PROPOSED WAREHOUSE FACILITY

128 ANDREWS ROAD, PENRITH NSW CONCEPT CIVIL DRAWINGS FOR DEVELOPMENT APPLICATION

DRAWING LIST:

CO13620.00-DA10 DRAWING LIST & GENERAL NOTES CO13620.00-DA20 EROSION & SEDIMENT CONTROL PLAN - SHEET 1 CO13620.00-DA21 FROSION & SEDIMENT CONTROL PLAN - SHEET 2 CO13620.00-DA30 BULK EARTHWORKS PLAN - SHEET 1

CO13620.00-DA40 STORMWATER DRAINAGE PLAN - SHEET 1 CO13620.00-DA41 STORMWATER DRAINAGE PLAN - SHEET 2 CO13620.00-DA41 STORMWATER TREATMENT CATCHMENT PLAN CO13620.00-DA45 STORMWATER DRAINAGE DETAILS - SHEET 1 CO13620.00-DA46 STORMWATER DRAINAGE DETAILS - SHEET 2

CO13620.00-DA50 FINISHED LEVELS PLAN - SHEET 1 CO13620.00-DA51 FINISHED LEVELS PLAN - SHEET 2 CO13620.00-DA52 ACCESS DRIVEWAY LONGSECTION

CO13620.00-DA31 BULK EARTHWORKS PLAN - SHEET 2

PAVEMENT MAINTENANCE NOTES:

DURING THE LIFE OF THE PAVEMENT, DAMAGE IN VARIOUS FORMS IS LIKELY TO OCCUR. GOOD MAINTENANCE WILL KEEP PROBLEMS TO A MINIMUM AND EXTEND THE LIFE OF PAVEMENTS. THE FOLLOWING LIKELY AREAS OF DAMAGE MAY OR MAY NOT OCCUR DURING THE LIFE OF THE PAVEMENTS:

- SLAB PAVEMENTS:

 1. DAMAGE TO JOINTS SUCH AS FRETTING OR BREAKING AWAY OF PIECES SHOULD BE REPAIRED USING CONCRETE REPAIR PRODUCTS AND THE JOINTING MATERIAL MADE GOOD.
- AND THE JOINTING MATERIAL MADE GOOD.

 CRACKING OF SLABS WHICH MAY OCCUR OVER THE LIFE OF THE SLAB SHOULD BE REPAIRED BY EPOXY GROUTING AS SOON AS POSSIBLE TO PREVENT LOCAL FRETTING AND BREAKING AWAY. THE DEFINITION OF A CRACK WHICH MAY BECOME DETRIMENTAL IS ONE WHICH IS GREATER THAN 0.3mm.

 LOCAL DAMAGE DUE TO MECHANICAL PROCESSES OR PALLETS (WITH PROTEDIDING AWAYS SHOULD BE REPAIRED AS SOON AS POSSIBLE.
- PROTRUDING NAILS) SHOULD BE REPAIRED AS SOON AS POSSIBLE WITH AN EPOXY CONCRETE REPAIR PRODUCT.
- LOCAL MOVEMENT OF SLABS CAUSED BY EXTERNAL SOURCES SUCH AS INGRESS OF WATER SHOULD BE REFERRED TO THE ENGINEER TO
- AS INGRESS OF WATER SHOULD BE REFERRED TO THE ENGINEER TO DETERMINE THE BEST METHOD OR REPAIR. JOINT SEALANTS WILL GENERALLY BREAKDOWN AND NEED REPLACEMENT AFTER 12 MONTHS WHEN MOST OF THE SLAB SHRINKAGE HAS TAKEN PLACE. RESEALING NEEDS TO BE CARRIED OUT TO ENSURE ONGOING SUPPORT TO SLAB EDGES.

- ASPHALT PAVEMENTS:

 1. UNLESS NOTED, FLEXIBLE PAVEMENTS SHOWN ON THESE DRAWINGS
 ARE THE MINIMUM NECESSARY TO SUPPORT LIGHT CAR PARKING FOR A MINIMUM DESIGN LIFETIME.
- A MINIMUM DESIGN LIFETIME.
 CRACKING OF THE ASPHALT SURFACE AND OTHER DEFECTS SHOULD
 BE REPAIRED QUICKLY TO PREVENT INGRESS OF WATER TO THE
 SUBGRADE, WHICH WILL ACCELERATE DETERIORATION OF PAVEMENTS.
 DRAINAGE GRADES SHOULD BE MAINTAINED TO A VOID PONDING OF
 SURFACE WATER WHICH MAY CONTRIBUTE TO DETERIORATION.

GENERAL NOTES:

- G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- G2 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXPET WHERE VARIED BY THE PROJECT SPECIFICATION.
- G3 ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE.
 ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR ENGINEER'S DRAWINGS ISSUED IN ANY ELECTRONIC FORMAT MUST NOT BE USED FOR DIMENSIONAL REFER TO THE ARCHITECT'S DRAWINGS FOR ALL
- G4 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
- G5 UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES
- G6 ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH ACCEPTABLE SAFETY STANDARDS & APPROPRIATE SAFETY SIGNS SHALL BE INSTALLED AT ALL TIMES DURING THE

ELECTRONIC INFORMATION NOTES:

- THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY
 ELECTRONICALLY ISSUED INFORMATION, LAYOUTS
 OR DESIGN MODELS.
- THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR
- THE CONTRACTOR IS DECILIPED TO HIGHLIGHT ANY THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE
- THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE

EROSION CONTROL NOTES

ALL CONTROL WORK INCLUDING DIVERSION BANKS AND CATCH

- CONVEX TO THE CONTOUR TO POND WATER.
- HAY BALE BARRIERS AND GEOFABRIC FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER, PRIOR TO COMMENCEMENT OF FARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOP
- ALL TEMPORARY FARTH BERMS DIVERSION AND SILT DAM ALL TEMPORARY EARTH BERMS, DIVERSION AND SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
 CLEAR WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO THE DRAINAGE SYSTEM.
 THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND DRAINING AND LIST OF A CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND DRAINING AND CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND CONTRACTOR IS RESPONSIBLE FOR MAINTAININE AND CONTRACTOR IS RESPONSIBLE FOR MAINTAININE FOR THE PROPERTY FOR THE PROPERTY FOR THE PROP
- PROVIDING ON GOING ADJUSTMENT TO EROSION CONTROL
- PROVIDING OM GOING ADJUSTMENT TO EROSION CONTROL MEASURES AS REQUIRED DURING CONSTRUCTION.
 ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING, TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE, APPROVED LOCATION. ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE MAINTAINED UNTIL THE ROD OF THE DEFECTS LIABILITY PERIOD.
 ALL ERNAL FOR STRUCTURE STRUCTURE OF THE PROPERTY STRUCTURE ON A REGULAR BASIST OR SEAL THE FEATHWORKS.
- BASIS TO SEAL THE EARTHWORKS.
- ALL FILL AREAS ARE TO BE LEFT WITH A BUND AT THE TOP OF THE SLOPE AT THE END OF EACH DAYS EARTHWORKS THE HEIGHT OF THE BUND SHALL BE A MINIMUM OF 200MM
- ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF
- HYDROMULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.

 11. AFTER REVEGETATION OF THE SITE IS COMPLETE AND THE SITE IS STABLE IN THE OPINION OF A SUITABLY QUALIFIED PERSON ALL TEMPORARY WORK SUCH AS SILT FENCE, DIVERSION DRAINS ETC SHALL BE REMOVED.

 12. ALL TOPSOIL STOCKPILES ARE TO BE SUITABLY COVERED.
- TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR TO PREVENT WIND AND WATER EROSION.
- 10 PREVENT WIND AND WAI DRE REUSDIN.

