STORMWATERMANAGEMENTPLAN
PROPOSED SUBDIVISION
Lot 36 ,No.63 CARINYA ROAD, PICNIC POINT

GENERAL NOTES:

1. THESE PLANS REMAIN THE PROPERTY OF NY CIVIL ENGINEERING PTY LTD AND ARE SUBJECT TO COPYRIGHT
2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED. ALL REDUCED LEVELS (SURFACE LEVELS, INVERT LEVELS) AND CHAINAGES ARE IN METERS UNLESS OTHERWISE STATED. DO NOT SCALE OFF THE DRAWINGS, SCALES ARE AS SHOWN, USE FIGURED DIMENSIONS.
3. THIS PLAN IS TO BE READ IN JUNCTION WITH LATEST ARCHITECTURAL, STRUCTURAL, UTILITY AND LANDSCAPE PLANS IN ADDITION TO ANY RELEVANT GEOTECHNICAL, SOIL CLASSIFICATION OR REF/ENVIRONMENTAL REPORTS. ENGINEER IS TO BE NOTIFIED OF ANY DISCREPANCIES QUOTED ON THIS PLAN.
4. ALL WORKS SHALL BE CARRIED OUT TO LOCAL COUNCIL'S DEVELOPMENT CONTROL PLAN AND SPECIFICATIONS, AS/NZS 3500.3 AND B.C.A.
5. ALL LEVELS SHALL RELATE TO THE ESTABLISHED BM, PM AND/OR LM. ALL EXISTING SERVICES ARE TO BE VERIFIED FOR LOCATION AND DEPTH PRIOR TO COMMENCEMENT OF ANY WORK. CONTRACTOR TO NOIFY DESIGNER OF ANY DISCREPANCIES OF SERVICE LEVELS QUOTED ON THIS PLAN. ALL SURVEY INFORMATION, BUILDING AND FINISHED SURFACE LEVELS SHOWN IN THESE DRAWINGS ARE BASED ON LEVELS OBTAINED FROM DRAWINGS BY OTHERS.
6. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY PRIOR APPROVAL REQUIRED FROM COUNCIL WITH RESPECT TO POTENTIAL IMPACT ON TREES FOR ANY WORKS SHOWN ON THIS DRAWING PRIOR TO THE COMMENCEMENT OF WORKS. NO TREES SHALL BE REMOVED WITHOUT THE WRITTEN PERMISSION OF COUNCIL.
7. THE CONTRACTOR SHALL TAKE ALL DUE CARE TO USE THE ABSOLUTE MINIMUM AREA FOR CONSTRUCTION AND THAT NO UNDUE DAMAGE IS DONE TO THE EXISTING VEGETATION.
8. THE CONTRACTOR SHALL COMPLY WITH CONDITIONS, AND SPECIFICATION OF COUNCIL AND ALL ACTS OF THE NSW EPA.
9. THE CONTRACTOR SHALL TAKE ALL REASONABLE CARE TO PROTECT EXISTING SERVICES. DAMAGED SERVICES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
10. ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING WORK.
11. SUITABLE WARNING SIGNS AND BARRICADES ARE TO BE PROVIDED IN ACCORDANCE WITH THE AUSTRALIAN STANDARDS AND AS DIRECTED BY THE RELEVANT AUTHORITY.
12. SERVICES SHOWN ARE INDICATIVE ONLY FROM AVAILABLE INFORMATION AND THE TIME OF SITE INVESTIGATION (IF ANY). THE BUILDER IS TO NOTIFY ENGINEER OF ANY DISCREPANCIES QUOTED ON THIS PLAN.
13. RESTORE ALL TRAFFIC AREAS TO PRE EXISTING CONDITION. FOR ALL SURFACES OTHER THAN IN TRAFFIC AREAS RESTORE DISTURBED SURFACES TO PRE-EXISTING CONDITION AND COMPACT AS SPECIFIED.
14. RESTORE ALL AUTHORITY OWNED AREAS TO COUNCIL AND/OR AUTHORITY STANDARD AND SPECIFICATION.
15. THE WORK AS CONSTRUCTED WORKS SHALL BE INSPECTED BY THE ENGINEER, MINIMUM 48 HOURS NOTICE SHALL BE PROVIDED FOR ALL INSPECTION REQUESTS.
16. THE DESIGN PLANS HEREIN ARE SUBJECT TO COUNCIL APPROVAL PRIOR TO CONSTRUCTION.
17. WORK AS CONSTRUCTED DRAWINGS TO BE REQUESTED AND RECEIVED IN CAD/.DWG FILE TYPE AND HARD COPY 'RED LINE' MARKUP FROM CONSTRUCTOR FOR VERIFICATION AND CERTIFICATION.

