

DEVELOPMENT APPLICATION CIVIL DESIGN PLANS

LOT 100 D.P.870284, No.2 URQUHARTS LANE, STROUD DRIVEWAY AND STORMWATER QUALITY & QUANTITY PLANS.

INDEX OF SHEETS

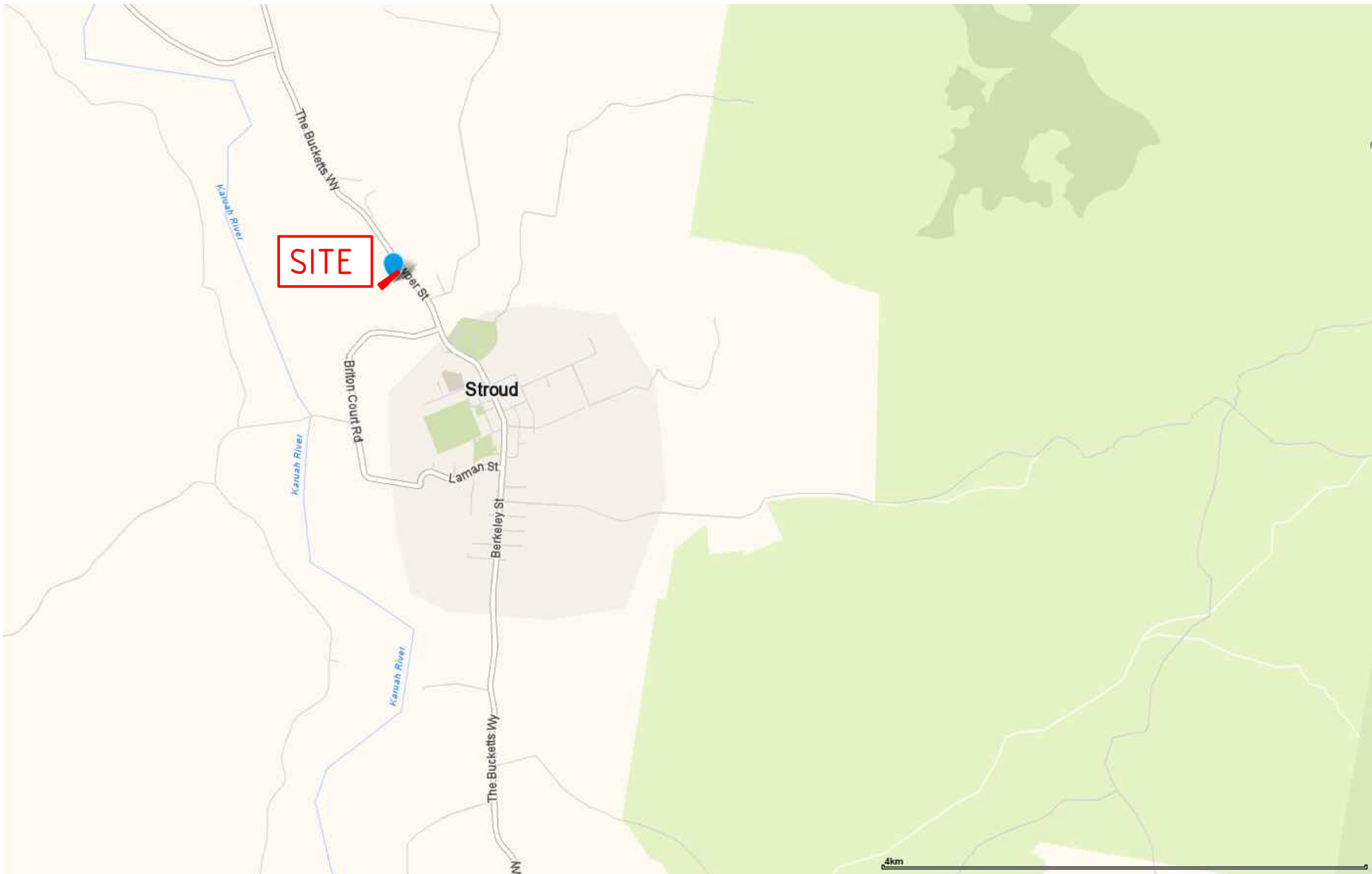
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CONSTRUCTION NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED PLANS, SUBJECT TO COUNCIL'S DSCP, STANDARD DRAWINGS & SPECIFICATIONS.
- EXISTING UNDERGROUND SERVICES WHERE ENCOUNTERED ARE TO BE STRICTLY RETAINED AND IF DISTURBED OR DAMAGED ARE TO BE REPLACED OR REPAIRED BY THE CONTRACTOR TO THEIR EXPENSE. ALTERNATIVELY CABLES ARE TO BE REDIRECTED AS DIRECTED.
- MAKE SMOOTH JOIN WITH EXISTING ROADWAY WHERE THE NEW CONSTRUCTION MEETS THE EXISTING.
- WORKS CARRIED OUT ROADWAY'S TO BE IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS FOR TRAFFIC CONTROL AND DIRECTION. SIGNAGE, WORK SCHEDULES AND USE OF STOP AND GO CONTROLLERS TO BE APPROVED BY COUNCIL.
- PAVEMENT THICKNESS TO BE CARRIED OUT TO COUNCIL ENGINEERS SATISFACTION. SEE SHEET 03 FOR DETAILS.
- PUBLIC UTILITY SERVICES TO BE ADJUSTED AS NECESSARY AND AS SHOWN.
- VEHICULAR ACCESS & ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION WORKS.
- WHERE KERB & GUTTER IS PLACED BY USE OF A KERB & GUTTER MACHINE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TAKING & TESTING OF CORE SAMPLES & FORWARDING OF TEST RESULTS TO COUNCIL & THE REMOVAL OF ALL KERB & GUTTER AT HIS OWN EXPENSE WHERE THE MINIMUM STRENGTH IS NOT ACHIEVED AFTER 28 DAYS IN ACCORDANCE WITH COUNCIL'S STANDARD SPECIFICATION.
- ALL TEMPORARY ROAD CONSTRUCTION TO BE REMOVED & THE SURFACE TO BE REINSTATED AS NEAR AS POSSIBLE TO NATURAL CONDITIONS WHEN PERMANENT ACCESS IS AVAILABLE.
- EARTHWORKS ARE TO BE CARRIED OUT TO THE SATISFACTION OF THE COUNCIL'S ENGINEER. UNSOUND MATERIAL IS TO BE REMOVED FROM LOTS AND ROADS PRIOR TO FILLING AND RE-USED ON SITE AS APPROPRIATE AND NECESSARY OR SUITABLY DISPOSED OF.
- ALL FILL MATERIAL WITHIN LOTS INCLUDING BATTERS SHALL BE PLACED IN ACCORDANCE WITH AS 3798 TO LEVEL 1 INSPECTION & TESTING".
- ALL FOOTPATHS, BERMS, BATTERS AND FILLED AREAS ARE TO BE COVERED WITH A MINIMUM THICKNESS OF 100mm OF TOPSOIL.
- PIPELINES TO BE LAID IN TRENCH CONDITIONS (TYPE 'B' BEDDING).
- MINIMUM COVER TO ALL PIPES GENERALLY IN ACCORDANCE WITH THE "CONCRETE PIPE SELECTION & INSTALLATION" PUBLICATION BY THE CONCRETE PIPE ASSOCIATION OF AUSTRALIA.
- MINIMUM OF 0.5m BETWEEN ANY PARALLEL PIPELINES.
- ANY OVERTIME REQUIRED TO BE PAID TO ANY SERVICE AUTHORITY (OR THEIR AUTHORISED REPRESENTATIVE/CONTRACTOR) CAUSED BY THE CONTRACTOR WITH RESPECT TO THE CONSTRUCTION OF SERVICES SHALL BE PAID BY THE CONTRACTOR.
- ALL DRAINAGE PITS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION, PROTECTION & REPAIR OF ANY UTILITY SERVICE SUPPLY WHICH MAY BE INTERFERED WITH DURING THE EXCAVATION AND/OR CONSTRUCTION OF THE WORKS WHETHER SHOWN ON ENGINEERING PLANS OR NOT.
- ALL STORMWATER DRAINAGE LINES RUNNING LONGITUDINALLY WITHIN ROAD RESERVES ARE TO BE LOCATED WITHIN THE ROAD CARRIAGEWAY.
- TEMPORARY POLLUTION CONTROL MEASURES SHALL BE CONSTRUCTED AND APPROVED PRIOR TO ANY OTHER WORKS BEING CARRIED OUT.
- ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS.
- WHERE NECESSARY STREET SIGNAGE AND PAVEMENT MARKING IS TO BE PROVIDED IN ACCORDANCE WITH AS 1742.1-13 AND THE R.T.A. INTERIM GUIDE TO SIGNS AND MARKINGS.