 13. ANY AREA THAT IS NOT APPROVED BY THE CONTRACT
 ADMINISTRATOR FOR CLEARING OR DISTURBANCE BY THE
 CONTRACTOR'S ACTIVITIES SHALL BE CLEARLY MARKED
 AND SIGN POSTED, FENCED OFF OR OTHERWISE
 APPROPRIATELY PROTECTED AGAINST ANY SUCH
- DISTURBANCE.
 ALL STOCKPILE SITES SHALL BE SITUATED IN AREAS ADMINISTRATOR. A 6m BUFFER ZONE SHALL EXIST BETWEEN STOCKPILE SITES AND ANY STREAM OR FLOW PATH. ALL STOCKPILES SHALL BE ADEQUATELY PATH ALL STOCKPILES SHALL BE ADEQUATELY
 PROTECTED FROM EROSION AND CONTAMINATION OF THE
 SURROUNDING AREA BY USE OF THE MEASURES APPROVED
 IN THE EROSION AND SEDIMENTATION CONTROL PLAN.
 15. ACCESS AND EXIT AREA SHALL INCLUDE SHAKE-DOWN OR
 OTHER METHODS APPROVED BY THE CONTRACT
 ADMINISTRATOR FOR THE REHOVAL OF SOIL MATERIALS
 FORM MOTOR VEHICLES.
 16. THE CONTRACTOR IS TO ENSURE RUNDOF FROM ALL AREAS
 WHEFE THE MATIRIAL SURPACE IS DISTURBED BY
- WHERE THE NATURAL SURFACE IS DISTURBED BY CONSTRUCTION, INCLUDING ACCESS ROADS, DEPOT AND STOCKPILE SITES, SHALL BE FREE OF POLLUTANTS BEFORE IT IS EITHER DISPERSED TO STABLE AREAS OR DIRECTED TO NATURAL WATERCOURSES
- NATURAL WATERCOURSES.
 THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SLOPES,
 CROWNS AND DRAINS ON ALL EXCAVATIONS AND
 EMBANKMENTS TO ENSURE SATISFACTORY DRAINAGE AT
 ALL TIMES WATER SHALL NOT BE ALLOWED TO POND ON
 THE WORKS UNLESS SUCH PONDING IS PART OF AN

