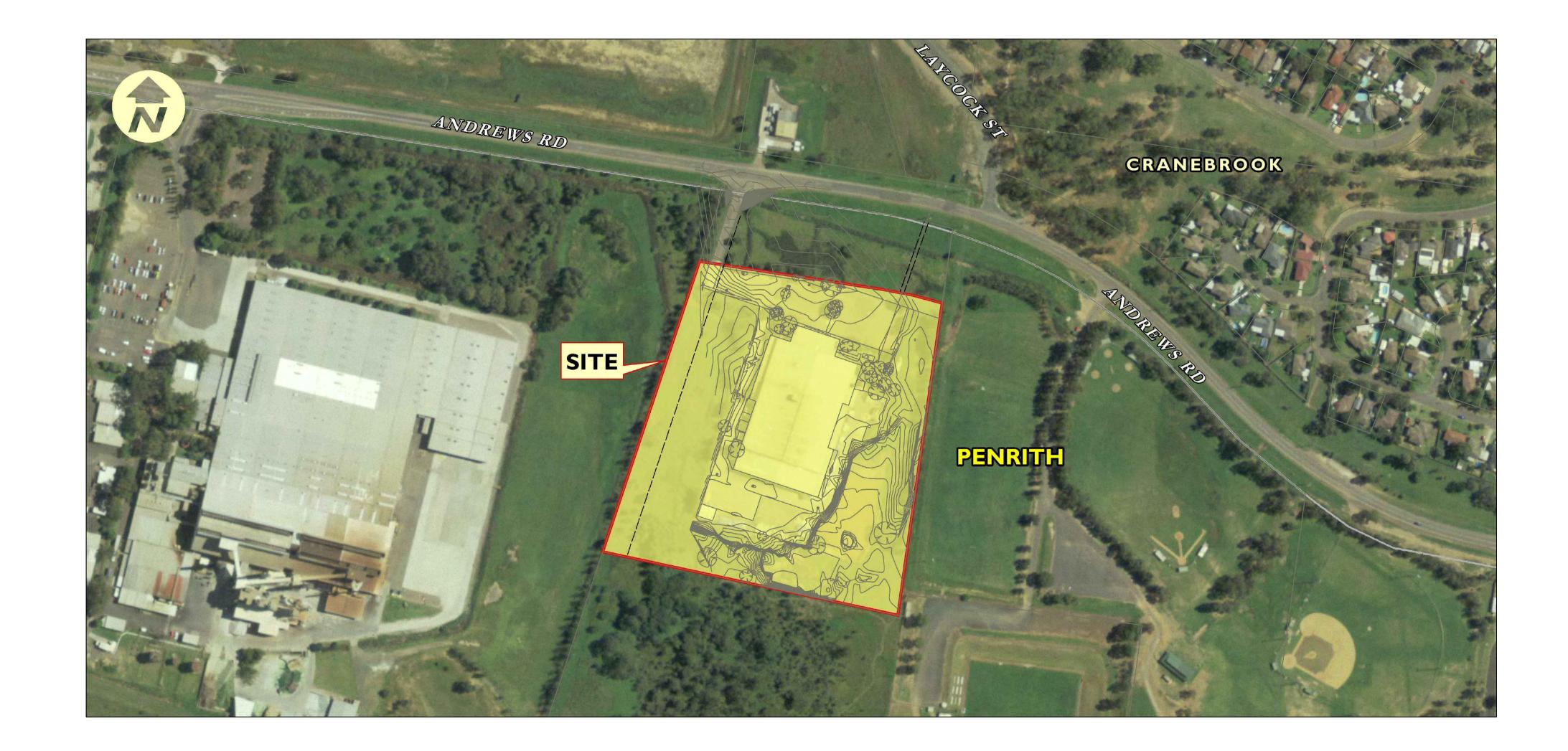
126 ANDREWS ROAD PENRITH WETLAND & CONCRETE HARDSTAND DESIGN

FOR CONSTRUCTION CERTIFICATE APPROVAL FOR CLARON CONSULTING





Smart Consulting

SHEET LIST TABLE

COVER SHEET GENERAL LAYOUT PLAN **GENERAL NOTES & LEGEND**

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DRAINAGE CALCULATIONS EXISTING 100 YEAR FLOOD PLAN

DEVELOPED 100 YEAR FLOOD PLAN

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WETLAND DETAILS SHEET 02 OF 02

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SEDIMENT & EROSION CONTROL SOIL & WATER MANAGEMENT PLAN & NOTES

STRUCTURAL GENERAL AND CONSTRUCTION NOTES

STRUCTURAL LAYOUT PLAN SHEET 1 OF 2

STRUCTURAL LAYOUT PLAN SHEET 2 OF 2

LGA PENRITH CITY COUNCIL

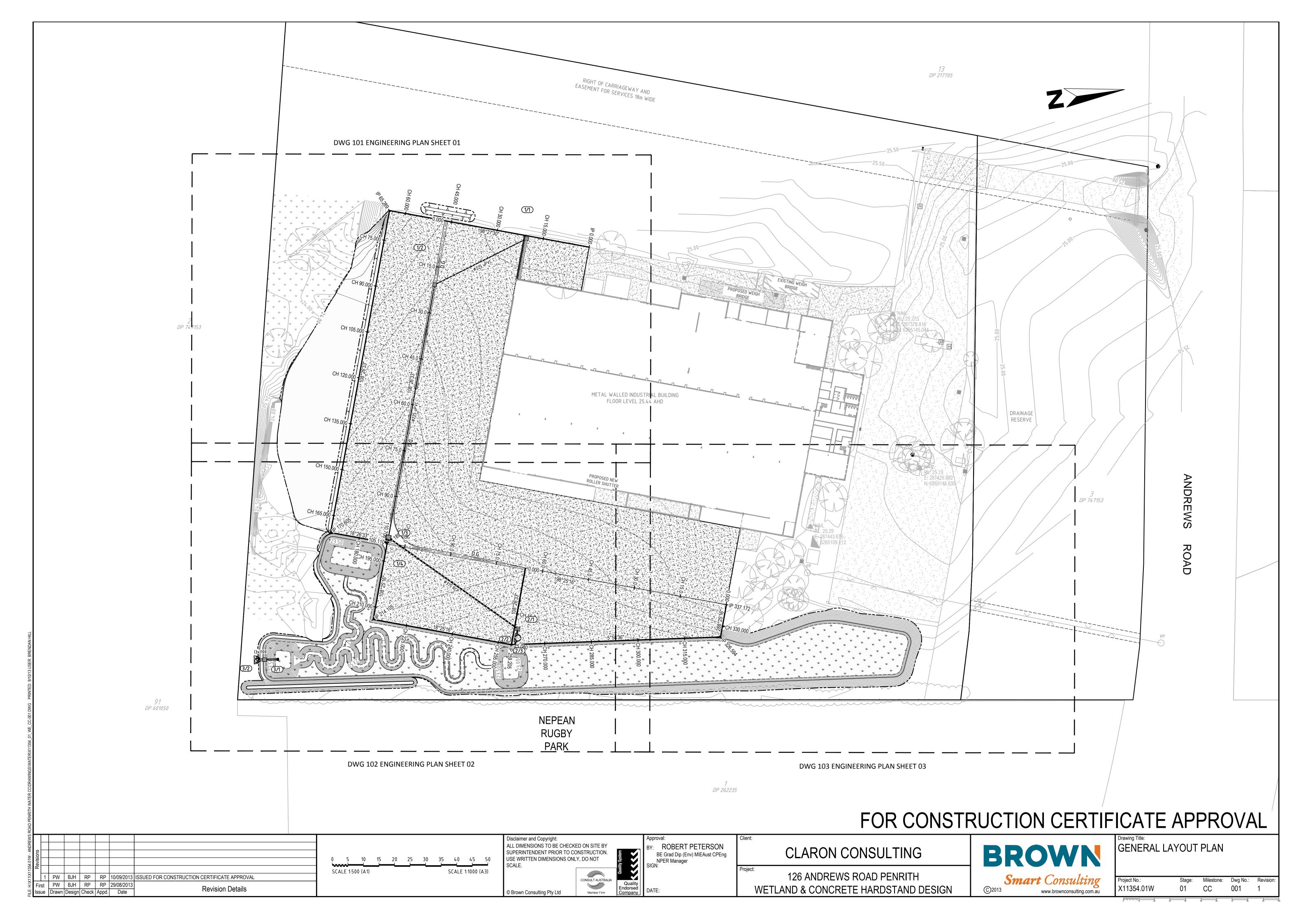
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WETLAND & CONCRETE HARDSTAND DESIGN REF: X11354_01_WE_CC





- 2. FOR LEGEND OF DRAWINGS REFER THIS SHEET.
- 3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING LEVELS PRIOR TO THE COMMENCEMENT OF WORK. ANY DISCREPANCIES ARE TO BE REPORTED TO THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORK.
- 4. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM. THE CONTRACTOR SHALL OBTAIN LEVELS FROM ESTABLISHED BENCHMARKS ONLY AS SUPPLIED BY THE APPOINTED SURVEYORS.
- 5. ALL WORKS ARE TO BE SET OUT BY A QUALIFIED SURVEYOR.
- 6. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH COUNCIL'S TECHNICAL SPECIFICATION FOR WORKS AND ANY WRITTEN INSTRUCTIONS ISSUED DURING THE CONTRACT. ANY DISCREPANCIES ARE TO BE REPORTED TO THE SUPERINTENDENT PRIOR TO THE COMMENCEMENT OF WORK.
- 7. SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA. SERVICES SHOWN ON THE DRAWINGS ARE FOR GUIDANCE ONLY AND THE ACCURACY AND COMPLETENESS OF THE INFORMATION IS NOT GUARANTEED. THE CONTRACTOR IS TO LOCATE AND LEVEL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITIES TO PROTECT, RELOCATE AND/OR ADJUST IF NECESSARY.
- 8. ALL NEW WORK IS TO MAKE A SMOOTH TRANSITION WITH EXISTING CONDITIONS.
- 9. NO WORKS ARE TO BE CARRIED OUT WITHIN ADJACENT PROPERTIES WITH OUT THE PRIOR APPROVAL OF THE OWNER AND SUPERINTENDENT.
- 10. THE CONTRACTOR IS TO REMOVE ALL RUBBISH, FENCES AND OTHER DEBRIS MATERIAL FROM THE WORKS AREA
- 11. SURPLUS EXCAVATED MATERIALS ARE TO BE PLACED IN STOCKPILE LOCATIONS AS SHOWN THE SOIL AND WATER MANAGEMENT PLAN OR AS DIRECTED BY THE SUPERINTENDENT.
- 12. ALL SITE REGRADING AREAS ARE TO BE GRADED AS SHOWING IN THESE DRAWINGS AND TO THE SATISFACTION OF THE SUPERINTENDENT.
- 13. THE CONTRACTOR IS TO PROVIDE A MINIMUM 48 HOURS NOTICE OF ANY INSPECTIONS.
- 14. NO TREES ARE TO BE REMOVED, CUT DOWN, LOPPED OR DESTROYED WITHOUT APPROVAL. TREES ARE ONLY TO BE REMOVED IN ACCORDANCE WITH THESE DRAWINGS OR DRAWINGS PREPARED BY THE LANDSCAPE ARCHITECT.
- 15. TREE PROTECTION SHALL BE IN PLACE PRIOR TO ANY WORKS. REFER TO LANDSCAPE TREE PROTECTION DETAILS BE LANDSCAPE ARCHITECT.
- 16. TREE FELLING AND TRUNK RELOCATION. REFER TO LANDSCAPE TREE PROTECTION DETAILS BE LANDSCAPE ARCHITECT.
- 17. THE EXISTING STORMWATER SYSTEM MUST REMAIN OPERATING DURING CONSTRUCTION OF PROPOSED WORKS.
- 18. ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE APPROPRIATE SAFETY STANDARDS. SAFETY SIGNS AND/OR BANNERS SHALL BE INSTALLED AT ALL TIMES DURING THE CONSTRUCTION OF THE WORKS.
- 19. ALL DEMOLITION WORKS ARE TO BE CONDUCTED WITH THE PROVISION OF AS 2601-1991 "THE DEMOLITION OF STRUCTURES" PRIOR TO DEMOLITION ALL SERVICES SHALL BE SUITABLY DISCONNECTED AND CAPPED OFF OR SEALED TO THE SATISFACTION OF THE RELEVANT SERVICE AUTHORITY REQUIREMENTS. ALL DEMOLITION MATERIAL AND EXCAVATED MATERIAL SHALL BE DISPOSED OF AT A COUNCIL APPROVED SITE OR WASTE FACILITY. DETAILS OF THE PROPOSED DISPOSAL LOCATION(S) SHALL BE PROVIDED TO THE PRINCIPAL CERTIFYING AUTHORITY PRIOR TO THE COMMENCEMENT OF DEMOLITION.
- 20. DUST SUPPRESSION TECHNIQUES ARE TO BE EMPLOYED DURING DEMOLITION TO REDUCE ANY POTENTIAL NUISANCES TO SURROUNDING PROPERTIES.
- 21. MUD FROM ALL VEHICULAR MOVEMENTS TO AND FROM THE SITE MUST NOT BE DEPOSITED ON THE ROAD.
- 22. DEMOLITION AND CONSTRUCTION WORKS ARE TO BE RESTRICTED TO THE FOLLOWING HOURS IN ACCORDANCE WITH THE NSW E.P.A. NOISE CONTROL GUIDELINES:
- 22.1. MONDAYS TO FRIDAYS, 7AM TO 6PM.22.2. SATURDAYS, 7AM TO 1PM IF INAUDIBLE ON NEIGHBOURING RESIDENTIAL PREMISES,
- OTHERWISE 8AM TO 1PM.
 22.3. NO DEMOLITION WORK IS PERMITTED ON SUNDAYS OR PUBLIC HOLIDAYS.