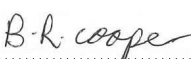
SAFETY IN DESIGN

- IN ACCORDANCE WITH CLAUSE 295 OF THE "WORK HEALTH AND SAFETY REGULATION 2017" AND ADDITIONALLY REPORT ALSO ADDRESSES CLAUSES 61 & 64 OF THE REGULATION AND THE SAFE WORK AUSTRALIA "SAFE DESIGN OF STRUCTURES CODE OF PRACTICE - OCTOBER 2018".
- THE DESIGN SAFETY ASSESSMENT HAS BEEN CARRIED OUT WITH REFERENCE TO THE LISTED DOCUMENTS FOR DESIGN TO BE SAFE SO FAR AS REASONABLY PRACTICABLE. HAZARD AND RISK IDENTIFICATION IS BASED ON INFORMATION AVAILABLE TO THE DESIGNER AT THE TIME OF THE DESIGN.
- ASSESSMENT IS LIMITED TO THE SCOPE OF LE MOTTEE GROUP COMMISSION INCLUDING:
 - SITEWORKS
 - ROADS
 - STORMWATER DRAINAGE
 - EARTHWORKS
- IDENTIFIED HAZARDS ARE THOSE WHICH ARE AFFECTED BY THE DESIGN, AND ARE WITHIN THE CONTROL OF THE DESIGNER.
- HAZARDS AND RISK RELATING TO CONSTRUCTION, OPERATION, MAINTENANCE AND DEMOLITION MUST BE CONSIDERED BY THE OWNER, MANAGER, BUILDER, USER, MAINTAINER AND DEMOLISHER. ALL SUCH ENTITIES ARE ASSUMED TO BE QUALIFIED, COMPETENT AND EXPERIENCED.
- SEEK ADVICE WHERE ACTIVITIES ARE OUTSIDE THE FIELD OF EXPERIENCE OF THE OPERATOR/BUILDER/MAINTAINER, INCLUDING BUT NOT LIMITED TO QUALIFIED STRUCTURAL AND GEOTECHNICAL ENGINEERS.
- ATYPICAL HAZARDS HAVE BEEN IDENTIFIED IN THE DESIGN PROCESS. ATYPICAL HAZARDS IDENTIFIED ARE;
 - STORMWATER PIT AND PIPE CONSTRUCTION
 - TRAFFIC
- WHERE STATE OR TERRITORY LEGISLATION EXISTS, OR OTHERWISE AS MAY BE REQUIRED, A DESIGN VERIFICATION STATEMENT WILL BE PROVIDED BY THE CONSULTING ENGINEER.