FOR DEVELOPMENT APPLICATION

DRAWING DASZ ADDED
ISSUED FOR DEVELOPMENT APPLICATION
ISSUED FOR REVIEW
ISSUED FOR INFORMATION

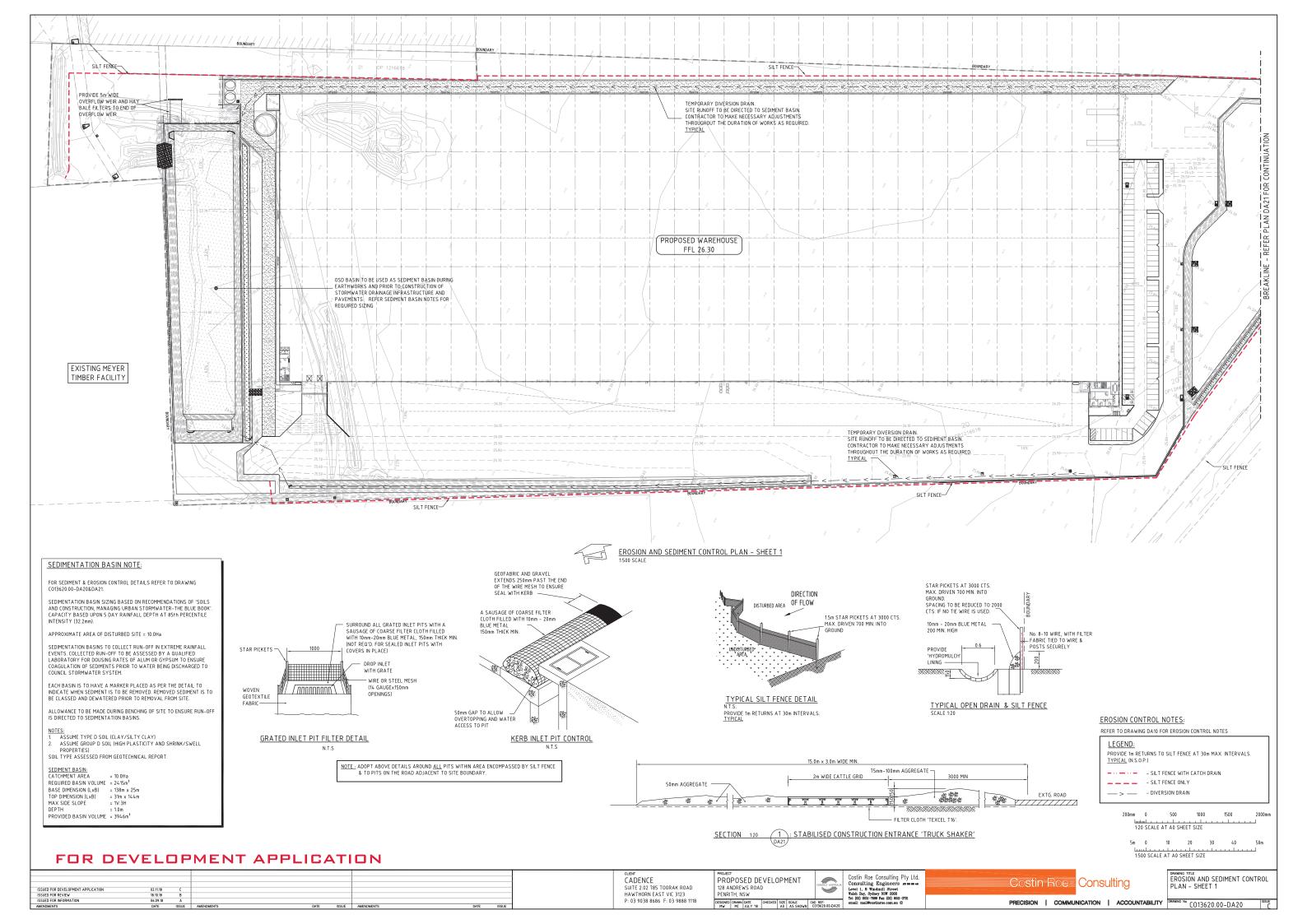
HAWTHORN EAST VIC 3123

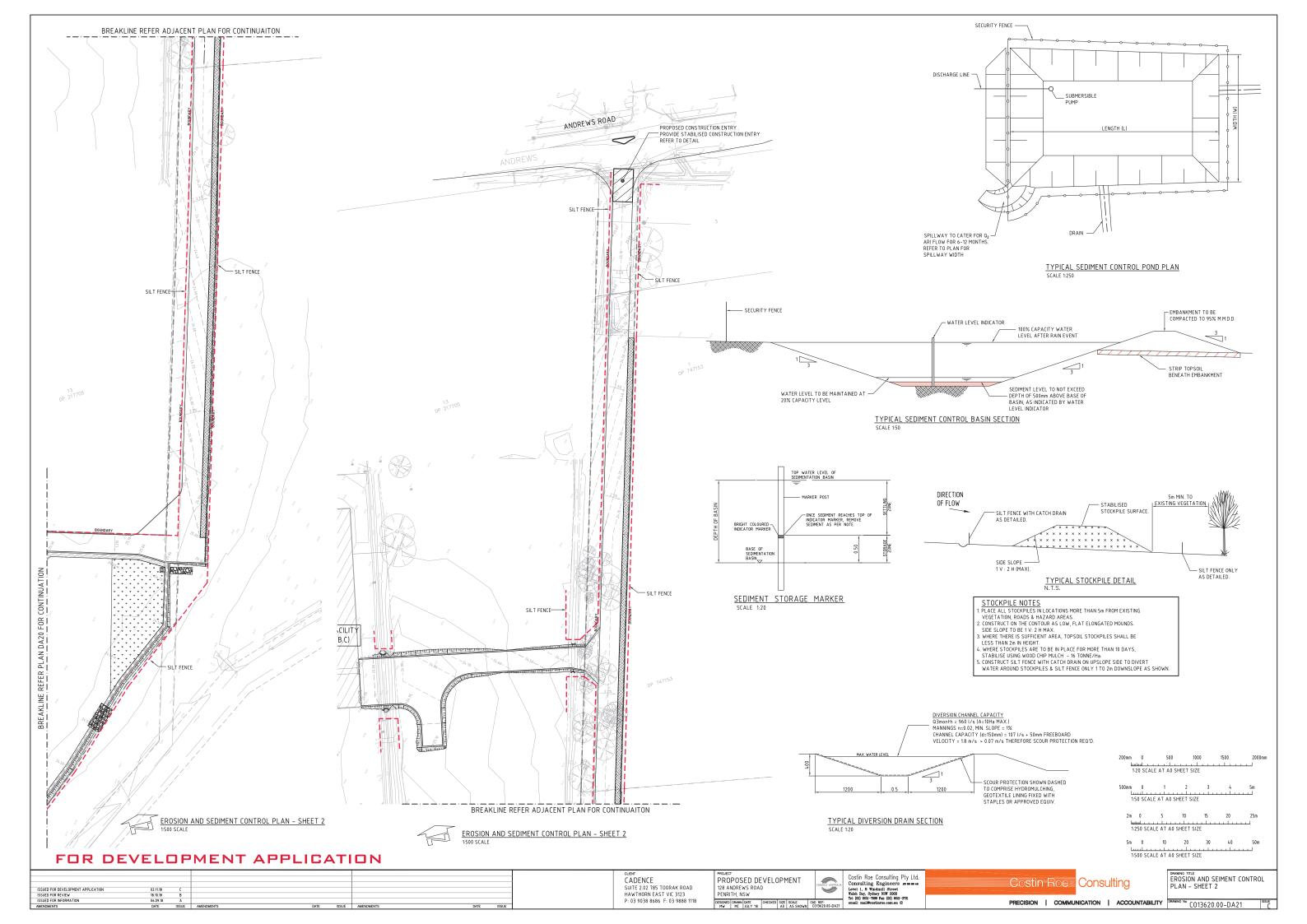
PROPOSED DEVELOPMENT

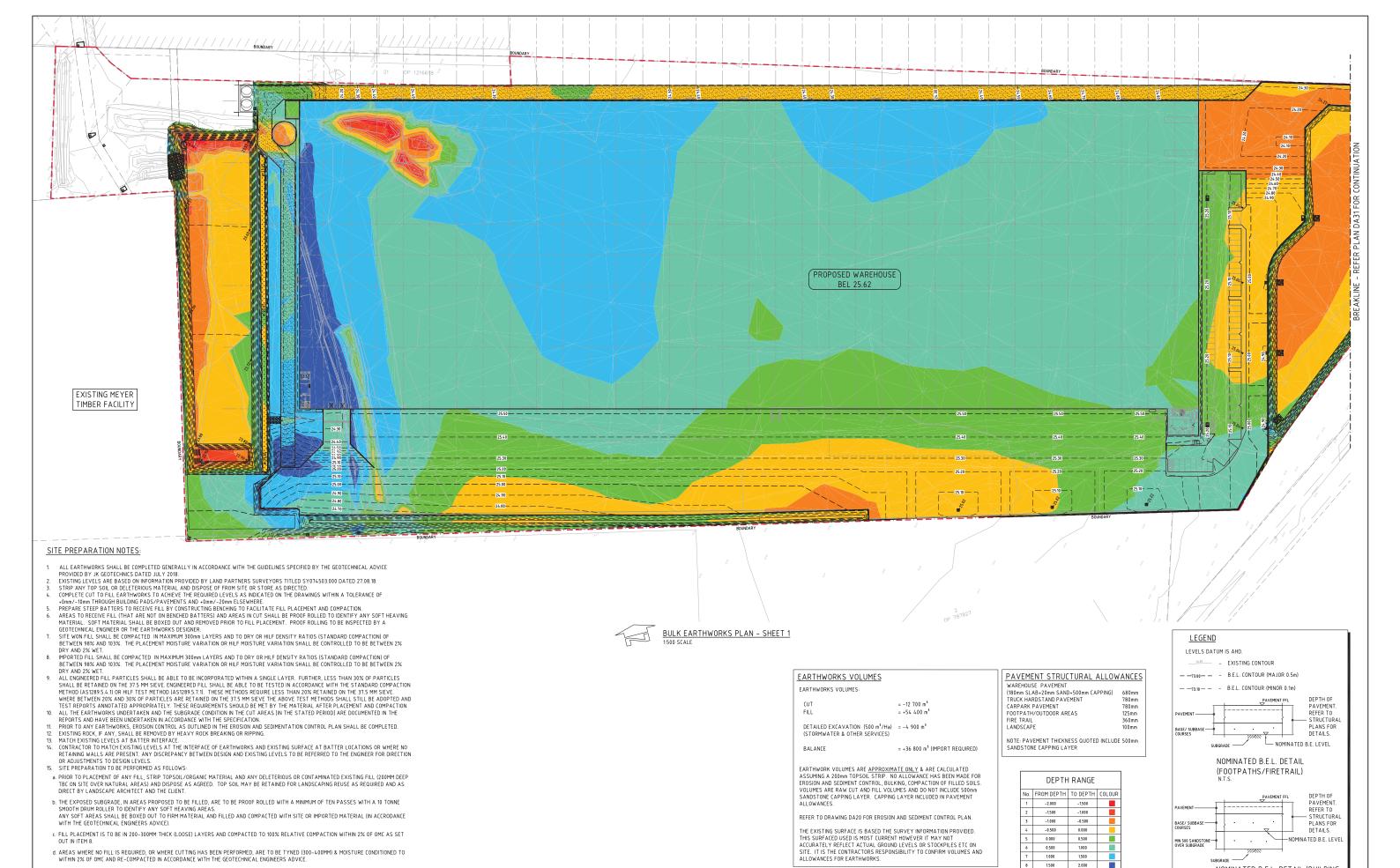
Consulting

DRAWING LIST AND GENERAL NOTES

PRECISION | COMMUNICATION | ACCOUNTABILITY | DRAWING NO CO13620.00-DA10







FOR DEVELOPMENT APPLICATION

e. A MINIMUM 500MM LAYER OF SITE WON SANDSTONE IS TO BE PROVIDED THROUGHOUT THE CARPARK PAVEMENT ZONES, HARDSTAND AREAS AND THE BUILDING FOOTPRINT. THE CONTRACTOR IS TO ALLOW FOR CUT TO FILL WORKS NECESSARY TO ENSURE THE MINIMUM SANDSTONE LAYER REQUIREMENT HAS BEEN MET. REFER PLAN AND LEGEND FOR ZONING OF SANDSTONE PLACEMENT AND ADJUSTMENT

SUITE 2.02 785 TOORAK ROAD HAWTHORN EAST VIC 3123 P: 03 9038 8686 F: 03 9888 1118 PROPOSED DEVELOPMENT 128 ANDREWS ROAD PENRITH, NSW

1:500 SCALE AT A0 SHEET SIZE

Consulting

BULK EARTHWORKS PLAN SHEET 1

NOMINATED B.E.L. DETAIL (BUILDING & TRAFFICABLE PAVEMENTS)

5m 0 10 20 30 40

CADENCE

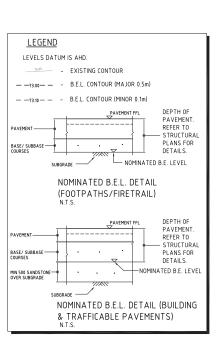
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PAVEMENT STRUCTURAL ALLOWANCES
WAREHOUSE PAVEMENT
(180mm SLAB-20mm SAND-500mm CAPPING) 680mm
TRUCK HARDSTAND PAVEMENT 780mm
CARPARK PAVEMENT 780mm
FOOTPATH/OUTDOOR AREAS 125mm
FIRE TRAIL 360mm
LANDSCAPE 100mm

NOTE: PAVEMENT THICKNESS QUOTED INCLUDE 500mm SANDSTONE CAPPING LAYER

DEPTH RANGE													
No.	FROM DEPTH	COLOUR											
1	-2.000	-1.500											
2	-1.500	-1.000											
3	-1.000	-0.500											
4	-0.500	0.000											
5	0.000	0.500											
6	0.500	1.000											
7	1.000	1.500											
8	1.500	2.000											
9	2.000	2.500											