EARTHWORKS NOTES

- 1. VEGETATION, RUBBISH AND ORGANIC MATERIAL ARE TO BE STRIPPED OVER THE ENTIRE ARE OF EARTHWORKS. VEGETATION AND ORGANIC MATERIAL ARE TO BE MULCHED AND STOCKPILED ONSITE FOR LATER USE. ALL RUBBISH AND DEBRIS ARE TO BE DISPOSED OFFSITE.
- 2. CARRY OUT AMELIORATION TO ANY DEFICIENT MATERIALS TO BE USED FOR TOPSOIL SPREAD AT COMPLETION OF WORKS.
- 3. SOFT GROUND AND UNSOUND MATERIAL LOCATED IN AREAS PROPOSED FOR STRUCTURAL PAVEMENTS, WALLS AND WETLANDS ARE TO BE EXCAVATED, REMOVED AND REPLACED WITH APPROVED FILL MATERIAL COMPACTED IN LAYERS. THE ENTIRE SUBGRADE AND FILL SHALL BE COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY (SMDD) AT OPTIMUM MOISTURE CONTENT + / 2%.
- 4. FOR UNSUITABLE MATERIAL IN WETLAND AREAS REFER SHEET 553 FOR DETAILS ON
- 5. FILL IS TO BE PLACED IN 300mm MAXIMUM (LOOSE MEASUREMENT) LAYERS AND COMPACTED TO 98% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT + / 2%.
- 6. ALL FINISHED SUBGRADES ARE TO BE SACRIFICED TO A DEPTH OF 250mm IMMEDIATELY PRIOR TO THE PLACEMENT OF TOPSOIL.
- 7. UNLESS NOTED OTHERWISE ON DRAWINGS ALL NEWLY FORMED AREAS WILL BE FINISHED TO 150mm BELOW THE FINISHED SURFACE LEVEL. 150mm OF TOPSOIL WILL BE PLACED AND COMPACTED WITH A LIGHT ROLLER TO ACHIEVE FINAL DESIGN LEVELS.

CONCRETE NOTES

- 1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS
- 2. CONCRETE QUALITY: ALL THE REQUIREMENTS OF THE ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.
- 3. PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 3600
- 4. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.
- 5. CONCRETE STRENGTH AND COVER REFER TO RELEVENT DRAWING
- 6. CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- 7. DEPTH OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS.
- 8. FOR CHAMFERS, DRIP GROOVES, REGLETS, ETC. REFER TO ARCHITECT'S DETAILS, MAINTAIN COVER TO REINFORCEMENT AT THESE DETAILS.
- 9. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER
- 10. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT. APPROVED SPRAYED ON CURING COMPOUNDS MAY BE USED WHERE NO FLOOR FINISHES ARE PROPOSED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED IF PROTECTED FROM WIND AND TRAFFIC.
- 11. FORMWORK TO REMAIN IN POSITION FOR A MINIMUM OF 14 DAYS U.N.O. WHERE SLABS AND BEAMS ARE TO SUPPORT BRICKWORK OVER, FORMWORK AND PROPS MUST BE REMOVED PRIOR TO COMMENCEMENT OF THIS BRICKWORK.
- 12. ALL CONCRETE TO BE MECHANICALLY VIBRATED AND THE VIBRATOR SHALL NOT BE USED TO
- 13. CONDUITS, PIPES, ETC., MUST NOT BE PLACED IN CONCRETE COVER AND CAN ONLY BE LOCATED IN THE MIDDLE ONE THIRD OF SLAB DEPTH AND SPACED AT NOT LESS THAN 3 DIAMETERS
- 14. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY IN TRUE PROJECTION.
- 15. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN AND SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT. FOR FABRIC THE OUTMOST WIRES SHOULD BE OVERLAPPED BY AT LEAST THE SPACING OF THESE OUTERMOST WIRES PLUS 25MM.
- 16. WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWING.
- 17. BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF THE WIRE.
- 18. ALL UNSUPPORTED BARS SHALL BE TIED IN A TRANSVERSE DIRECTION WITH N12 AT 400 CTS.
- 19. PROVIDE UPWARD CAMBER TO FORMWORK OF CANTILEVERS OF L/120, WHERE L IS THE SHORTEST PROJECTION BEYOND COLUMN OR WALL FACE, AND TO FORMWORK OF SLABS WHERE NOTED ON PLAN. MAINTAIN THE SLAB AND BEAM DEPTHS SHOWN.
- 20. ALL REINFORCEMENT TO BE ACCURATELY PLACED IN POSITION SHOWN TIED AND ADEQUATELY SUPPORTED TO GIVE SPECIFIED COVER.
- 21. NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED.

FORMWORK NOTES

- DESIGN AND CONSTRUCTION AND STRIPPING TIMES TO COMPLY WITH AS 3610 AND AS 3600 UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- 2. DURING CONSTRUCTION, SUPPORT PROPPING WILL BE REQUIRED WHERE LOADS FROM STACKED MATERIALS, FORMWORK AND OTHER SUPPORTED SLABS INDUCE LOADS IN A SLAB OR BEAM WHICH EXCEED THE DESIGN LOAD FOR STRENGTH OR SERVICEABILITY AT THAT AGE. ONCE THE NOMINATED 28 DAY STRENGTH HAS BEEN ATTAINED, THESE LOADS SHALL NOT EXCEED THE DESIGN SUPERIMPOSED LOADS SET OUT ON THE DRAWINGS.
- 3. THE FORMWORK SHALL NOT BE DESIGNED TO RELY ON RESTRAINT OR SUPPORT FROM THE PERMANENT STRUCTURE WITHOUT PRIOR APPROVAL FROM THE PROJECT DESIGN ENGINEER.
- 4. FORMWORK TO BE DESIGNED TO ACCOMMODATE MOVEMENTS DUE TO POST TENSIONING.
- 5. THE DESIGN CERTIFICATION & PERFORMANCE OF THE FORMWORK AND FALSE WORK IS THE RESPONSIBILITY OF THE BUILDER.

DRAINAGE NOTES

- 1. ALL PIPES TO BE SPIGOT AND SOCKET, RUBBER RING JOINTED UNLESS OTHERWISE NOTED.
- DRAINAGE LINES MUST BE BACKFILLED WITH APPROVED GRANULAR MATERIAL IN TRAFFICABLE AREAS IN ACCORDANCE WITH COUNCIL'S WORKS SPECIFICATION. THREE (3) METRES OF SUBSOIL DRAINAGE WRAPPED IN GEOTEXTILE STOCKING MUST BE PROVIDED AT ALL DOWNSTREAM PITS.
- 3. ALL PITS MUST BE BENCHED AND STREAMLINED. PROVIDE F72 REINFORCEMENT AND GALVINISED STEP IRONS IN ALL PITS OVER 1.2 METRES DEEP AS MEASURED FROM THE TOP OF GRATE TO THE INVERT OF THE PIT.
- 4. CONCRETE IS TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32MPa AT 28-DAYS.
- 5. ADEQUATE PROVISION IS TO BE MADE TO PREVENT SCOURING AND SEDIMENTATION FOR ALL DRAINAGE WORKS IN ACCORDANCE WITH COUNCILS REQUIREMENTS.

LEGEND

DESCRIPTION	PROPOSED	EXISTING	FUTURE
STORMWATER PIPELINE	375¢	· — — — ·	
STORMWATER DRAINAGE PITS			
DRAINAGE LINE No. 3 DRAINAGE PIT No. 10	3/10	3/10	3/10
CONCRETE HEADWALL			(
SUBSOIL DRAIN	ssss		
STANDARD 150mm KERB AND GUTTER	K&G	EXIST. K&G	FUT. K&G ======
STANDARD ROLL KERB AND GUTTER	RK	EXIST. RK	FUT. RK ======
STANDARD KERB ONLY	КО	EXIST. KO	FUT. K0 ======
STANDARD EDGE STRIP	ES	EXIST. ES	_FUT. ES
STANDARD MOUNTABLE KERB	MK	EXIST. MK	_FUT. MK
STANDARD DISH CROSSING	<u>DC</u>	EXIST. DC	_ <u>FUT. DC</u> _
VEHICULAR CROSSING	VC		-4::::
PEDESTRIAN RAMP	PR		
EDGE OF BITUMEN	EOB		
ROAD PAVEMENT			
BENCHMARK		▲ BM: 115 RL: 165.332	
BATTERS			
CONCRETE			
CONTOURS	99.5	99.5	-99.5-
SITE REGRADING AREA	CUT FILL		
SERVICE LINES SEWER, GAS, WATER, ELECTRICITY	S ————————————————————————————————————	S ————————————————————————————————————	
COMMUNICATION LINES TELSTRA, FIBRE OPTIC	т		T
OVER HEAD LINES AND POLES			
SERVICE PITS TELECOM PIT, ACCESS CHAMBER, HYDRANT, STOP VALVE, AIR VALVE			
LIMIT OF CONSTRUCTION			
LIMIT OF STAGE			
FENCE POST AND RAIL FENCE SECURITY FENCE	-//	-/	-//
LOT NUMBERS	D-LOTNO	E-LOTNO	F-LOTNO
TREES TO RETAIN TREES TO REMOVE			
COPSE OF TREES TO RETAIN COPSE OF TREES TO REMOVE		COPSE OPSE OF TREES	
RETAINING WALL			
ROCK WALL			
RIPARIAN PROTECTION AREA			

FOR CONSTRUCTION CERTIFICATE APPROVAL

First Sue Drawn Design Check Appd. Date

| Solution | S

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USE WRITTEN DIMENSIONS ONLY, DO NOT
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CONSULT AUSTRALIA
Quality
Endorsed
Company

BY: ROBERT PETERSON

BE Grad Dip (Env) MIEAust CPEng

NPER Manager

SIGN:

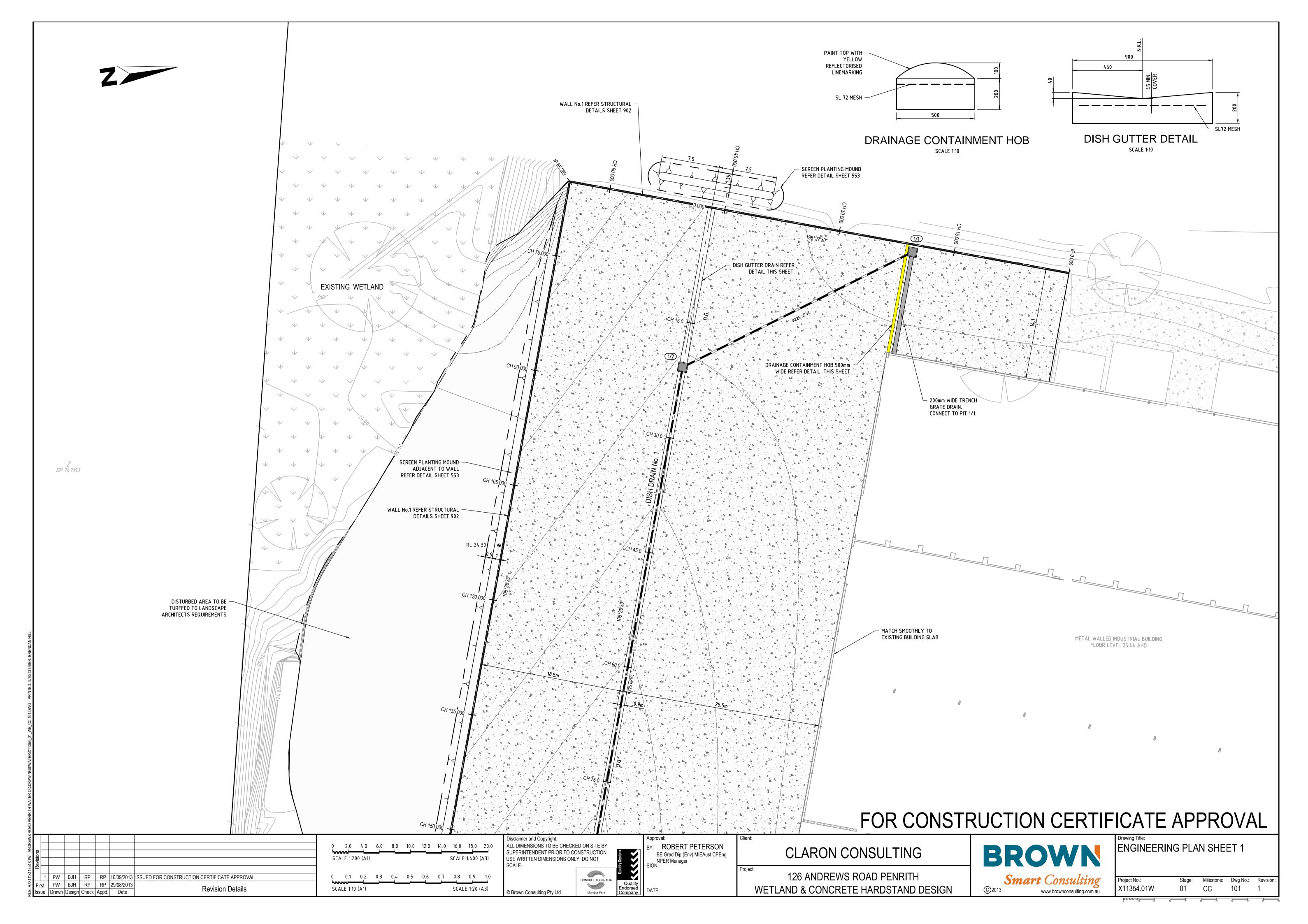
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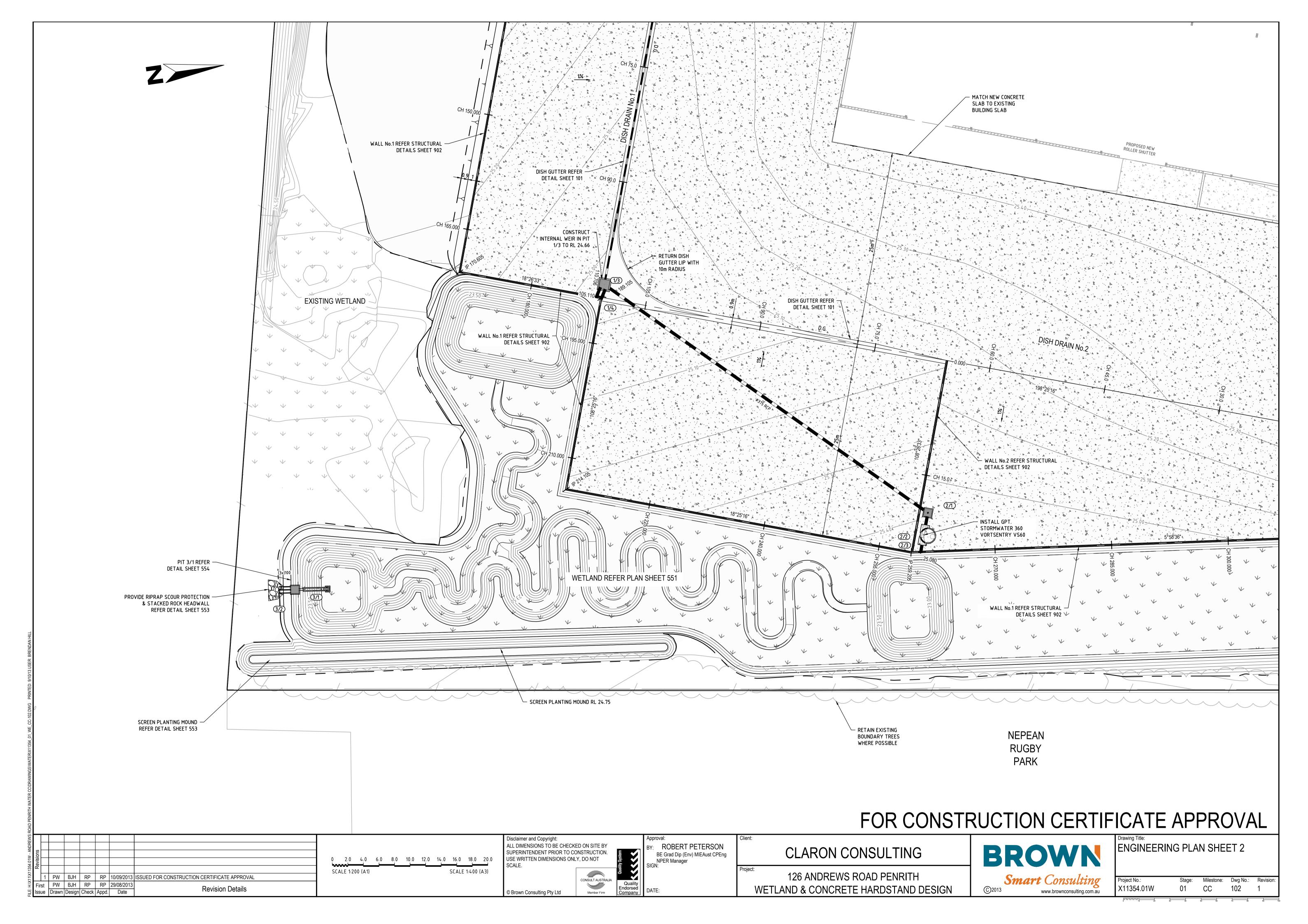
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WETLAND & CONCRETE HARDSTAND DESIGN