LOCALITY SKETCH

NOT TO SCALE


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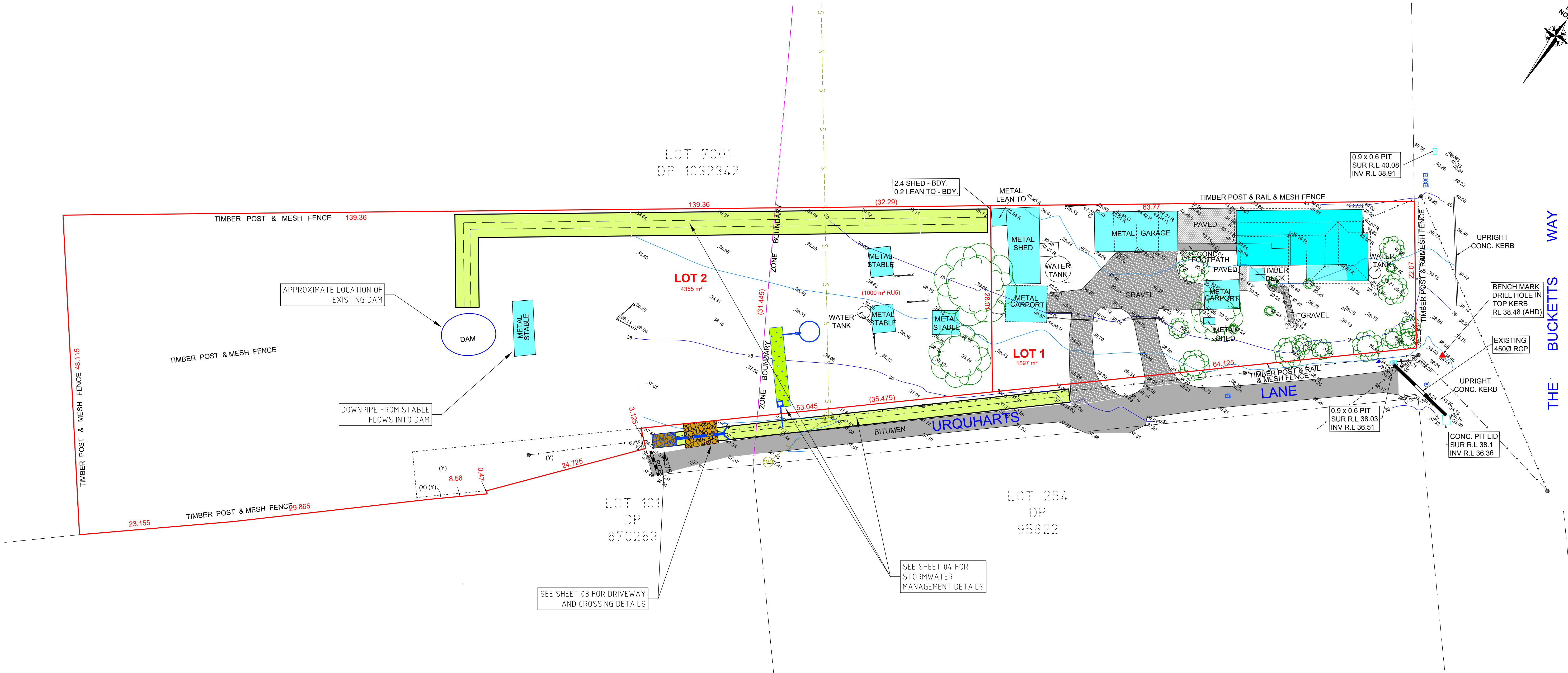
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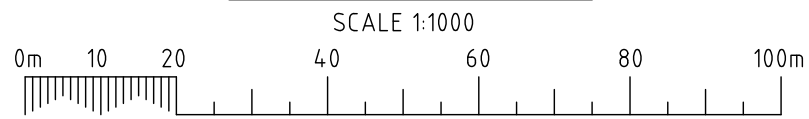
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Title	LOCALITY SKETCH AND INDEX OF SHEETS FOR PROPOSED SUBDIVISION
Client	TIM & JILL SCOTT
Site	LOT 100 D.P.870284 - No.2 URQUHARTS LANE
Locality	STROUD
LGA	MIDCOAST

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SITE PLAN VIEW



(X) EASEMENT FOR OVERHANG 0.47 WIDE (DP 870284).
(Y) EASEMENT FOR SERVICES VARIABLE WIDTH (DP 870284).

STORMWATER LEGEND:

- RT** DENOTES RAINWATER HARVESTING TANK
- DENOTES GRATED PIT
PIT SIZE TO SUIT DEPTH REQUIRED
DEPTH PIT SIZE
450 - 600 300x300
600 - 900 450x450
900 - 1200 600x600
1200 - 1500 900x900
- 1500** DENOTES 100Ø PVC PIPE U.N.O.
OR PIPE SIZE SHOWN. MIN. 0.5% FALL
- DENOTES SOLID LID PIT
- DENOTES PROPOSED RAINGARDENS
(SEE DETAIL SHEET 04)
- DENOTES PROPOSED GRASSED SWALE 1
(SEE DETAIL SHEET 04)
- DENOTES PROPOSED GRASSED SWALE 2
(SEE DETAIL SHEET 04)

SURVEY LEGEND

- TREE CANOPY (APPROXIMATE)
TREE
R.L. AT BASE OF TREE
- CLOTHES LINE
- POWER POLE
- TELSTRA PIT
- TELSTRA POST
- SMH** SEWER MANHOLE
- STORMWATER PIT
- WATER METER
- HYDRANT
- STOP VALVE
- SIGN POST
- △** FLOOR LEVEL
- ▲** BENCH MARK
- GATE
- P —** OVERHEAD POWER LINE
- 19.75 G** GUTTER HEIGHT
- 21.90 R** RIDGE HEIGHT
- / —** FENCE
- KERB OUTLET
- S —** APPROX. SEWER LINE

