THE PROPERTY BOUNDARIES OF THE SITE BEING DEVELOPED.
- LANDSCAPE AREAS WITHIN THE STORAGE AREAS ARE MULCHED WITH DECORATIVE ROCK MULCH. (I.E. NON FLOATABLE)

DRAWING SCHEDULE

DRAWING No.	DRAWING TITLE
DO0	COVER SHEET, LEGEND & DRAWING SCHEDULE
DO1	GROUND FLOOR STORMWATER DRAINAGE PLAN
DO2	GROUND FLOOR STORMWATER DRAINAGE DETAILS
DO3	EROSION AND SEDIMENT CONTROL PLAN AND DETAILS
DO4	MUSIC RESULTS AND DETAILS
DO5	MUSIC LINK REPORT

SYMBOLS

F.F.L.	FINISHED FLOOR LEVEL		MASONRY RETAINING WALL
T.K.	TOP OF KERB		FLOOR WASTE 3000
RL	PIT SURFACE LEVEL		RAINWATER OUTLET 1500
IL	INVERT LEVEL		DISH DRAIN OUTLET 1000
---	STORMWATER DRAINAGE PIPE		GRATED INLET PIT
---	DOWNPIPE TO RAINWATER TANK		GRATED DRAIN
• DP	1000 DOWN PIPE (U.N.O.)		OVERLAND FLOW PATH
• VD	VERTICAL DROP PIPE		SPREADER
• VR	VERTICAL RISER		EMERGENCY SPITTER
• IO	INSPECTION OPENING		

ABBREVIATIONS

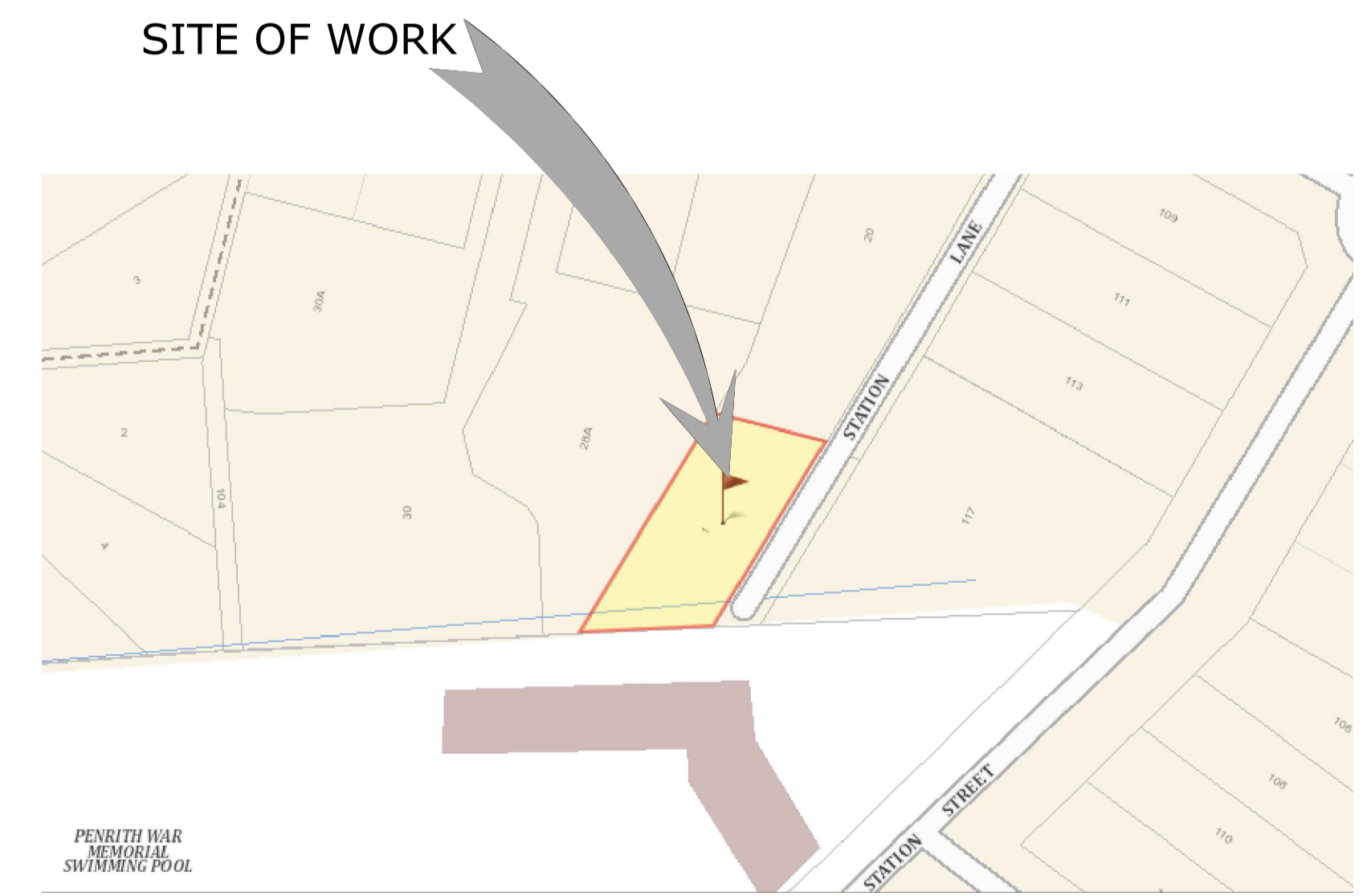
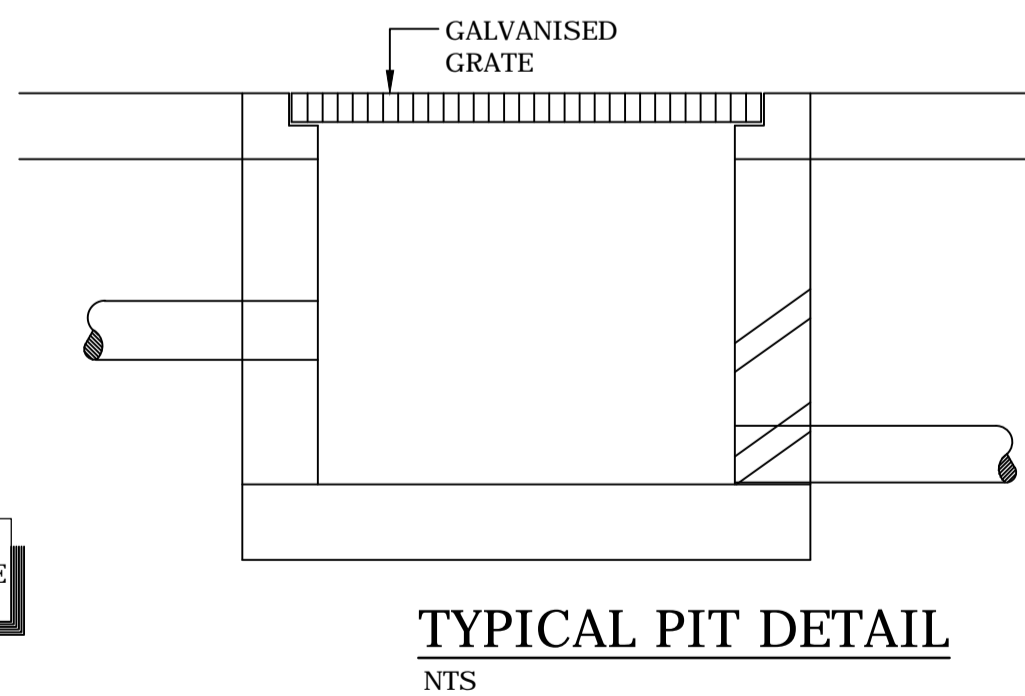
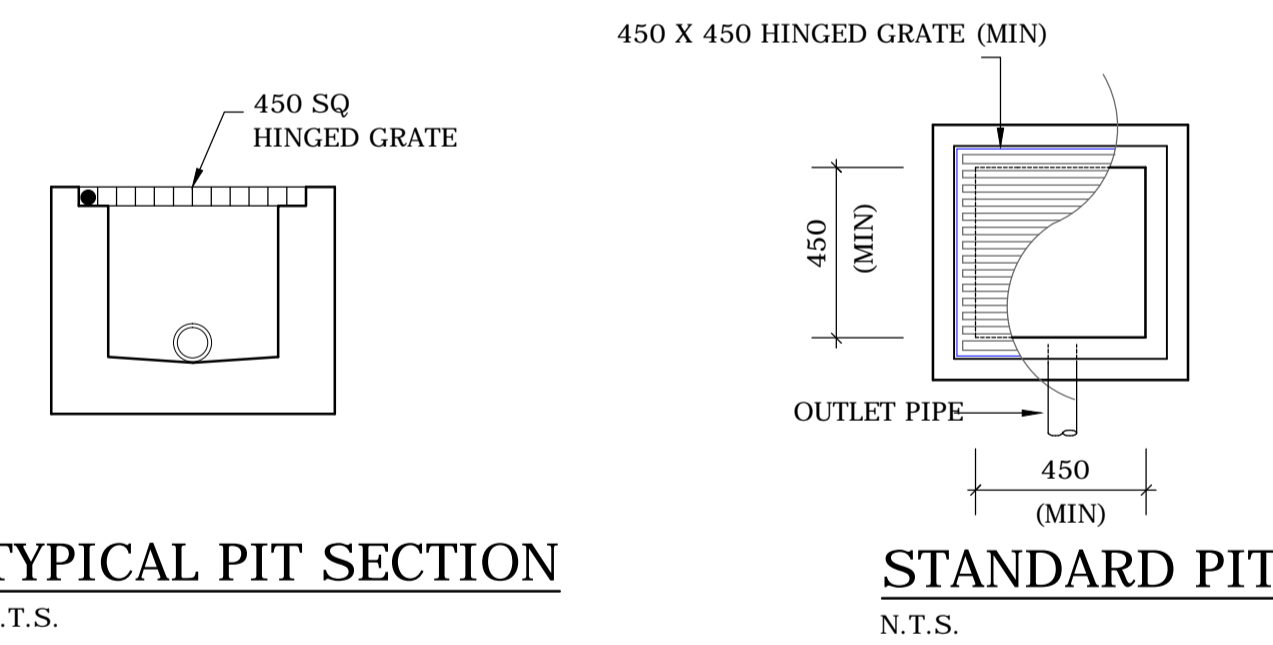
CL	CLEARANCE
DIA	DIAMETER
DDO	DISH DRAIN OUTLET
DP	DOWNPIPE
Ex.	EXISTING
FL	FINISHED FLOOR LEVEL
GL	GROUND LEVEL
GMS	GALVANISED MILD STEEL
GSIP	GRADED SURFACE INLET PIT
GTD	GRATED TRENCH DRAIN
HL	HIGH LEVEL
IL	INVERT LEVEL
J.P.	JUNCTION PIT
KIP	KERB INLET PIT
IO	INSPECTION OPENING
LL	LOW LEVEL
O/F	OVERFLOW
PVC	POLYVINYLCHLORIDE
SL	SURFACE LEVEL
STW	STORMWATER
S/S	STAINLESS STEEL
U/S	UNDER SIDE