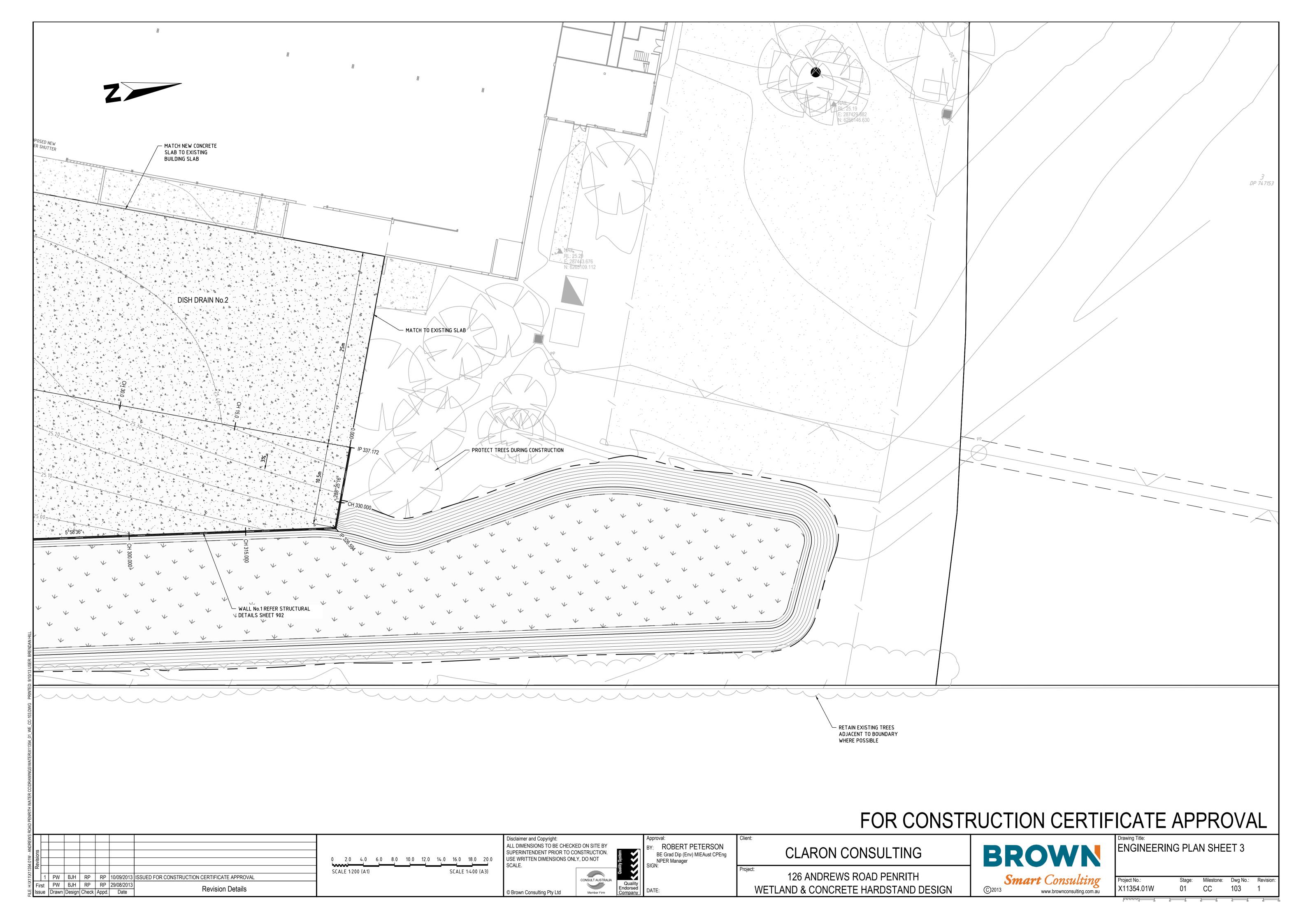


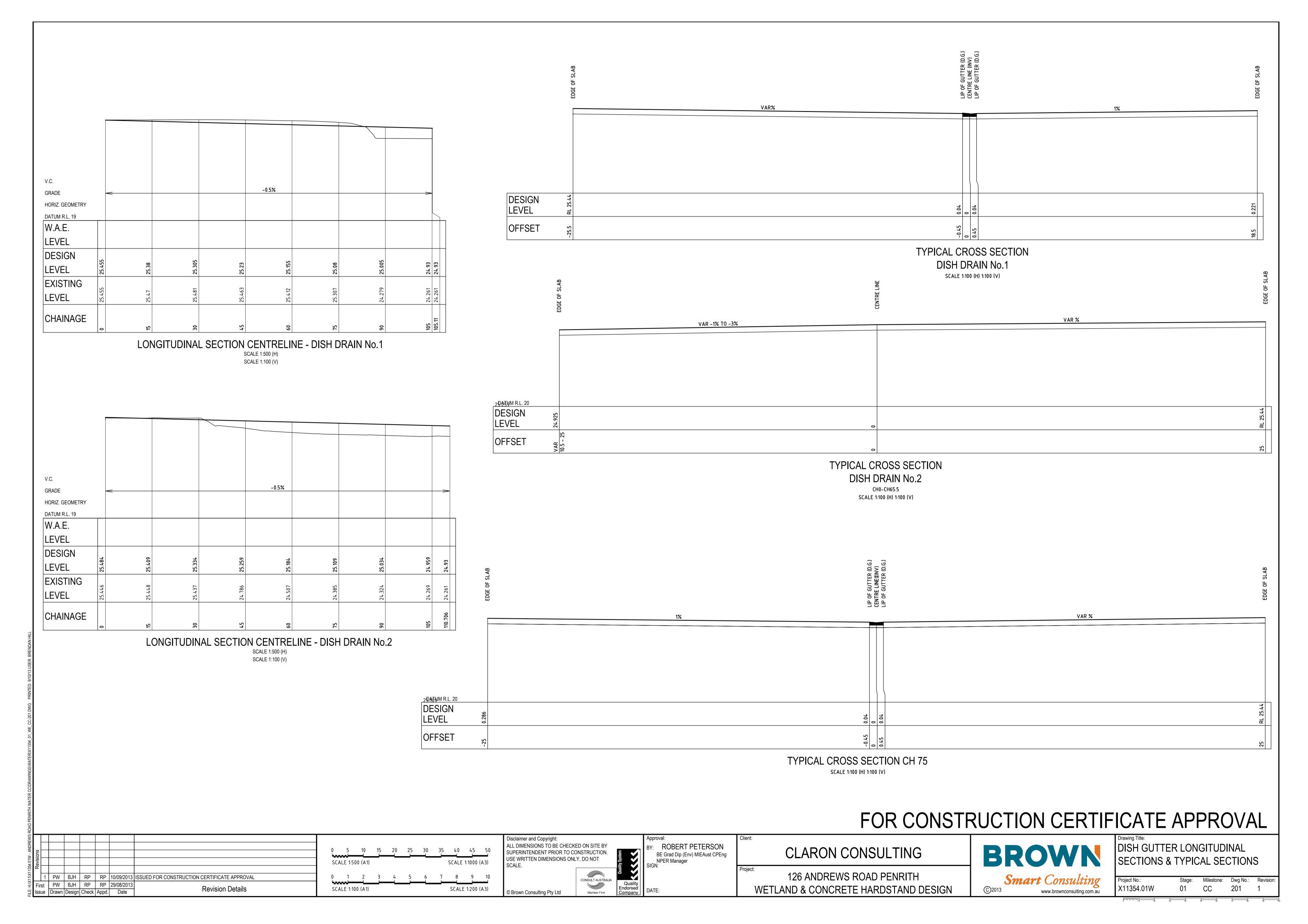
GENERAL NOTES & LEGEND

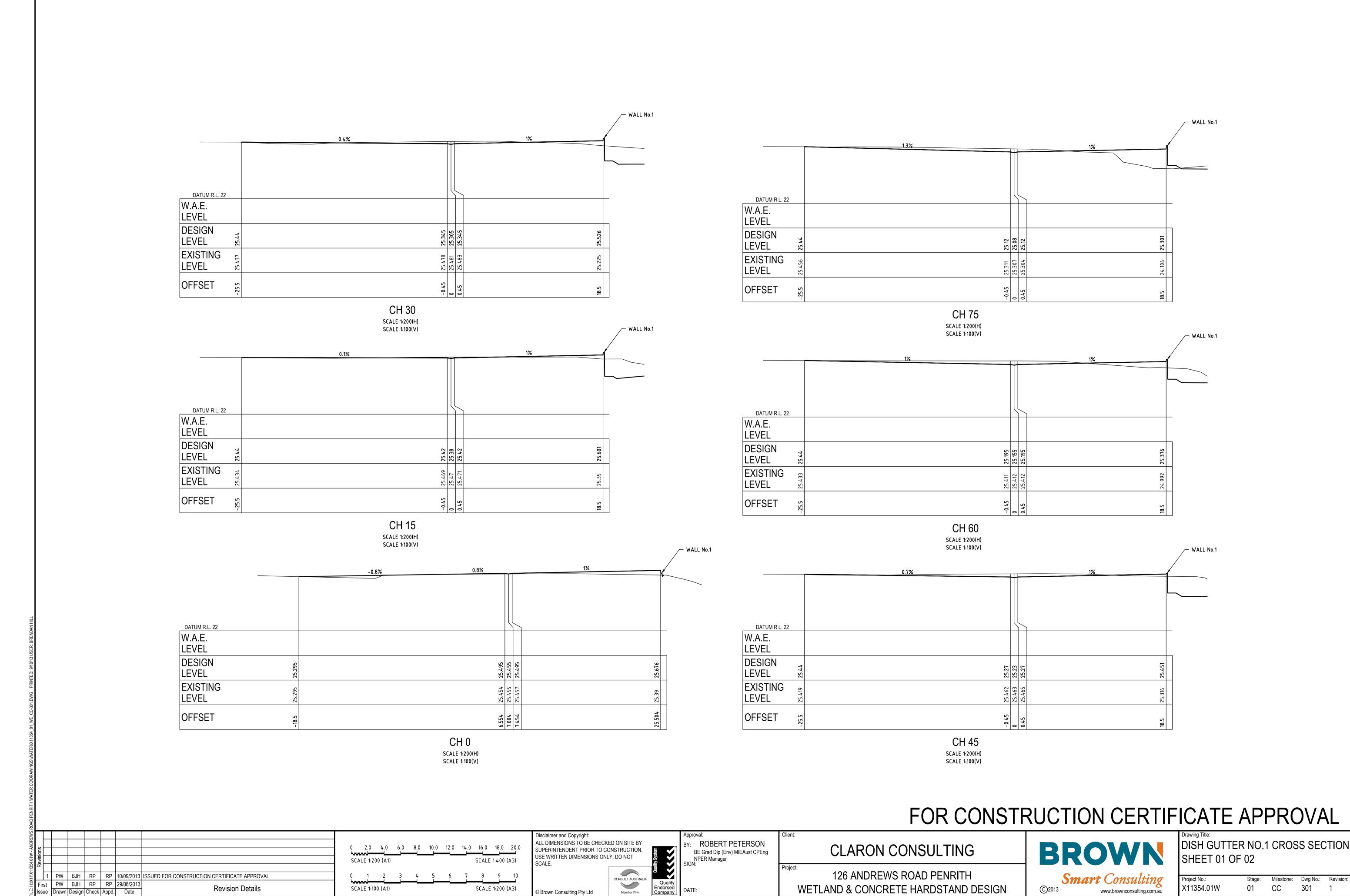
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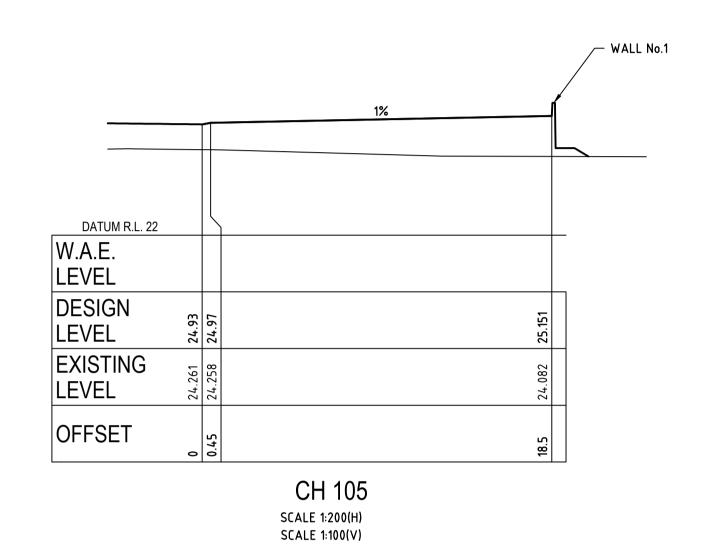