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SURVEYING | CIVIL ENGINEERING | TOWN PLANNING | PROJECT MANAGEMENT
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SITE PLAN VIEW
FOR PROPOSED SUBDIVISION
TIM & JILL SCOTT
LOT 100 D.P.870284 - No.2 URQUHARTS LANE
LGA **MIDCOAST**

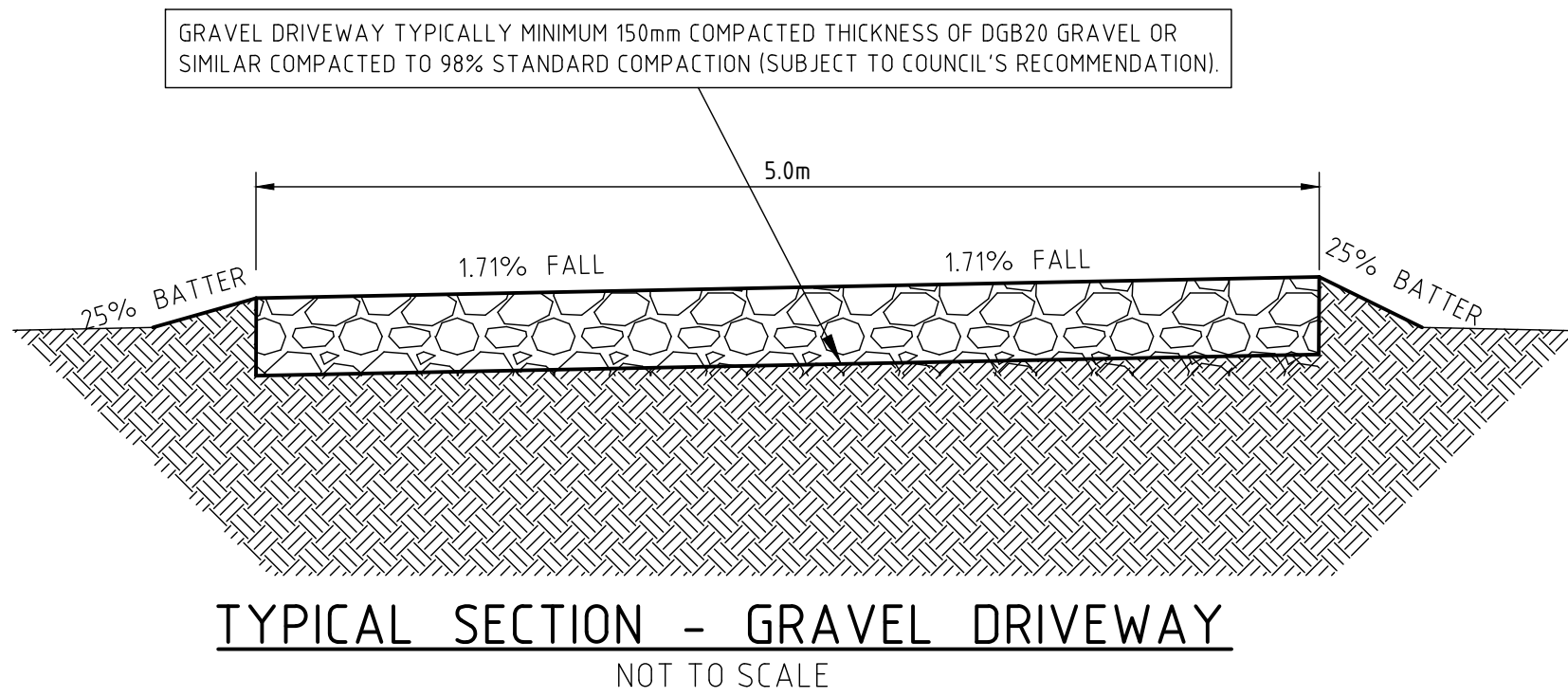
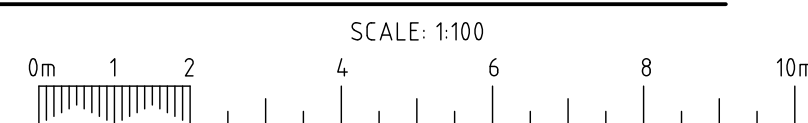
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INSTALL SCOUR PROTECTION AT
DOWNSTREAM OUTLET. PROTECTIVE
ROCKS TO BE PLACED ON GEOTEXTILE
MATERIAL. DEPTH OF PROTECTION
SHALL BE 2.5x THE ROCK DIAMETER
(REFER TO TABLE ON COUNCIL
STANDARD DRAWING SDO102 THIS
SHEET WHERE 2.0mX3.5m WITH 100mmØ
ROCK IS REQUIRED FOR 375mmØ PIPE
AND 1.71% SLOPE OF PIPE AND ROAD.