NOTES: DRAINAGE LINES
DRAINAGE LINES SHOWN CONTINUOUS TO COLLECT SURFACE WATER
DRAINAGE LINES SHOWN DASHED TO COLLECT ROOF WATER ONLY TO RAINWATER TANK

DP : 1000 DOWN PIPE U.N.O.
----- : STORMWATER PIPE @1% MIN. U.N.O.
REFER TO AS.3500 PART 3 TABLE 7.2
P1 : 1000 UPVC PIPE AT 1.0% MIN. GRADE
P2 : 1500 UPVC PIPE AT 1.0% MIN. GRADE
P3 : 2250 UPVC PIPE AT 0.5% MIN. GRADE
P4 : 3000 UPVC PIPE AT 0.4% MIN. GRADE
P5 : 3750 UPVC PIPE AT 0.4% MIN. GRADE
P6 : 4500 RCP PIPE AT 0.4% MIN. GRADE

* NEW LEVEL
+ EXISTING LEVEL

PROVIDE 150mm GAP UNDER THE FENCE AND IF BLOCK WALL PROVIDED, THEN PROVIDE OPENING FOR EMERGENCY OVERFLOW.



NOT FOR CONSTRUCTION

A1 0 1 2 3 4 5 6 7 8 9 10

No	AMENDMENT	ENG	DRAFT	DATE	No	AMENDMENT	ENG	DRAFT	DATE
A	FOR D.A. APPROVAL	L.Y.	J.P.	04-05-2020					

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ARCHITECT
LOKA CONSULTING ENGINEERS
ANTOINE J. SAOUMA Architect 7412

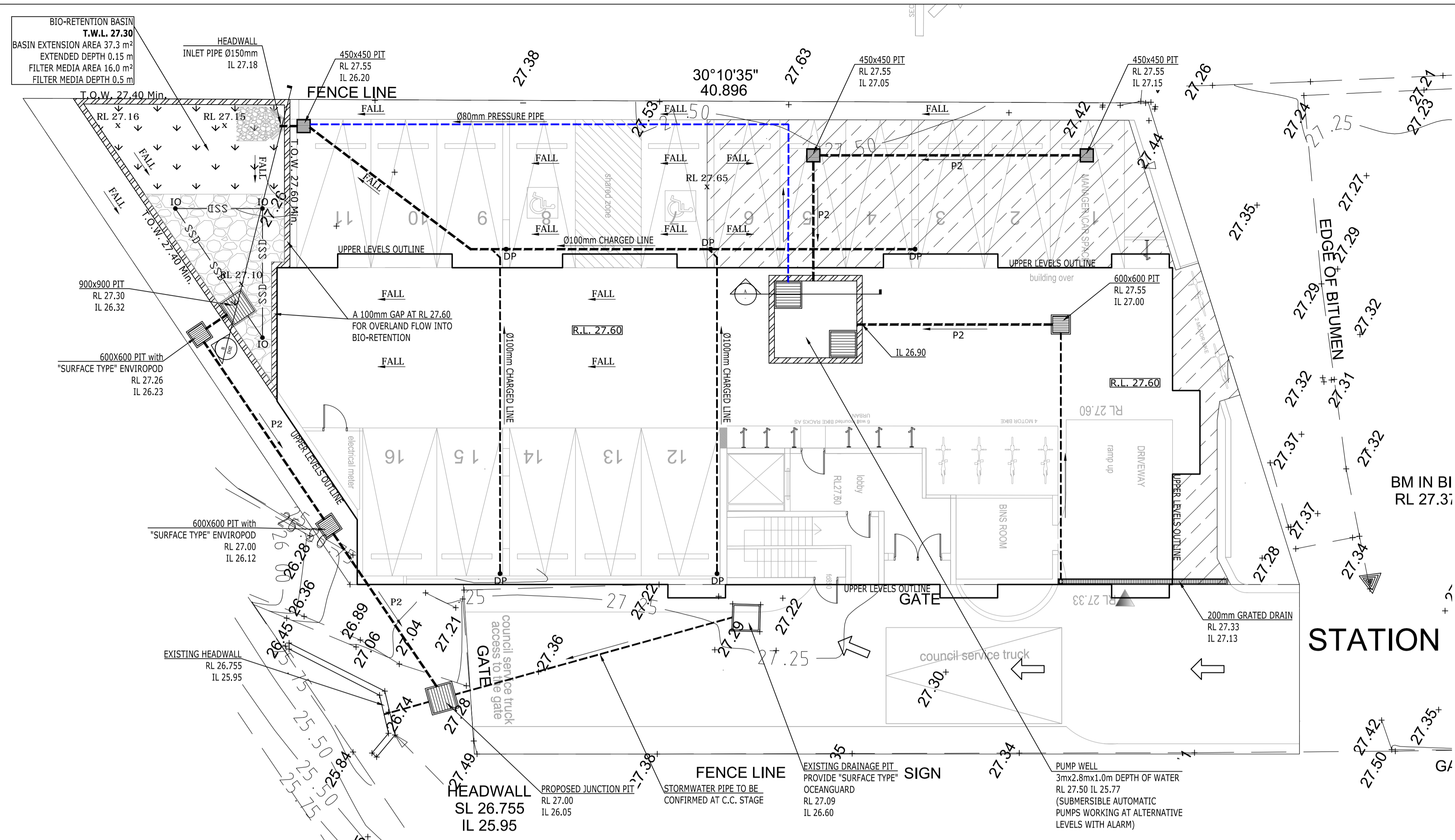
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PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
1 STATION LANE,
PENRITH NSW

CONSENT AUTHORITY:
PENRITH CITY COUNCIL

SHEET SUBJECT
COVER SHEET, LEGEND AND DRAWING SCHEDULE

PROJECT 1 STATION LANE, PENRITH NSW			
DATE	DRAWN	DESIGNED	CHECKED
MAY 20	J.P.	N.L.	N.L.
SCALE @ A1 N.T.S.		JOB No 18NL148	
AUTHORISED NERMEIN LOKA		DWG No D00	REV A



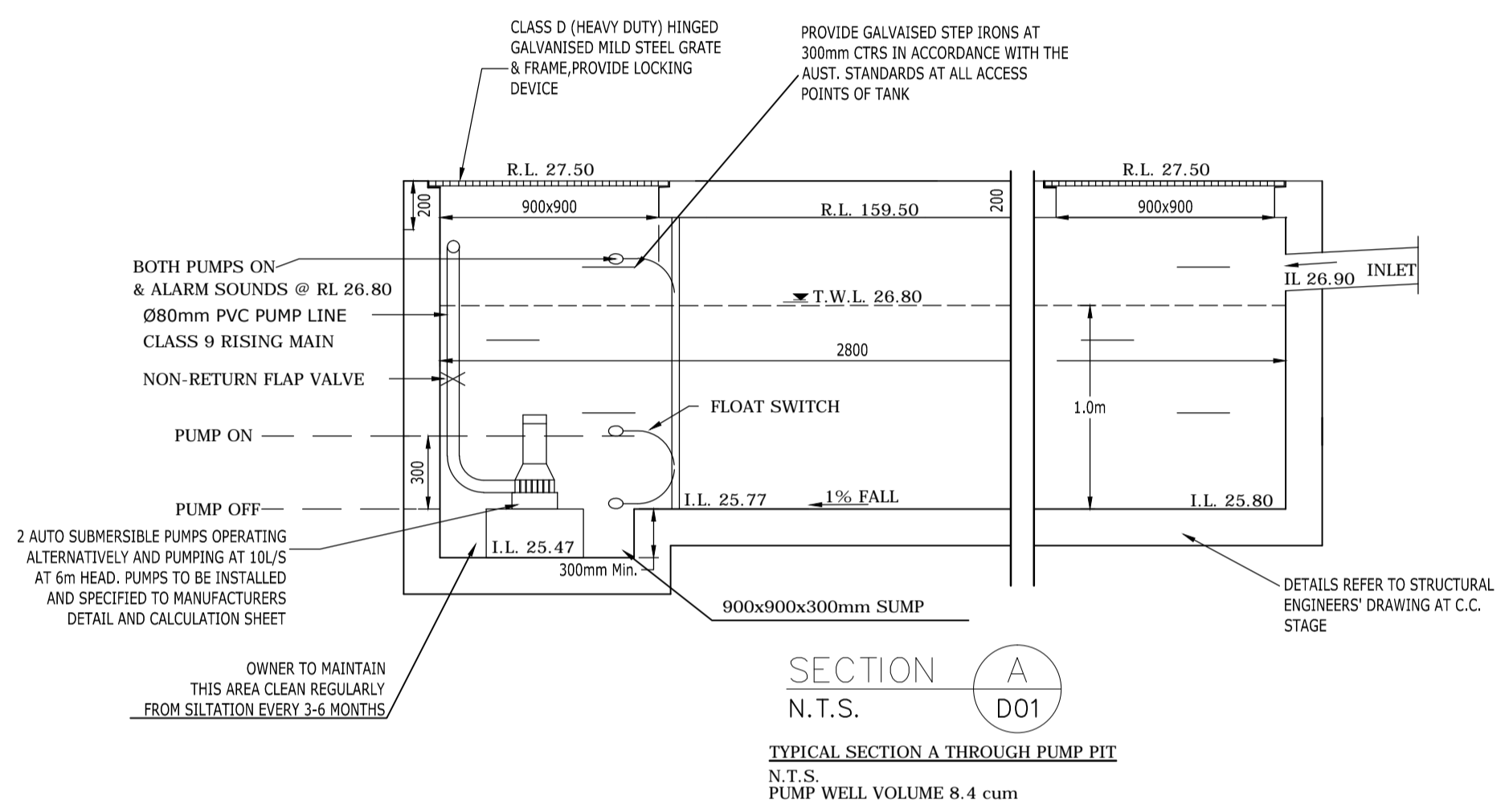
PUMP SPECIFICATIONS

STANDARD PUMP-OUT NOTES

- THE PUMP-OUT SYSTEM IS DESIGNED TO WORK IN THE FOLLOWING MANNER -
- THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY SO AS TO ALLOW BOTH PUMPS TO HAVE EQUAL OPERATION LIFE & PUMP LIFE.
- A LOW LEVEL FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS.
- A SECOND FLOAT SHALL BE PROVIDED AT A HIGHER LEVEL, APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL, WHEREBY ONE OF THE PUMPS WILL OPERATE & DRAIN THE TANK TO THE LEVEL OF THE LOW LEVEL FLOAT.
- A THIRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHOULD START THE OTHER PUMP THAT IS NOT OPERATING & ACTIVATE THE ALARM.
- AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT & A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.