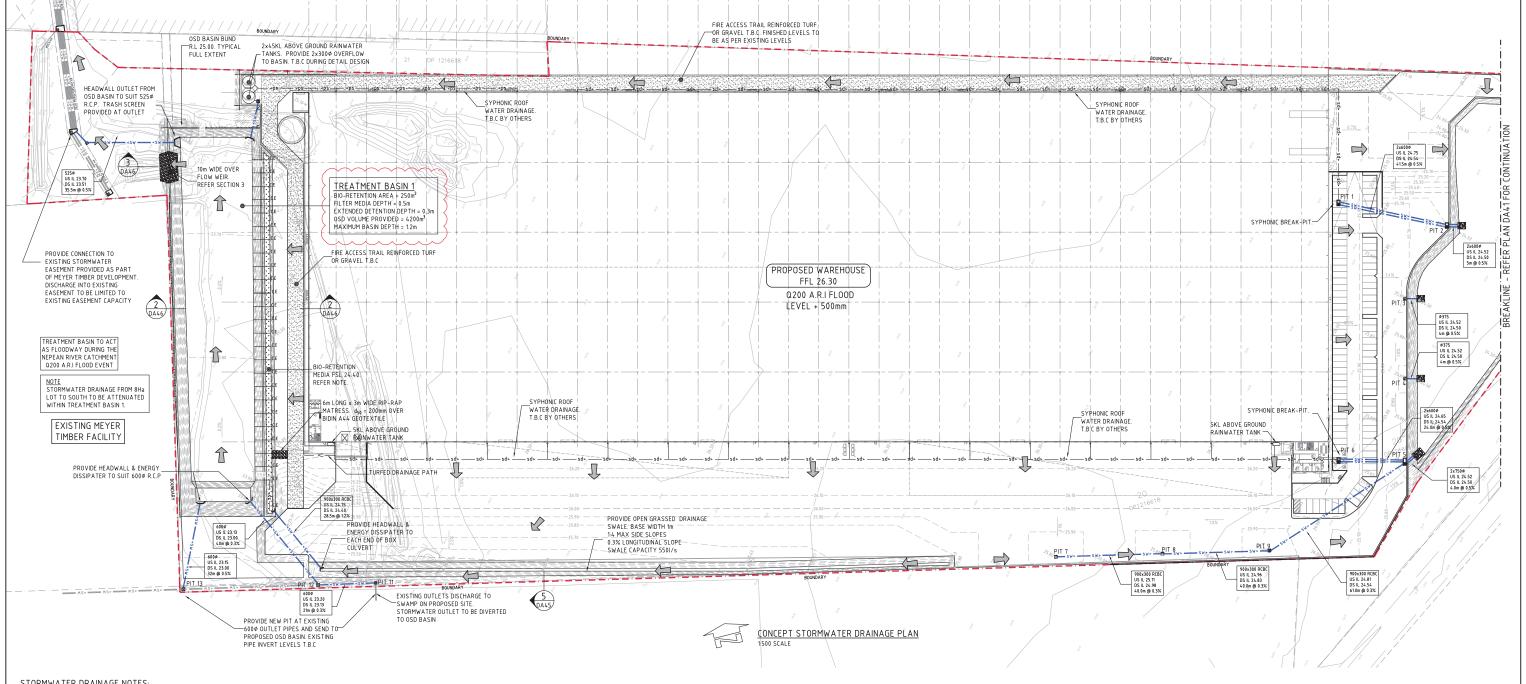


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HAWTHORN EAST VIC 3123
P: 03 9038 8686 F: 03 9888 1118

DRAWING TITLE BULK EARTHWORKS PLAN SHEET 2

5m 0 10 20 30 40 50r 1:500 SCALE AT A0 SHEET SIZE

PRECISION | COMMUNICATION | ACCOUNTABILITY | DRAWING No CO13620.00-DA31



STORMWATER DRAINAGE NOTES:

- ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.3:2003 PLUMBING AND DRAINAGE, PART 3:
- STORMWATER DRAINAGE.
 THE MINOR, (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
 ALL FINISHED PAYEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLANS DASO.
 PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
 EXISTING STORMWATER PIPT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
 ALL STORMWATER PIPES 9375 OR GREATER SHALL BE CLASS 2 (WITH HS2 SUPPORT) REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS
 NOTED OTHERWISE.

 ALL PIPES LIP TO AND INCLUDING #300 TO BE "IPV" GRADE SINE LING.

- ALL PIPES UP TO AND INCLUDING \$300 TO BE uPVC GRADE SN8 UNO.
- PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
- CONSTRUCTION CONDITIONS.
 ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING NIZ-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F': 32 MPA. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER. IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm. PIPES SHALL BE LAID AS PER PIPE LAVING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
 CONCRETE PIPES UNDER, OR WITHIN THE ZONE OF INFLUENCE OF PAVED AREAS SHALL BE LAID USING HSZ TYPE SUPPORT. AS A MINIMUM, IN ACCORDANCE WITH AS 3725. AGGREGATE BACKFILL SHALL NOT BE USED FOR PIPE BEDDING AND OR HAUNCH/SIDE SUPPORT.
 WHERE PIPE LINES ENTER PITS, PROVIDE ZM LENGTH OF STOCKING WRAPPED SLOTTED #100 UPVC TO EACH SIDO EP PIPE.
 ALL SUBSOLID REALMER FURS SHALL BE FERDING STOTED.

- ALL SUBSOIL DRAINAGE LINES SHALL BE \$\phi\$100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAID IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE, LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM, PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING

- UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT? LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.

 15. ALL PIPE GRADES 1 IN 100 MINIMUM UNO.

 16. PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.

 17. MIN. 800 COVERT TO PIEPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.

 18. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY', THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DITY'.
- 19. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT
- 20. DOWN PIPES (DP) TO BE AS PER HYDRAULIC ENGINEERS DETAILS WITH CONNECTOR TO MATCH DP SIZE U.N.O. ON PLAN. PROVIDE CLEANING EYE AT
- 21. PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

PIT SCHEDULE

PIT No.	GRATE RL	DEPTH	TYPE	SIZE	COMMENT
PIT 1	25.98	1230	SGGP	1800×1200	0
PIT 2	25.60	1100	SGGP	1800×1200	⊕
PIT 3	25.65	1130	SGGP	900×900	0
PIT 4	25.65	1130	SGGP	900×900	0
PIT 5	25.65	1130	SGGP	2400x900	0
PIT 6	25.98	1330	SGGP	1800×1200	⊕
PIT 7	25.80	690	SGGP	1200×1200	0
PIT 8	25.80	840	SGGP	1200×1200	0
PIT 9	25.80	990	SGGP	1200×1200	⊕
PIT 10	24.70	1050	BIP	1500x1500	0
PIT 11	25.20	2000	SJP	900×900	
PIT 12	25.20	2070	SJP	900×900	
PIT 13	25.10	1950	SIP	900×900	

⊕ DENOTES PITS TO BE PROVIDED WITH STORMWATER 360 ENVIROPOD PIT INSERT

LEVELS DATUM IS AHD. EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY MATTHEW FREEBURN SURVEYOR DATED 08.01.13 - SGGP, SINGLE GRATED GULLY PIT - SJP, SEALED JUNCTION PIT \boxtimes - GD, GRATED DRAIN (300W x 225D UNO) - PROPOSED DRAINAGE LINE - EXISTING DRAINAGE LINE - OVERLAND FLOW DIRECTION FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS FINISHED PAVEMENT CONTOUR (MINOR)
 0.1m INTERVALS