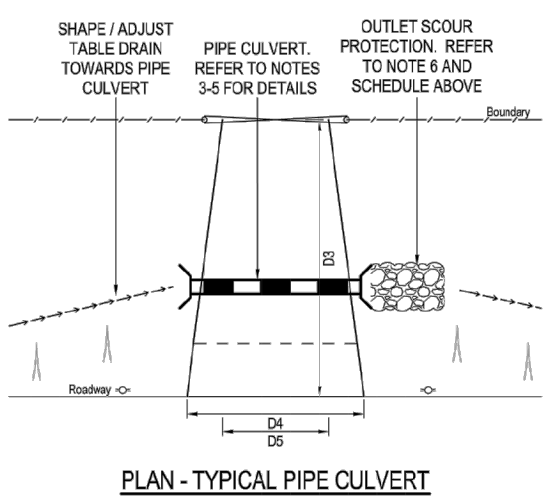
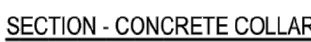
PROVIDE GRAVEL DRIVEWAY
TO PROPERTY BOUNDARY WITH
MINIMUM 150mm COMPACTED
THICKNESS OF DGB20 GRAVEL
OR SIMILAR COMPACTED TO
98% STANDARD COMPACTION.
(SEE NOTE 2 ON SD0102 AND
TYPICAL SECTION THIS SHEET).

INSTALL GRASSED SWALE 1
(SEE SHEET 04 FOR DETAILS)

PROVIDE SMOOTH JOIN WITH
EXISTING EDGE OF BITUMEN.

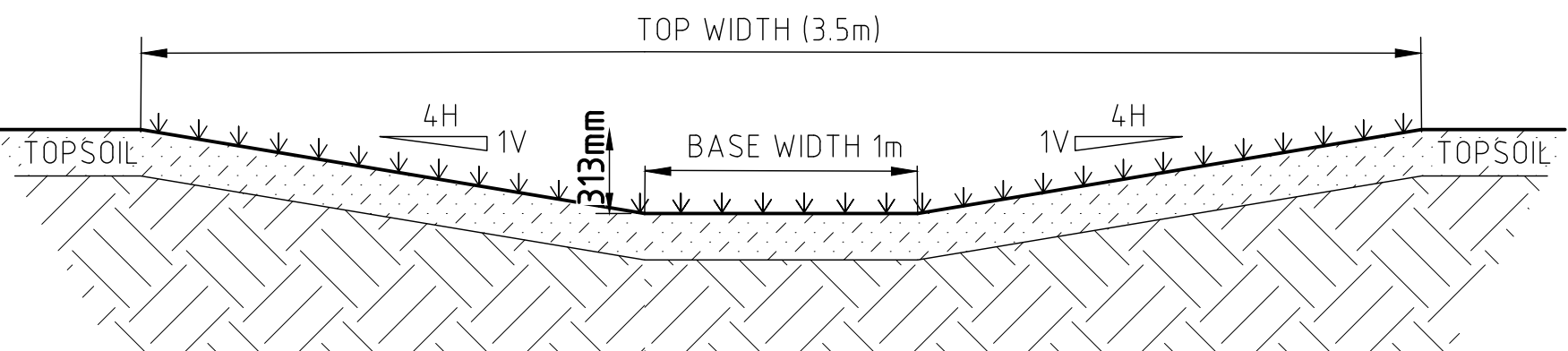
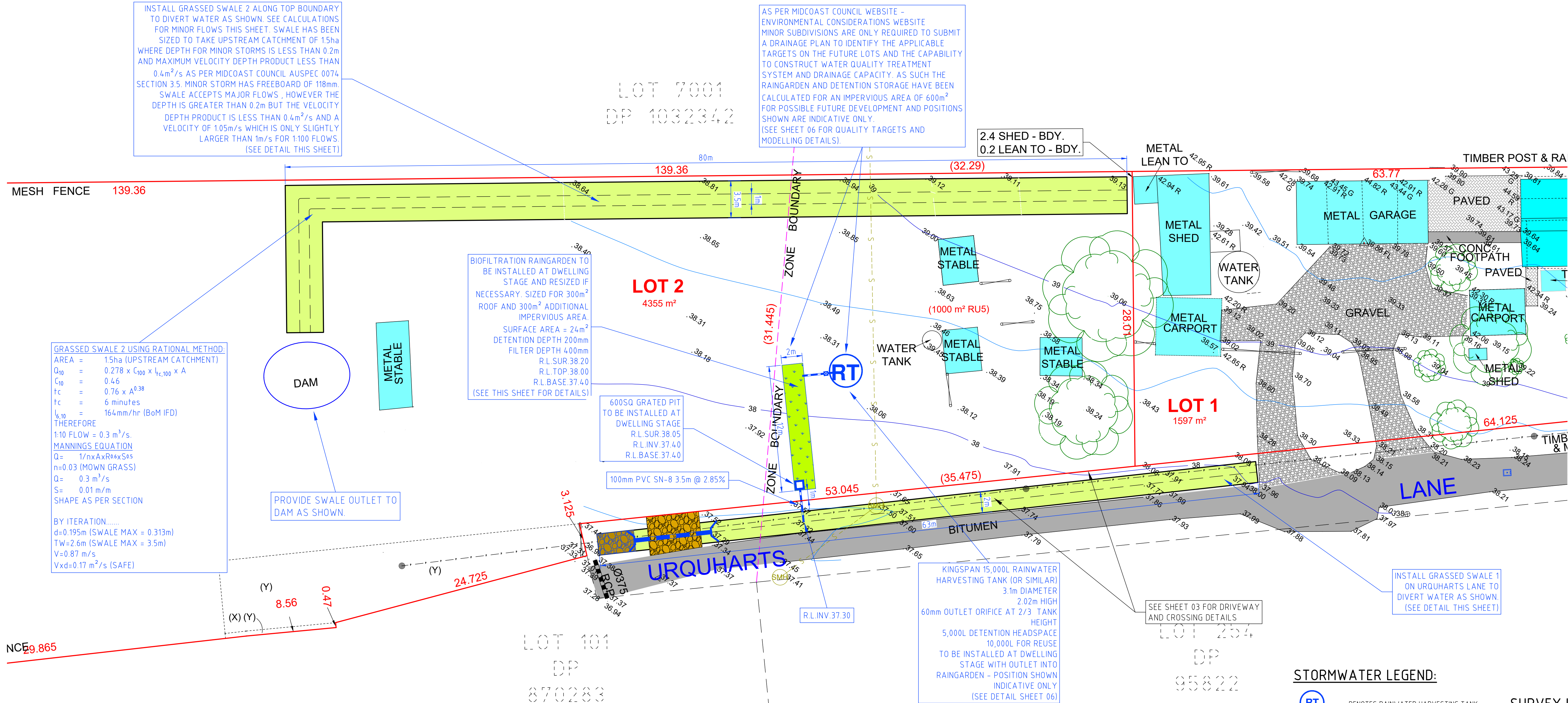