PUMP WELL DETAILS

SUMP SIZE AND PUMP SIZE BASE ON 100 YEAR 2 HR STORM INTENSITY IS 41.30mm/hr. AREA DRAINING TOWARDS SUMP IS 100 m²
 $Q = CIA/3600 = 1.0 \times 41.30 \times 100 / 3600 = 1.147 \text{ L/s}$
 VOLUME REQUIRED IS $1.147 \times (2 \times 60 \times 60) = 8260 \text{ Litres}$
 STORAGE PROVIDED $3000 \times 2800 \times 1000 = 8400 \text{ Litres}$
 THEREFORE ADEQUATE STORAGE PROVIDED
 PUMP OUT RATE BASED ON 100YR 5MIN. STORM = 242 mm/hr
 $Q = CIA/3600 = 1.0 \times 42 \times 100 / 3600 = 6.72 \text{ L/s}$
 USE KS 30 OR EQUIVALENT DUAL PUMPS TO BE INSTALLED IN SUMP AND CONNECTED TO CONTROL PANEL WHICH WILL ALLOW FOR THE PUMPS TO ACT ALTERNATIVELY AT 10L/s AT 6m HEAD



NOTE RE. SERVICES

APPROXIMATE LOCATIONS OF EXISTING SERVICES SHOWN ON LONGITUDINAL SECTION. EXACT LOCATIONS & DEPTHS TO BE ACCURATELY LOCATED BY BUILDER CONTRACTOR BY CONTACTING THE RELEVANT AUTHORITIES BEFORE COMMENCEMENT OF ANY WORKS



DESIGN SUMMARY:

THE SITE IS SITUATED ADJACENT TO A FLOODWAY/CHANNEL. THE PEAK 1% AEP FLOOD LEVEL AND FLOOD PLANNING LEVEL (FPL) FOR THE SITE IS 27.10m AHD AND 27.6m AHD, RESPECTIVELY. THE FINISHED FLOOR LEVEL FOR GROUND LEVEL CAR PARK IS RL 27.60m AND LEVEL 1 HABITABLE AREA IS RL 31.10 WHICH SATISFIED THE FLOOD PLANNING LEVEL.

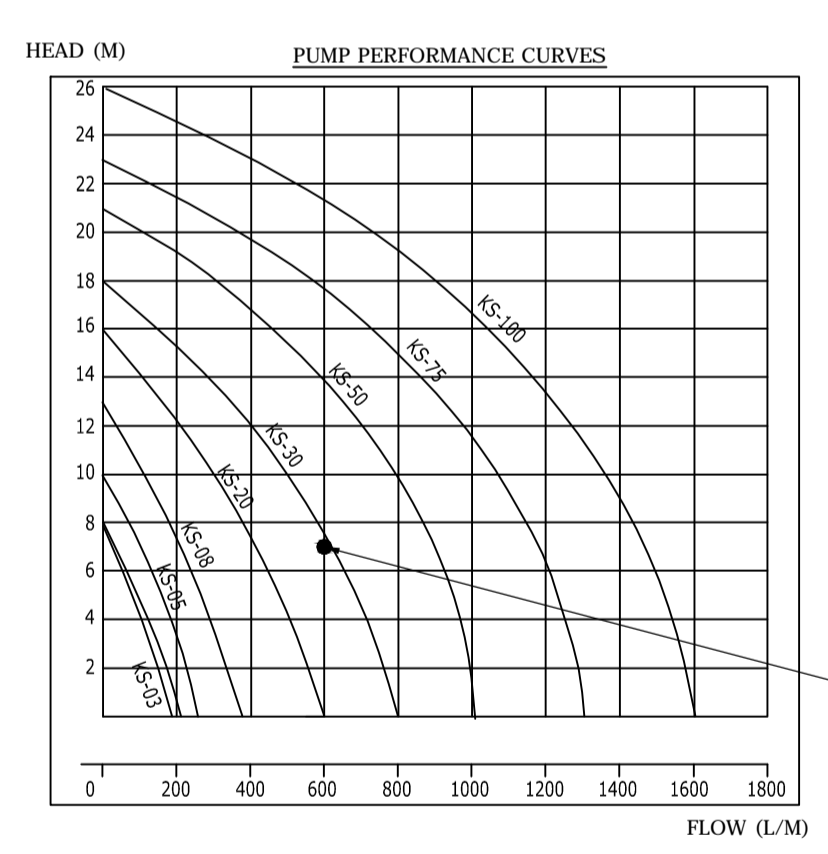
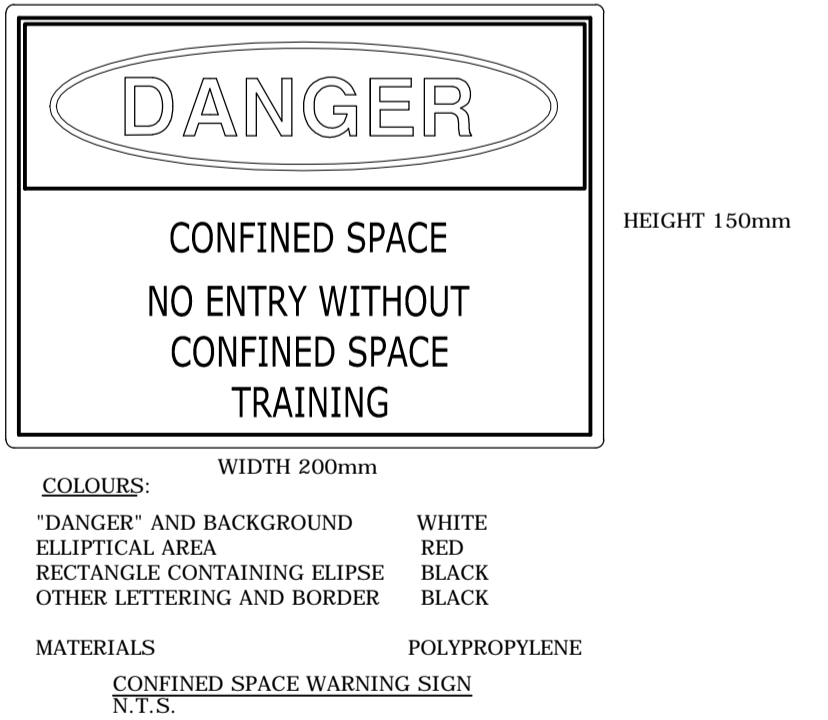
NOTE:

ARBORIST TO REVIEW IF THE BIO-RETENTION BASIN EXCAVATION WILL AFFECT EXISTING TREES SEVERELY. EXISTING TREES IN CONFLICT WITH THE BIO-RETENTION BASIN MAY BE REQUIRED TO BE REMOVED.

NOT FOR CONSTRUCTION

GROUND FLOOR/SITE STORMWATER DRAINAGE PLAN
 SCALE 1:100

Type	Output	Output	Head	Material	Weight	Dimension
1000	100	100	1.0	UPVC	1.2	1000x1000x100
1500	150	150	1.0	UPVC	1.8	1500x1500x100
2250	225	225	0.5	UPVC	2.8	2250x2250x100



- SYMBOLS**
- F.F.L. FINISHED FLOOR LEVEL
 - T.K. TOP OF KERB
 - RL PIT SURFACE LEVEL
 - IL INVERT LEVEL
 - STORMWATER DRAINAGE PIPE
 - DOWNPIPE TO RAINWATER TANK
 - DP 100Ø DOWN PIPE (U.N.O.)
 - VD VERTICAL DROP PIPE
 - VR VERTICAL RISER
 - IO INSPECTION OPENING
 - /// MASONRY RETAINING WALL
 - FW FLOOR WASTE 150Ø
 - DDO DISH DRAIN OUTLET 100Ø
 - GRATED INLET PIT
 - ▨ GRATED DRAIN
 - ← OVERLAND FLOW PATH
 - SP SPREADER
 - ⊗ ES EMERGENCY SPITTER

DP : 100Ø DOWN PIPE U.N.O.
 --- : STORMWATER PIPE @1% MIN. U.N.O.
 REFER TO AS.3500 PART 3 TABLE 7.2
 P1 : 100Ø UPVC PIPE AT 1.0% MIN. GRADE
 P2 : 150Ø UPVC PIPE AT 1.0% MIN. GRADE
 P3 : 225Ø UPVC PIPE AT 0.5% MIN. GRADE