ROOF STORMWATER DRAINAGE NOTES:

1. ALL DOWN PIPES TO BE MINIMUM DN90 OR 100x50MM FOR GUTTERS SLOPE 1:500 AND STEEPER AS PER AS 3500.3 - 3.7.8
2. ALL ROOF GUTTERS TO HAVE OVERFLOW PROVISION IN ACCORDANCE WITH AS 3500.3 AND SECTIONS 3.5.3, 3.7.5 AND APPENDIX G OF AS 3500.3.
3. ALL DOWNPIPES TO BE FITTED VERTICALLY TO THE SOLE OF EAVES GUTTERS, RAINHEAD AND/OR SUMP.
4. ALL DOWNPIPES TO DRAIN INTO RAINWATER TANK AND OR PIT PRIOR TO DISCHARGE OFFSITE UNLESS PRIOR APPROVAL IS OBTAINED FROM COUNCIL IN WRITING OR NOTED OTHERWISE ON THIS PLAN.
5. ALL EAVES GUTTERS TO BE SIZED FOR ARI 20 - AS PER AS 3500.3 - 3.5 AND APPENDIX H.
6. ROOF DRAINAGE INSTALLATION TO BE IN ACCORDANCE TO AS 3500.3 SECTION 4.

STORMWATER DRAINAGE NOTES:

PIPE SIZE:

1. THE MINIMUM PIPE SIZE SHALL BE:
   - 1.1. DN90 FOR ALL DOWNPIPES;
   - 1.2. DN100 WHERE THE LINE ONLY RECEIVES ROOF STORMWATER RUNOFF, OR;
   - 1.3. DN100 WHERE THE LINE RECEIVES RUNOFF FROM PAVED OR UNPAVED AREAS.

PIPE GRADE:

1. THE MINIMUM PIPE GRADE SHALL BE:
   - 1.1. FOR DN100 - DN150 - 1.00%
   - 1.2. FOR DN225 - 0.50%
   - 1.3. FOR DN300 - 0.45%
   - 1.4. FOR DN375 - 0.35%

STANDARD COVER:

1. MINIMUM PIPE COVER FOR PVC PIPES SHALL BE AS PER AS 3500.3 TABLE 6.2.5:
   - 1.1. NOT SUBJECT TO VEHICULAR LOADING:
     - 1.1.1. WITHOUT PAVEMENT SINGLE DWELLINGS - 100mm
     - 1.1.2. WITHOUT PAVEMENT OTHER THAN SINGLE DWELLINGS - 300mm
     - 1.1.3. WITH PAVEMENT (BRICK/PAVERS) AND/OR UNREINFORCED CONCRETE - 100mm
   - 1.2. SUBJECT TO VEHICULAR LOADING:
     - 1.2.1. ROADS (SEALED) - 600mm
     - 1.2.2. ROADS (UNSEALED) - 750mm
     - 1.2.3. OTHER THAN ROADS (WITH PAVEMENT) - 100mm
     - 1.2.4. OTHER THAN ROADS (WITHOUT PAVEMENT) - 450mm