> 5m 0 10 20 30 40 1:500 SCALE AT AO SHEET SIZE

FOR DEVELOPMENT APPLICATION

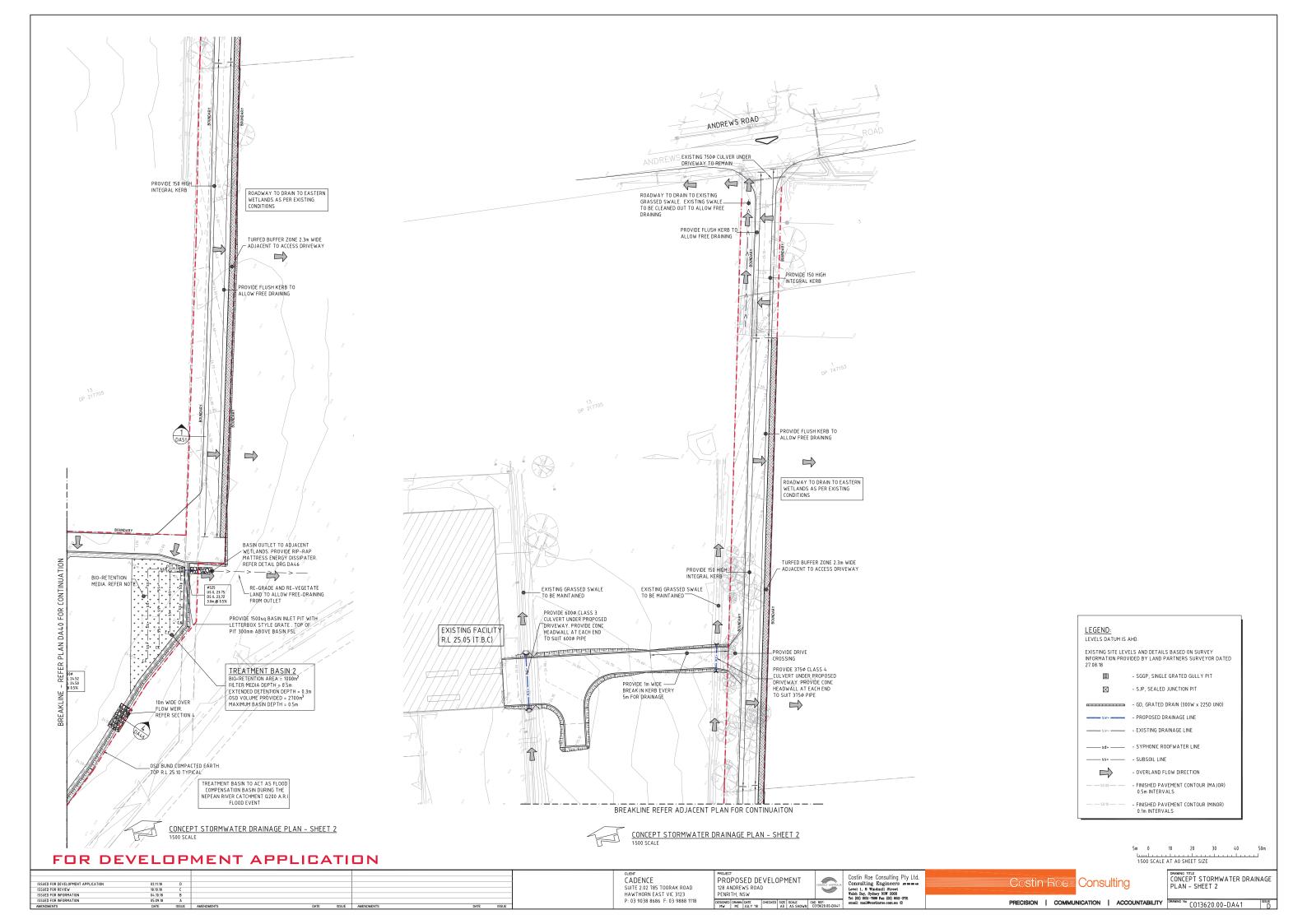
ISSUED FOR INFORMATION	21.08.18	A	ISSUED FOR DEVELOPMENT APPLICATION	02.11.18	G	
ISSUED FOR INFORMATION	24.08.18	В	TYPO AMENDED	31.01.19	н	
ISSUED FOR INFORMATION	29.08.18	C				
ISSUED FOR INFORMATION	05.09.18	D				
ISSUED FOR INFORMATION	04.10.18	E				
ISSUED FOR REVIEW	18.10.18	F				

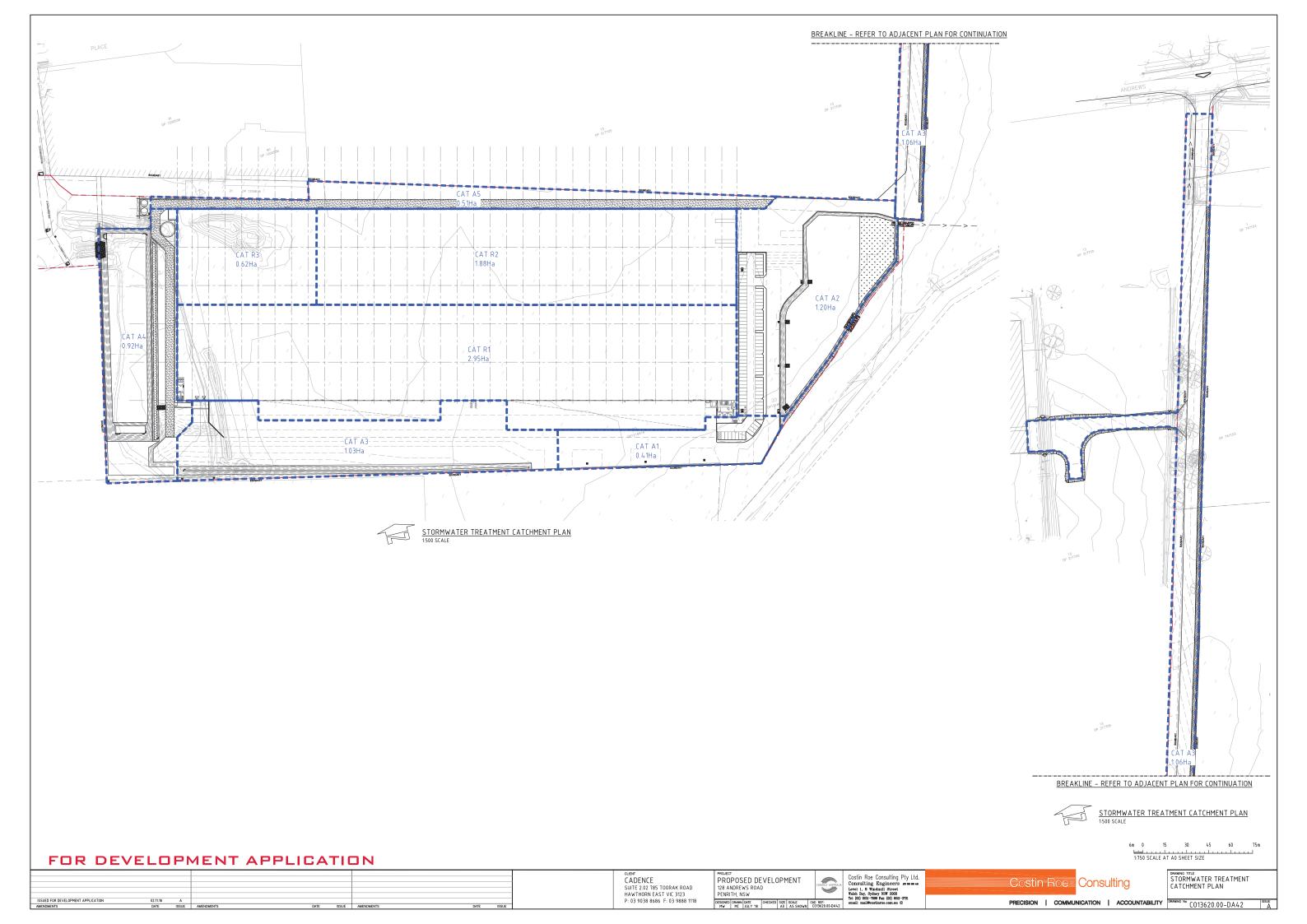
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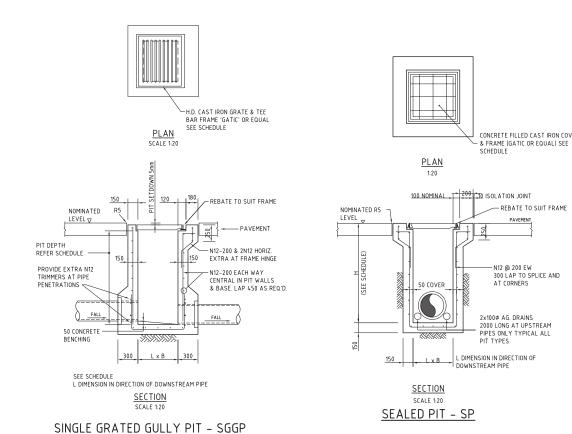
Costin Roe Consulting Pty Ltd.
Consulting Engineers 222 000 000 400
Level 1. 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (020) 9621-7699 Paar (02) 9241-3731

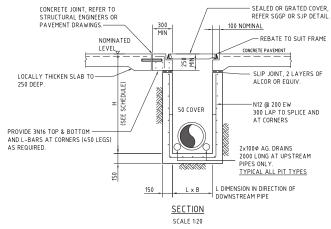
CONCEPT STORMWATER DRAINAGE

PRECISION | COMMUNICATION | ACCOUNTABILITY | DRAWING NO CO13620.00-DA40



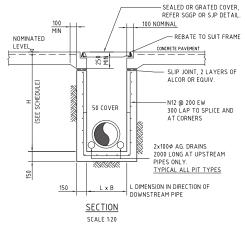






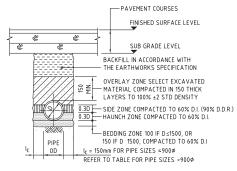
SJP/CIS & SGGP/CIS (CAST IN SLAB) PIT DETAIL **GRATE/COVER SUPPORT** CAST-INTO PAVEMENT SLAB