NOTES: DRAINAGE LINES

DRAINAGE LINES SHOWN CONTINUOUS TO COLLECT SURFACE WATER

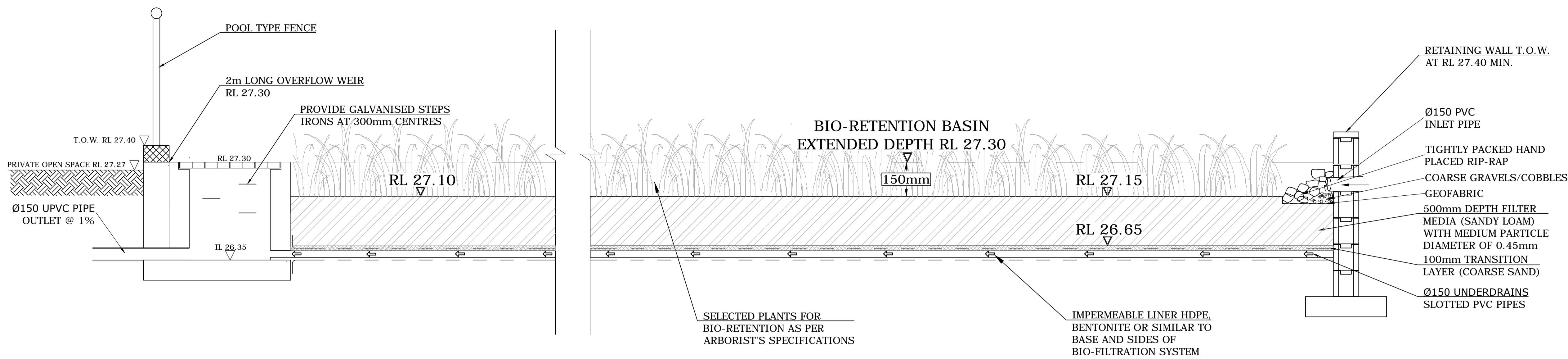
DRAINAGE LINES SHOWN DASHED TO COLLECT ROOF WATER ONLY TO RAINWATER TANK

NOTES: COUNCIL ISSUED FOOTWAY DESIGN LEVELS
 COUNCIL'S ISSUED FOOTWAY DESIGN LEVELS TO BE INCORPORATED INTO THE FINISHED LEVELS ONCE ISSUED BY COUNCIL

NOTES: ROAD RESERVE & FOOTWAY DRAINAGE ELEMENTS
 ALL STORMWATER DRAINAGE ELEMENTS PROPOSED WITHIN THE ROAD RESERVE AND FOOTWAY SHALL BE CONSTRUCTED UNDER THE SUPERVISION AND TO THE SATISFACTION OF COUNCIL'S ENGINEER.

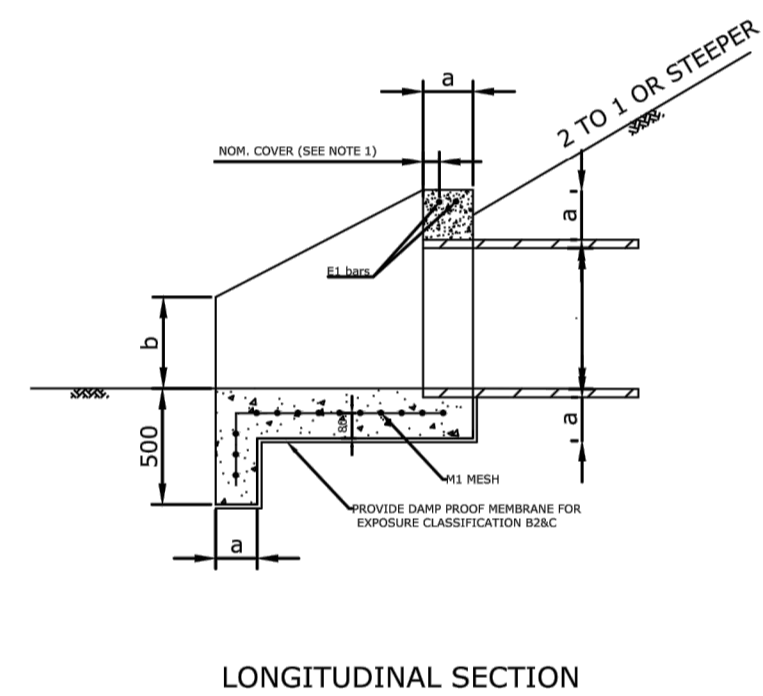
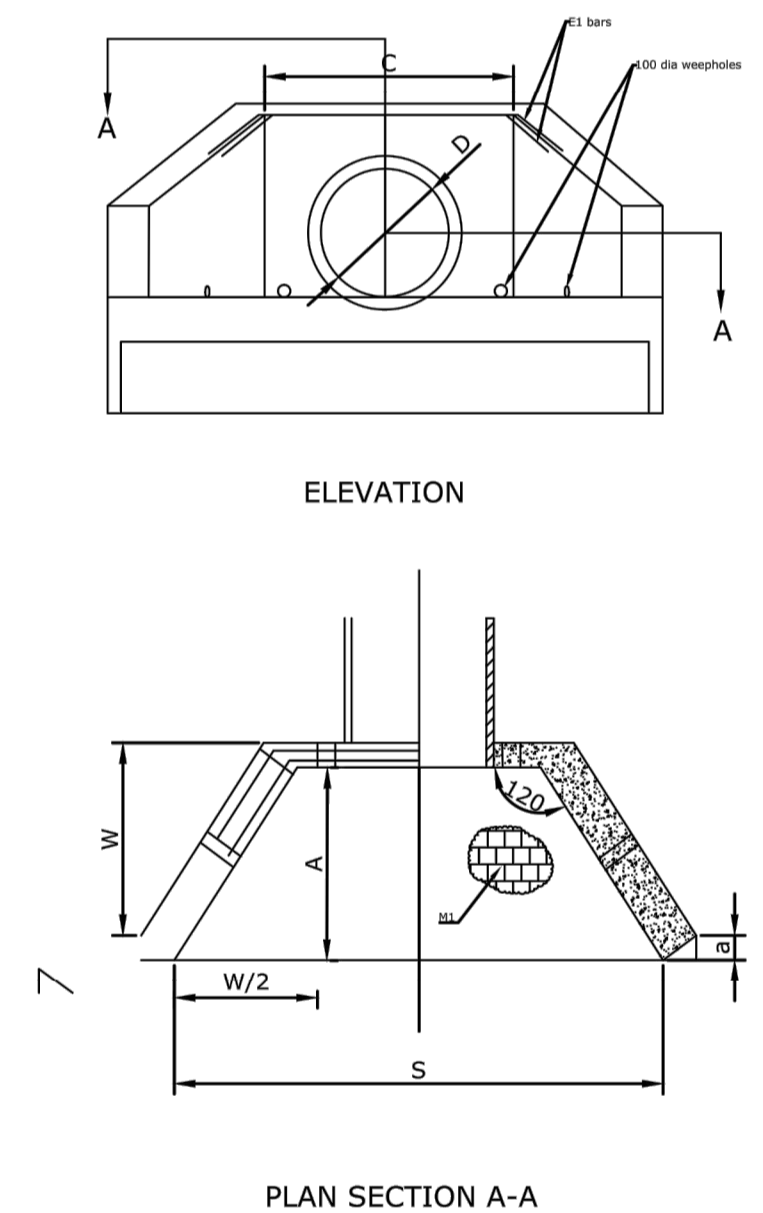
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FOR D.A. APPROVAL N.L. J.P. 08-08-18	AMENDMENT ENG DRAFT DATE	Copyright Loka Consulting Engineers as date of issue	LOKA CONSULTING ENGINEERS Pty Ltd 14/8 AVENUE OF AMERICAS, NEWINGTON, NSW T: +61 2 8065 9689 F: +61 2 8065 9690 MOBILE: 0404 142 063 EMAIL: info@loka.com.au	NERMEIN LOKA	PENRITH CITY COUNCIL
DATE MAY 20 DRAWN J.P. DESIGNED N.L. CHECKED N.L.		SCALE 1:100 U.N.O. JOB No 18NL148		AUTHORIZED REV A	

NOTE RE. SERVICES
 APPROXIMATE LOCATIONS OF EXISTING SERVICES SHOWN ON LONGITUDINAL SECTION. EXACT LOCATIONS & DEPTHS TO BE ACCURATELY LOCATED BY BUILDER CONTRACTOR BY CONTACTING THE RELEVANT AUTHORITIES BEFORE COMMENCEMENT OF ANY WORKS



SECTION NTS
 B
 D01
 TYPICAL SECTION THROUGH BIO-RETENTION/FITLER MEDIA

NOTE:
 MAINTENANCE SERVICE MUST BE CARRIED OUT BY THE DEVELOPMENT OWNER FOR THE BIO-RETENTION BASIN EVERY 3 MONTHS OR AFTER ANY MAJOR STORM EVENT.



DIMENSIONS		(mm)	300	375	450	525	600	750	900
D	Nominal pipe diameter	(mm)	300	375	450	525	600	750	900
A	Apron depth	(mm)	270	415	590	735	900	1210	1540
C	Headwall length	(mm)	770	850	940	1020	1100	1450	1450
S	Apron width	(mm)	1080	1330	1620	1870	2140	2670	3230
W	Wingwall length	(mm)	310	480	680	850	1040	1400	1780
a		(mm)	150	150	150	150	150	150	150
b		(mm)	300	300	300	300	400	400	400
QUANTITIES IN 2 HEADWALLS									
E1 BARK 12mm dia									
L1	(mm)		885	965	1055	1135	1215	1385	1565
L2	(mm)		200	200	200	200	600	600	600
NO.			4	4	4	4	4	4	4
M1 MESH									
Length	(mm)		5140	5460	5820	6140	9660	10340	11060
Mark	(mm)		F81	F81	F81	F81	F81	F81	F81
L1	(mm)		1260	1510	1800	2050	2320	2850	3410
L2	(mm)		610	755	930	1075	1240	1550	1880
L3	(mm)		175	260	360	445	540	720	910
NO.			2	2	2	2	2	2	2
Steel Reinforcement	(kg)		16.1	21.3	28.5	35.4	46.7	65.9	89.9
Wingwall length	(m ²)		0.53	0.71	0.94	1.18	1.49	2.12	2.89

NOTES:
 1. Concrete strength grades shown are for exposure classification A2. Refer to AS3600-1994, section 4 for concrete strength grade and cover to reinforcement for other exposure classification.
 2. WEEPHOLES are to be provided at 1800 ctrs max.out let only.
 3. STEEL : All bars to be Grade 400 Y to AS1302-1991
 4. MESH : Laps shall be made so that the two outer most wires of one fabric over lap the two outer most wires of the sheet being lapped.
REFERENCED DOCUMENTS:
 AS 1302-1991 Steel Reinforcing Bars for Concrete.
 AS 1304-1991 Welded Wire Reinforcing Fabric for Concrete.
 AS 3600-1994 Concrete Structures
 RTA ZA Model Specification Part R11 - Stormwater Drainage.
 All dimension are in millimeters unless otherwise stated. [First Issued: June 1998]