PIPE INSTALLATION

1. PIPES AND FITTINGS FOR STORMWATER DRAINAGE SHALL BE AS FOLLOWS:
   - 1.1. FOR PIPE SIZES UP TO DN225 - PVC WITH SOLVENT WELDED JOINTS (IN GROUND).
   - 1.2. FOR PIPE SIZES GREATER THAN DN225 - RCP WITH RUBBER RING JOINTS.
   - 1.3. FOR LARGER PIPE DEPTHS AS SPECIFIED IN AS 3500.3 - RCP WITH RUBBER RING JOINTS.
   - 1.4. FOR PIPES AND FITTINGS FOR SUBSOIL DRAINAGE SHALL BE SLOTTED PVS WITH SOLVENT WELDED JOINTS MINIMUM DN150.
2. FOR GRATED DRAINS SHALL BE MINIMUM DN150 IN NON-TRAFFICABLE ZONES AND DN225 IN TRAFFICABLE ZONES.
3. LAY AND JOINT ALL PIPES IN ACCORDANCE WITH THE MANUFACTURING RECOMMENDATIONS AND:
   - 3.1. AS 3725-1989 - LOADS ON BURIED CONCRETE PIPES
   - 3.2. AS 2566 - 1988 - BURIED FLEXIBLE PIPELINES
   - 3.3. AS 1597.2 - 1996 - PRECAST REINFORCED CONCRETE BOX CULVERTS
   - 3.4. AS 3500 - 1990 NATIONAL PLUMBING AND DRAINAGE CODE - PART 2 SANITARY PLUMBING AND SANITARY DRAINAGE - SYDNEY WATER REQUIREMENTS.
4. ALLOW TO TEST ALL PIPES AND PITS TO MANUFACTURERS REQUIREMENTS.

CONNECTIONS TO STORMWATER SYSTEMS UNDER BUILDINGS:

IN ACCORDANCE WITH AS 3500.3 SECTION 9.2

CONNECTIONS TO COUNCIL STORMWATER SYSTEMS:

CONNECTION TO COUNCIL STORMWATER SYSTEM TO BE IN ACCORDANCE TO LOCAL COUNCIL DCP AND STANDARDS. NO CONNECTIONS TO BE MADE UNTIL PROPER PERMIT/APPROVALS ARE OBTAINED FROM LOCAL COUNCIL IN WRITING.

WARNING:

EXISTING SERVICES SHOWN ON THESE PLANS ARE NOT GUARANTEED COMPLETE OR CORRECT AND FURTHER INFORMATION IS REQUIRED FROM THE RELEVANT AUTHORITY AND FIELD INVESTIGATION AND ARE TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

LEGEND

SURFACE INLET PIT		GRATED TRENCH DRAIN	
SURFACE INLET PIT (WITH ENVIROPOD 200 MICRON)		ABSORPTION TRENCH	
ACCESS GRATE (WITH GROSS POLLUTANT TRAP)		PROPOSED ROOF GUTTER FALL	
450 SQUARE INTERVAL	450 X 450	PROPOSED DOWNPIPE SPREADER	SP
GRATE LEVEL = 75.50	SL 75.50	STORMWATER PIPE 100mm DIA. MIN. UNO	
INVERT LEVEL = RL 75.20	IL 75.20	SUBSOIL PIPE	a a
PROPOSED DOWNPIPE 90mm DIA. OR 100mm x 50mm MIN.	DP 90	EXISTING STORMWATER PIPE	SW
NATURAL GROUND FINISHED DESIGN LEVEL	× 10.00	INSPECTION RISER	IR
		RAINWATER HEAD	RWH

STORMWATER PIT/STRUCTURES NOTES:

PIT SIZES AND DEPTHS:

1. PIT SIZES WILL BE AS FOLLOWS:

DEPTH (mm)	MIN. PIT SIZE (mm)
UP TO 450	350x350
450 – 600	450x450
600 – 900	600x600
900 – 1200	600x900
1200+	900x900 (WITH STEP IRONS)

PIT DESIGNS:

1. TRENCH DRAINS: CONTINUOUS TRENCH DRAINS ARE TO BE MIN. DN150 AND MIN. 100mm DEPTH. THE BARS OF THE GRATE ARE TO BE PARALLEL TO THE DIRECTION OF SURFACE FLOW.
2. STEP IRONS: PITS BETWEEN 1.2m AND 6m ARE TO HAVE STEP IRONS IN ACCORDANCE WITH AS 1657. FOR PITS GREATER THAN 6m OTHER MEANS OF ACCESS MUST BE PROVIDED.
3. PLASTIC/PVC PITS: PVC PITS WILL ONLY BE PERMITTED IF THEY ARE MAX. 450x450 AND MAX. 450mm DEPTH AS WELL AS BEING HEAVY DUTY.
4. IN-SITU PITS: IN-SITU PITS ARE TO BE CONSTRUCTED ON A CONCRETE BED OF AT LEAST 150mm THICK. THE WALLS ARE TO BE DESIGNED TO MEET THE MINIMUM REQUIREMENTS OF CLAUSE 4.6.3 OF AS 3500.4. PITS DEEPER THAN 1.8m SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE.
5. GRATES: GRATES ARE TO BE GALVANIZED STEEL GRID TYPE. GRATES ARE TO BE OF HEAVY-DUTY TYPE IN AREAS WHERE THEY MAY BE SUBJECT TO VEHICLE LOADING.

INSTALLATION NOTES:

1. ALL PIPES INTO PITS TO BE CUT FLUSH WITH PIT WALL.
2. ALL PITS THAT ARE INSTALLED AT GREATER THAN 600mm DEEP TO BE MIN. 600x600 PIT.
3. GRATED COVERS ON PITS GREATER THAN 600mm TO BE HINGED.
4. BASE OF PIT TO BE SAME LEVEL OF INVERT OF OUTLET.
5. OUTLET PIPE FROM ANY PIT TO BE 20mm LOWER THAN INLET PIPE/S

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APPROVED BY	REVISION	DRAWN	DESCRIPTION	DATE
NADER ZAKI MIEAust CPEng NER	A	MR	ISSUED FOR APPROVAL	26.07.2022

DRAWING TITLE: DETAILS, NOTES & LEGEND

PROJECT TITLE: PROPOSED SUBDIVISION No.63 CARINYA ROAD PICNIC POINT

SHEET SIZE	A3
DESIGNED	MR
CHECKED	YR
ISSUE	A
SCALE	-

JOB REFERENCE: E220397

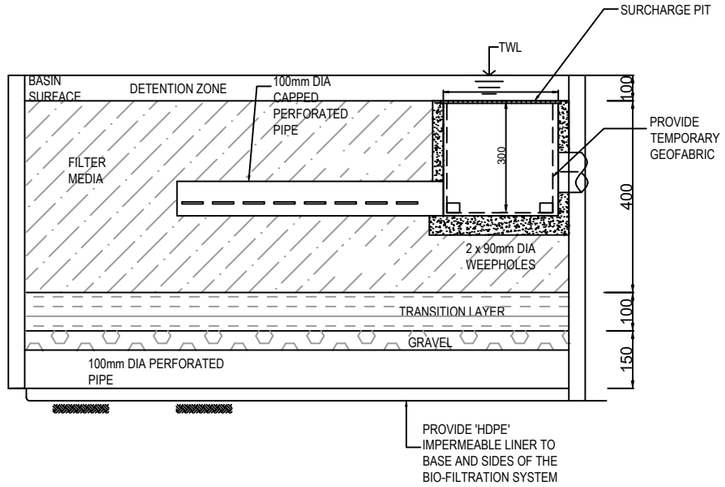
DRAWING No.: D1

No. IN SET: 2

DRAINAGE PIPE LEGEND

- EXISTING STORMWATER PIPE — SW
- DRAINAGE PIPES TO RAINWATER TANK — RWT
- DRAINAGE PIPES VIA GRAVITY
- CHARGED DRAINAGE PIPES — CH
- 65mm DIA CLASS 12 PUMP LINE