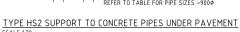
(ADOPT IN CONCRETE PAVEMENT FOR SGGP's & SJP's, WHERE PITS ARE LOCATED IN THE CORNER OF SLAB PANELS OR ADJACENT TO SLAB PANEL JOINTS)



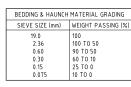
SJP/CIS & SGGP/CIS (CAST IN SLAB) PIT DETAIL GRATE/COVER SUPPORT CAST-INTO PAVEMENT SLAB

(ADOPT IN CONCRETE PAVEMENTS FOR SGGP's & SJP's, WHERE JOINTS ARE NOT LOCATED WITHIN PROXIMITY OF THE GRATE)

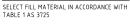




SECTION 1:20



SIDE ZONE MAT	FERIAL GRADING									
SIEVE SIZE (mm)	WEIGHT PASSING (%)									
75.0 9.5 2.36 0.60 0.075	100 100 TO 50 100 TO 50 50 TO 15 25 TO 0									



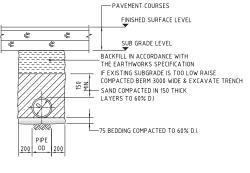
MAX SLOPE

TEMPORARILY PROTECT THE SWALE FROM EROSION PRIOR TO THE ESTABLISHMENT GRASS PLANTING. INSTALL A 5000 WIDE SECTION OF BIODEGRADABLE JUTE OPEN WEAVE MESH INSTALLED IN ACCORDANCE

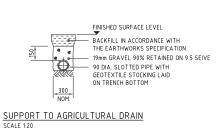
_PLANTING TO LANDSCAPE ARCH'S DETAILS

WITH MANUFACTURERS SPECIFICATION.

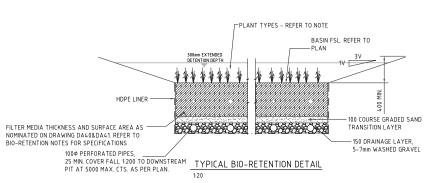
5 TYPICAL SWALE DETAIL







SIDE ZONE MAT	ERIAL GRADING
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
9.5	100 TO 50
2.6	100 TO 30
0.60	50 TO 15
0.075	25 TO 0



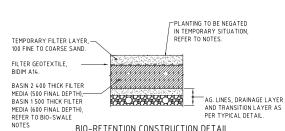
CONCRETE QUALITY

WHERE GULLY PIT IS LOCATED ON KERB RETURNS OR BULB OF CUL-DE-SACS PROVIDE CURVED PRECAST CONCRETE LINTELS.

SAG PITS SHALL HAVE LINTEL PLACED CENTRALLY ABOUT THE GRATE.

3. ALL REINFORCING TO HAVE 30 MIN. CLAER CONCRETE COVER. 4. FOR PITS DEEPER THAN 1200mm CLIMB RAILS SHALL BE

NOTES:



BIO-RETENTION CONSTRUCTION DETAIL
SCALE 1:20 TEMPORARY DETAIL FOR USE DURING CONSTRUCTION & SITE STABILISATION PERIOD - REFER TO NOTES FOR IMPLIMENTATION PERIODS.

-PVC CAP 30mm MIN. FALL TO BASIN EST PLASTIC OBLIQUE 'T SUBSOIL PIPE **CLEANOUT EYE ELEVATION**

DENOTED C.E. ON PLAN

DRAINAGE LAYER TO BE CLEAN GRAVEL 5-7mm. PROVIDE 100mm TOPSOIL AND TEMPORARY EROSION PROTECTION
(JUTEMASTER OR EQUIV) TO SWALE BATTER SLOPES AND ADJACENT
LANDSCAPED AREAS. NOTE THAT NO TOPSOIL IS TO BE PLACED OVER
FILTRATION MEDIA. PROVIDE SLIT FENCE TO TOP OF BANK UNTIL SUCH TIME AS
THIS STABILISING AND VEGETATION HAS BEEN COMPLETED. BIO-RETENTION TO BE PARTIALLY INSTALLED, FOLLOWING COMPLETION OF

THE ROAD, WITH THE TOP 75-100mm OF FILTER MEDIA REPLACED WITH A FINE TO COARSE SAND UNDERLAIN WITH A GEOTEXTILE LAYER (REFER TO DETAIL). FOLLOWING COMPLETION OF THE UPSTREAM DEVELOPMENT AND SITE STABILISATION, THE SAND IS TO BE REMOVED, REPLACED WITH FILTER. MATERIAL AND PLANTED OUT. REFER TO TEMPORARY BIO-BASIN DETAIL

BIO-RETENTION NOTES:
FILTER MEDIA TO BE LOAMY SAND WITH A PERMEABILITY NOT LESS THAN 200mm/hr. FILTER MEDIA TO BE FREE OF RUBBISH, DELETERIOUS MATERIAL, TOXICANTS, DECLARED PLANTS AND LOCAL WEEDS, AND IS TO NOT BE

FILTER MEDIA THAT DOES NOT MEET THE FOLLOWING CRITERIA SHALL BE

ORGANIC MATTER CONTENT TO BE IDEALLY WITHIN 1% TO 3% (W/W) AND ORGANIC MATTER CONTENT TO BE IDEALLY WITHIN 18: 10.3% TO BE NO GREATER THAN 5%(W/W).
PH TO BE BETWEEN 5.5 AND 7.5
PHOSPHOROUS CONTENT TO BE NO GREATER THAN 35mg/kg

FILTER MEDIA TO BE ASSESSED BY QUALIFIED HORTICULTURALIST TO ENSURE CAPABILITY OF SUPPORTING PLANT LIFE.

<3%

FILTER MEDIA TO HAVE THE FOLLOWING COMPOSITION RANGE:

ER MEDIA TO HAVE THE FOLLOWING COMPOSITION R A
LCAY & SILT (-0 05mm) 3-3%
VERY FINE SAND (0.05-0.15mm) 5-30%
FINE SAND (0.15-0.25mm) 10-30%
MEDIUM TO COARSE SAND (0.25-1.00mm) 40-60%
COARSE SAND (1.0-2.0mm) 7-10%

FINE GRAVEL (2.0-3.4mm)

PRIOR TO PLANTING, THE TOP 100mm OF THE BIORETENTION FILTER MEDIA IS TO BE AMELIORATED WITH APPROPRIATE ORGANIC MATTER, FERTILISER AND TRACE ELEMENTS TO AID PLANT ESTABLISHMENT AS PER THE TABLE BELOW:

TABLE: RECIPE FOR AMELIORATING TOP	100mm OF BIORETENTION FILTER MEDIA
CONSTITUENT	QUANTITY (kg/m2 OF FILTER AREA)
GRANULATED POULTRY MANURE FINES	50
SUPERPHOSPHATE	2
MAGNESIUM SULPHATE	3
POTASSIUM SULPHATE	2
TRACE ELEMENT MIX	1
FERTILISER NPK (16.4.14)	4
LIME	20