AMENDMENT DETAILS	DATE
Notes : R5 changed to R11	SEPT 2000
Roads and Traffic Authority NSW	
CONCRETE HEADWALLS SINGLE CELL 300 mm TO 900 mm DIA., WITH CONCRETE ARON (2 TO 1 OR STEEPER	
SCALE	NO. OF SHEETS
N.T.S.	1
MD.R11.A02.A.1	



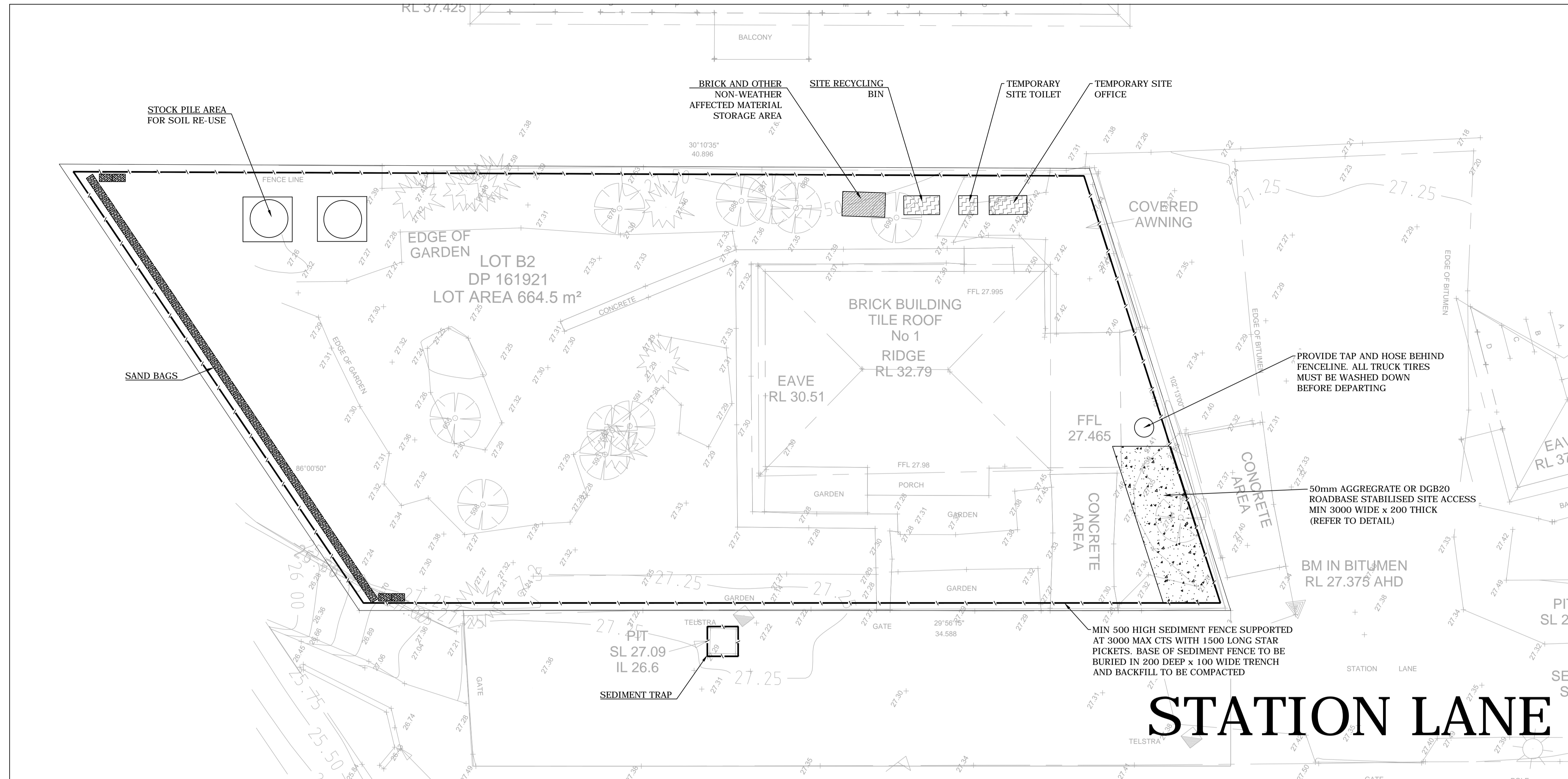
ABOVE GROUND OSD BASIN WARNING SIGN
 NTS

COLOURS:
 TRIANGLE AND "WARNING" WATER FIGURE AND OTHER LETTERING
 RED
 BLUE
 BLACK
MATERIALS
 POLYPROPYLENE

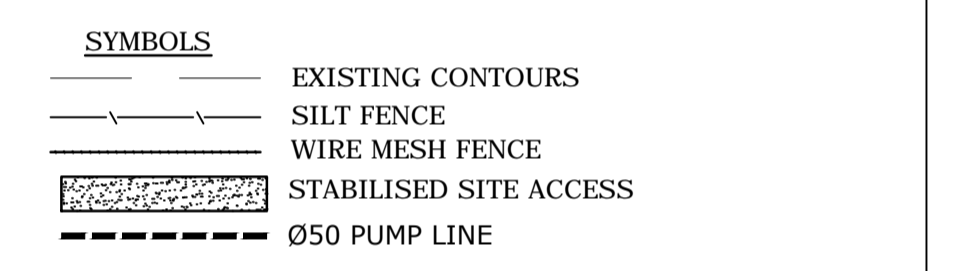
PROVIDE OSD SIGN ADJACENT TO THE ON-SITE DETENTION SYSTEM IN A CLEAR AND VISIBLE POSITION IN ACCORDANCE WITH THE UPPER PARRAMATTA RIVER CATCHMENT TRUST REQUIREMENTS

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A1		1		2		3		4		5		6		7		8		9		10							
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ARCHITECT ais ANTOINE J. SAOUMA Architect 7412						CONSULTING ENGINEERS LOKA CONSULTING ENGINEERS Pty Ltd 14/8 AVENUE OF AMERICAS, NEWINGTON, NSW T: +61 2 8065 9689 F: +61 2 8065 9690 MOBILE: 0404 142 063 EMAIL: info@lokaeng.com.au						PROJECT PROPOSED RESIDENTIAL DEVELOPMENT 1 STATION LANE, PENRITH NSW						SHEET SUBJECT SITE STORMWATER DRAINAGE DETAILS				PROJECT 1 STATION LANE, PENRITH NSW					
FOR D.A. APPROVAL		L.Y.		J.P.		04-05-2020																					
AMENDMENT		ENG		DRAFT		DATE		No		AMENDMENT		ENG		DRAFT		DATE		No									
CONSENT AUTHORITY: PENRITH CITY COUNCIL						AUTHORISED NERMEIN LOKA						JOB No 18NL148				DESIGNED J.P.				CHECKED N.L.							
												SCALE @ A1 N.T.S.				JOB No 18NL148				DESIGNED J.P.				CHECKED N.L.			
												AUTHORISED NERMEIN LOKA				JOB No 18NL148				DESIGNED J.P.				CHECKED N.L.			
												AUTHORISED NERMEIN LOKA				JOB No 18NL148				DESIGNED J.P.				CHECKED N.L.			
												AUTHORISED NERMEIN LOKA				JOB No 18NL148				DESIGNED J.P.				CHECKED N.L.			



- EROSION CONTROL NOTES**
- ALL EROSION & SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 'MANAGING URBAN STORMWATER, 3RD EDITION' PRODUCED BY THE NSW DEPARTMENT OF HOUSING.
 - ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS, AND ALL SILT TRAPS ARE TO HAVE DEPOSITED SILT REMOVED REGULARLY DURING CONSTRUCTION.
 - ALL TREES ARE TO BE PRESERVED UNLESS INDICATED OTHERWISE ON THE ARCHITECT'S OR LANDSCAPE ARCHITECT'S DRAWINGS. EXISTING GRASS COVER SHALL BE MAINTAINED EXCEPT IN AREAS CLEARED FOR BUILDINGS, PAVEMENTS, ETC.
 - STABILISE/REVEGETATE ALL DISTURBED AREAS PROGRESSIVELY WHERE PRACTICAL.
 - INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADEN WATER.
 - ADDITIONAL VEHICLES MUST PARK ON ROAD AND NOT FOOTPATH. PUBLIC FOOTPATH ADJACENT TO SITE MUST NOT BE OBSTRUCTED AND MUST BE SAFE FOR PEDESTRIAN ACCESS.
 - ENSURE FENCE IS KEYS AT BOTH ENDS INTO GROUND, WITH BASE TURNED UPSLOPE.
 - WHERE SEDIMENT FENCE IS NEAR STREET, ERECT FENCE WITHIN DEVELOPMENT SIDE OF TURF FILTER STRIPS AND PROPERTY BOUNDARY.
 - SEDIMENT FENCE FILTER CLOTH TO BE FASTENED SECURELY TO WIRE FENCE WITH TIES SPACED EVERY 600MM. OVERLAP ADJOINING FILTER CLOTH BY 150MM AND FOLDING OVER.
 - DIVERT UPSLOPE WATER AROUND WORK SITE AND STABILISE CHANNELS.
 - LAY KERB-SIDE TURF FILTER STRIP TO TRAP EXCESS SEDIMENT.
 - CONTAMINATED WATER WITH SEDIMENT FROM A SEDIMENT BASIN OR EXCAVATION PIT IS TO BE FLOCCULATED/FILTERED TO LOWER SUSPENDED SOIL LOAD TO LESS THAN 50 MILLIGRAMS PER LITRE.
 - SOIL, SAND AND GRAVEL ARE NOT TO BE STOCKPILED ON ROADWAYS OR IN DRAINAGE AREAS.
 - WASH AREA MUST BE SLIGHTLY DEPRESSED TO COLLECT WASTE MATERIAL.
 - APPLY DUST CONTROL MEASURES TO REDUCE SURFACE AND AIRBORNE MOVEMENT OF SEDIMENT.
 - NOT WITHSTANDING DETAILS SHOWN, IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO ENSURE THAT ALL SITE ACTIVITIES COMPLY WITH THE REQUIREMENTS OF THE CLEAN WATERS ACT.