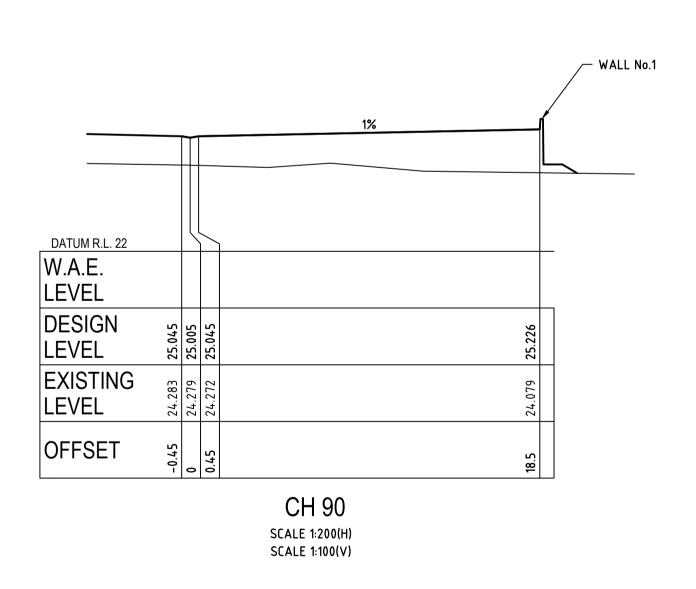


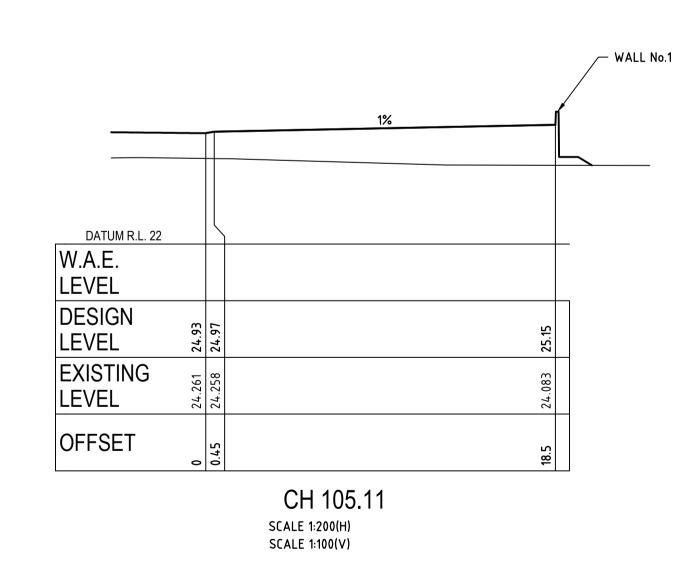












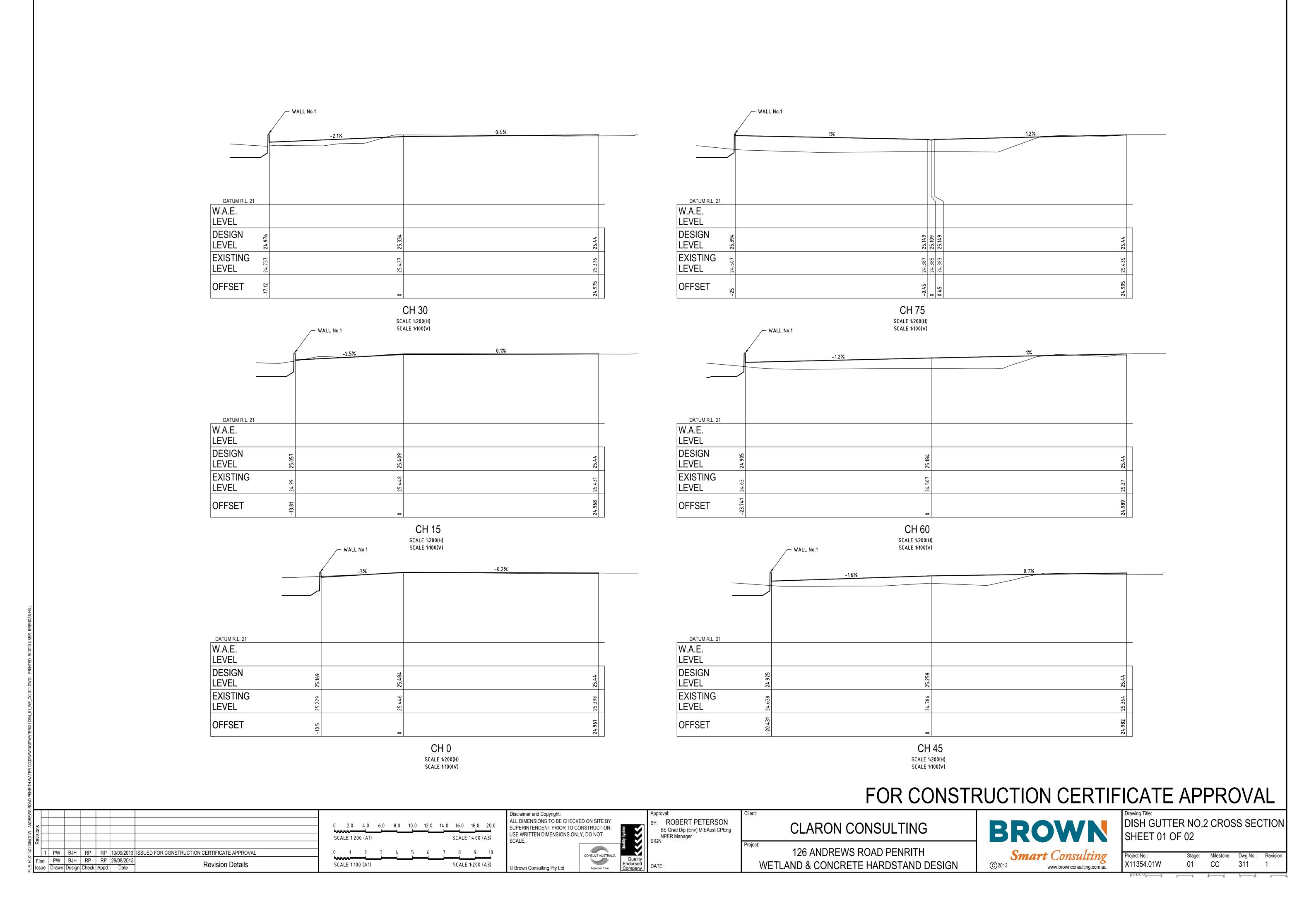
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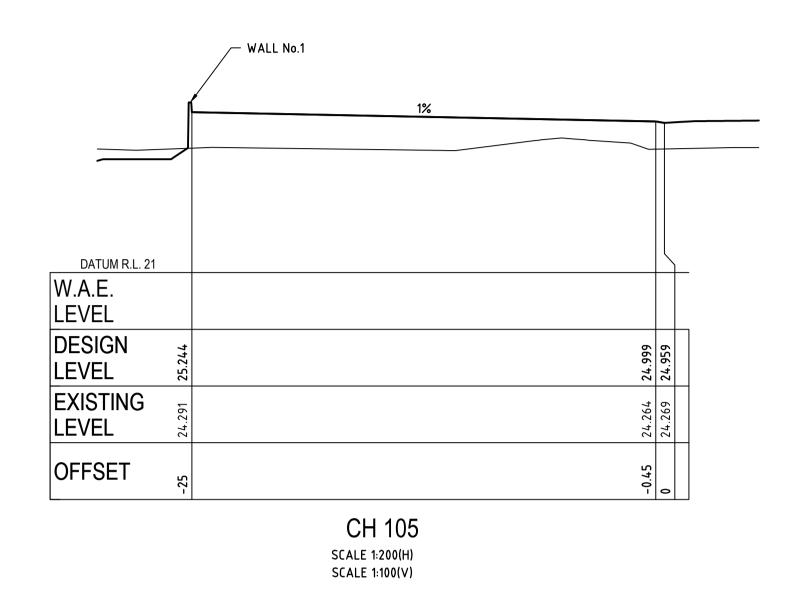
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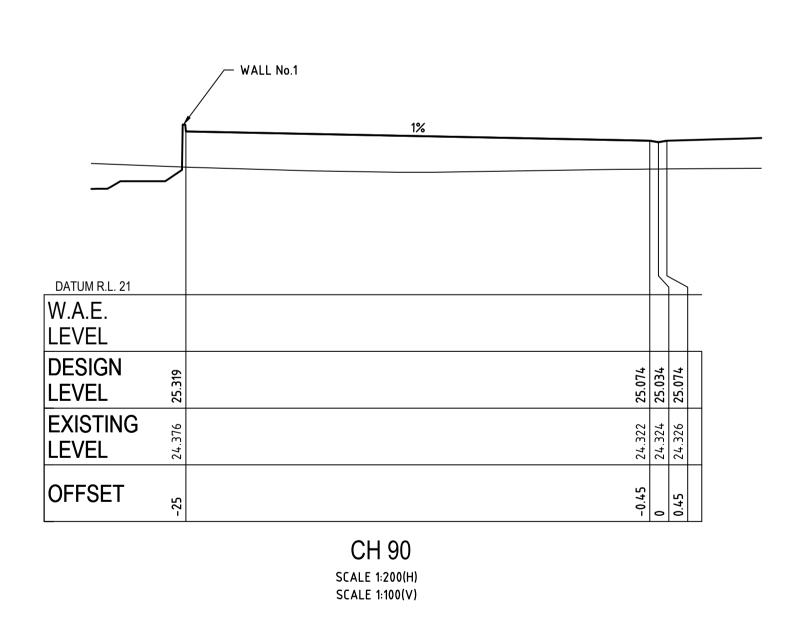
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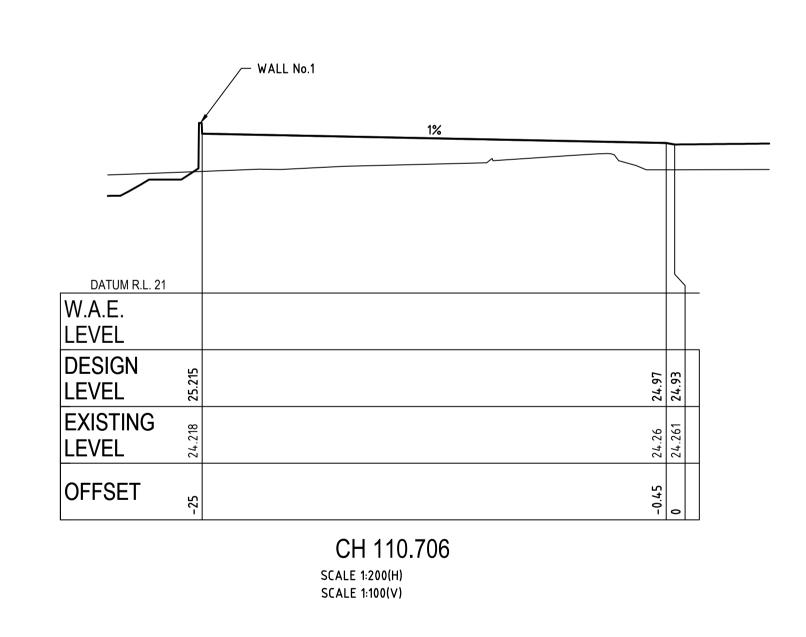
NPER Manager 0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 CLARON CONSULTING SHEET 02 OF 02 SCALE 1:400 (A3) SCALE 1:200 (A1) CONSULT AUSTRALIA

Member Firm 126 ANDREWS ROAD PENRITH Smart Consulting
www.brownconsulting.com.au 1 PW BJH RP RP 10/09/2013 ISSUED FOR CONSTRUCTION CERTIFICATE APPROVAL Quality Endorsed Company Project No.: X11354.01W SCALE 1:200 (A3) First PW BJH RP RP 29/08/2013 Issue Drawn Design Check Appd. Date WETLAND & CONCRETE HARDSTAND DESIGN CC **Revision Details** SCALE 1:100 (A1) © Brown Consulting Pty Ltd