500 1:20 SCALE AT A0 SHEET SIZE

FOR DEVELOPMENT APPLICATION

SSUED FOR DEVELOPMENT APPLICATION

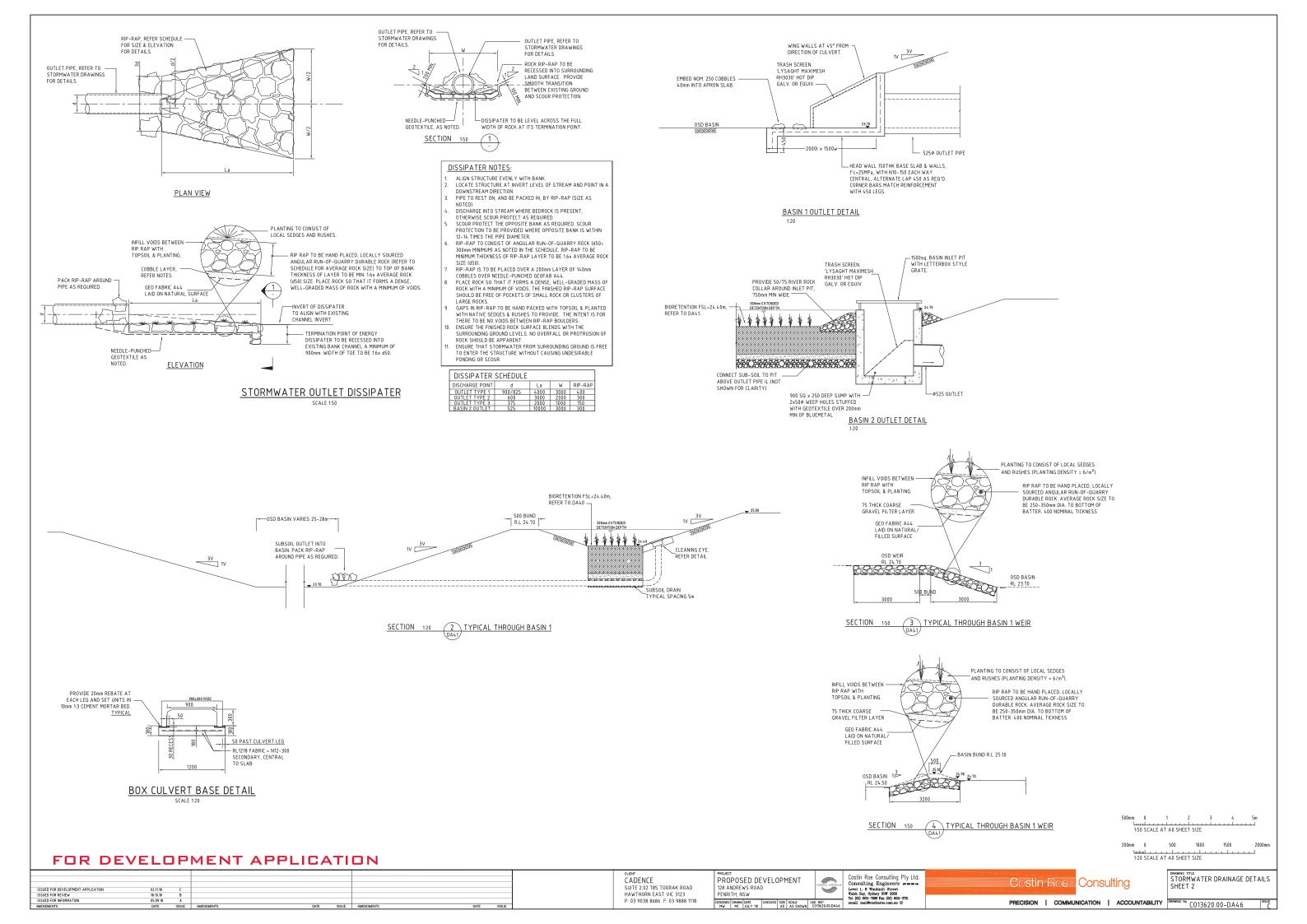
CADENCE SUITE 2.02 785 TOORAK ROAD HAWTHORN EAST VIC 3123 P: 03 9038 8686 F: 03 9888 1118 PROPOSED DEVELOPMENT 128 ANDREWS ROAD PENRITH, NSW

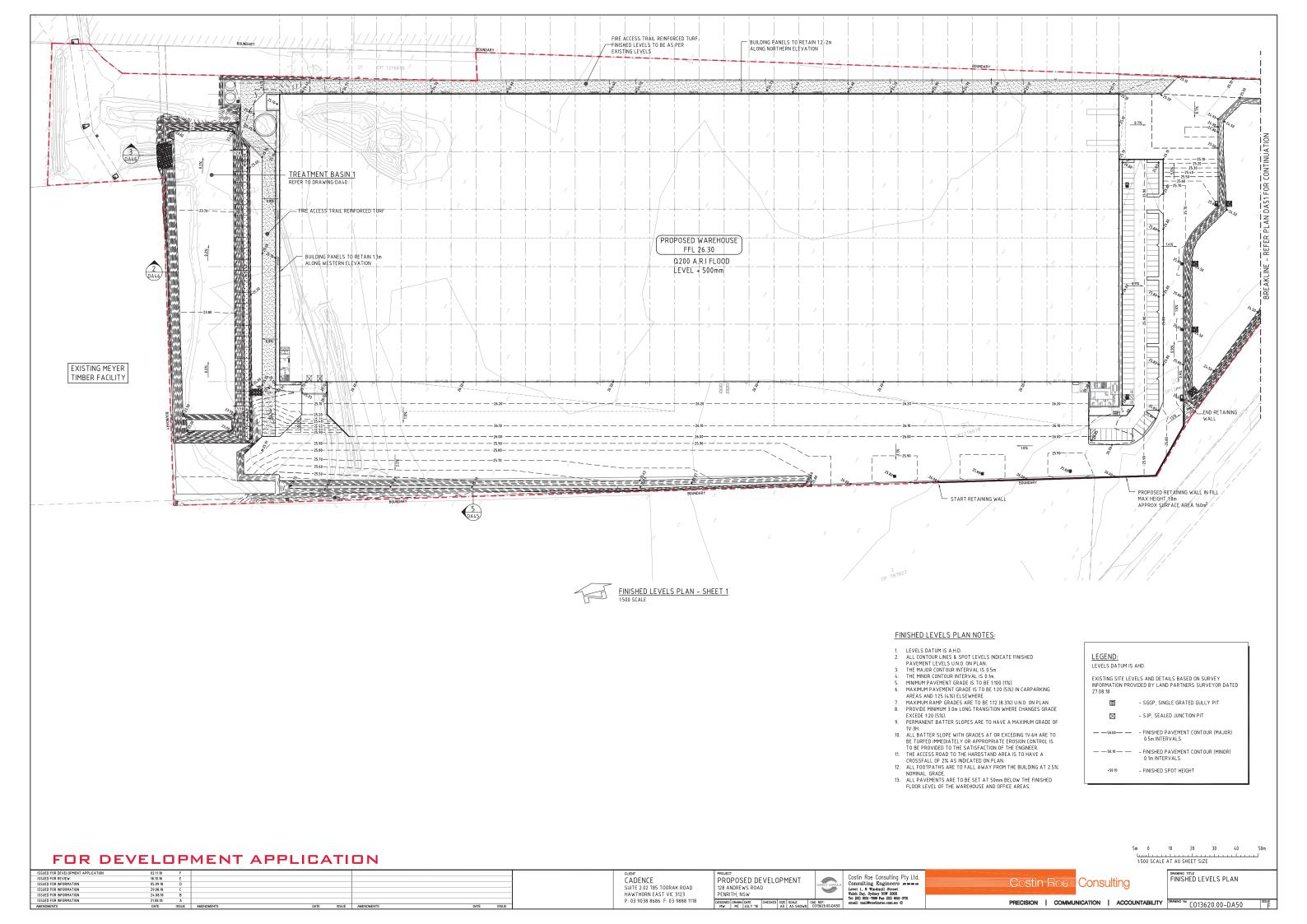
Costin Roe Consulting Pty Ltd.
Consulting Engineers 25 000 000 400
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (02) 9251-7989 Pax: (03) 9241-3731