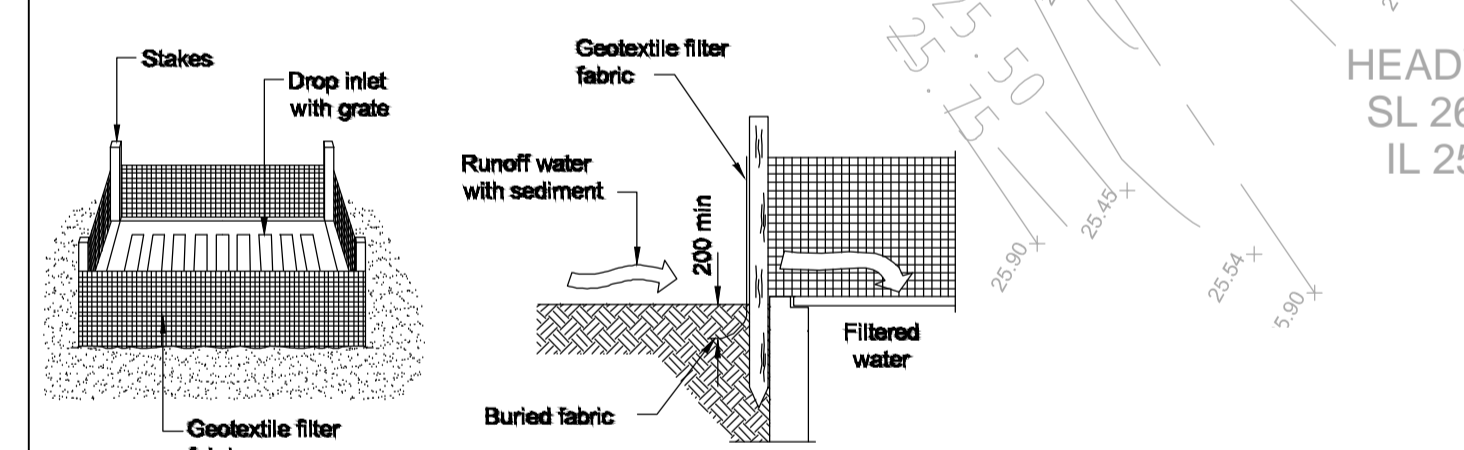
- NOTES: SOIL & WATER MANAGEMENT**
- ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSPECTED, MAINTAINED AND LOGGED DAILY BY SITE MANAGER.
 - MINIMISE DISTURBED AREAS.
 - ALL STOCKPILES TO BE CLEAR FROM DRAINS, GUTTERS AND FOOTPATHS.
 - NO MATERIAL TO BE STORED ON FOOTPATH.
 - STOCKPILE LASTING LONGER THAN 40 DAYS MUST BE COVERED.
 - DRAINAGE IS TO BE CONNECTED TO STORMWATER SYSTEM AS SOON AS POSSIBLE.
 - ROADS AND FOOTPATH TO BE SWEEP DAILY.
 - ENSURE NEIGHBOURING PROPERTY IS NOT FLOODED.
 - IF YOU DO NOT COMPLY, YOU MAY BE LIABLE TO A \$1500 FINE.

STATION LANE

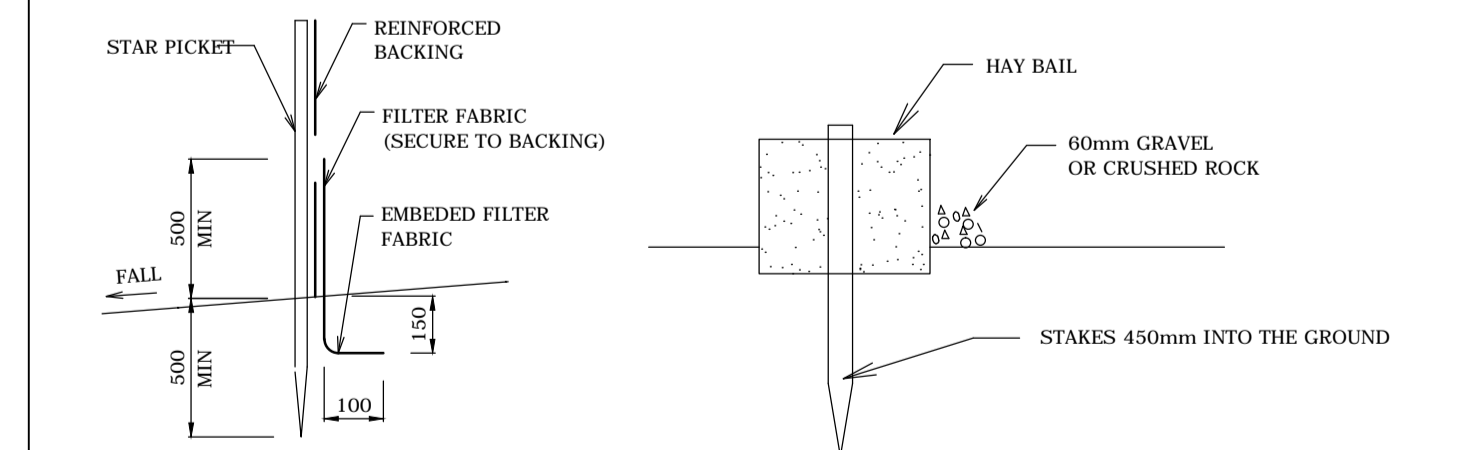
NOTE:
ALL EXISTING BUILDINGS TO BE DEMOLISHED ON SITE.
ALL EXISTING PITS TO BE COVERED DURING DEMOLITION

EROSION AND SEDIMENT CONTROL PLAN

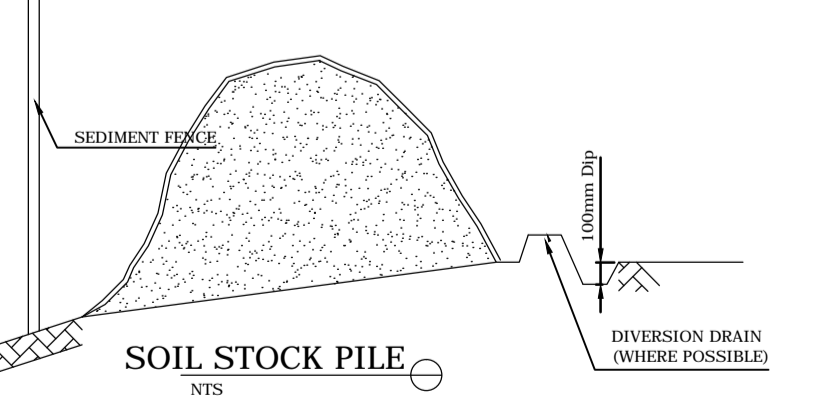
SCALE 1:100



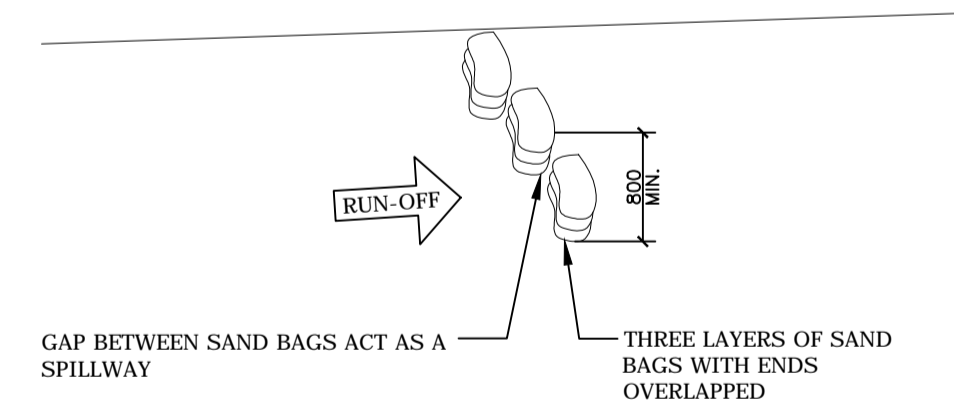
Sediment Trap for Drop Inlet (Geotextile Filter Fabric)
NTS



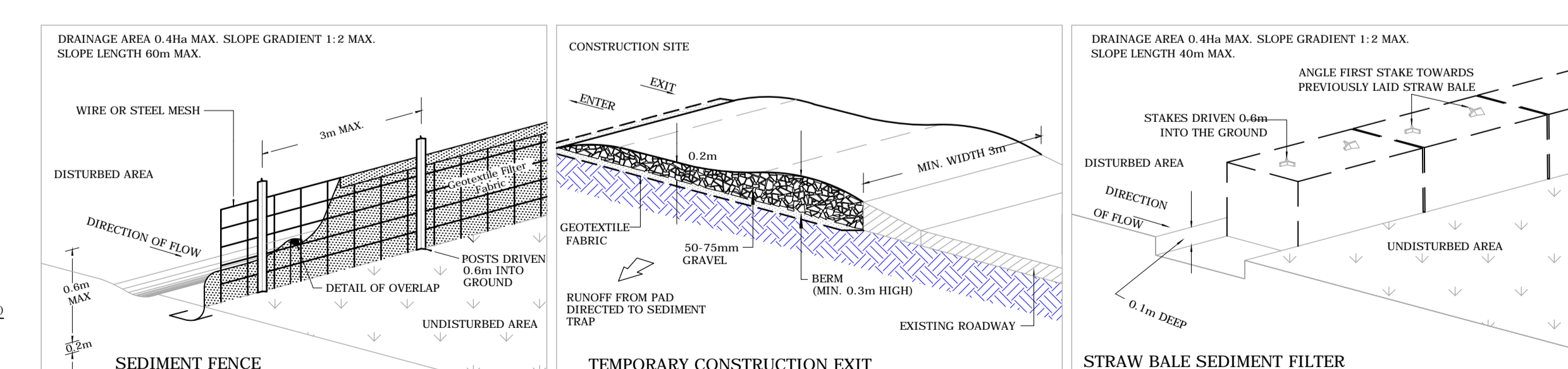
SILT FENCE DETAIL
HAY BAIL DETAIL
TO BE USED AS REQUIRED