TYPICAL SECTION - GRAVEL DRIVEWAY



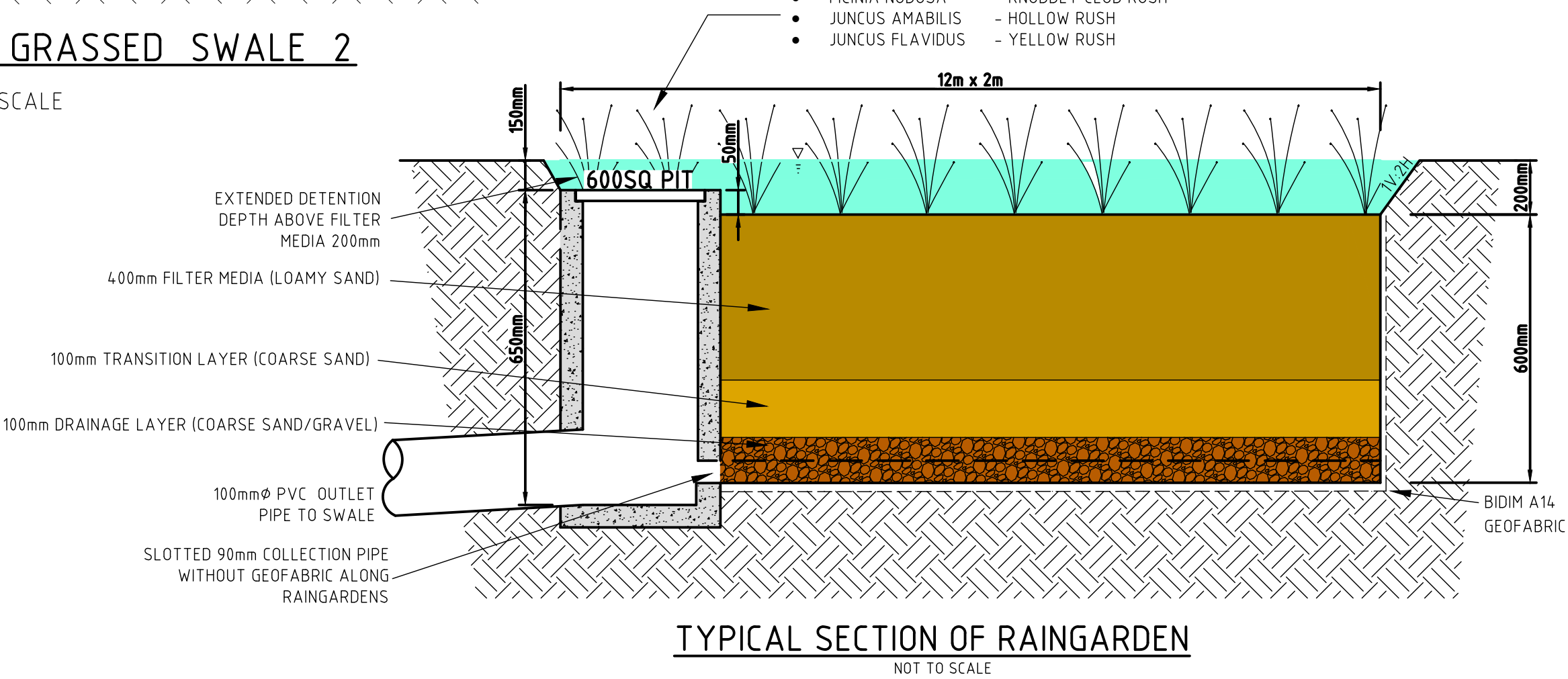
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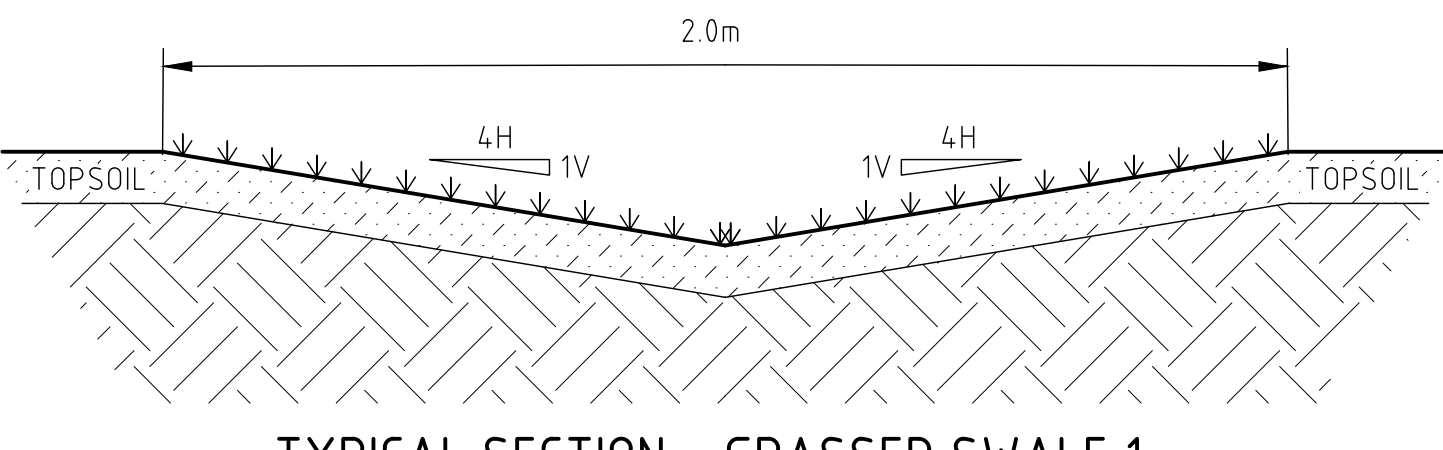
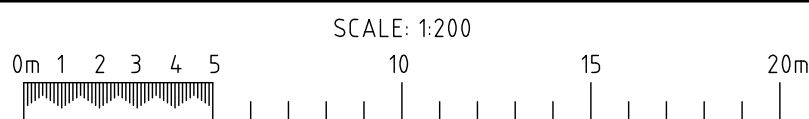