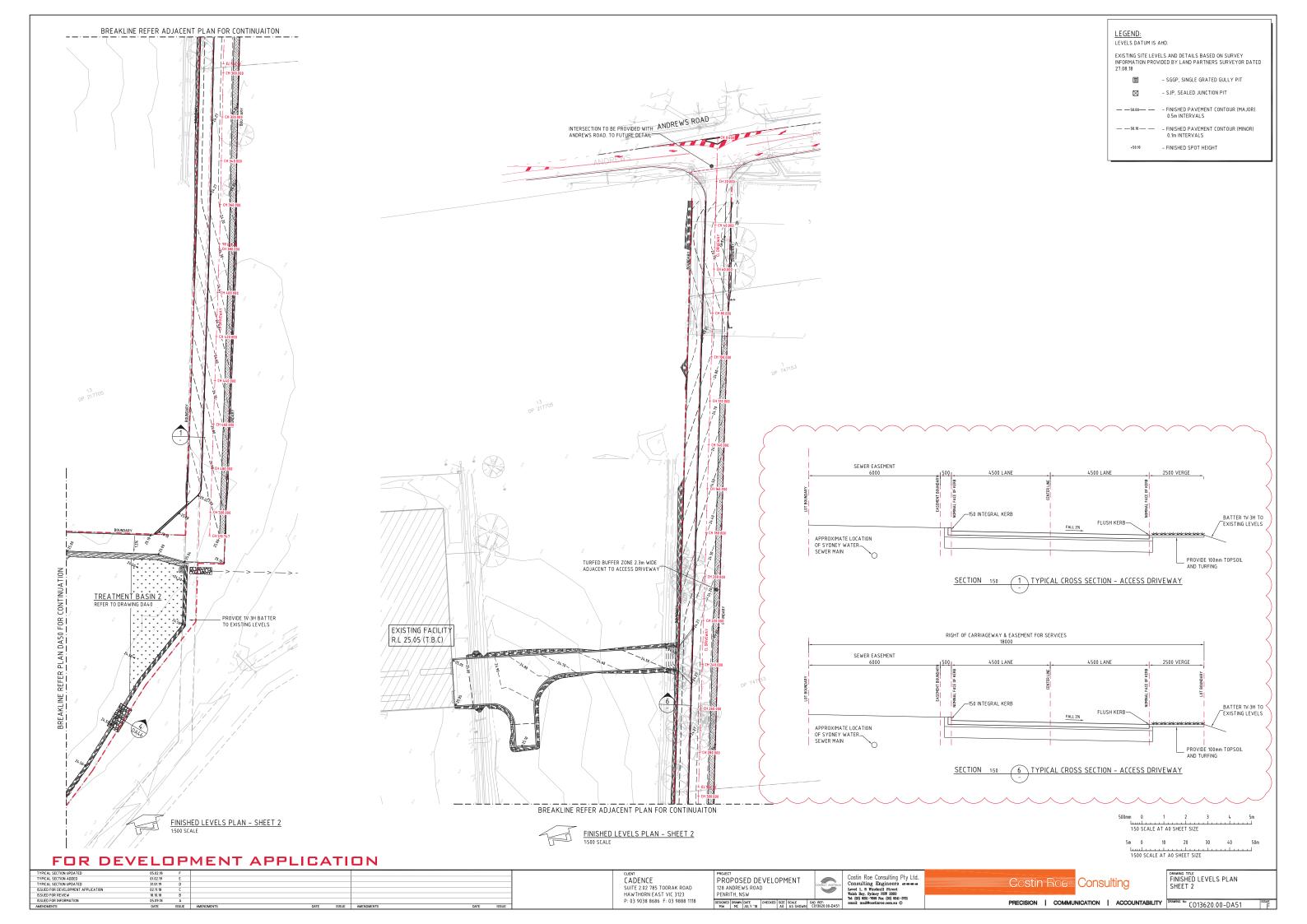


STORMWATER DRAINAGE DETAILS

PRECISION | COMMUNICATION | ACCOUNTABILITY | OFFINITION | OT3620.00-DA45







LEGEND: LEVELS DATUM IS AHD. EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LAND PARTNERS SURVEYOR DATED 27.08.18 — — — — - EXISTING SURFACE PROFILE - FINISHED SURFACE PROFILE - Q100 PRE-DEVELOPMENT FLOOD SURFACE PROFILE

----- - Q100 POST DEVELOPMENT FLOOD SURFACE PROFILE

								1																																
				7		_===		1																												+				
				4.578				4.950										4.178										9	9											
		-2.50%				0.70%		20,000	-				-0.60%					10.000					0.00%					10.00							0.60%					
DA	ATUM 18.000																																							
HORIZONTAL GEOMETRY												295.734 198*27'50														8 197	82.129 7*59'22"								132.884 198*42'40					_
Q100 ARI POST DEVELOPMENT FL	LOOD LEVEL		25.119		25.120	25.120	25.121	25.121	25.122	25.124	25.124	25.125	25.125	25.127	25.130	25.132	50 50	25.134 25.135 25.136	25.138	25.14.8	25.154	25.159	25.166	25.168	25.174	25.177	25.178	25.178 25.178 25.178	25.178	25.178	25.178	25.179	25.179	25.180	25.181	25.182	25.188	25.207	25.222	25.24.1
Q100 ARI PRE-DEVELOPMENT FLO	OOD LEVEL		25.120		25.120							25.122				25.140		25.139 25.140 25.141	10	25.160	25.172	25.181	25.187	25.190	25.201	25.203	25.204	25.204				25.204	25.205	25.204	25.205	25.206				
CUT/FILL DEPTH	0000	0.003	-0.214	0.009	-0.014 -0.010 -0.018	-0.190	-0.14.7	-0.432	-0.021							0.290	0.230	0.182	0.178	871.0	0.178	0.178	0.216	0.214	0.205	0.181	0.098	0.088	-0.014	-0.089	-0.141	-0.073	-0.092	-0.085	-0.083	-0.090	-0.100	-0.093	0.012	0.137
DESIGN LEVEL	25.500	25.250 25.000 24.953	24.786	24.675	24.672	24.810	24.880	24.918	24.830	24.770	24.710	24.650	24.530	24.470	24.410	24.290	3 3	24.186 24.182 24.178	3 3	24.178	24.178	24.178	24.178	24.77	24,178	24.178	24.178	86 78	68 778	24.291	24.364	24.424	24.485	24.605	24.665	24.785	24.845	24.965	25.025	25.086
EXISTING LEVEL	25.50	25.25			24.66 24.69 24.76	25.00	25.03	25.33	24.91							24.00	24.00	24.00	24.00	24.00	24.00	24.00	% 6	23.96	23.97	24.00	24.08	24.09		24.38	24.50	24.50	24.58	24.69	24.75	24.81	24.95	25.00	25.01	24.95
CHAINAGE	0.000	20.000	30.000	36.900 40.000 45.333	50.000	70.000	80.000	90.000	100.000	120.000	130.000	140.000	160.000	170.000	180.000	200.000	210.000	218.600 220.000 223.600	230.000	250.000	260.000	270.000	290.000	300.000	320.000	330.000	340.000	359.064	0 8 0	377.863	390.000	400.000	410.000	430.000	000'077	450.000	470.000	780.000	500.000	510.000

LONGITUDINAL SECTION – CL DRIVEWAY
HORIZONAL SCALE 1:500
VERTICAL SCALE 1:100

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

5m 0 10 20 30 40 50m 1:500 SCALE AT AO SHEET SIZE

DRAWING TITLE
ACCESS DRIVEWAY
LONG SECTION

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION AMENDMENTS

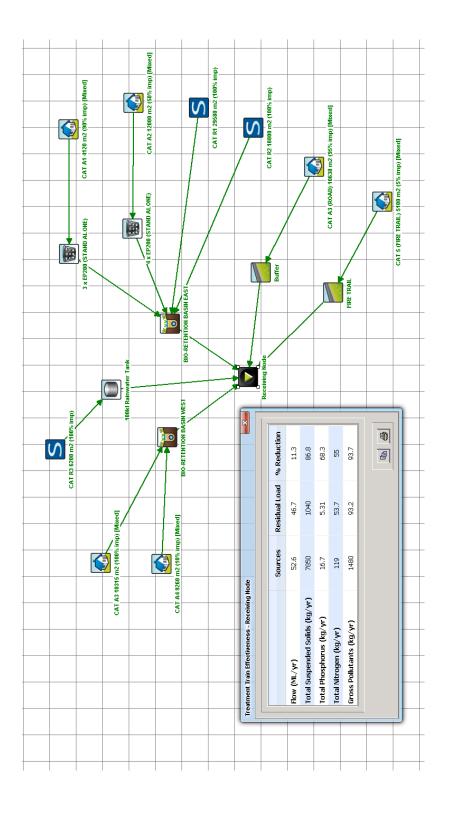
CUENT CADENCE SUITE 2.02 785 TOORAK ROAD HAWTHORN EAST VIC 3123 P: 03 9038 8686 F: 03 9888 1118

PROPOSED DEVELOPMENT
128 ANDREWS ROAD
PENRITH, NSW

Costin Roe Consulting Pty Ltd.
Consulting Engineers
Level 1, 8 Windmill Street
Level 1, 8 Windmill Str

Costin Roe Consulting

Appendix B MUSIC MODEL CONFIGURATION & MUSIC LINK REPORT



Appendix C DRAINS MODEL CONFIGURATION