SOIL STOCK PILE
NTS

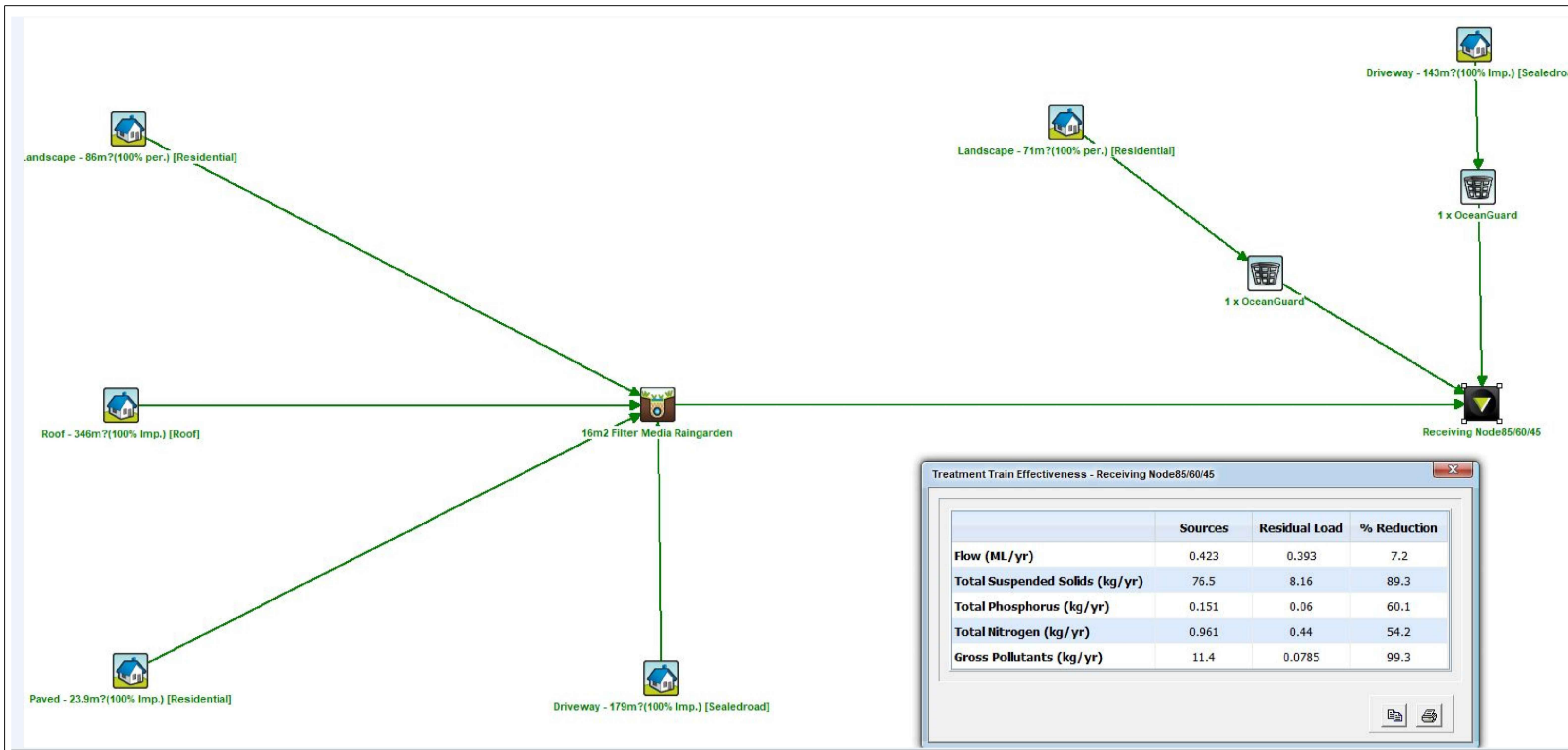


SANDBAG TRAP
NTS



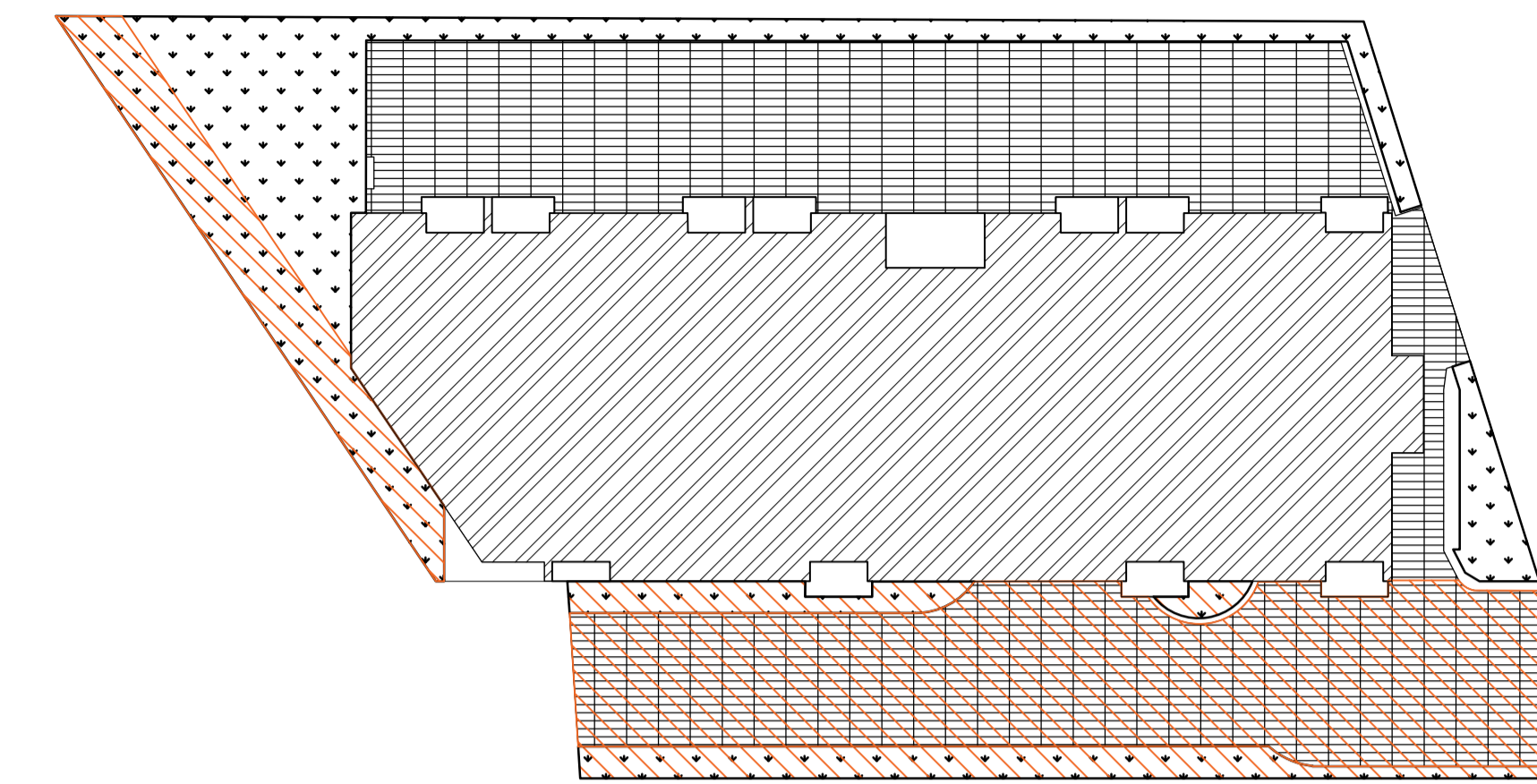
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DATE	DRAWN	DESIGNED	CHECKED																		
MAY 20	J.P.	N.L.	N.L.																		
AUTHORISED	DWG No	REV																			
NERMEIN LOKA	D03	A																			



	Sources	Residual Load	% Reduction
Flow (ML/yr)	0.423	0.393	7.2
Total Suspended Solids (kg/yr)	75.5	8.16	89.3
Total Phosphorus (kg/yr)	0.151	0.06	60.1
Total Nitrogen (kg/yr)	0.961	0.44	54.2
Gross Pollutants (kg/yr)	11.4	0.0785	99.3

MUSIC MODELING RESULT



	PAVED AREA TO BIO-RETENTION AREA 23.90 m ²		ROOF AREA TO BIO-RETENTION AREA 346 m ²
	LANDSCAPE AREA TO BIO-RETENTION AREA 86 m ²		DRIVEWAY AREA TO BIO-RETENTION CHAMBER 179 m ²
	LANDSCAPE AREA BYPASS BIO-RETENTION AREA 71 m ²		DRIVEWAY AREA BYPASS BIO-RETENTION CHAMBER 143 m ²

STORMWATER TREATMENT SUMMARY
SITE AREA = 662m²

"MUSIC" HAS BEEN USED FOR WATER QUALITY TREATMENT ANALYSIS IS PROVIDED STORMWATER360'S TREATMENT DESIGN FOR THE ABOVE MENTIONED SITE. THE CATCHMENT IN MUSIC IS MODELLED IN ACCORDANCE WITH THE FOLLOWING GUIDELINES & PARAMETERS:

- MUSIC VERSION 6.3.0
- "PENRITH CITY COUNCIL WSUD TECHNICAL GUIDELINES", VERSION 1 (DEC 2013)
- SF CHAMBER NODE MODELED WITH 'K' VALUES SET TO 1
- RAINFALL STATION 67113 PENRITH LAKES AWS, 6 MINUTES TIME STEP FROM 1999 TO 2008
- PENRITH CITY COUNCIL SOURCE NODE(S) UTILIZING MODIFIED % IMPERVIOUS AREA, RAINFALL THRESHOLD, SOIL PROPERTIES & POLLUTANT CONCENTRATIONS
- NO DRAINAGE ROUTING BETWEEN NODES.