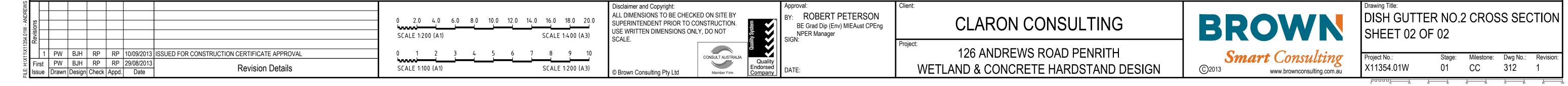


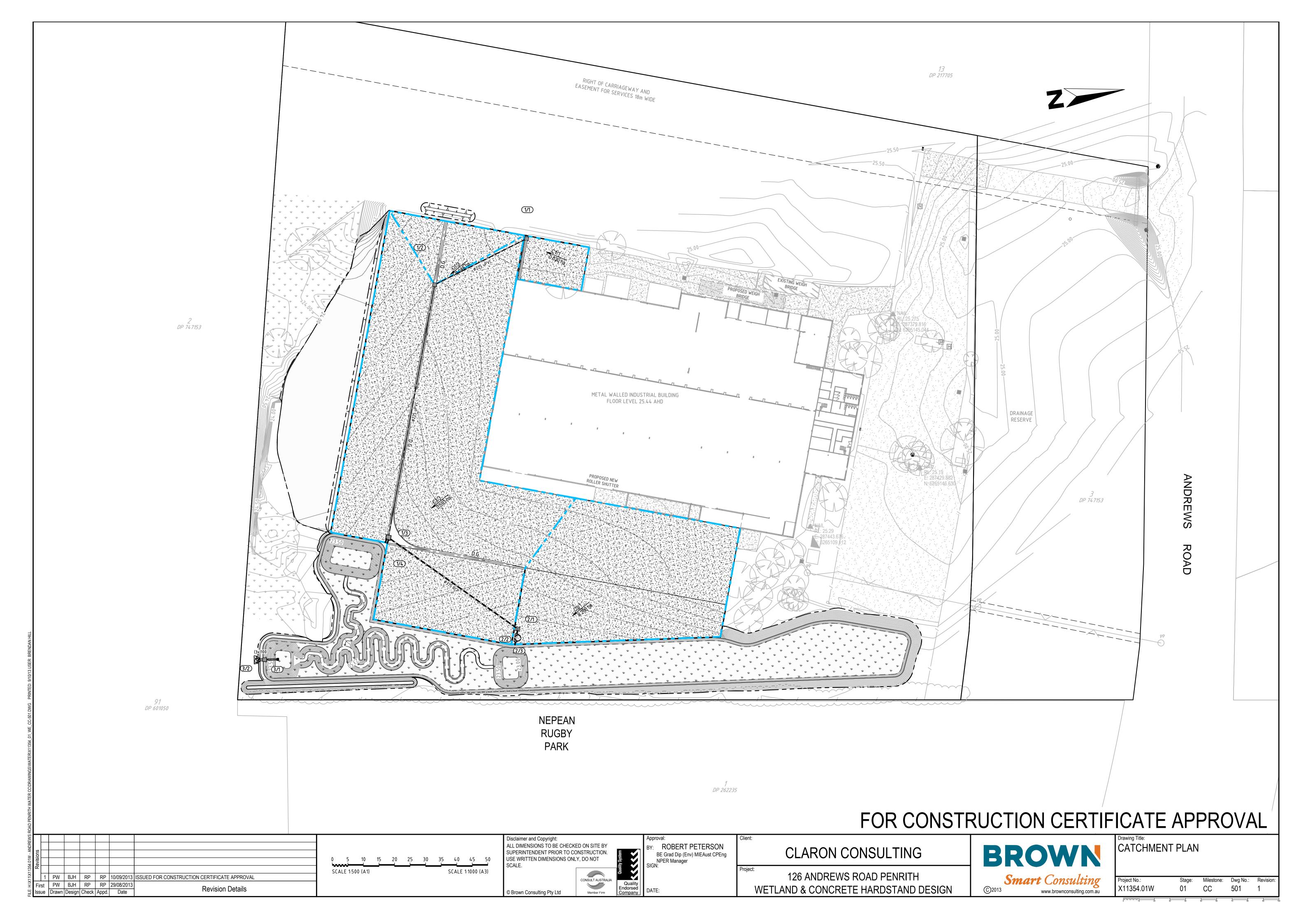


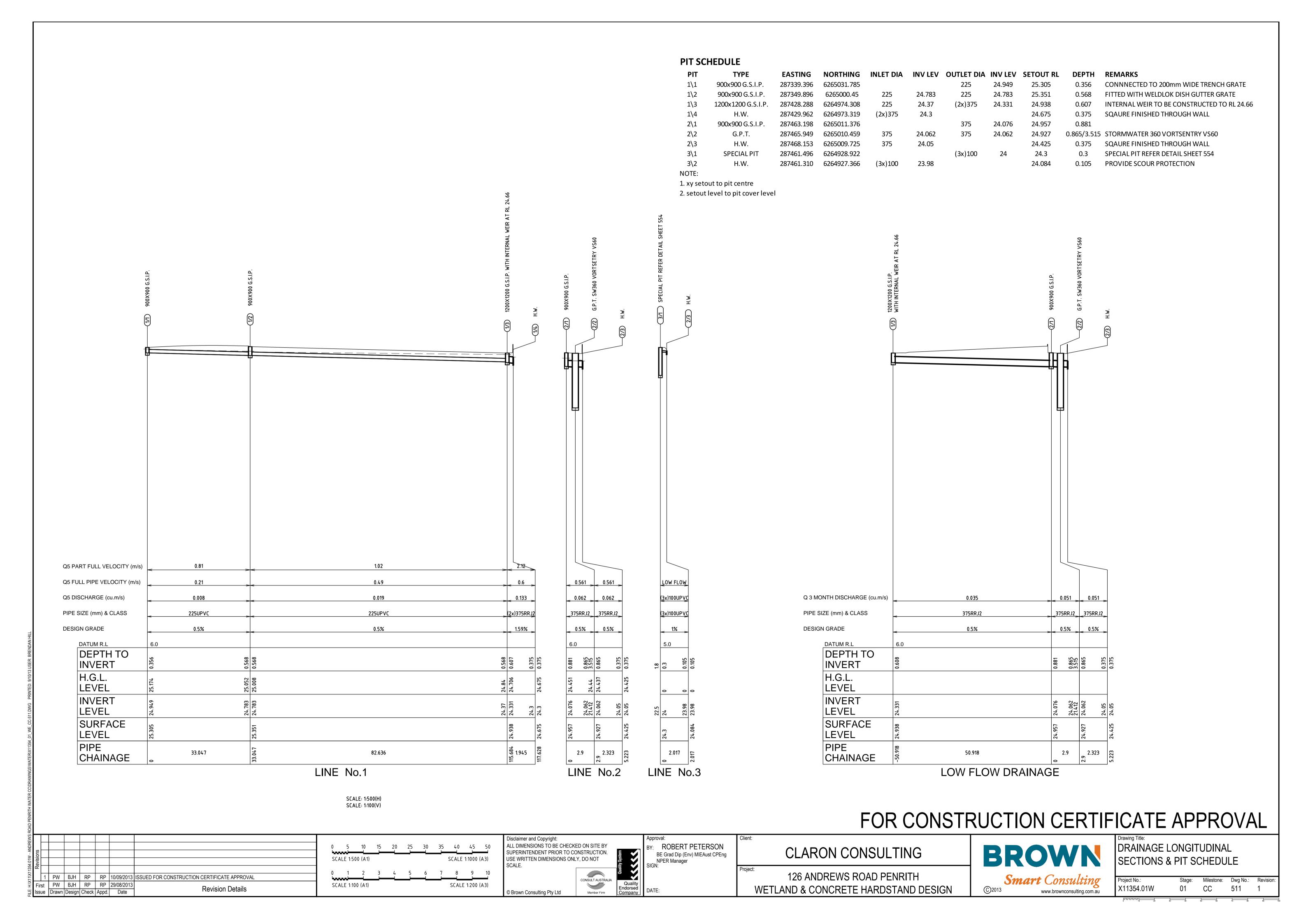




FOR CONSTRUCTION CERTIFICATE APPROVAL







MINOR 5 Y	EAR STORM EVENT														
Pit	Pit	Setout	Setout	Setout	Tc	Catch	Catch	Catch	Time	Intensity	Runoff	Area	Full	Full	Approach
Name	Type	Easting	Northing	RL	Method	Length	Slope	Retardance	Tc	1	С	Α	CA	Sum CA	Flow Qa
(-)	(-)	(m)	(m)	(m)	(-)	(m)	(%)	(-)	(min)	(mm/hr)	(-)	(ha)	(ha)	(ha)	(L/s)
1\1	900x900 G.S.I.P.	287339.4	6265031.79	25.3	Direct				6	117.96	0.85	0.03	0.0255	0.0255	8.3
1\2	900x900 G.S.I.P.	287349.9	6265000.45	25.35	Kinematic Wave	32.72	0.3	0.04	7.4	108.92	0.85	0.0457	0.0389	0.0389	11.8
1\3	1200x1200 G.S.I.P.	287428.29	6264974.31	24.94	Kinematic Wave	109.35	0.5	0.04	13.62	83.99	0.85	0.593	0.504	0.504	117.6
1\4	H.W.	287429.96	6264973.32	24.68											
2\1	900x900 G.S.I.P.	287463.2	6265011.38	24.96	Kinematic Wave	80.6	0.8	0.04	9.41	98.79	0.85	0.2657	0.2259	0.2259	62
2\2	G.P.T.	287465.95	6265010.46	24.93											

12D MODEL - HYDRAULIC DESIGN SHEET

287468.15 6265009.73 24.43

MINOR 5 YEAR	STORM EVENT																																			
Pipe	Pipe	Pipe	Pipe	Full Pipe	Pipe	Pipe	Full-area	Full-area	Full-area	Pipe	Capacity	Q/Qcap	Full Pipe	Norm Depth	Crit Depth	Capacity Vel	US Pit	Pipe	Pipe	DS Pit	Cover	Pipe	Pipe	US Pit	US Pit	Pipe	P'head Loss	WSE Loss	Pipe	US Pit	Pipe	Pipe	DS Pit	HGL	HGL	F'board
ID	Type	Length	Size	Area Af	Grade	Grade	Tct	I	Sum CA	Flow Q	Flow Qcap	Ratio	Vel Vf=Q/Af	Vel Vn=Q/An	Vel Vc=Q/Ac	Vcap=Qcap/Af	Grate RL	US IL	DS IL	Grate RL	Min	DS Bend	DS Drop	Ku	Kw	V'head	(Ku.V'head)	(Kw.V'head)	T'head Loss	HGL	US HGL	DS HGL	HGL	Grade	Grade	US
(-)	(-)	(m)	(mm)	(sq.m)	(%)	(1 in)	(min)	(mm/hr)	(ha)	(L/s)	(L/s)	(-)	(m/s)	(m/s)	(m/s)	(m/s)	(m)	(m)	(m)	(m)	(m)	(deg)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(%)	(1 in)	(m)
1\1 to 1\2	UPVC	33.05	225	0.04	0.5	200	6	117.96	0.0255	8.3	41.3	0.2	0.21	0.81	0.73	1.04	25.3	24.95	24.78	25.35	0.13	-53	0	9.7		0	0.02		0.12	25.2	25.17	25.05	25.05	0.37	271.2	0.11
1\2 to 1\3	UPVC	82.64	225	0.04	0.5	200	7.4	108.92	0.0643	19.5	41.3	0.47	0.49	1.02	0.95	1.04	25.35	24.78	24.37	24.94	0.34	12.1	0.039	3.55	3.68	0.01	0.04	0.04	0.17	25.05	25.01	24.84	24.84	0.2	491.3	0.3
1\3 to 1\4	RRJ2	1.94	(2x)375	0.221	1.59	62.7	13.62	83.99	0.5684	132.6	578	0.23	0.6	2.12	1.2	2.62	24.94	24.33	24.3	24.68	0.38	0	0	7.3		0.02	0.13		0.03	24.84	24.71	24.68	24.68	1.59	62.7	0.1
2\1 to 2\2	RRJ2	2.9	375	0.11	0.5	200	9.41	98.79	0.2259	62	161.2	0.38	0.56	1.36	1.17	1.46	24.96	24.08	24.06	24.93	0.47	0	0	9.7		0.02	0.16		0.01	24.61	24.45	24.44	24.44	0.39	256.8	0.35
2\2 to 2\3	RRJ2	2.32	375	0.11	0.5	200	9.44	98.69	0.2259	61.9	161.9	0.38	0.56	1.36	1.17	1.47	24.93	24.06	24.05	24.43	0.38	0		0.2		0.02	0		0.01	24.44	24.44	24.43	24.43	0.5	200	0.49

NOTES:

- 1. MODELLED USING 12d RATIONAL METHOD
- COLEBROOK WHITE ROUGHNESS FACTOR
 RC PIPES 0.6mm
 PVC PIPES 0.03mm
- 3. RRJ2 DENOTES RUBBER RING JOINT CLASS 2 PIPE ALL PVC PIPE TO BE CLASS SH OR EQUIVALENT.
- 4. THE PRESSURE CHANGE COEFFICIENT 'K' HAS BEEN DETERMINED DETERMINED USING MISSOURI CHARTS AND HARE'S EQUATIONS.
- 5. PITS DEEPER THAN 1.8m TO BE CONCRETE REINFORCED, REFER THE HILLS SHIRE COUNCIL STANDARDS.
- 6. PITS DEEPER THAN 3.0m ARE STRUCTURALLY DESIGNED.
- 7. STEP IRONS SHALL BE PROVIDED IN ALL PITS DEEPER THAN 1.2m
- 8. CONCRETE 32MPa COMPRESSIVE STRENGTH AT 28 DAYS.
- 9. 100 YEAR ARI DESIGN CALCULATIONS ARE NOT PRESENTED AS THE AREA IS LOCATED WITHIN THE LOCAL FLOODPLAIN.
- 10. ALL SETOUT POINTS FOR PITS ARE RELATIVE TO THE CENTRE OF THE GRATE.
- 11. LINE 3 CALCULATIONS ARE NOT DOCUMENTED AS IT IS A LOW FLOW DRAINAGE LINE ONLY.

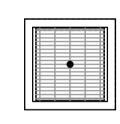
PIT TYPE:

G.G.P. GRATED GULLY PIT
G.S.I.P. GRATED SURFACE INLET PIT
J.P. JUNCTION PIT
H.W. HEADWALL
D.C. DIRECT CONNECTION
S.P. SLIMP PIT

S.P. SLUMP PIT
BEND BEND IN LINE
GPT GROSS POLLUTANT TRAP
S.J. SLOPE JUNCTION

PIT SETOUT POINT LOCATIONS

N.T.S.



SETOUT POINT BASED CENTRE OF PIT

G.S.I.P.



SETOUT POINT BASED CENTRE OF PIT

JUNCTION PIT

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Approval:

BY: ROBERT PETERSON

BE Grad Dip (Env) MIEAust CPEng

NPER Manager
SIGN:

CLARON CONSULTING

126 ANDREWS ROAD PENRITH
WETLAND & CONCRETE HARDSTAND DESIGN

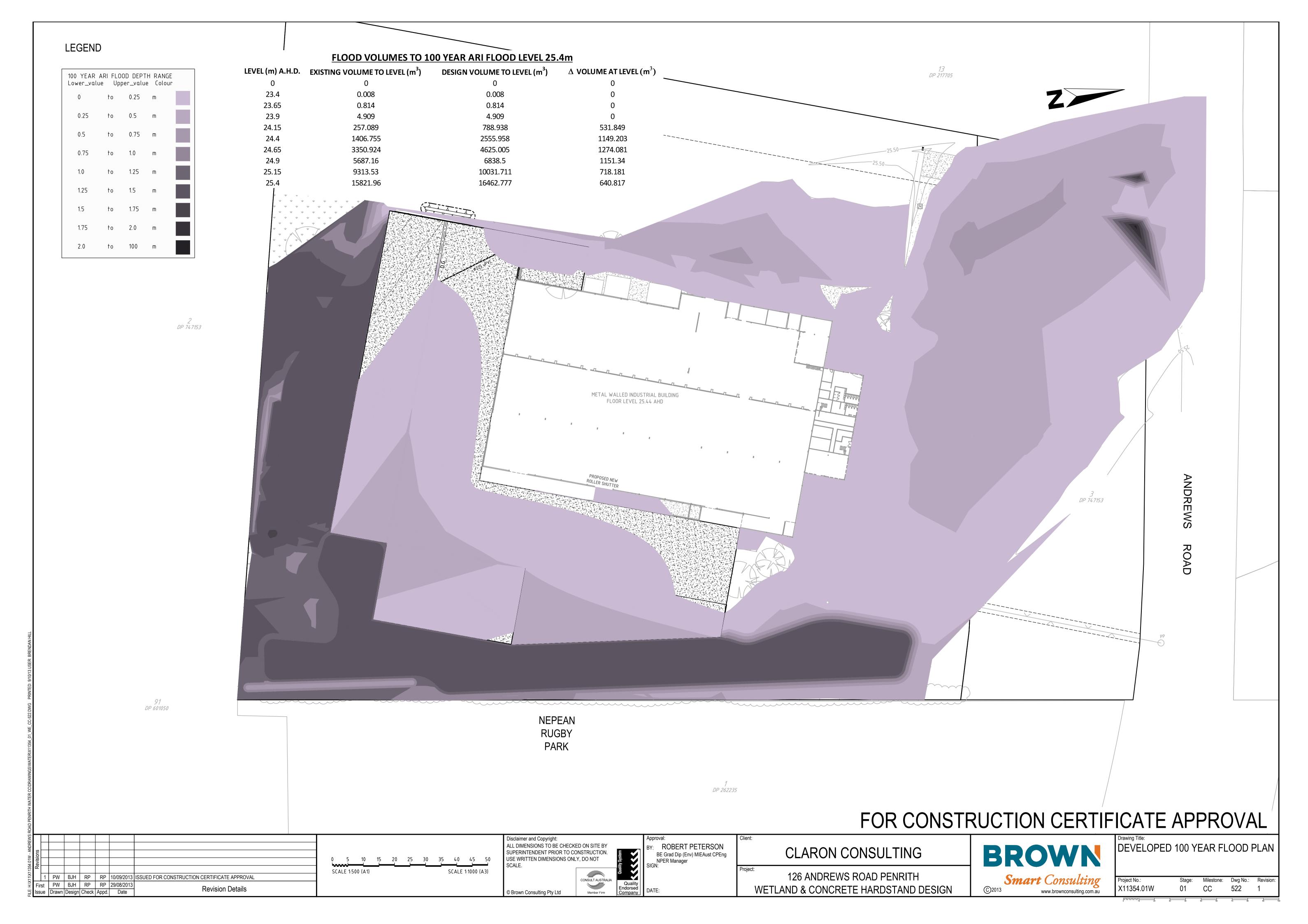


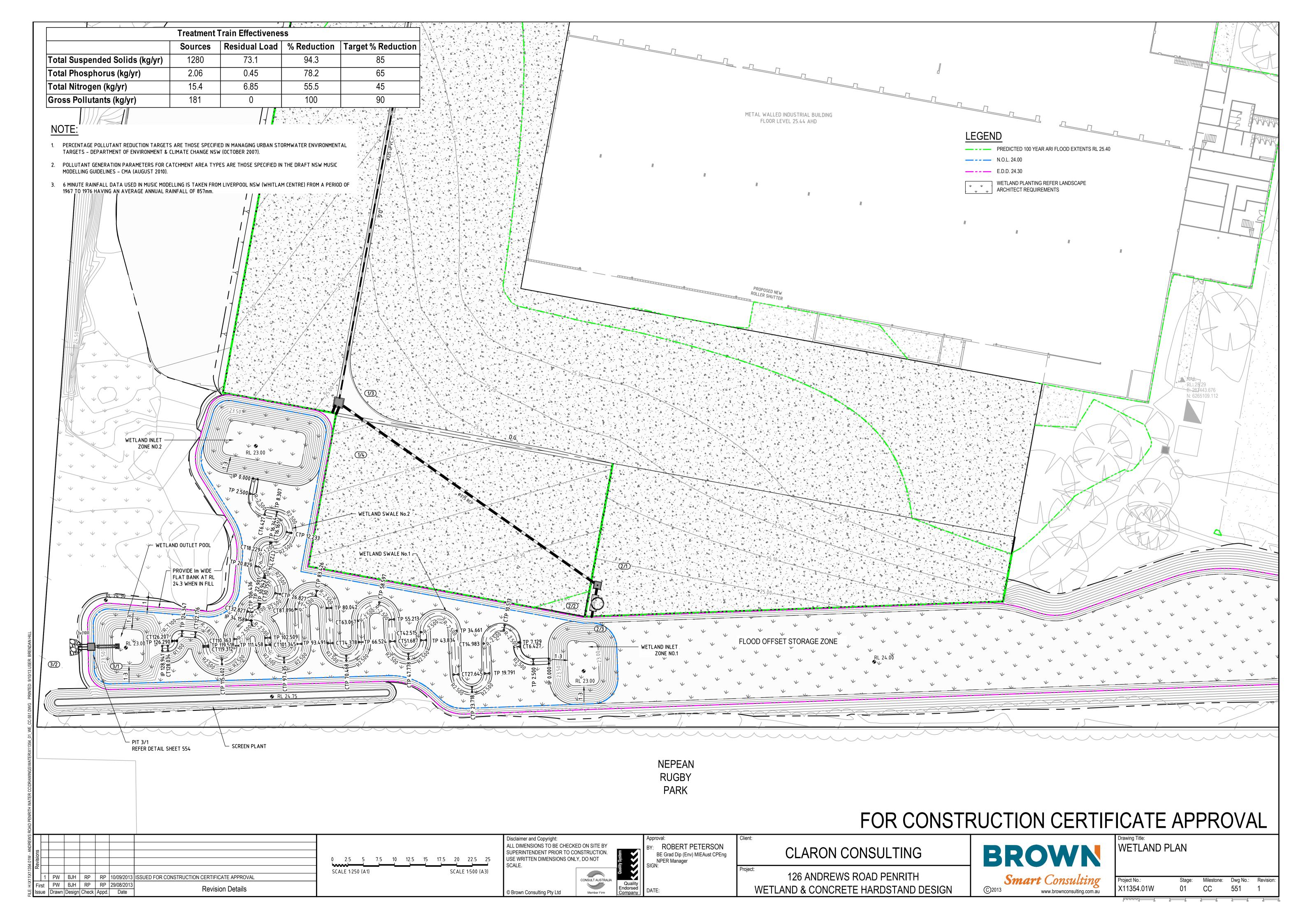
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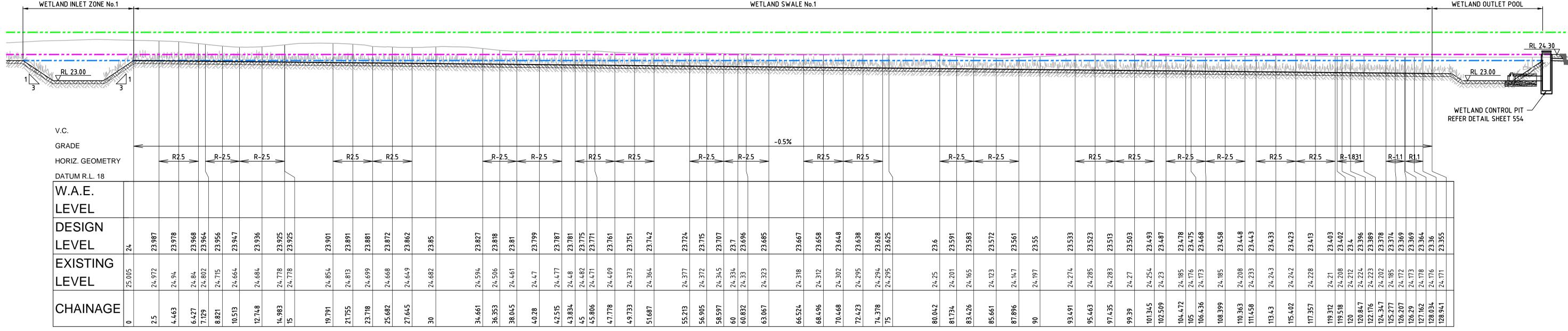
DRAINAGE CALCULATIONS