NOTE: ALL IN GROUND PIPES TO BE 100mm DIA PVC UNO

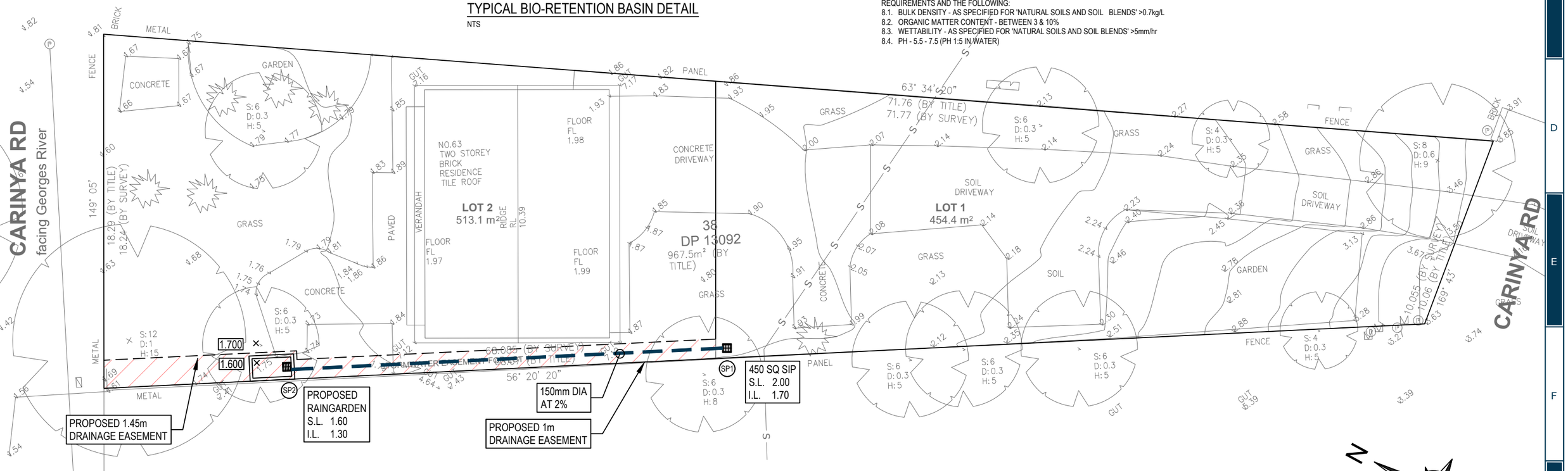


BIORETENTION NOTES:

1. FOR REQUIRED PONDING DEPTH REFER TO SECTION
2. FOR REQUIRED FILTER AREA REFER TO PLAN
3. THE DRAINAGE LAYER ABOVE THE SATURATED ZONE IS TO CONSIST OF FINE GRAVEL (D90 = 10mmDIA)
4. A 100mm THICK COARSE SAND TRANSITION LAYER IS TO BE INSTALLED OVER THE GRAVEL DRAINAGE LAYER. TO COMPLY WITH THE FOLLOWING PARTICLE SIZE DISTRIBUTION:
   - 4.1. 1.4mm - 100% PASSING
   - 4.2. 1.0mm - 80% PASSING
   - 4.3. 0.7mm - 44% PASSING
   - 4.4. 0.5mm - 8.5% PASSING
5. FILTER MEDIA IS TO BE FREE OF RUBBISH AND DELETERIOUS MATERIAL AND LIGHTLY COMPACTED ONLY (TO 90% STANDARD COMPACTION)
6. FILTER MEDIA SATURATED HYDRAULIC CONDUCTIVITY TO BE 100mm/hr. PERMEABILITY IS TO BE TESTED USING THE AS4419 (LATEST EDITION) (SOILS FOR LANDSCAPING AND GARDEN USE) METHOD (APPENDIX H)
7. BIO-RETENTION FILTER MEDIA PARTICLE SIZE DISTRIBUTION IS TO BE AS FOLLOWS:
   - 7.1. CLAY AND SILT <5% (<0.05mm)
   - 7.2. VERY FINE SAND 5-30% (0.05 - 0.15mm)
   - 7.3. FINE SAND 10-30% (0.15 - 0.25mm)
   - 7.4. MEDIUM TO COARSE SAND 40-60% (0.25 - 1mm)
   - 7.5. COARSE SAND 7-10% (1.0 - 2.0mm)
   - 7.6. FINE GRAVEL <3% (2.0 - 3.4mm)
8. FILTER MEDIA IS TO COMPLY WITH AS4419 (LATEST EDITION) INCLUDING TESTING REQUIREMENTS AND THE FOLLOWING:
   - 8.1. BULK DENSITY - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS' >0.7kg/L
   - 8.2. ORGANIC MATTER CONTENT - BETWEEN 3 & 10%
   - 8.3. WETTABILITY - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS' >5mm/hr
   - 8.4. PH - 5.5 - 7.5 (PH 1:5 IN WATER)
   - 8.5 ELECTRICAL CONDUCTIVITY (EC) AS SPECIFIED FOR 'NATURAL SOIL AND SOIL BLENDS' <1.2DS/M
   - 8.6 PHOSPHORUS - <20mg/kg
   - 8.7 NITROGEN DRAWDOWN (NDI) AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS'
   - 8.8 DISPERSIBILITY - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS CATEGORY 1 OR 2 PERMEABILITY - SATURATED HYDRAULIC CONDUCTIVITY 100mm/hr ± 20% AT 90% STANDARD COMPACTION
   - 8.9 TEXTURE - SANDY LOAM
   - 8.10 LARGER PARTICLES - AS SPECIFIED FOR 'NATURAL SOILS AND SOIL BLENDS'
9. FILTER MEDIA WATER HOLDING CAPACITY IS TO BE AT LEAST 15-20% BY VOLUME AT 300mm OF SUCTION USING THE MCINTYRE AND JAKOBSEN (1998) METHOD
10. ANY COMPONENT OF FILTER MEDIA FOUND TO CONTAIN HIGH LEVELS OF SALT, HIGH LEVELS OF CLAY OR SILT PARTICLES, EXTREMELY LOW LEVELS OF ORGANIC CARBON OR ANY OTHER EXTREMES WHICH MAY BE CONSIDERED RETARDANT TO PLANT GROWTH AND DENTRIFICATION IS TO BE REJECTED
11. A WATERPROOF LINER MAY BE USED IN CIRCUMSTANCES WHERE EXFILTRATION FROM THE BIORETENTION IS UNDESIRABLE. IN THIS CASE THE LINER WOULD BE PLACED IN ADDITION TO THE GEOTEXTILE (IE ON THE NSIDE FACE OF THE GEOTEXTILE)

TYPICAL BIO-RETENTION BASIN DETAIL

NTS



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PLANS ARE FOR CONCEPT ONLY AND NOT FOR CONSTRUCTION

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DRAWING TITLE

STORMWATER MANAGEMENT PLAN

PROJECT TITLE

PROPOSED SUBDIVISION
No.63 CARINYA ROAD
PICNIC POINT

SHEET SIZE	A3
DESIGNED	MR
CHECKED	YR
ISSUE	A
SCALE	1:200

JOB REFERENCE E220397

DRAWING No. D2

No. IN SET 2