STORMWATER NOTES:

- PROPOSED SUBDIVISION SHOWN ESTIMATED FOR STORMWATER FLOWS FOR THE RUS SITE AREA AT 60% DEVELOPED.
- SITE IS DETAINED WITHIN RAINWATER TANK HEADSPACE AND 200mm EXTENDED DETENTION IN THE RAINGARDEN TOTALLING 9.8m² FOR THE SITE.
- OUTLETS AND SWALES SIZED TO CONVEY FOR MINOR INTERVAL FLOWS (1:10yr) AND MAJOR INTERVAL FLOWS (1:100yr) ARI.



PLAN VIEW - STORMWATER MANAGEMENT PLAN



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STORMWATER DETAIL PLAN VIEW
FOR PROPOSED SUBDIVISION
TIM & JILL SCOTT
LOT 100 D.P.870284 - No.2 URQUHARTS LANE
LGA MIDCOAST

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STORMWATER QUANTITY MODELLING:

- UNDEVELOPED CATCHMENT FOR COMPARISON - TOTAL AREAS OF RUS (1000m²) AS 100% PERVIOUS. (SEE RESULTS IN TABLE)



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STORMWATER QUALITY MODELLING:

1. WATER QUALITY TARGETS ARE MODELLED IN ACCORDANCE WITH COUNCIL'S GUIDELINES WHERE ENGINEERS AUSTRALIA – AUSTRALIAN RUNOFF QUALITY (ARQ) : A GUIDE TO WATER SENSITIVE URBAN DESIGN TARGETS ARE USED WHICH ARE LISTED BELOW.
2. AN AREA OF 1000m² WAS MODELLED WITH A 300m² ROOF, 300m² OF OTHER IMPERVIOUS AREA AND 400m² REMAINING PERVIOUS AREA.
3. THE FLOWS ARE "POLISHED" VIA THE RAINWATER TANK AND BIOFILTRATION RAINGARDEN.
4. MODELLING OF THE TREATMENT TRAIN HAS BEEN DONE USING S3QM WITH THE REPORT SHOWN ON THIS PAGE.
5. THE FOLLOWING PERCENTAGE LOAD REDUCTION TARGETS ARE SPECIFIED BY MIDCOAST COUNCIL USING ARQ GUIDELINES.

TOTAL SUSPENDED SOLIDS

(TSS) 80% REDUCTION

TOTAL PHOSPHORUS

(TP) 60% REDUCTION

TOTAL NITROGEN

(TN) 45% REDUCTION

GROSS POLLUTANTS

(GP) 100% REDUCTION
8. MODEL RESULTS ARE TABULATED ON THIS PAGE. MODEL RESULTS ACHIEVE POLLUTANT LOAD REDUCTION TARGETS SPECIFIED BY MIDCOAST COUNCIL.
9. QUALITY MEASURES ARE SHOWN ON PLANS FOR CAPABILITY ONLY. SIZING SHOULD BE RECONSIDERED AT DWELLING STAGE AND ADJUSTED AS NECESSARY.