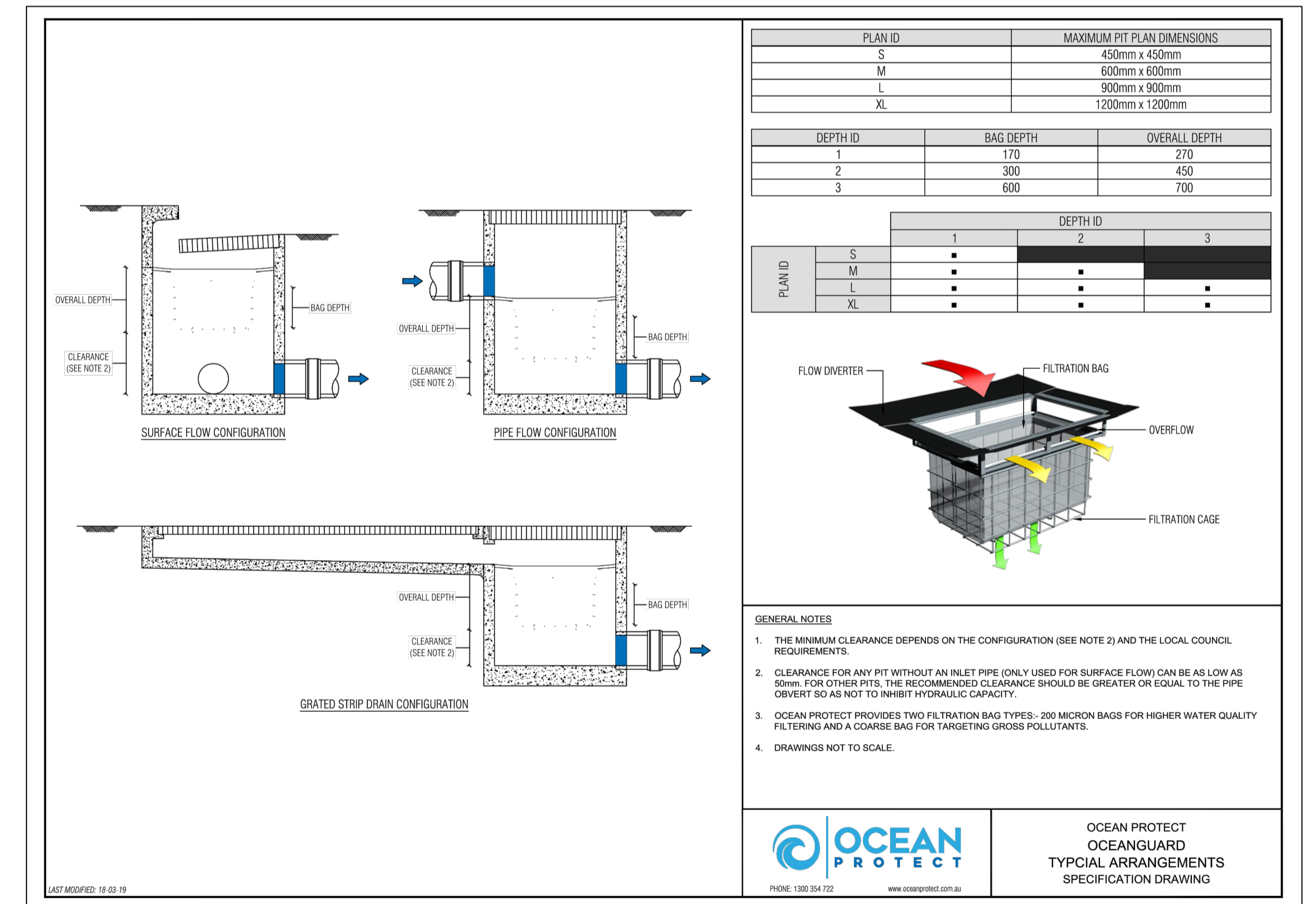
THE SYSTEM HAS BEEN MODELED TO MEET THE PENRITH CITY COUNCIL WSUD TECHNICAL GUIDELINE TARGET

TSS: 85% REDUCTION
TP: 60% REDUCTION
TN: 45% REDUCTION

TREATMENT DEVICES:
1. 56m² BIO-RETENTION BASIN AREA.
2. 55m² MEDIA FILTER 500mm THICKNESS.
3. 3 x No. ENVIROPOD SERIES 200 FILTERS

SUMMARY:

THE PROPOSED STORMWATER QUALITY TREATMENT SYSTEM COMPRISES OF 37m² BIO-RETENTION BASIN AREA, 16m² FILTER MEDIA AREA 500mm THICKNESS AND THREE ENVIROPODS SERIES 200 FILTERS TO REMOVE DIFFERENT SOURCE POLLUTANTS. IT IS OUR OPINION THAT IF THESE MEASURES ARE IMPLEMENTED, THE PROPOSED DEVELOPMENT WILL COMPLY WITH THE INTENT OF PENRITH CITY COUNCIL REQUIREMENT. IN ADDITION, THE PROPOSED STORMWATER QUALITY TREATMENT TRAIN SHALL BE MAINTAINED AND SERVICES BY THE OWNERS OF THE PROPOSED DEVELOPMENT AT NO COST TO COUNCIL.



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A	FOR D.A. APPROVAL	L.Y.	J.P.	04-05-2020					

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ARCHITECT
ais ANTOINE J. SAOUMA Architect 7412
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PROJECT
PROPOSED RESIDENTIAL DEVELOPMENT
1 STATION LANE,
PENRITH NSW
CONSENT AUTHORITY:
PENRITH CITY COUNCIL

SHEET SUBJECT
MUSIC RESULT AND DETAILS

PROJECT				1 STATION LANE, PENRITH NSW			
DATE	MAY 20	DRAWN	J.P.	DESIGNED	N.L.	CHECKED	N.L.
SCALE @ A1	NTS			JOB No	18NL148		
AUTHORISED	NERMEIN LOKA			DWG No	D04		
REV	A						

MUSIC-link Report

Project Details		Company Details	
Project:	1 Station Lane, Penrith	Company:	Loka Consulting Engineers P/L
Report Export Date:	30/04/2020	Contact:	Lesley Ye
Catchment Name:	1 Station Lane Penrith new DA	Address:	14a ,8 avenue of the Americas, Newington 2127
Catchment Area:	0.085ha	Phone:	02 9748 8742
Impervious Area*:	81.17%	Email:	CML3@LCENG.COM.AU
Rainfall Station:	67113 PENRITH		
Modelling Time-step:	6 Minutes		
Modelling Period:	01/01/1999 - 31/12/2008 11:54:00 PM		
Mean Annual Rainfall:	691mm		
Evapotranspiration:	1158mm		
MUSIC Version:	6.3.0		
MUSIC-link data Version:	6.33		
Study Area:	Penrith		
Scenario:	Penrith Development		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness		Treatment Nodes		Source Nodes	
Node: Receiving Node85/60/45	Reduction	Node Type	Number	Node Type	Number
Flow	7.17%	Bio Retention Node	1	Urban Source Node	6
TSS	89.3%	GPT Node	2		
TP	60.1%				
TN	54.2%				
GP	99.3%				

Comments
16m2 Filter media raingarden with 0.5m media depth.

NOTE: A successful self-validation check of your model does not constitute an approved model by Penrith City Council
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Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Bio	16m2 Filter Media Raingarden	Hi-flow bypass rate (cum/sec)	None	99	0.009
Bio	16m2 Filter Media Raingarden	PET Scaling Factor	2.1	2.1	2.1
GPT	1 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	1 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.02
Receiving	Receiving Node85/60/45	% Load Reduction	None	None	7.17
Receiving	Receiving Node85/60/45	GP % Load Reduction	90	None	99.3
Receiving	Receiving Node85/60/45	TN % Load Reduction	45	None	54.2
Receiving	Receiving Node85/60/45	TP % Load Reduction	60	None	60.1
Receiving	Receiving Node85/60/45	TSS % Load Reduction	85	None	89.3
Urban	Driveway - 143m?(100% Imp.)	Area Impervious (ha)	None	None	0.014
Urban	Driveway - 143m?(100% Imp.)	Area Pervious (ha)	None	None	0
Urban	Driveway - 143m?(100% Imp.)	Total Area (ha)	None	None	0.014
Urban	Driveway - 179m?(100% Imp.)	Area Impervious (ha)	None	None	0.018
Urban	Driveway - 179m?(100% Imp.)	Area Pervious (ha)	None	None	0
Urban	Driveway - 179m?(100% Imp.)	Total Area (ha)	None	None	0.018
Urban	Landscape - 71m?(100% per.)	Area Impervious (ha)	None	None	0
Urban	Landscape - 71m?(100% per.)	Area Pervious (ha)	None	None	0.007
Urban	Landscape - 71m?(100% per.)	Total Area (ha)	None	None	0.007
Urban	Landscape - 86m?(100% per.)	Area Impervious (ha)	None	None	0
Urban	Landscape - 86m?(100% per.)	Area Pervious (ha)	None	None	0.009
Urban	Landscape - 86m?(100% per.)	Total Area (ha)	None	None	0.009
Urban	Paved - 23.9m?(100% Imp.)	Area Impervious (ha)	None	None	0.002
Urban	Paved - 23.9m?(100% Imp.)	Area Pervious (ha)	None	None	0
Urban	Paved - 23.9m?(100% Imp.)	Total Area (ha)	None	None	0.002
Urban	Roof - 346m?(100% Imp.)	Area Impervious (ha)	None	None	0.035
Urban	Roof - 346m?(100% Imp.)	Area Pervious (ha)	None	None	0
Urban	Roof - 346m?(100% Imp.)	Total Area (ha)	None	None	0.035

Only certain parameters are reported when they pass validation

NOTE: A successful self-validation check of your model does not constitute an approved model by Penrith City Council
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3 of 3

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A1 0 1 2 3 4 5 6 7 8 9 10

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PROJECT PROPOSED RESIDENTIAL DEVELOPMENT
1 STATION LANE, PENRITH NSW
CONSENT AUTHORITY: PENRITH CITY COUNCIL

SHEET SUBJECT
MUSIC LINK REPORT

PROJECT 1 STATION LANE, PENRITH NSW			
DATE	DRAWN	DESIGNED	CHECKED
MAY 20	J.P.	N.L.	N.L.
SCALE @ A1 NTS		JOB No 18NL148	
AUTHORISED NERMEIN LOKA		DWG No D05	REV A