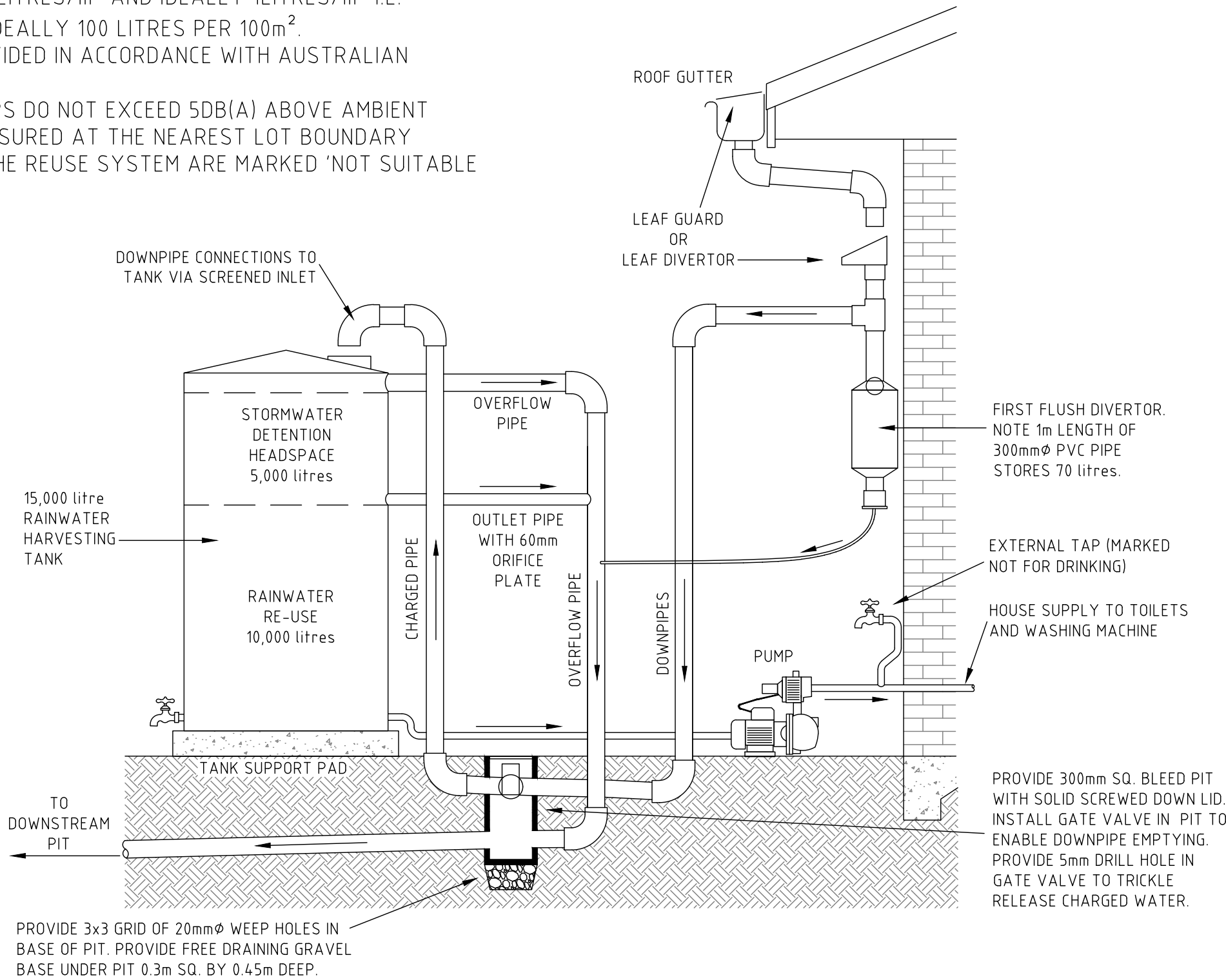


s3qm			
General Details			
Project Name:	9420	Comments:	
Project No.:	9420		
Author:	brett_cooper_94@hotmail.com		
Location Details			
Site Address:	2 Urquharts Lane, Stroud	Lot/DP No.:	100/870284
Council Area:	MidCoast Council	Dominant Soil Texture:	Clay
Rainfall Region:	Taree	Design Mode and WQOs:	Design/TTE
Total Area (m2):	1000	No. Catchments:	1

Output Summary			
			Developed
Catchment Characteristic:			
Imperviousness(%)			60.0%
Water Usage:			
Storage Capacity (kL)			3.0 kL
Demand (kL/yr)			318.48 kL/yr
Utilisation (%)			42.75%
Efficiency (%)			99.42%
Tank Spills			36.99 per Year
Catchment 1			
Urban			1000.0
Agriculture			0.0
Forest			0.0
Treatment Train:			
			Biofiltration: Surface Area=24.0, Ed Depth=0.2, F Depth=0.4
Treated Loads / Flows			
			Train Load Effectiveness (%)
Flow(ML)			0.63 20.5
TSS(kg/yr)			4.9 ✓ 92.6 80
TP (kg/yr)			0.059 ✓ 61.6 60
TN (kg/yr)			0.53 ✓ 66.5 45
Gross Pollutants (kg/yr)			0.0 ✓ 100.0 100
Note:			

RAINWATER REUSE/OSD

1. STORAGE SIZE OF RAINWATER RE-USE TANKS SUBJECT TO BASIX CLASSIFICATION.
2. OVERFLOW FROM REUSE/OSD TANKS TO BE CONNECTED INTO RAINGARDEN AS SHOWN.
3. ALL ROOFWATER/DOWNPIPES TO BE CONNECTED TO REUSE/OSD TANKS.
5. THE REUSE TANK SYSTEM IS CONNECTED FOR USE IN TOILET FLUSHING, IRRIGATION, LAUNDRY, CAR WASHING AND OTHER APPROPRIATE PURPOSES.
6. THE COLLECTION SYSTEM INCORPORATES AN EFFECTIVE FIRST FLUSH DEVICES FOR REMOVING ROOF SURFACE CONTAMINATION. FIRST FLUSH TO BE PER DOWNPIPE OR COMMUNAL AT TANK VIA COMMON ABOVE OR UNDERGROUND PIPE(S) OR CONTINUOUS DIVERTOR e.g. RAPID PLAS RT55WD OR SIMILAR.
7. FIRST FLUSH IDEALLY TO BE MINIMUM 200 MILLILITRE PER METRE SQUARE OF ROOF AREA TO A MAXIMUM OF 2LITRES/m² AND IDEALLY 1LITRES/m² I.E. MINIMUM 30 LITRES PER 150m², IDEALLY 100 LITRES PER 100m².
8. BACKFLOW PREVENTION IS PROVIDED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.12
9. NOISE EMISSION FROM ANY PUMPS DO NOT EXCEED 5DB(A) ABOVE AMBIENT BACKGROUND NOISE LEVEL MEASURED AT THE NEAREST LOT BOUNDARY
10. ALL FIXTURES CONNECTED TO THE REUSE SYSTEM ARE MARKED 'NOT SUITABLE FOR DRINKING'.



TYPICAL DETAIL OF ABOVE GROUND RAINWATER HARVESTING TANKS

NOT TO SCALE

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