Project No.: Stage: Milestone: Dwg No.: Revision: X11354.01W 01 CC 512 1



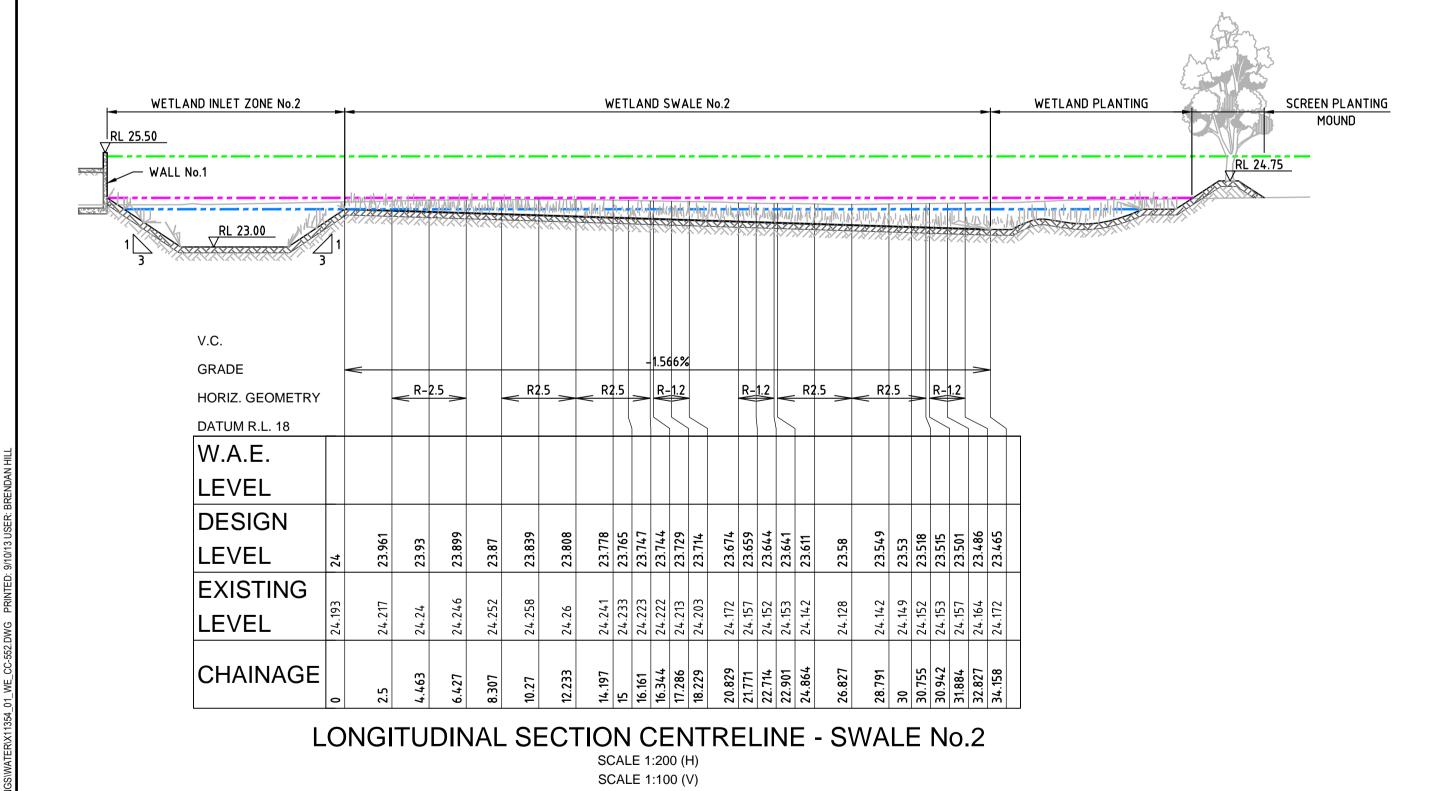


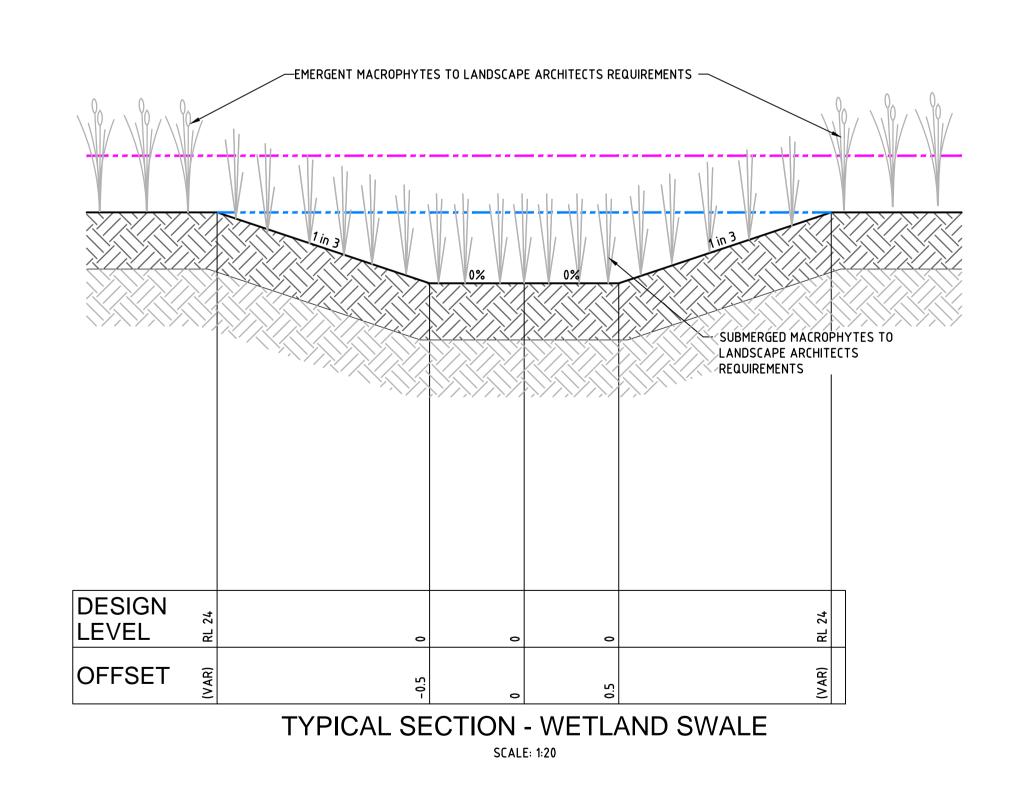




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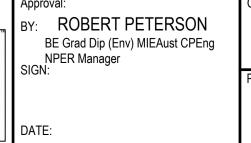
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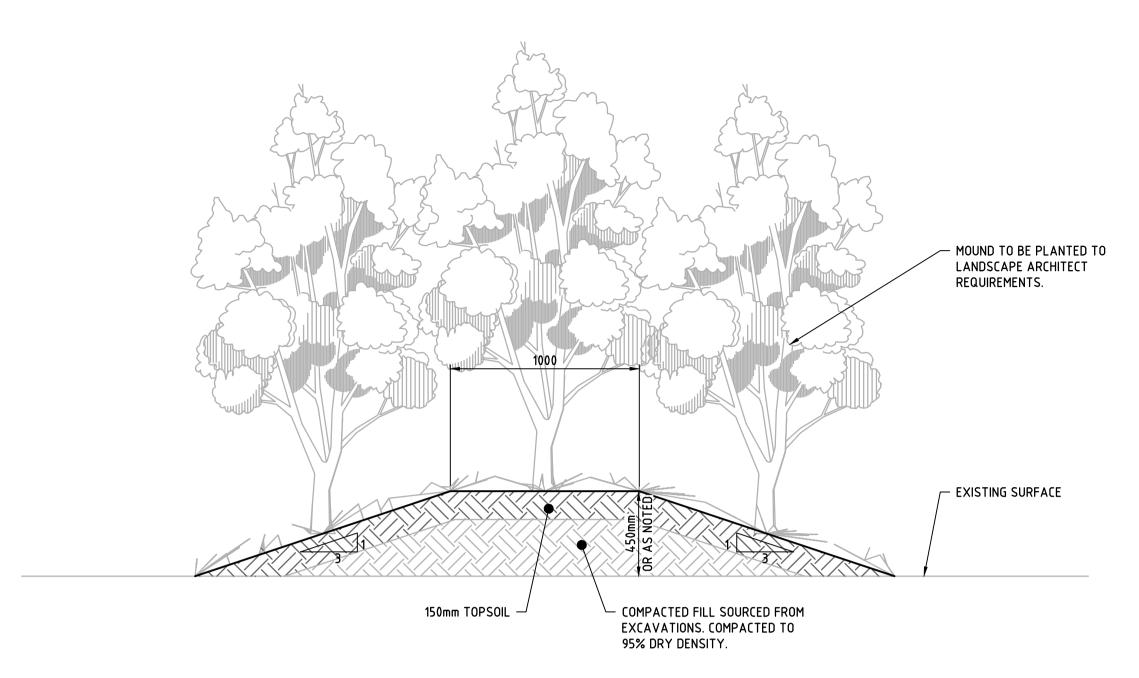
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126 ANDREWS ROAD PENRITH WETLAND & CONCRETE HARDSTAND DESIGN

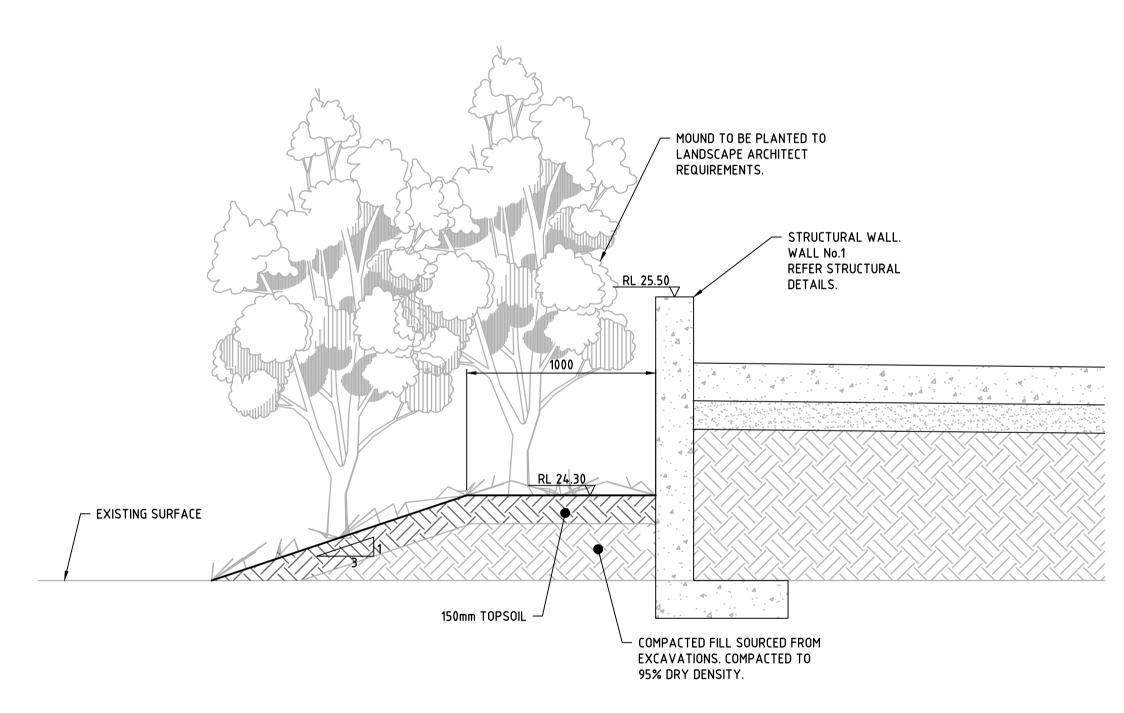


_	Drawing Title:
	WETLAND SECTIONS

Project No.:	Stage:	Milestone:	Dwg No.:	Revision
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TYPICAL SECTION - SCREEN PLANTING MOUND



TYPICAL SECTION - SCREEN PLANTING
MOUND ADJACENT TO WALL
N.T.S.

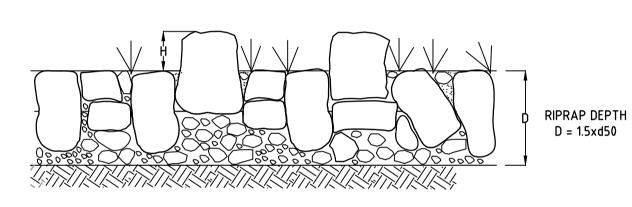
ROCK RIP RAP NOTES:

- 1. ALL RIPRAP MUST CONSIST OF HARD, DURABLE ANGULAR RUN-OF-QUARRY ROCK;
 RESISTANT TO WEATHERING & WATER ACTION; FREE FROM OVERBURDEN, SPOIL, SHALE
 & ORGANIC MATERIAL; & SHALL MEET THE GRADATION REQUIREMENTS SPECIFIED.
- 2. ROUNDED STONES/BOULDERS WILL NOT BE ACCEPTABLE.
- 3. SHALE & ROCK WITH SHALE SEAMS WILL NOT BE ACCEPTABLE.
- ROCKS ARE TO BE PLACED OVER A 200mm LAYER OF ANGULAR COBBLES D50=140mm.
 ALL ROCK & COBBLES TO BE PACKED WITH TOPSOIL. GAPS IN RIPRAP TO BE PLANTED AS SPECIFIED IN VMP, OR WITH SUITABLE NATIVE GRASSES/SEDGES.
- 6. RIPRAP SHALL BE PLACED ON THE PREPARED SLOPE IN A MANNER THAT WILL PRODUCE A REASONABLY WELL GRADED MASS OF STONE WITH THE MINIMUM PRACTICAL PERCENTAGE OF VOIDS.
- 7. LARGER STONES SHALL BE WELL DISTRIBUTED & THE ENTIRE MASS OF STONE SHALL CONFORM TO THE GRADATION SPECIFIED BY THE ENGINEERING PLANS.
- 8. THE MINIMUM THICKNESS OF THE RIPRAP LAYER IS TO BE 1.5 TIMES THE d50 ROCK SIZE & NOT BE LESS THAN 300mm FOR PRACTICAL PLACEMENT.
- 9. THE RIPRAP THICKNESS SHOULD BE INCREASED BY 50% WHEN THE RIPRAP IS PLACED UNDERWATER UNLESS THE CONTRACTOR CAN OVERCOME UNCERTAINTIES ASSOCIATED WITH THIS TYPE OF PLACEMENT.
- 10. THE MINIMUM DENSITY OF STONE USED SHALL NOT BE LESS THAN 2200 kg/cu.m. TYPICAL ROCK WEIGHT RANGES FOR RIPRAP ARE:

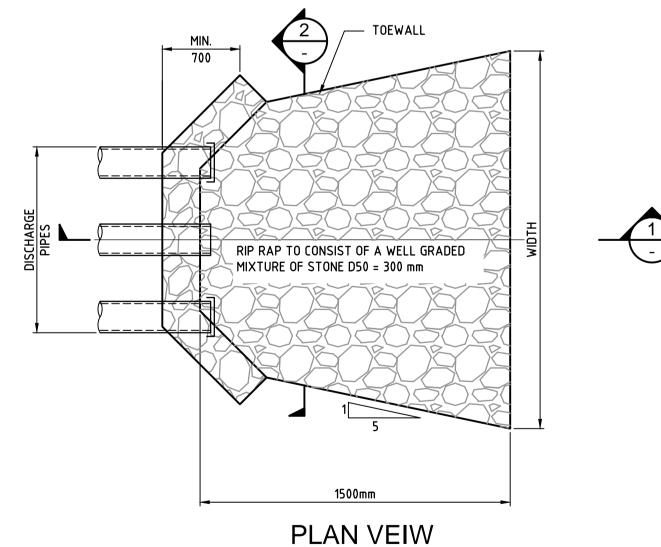
M50 – 60kg (NOM 300MD) M15 – 25kg

11. PLACE OVERSIZED ROCKS (BAFFLE BLOCKS) EVENLY DISTRIBUTED ACROSS THE ROCK

H=150mm MIN



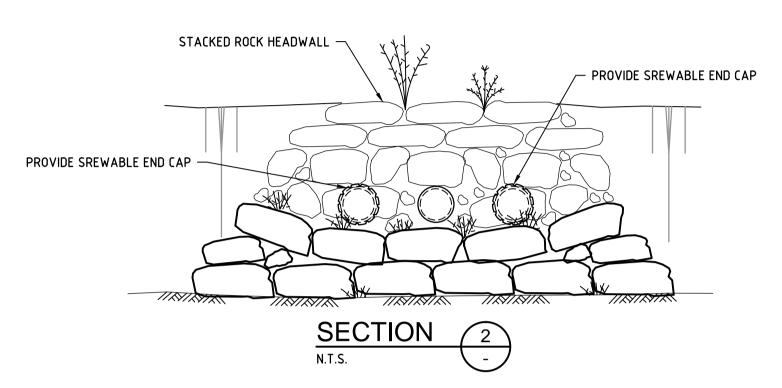
RIPRAP DETAIL



TYPICAL STACKED ROCK HEADWALL

WETLAND POND LINER NOTES

- 1. WHEN THE POND HAS BEEN EXCAVATED TO FINISHED SURFACE LEVEL, THE CONTRACTOR IS TO DETERMINE THE PERMEABILITY OF THE MATERIALS. SUFFICIENT TEST ARE TO BE TAKEN TO CHARACTERISE THE FLOOR MATERIAL PRESENT.
- 2. WHERE THE PERMEABILITY OF THE MATERIAL IS GREATER THAN 10(-7)M/SEC AND IS DEEMED UNSATISFACTORY THE MATERIAL IS TO BE EXCAVATED TO A DEPTH 500mm BELOW THE FINISHED SURFACE LEVEL. THE SELECT CLAY MATERIAL SHALL BE PLACED IN TWO 150mm THICK LAYERS AND COMPACTED TO 95% OF STANDARD MOISTURE CONTENT ABOVE OPTIMUM 2% TO 4%.
- 3. WHERE THE PERMEABILITY OF THE EXISTING MATERIAL IS DEEMED SATISFACTORY, THE MATERIAL IS TO BE RIPPED TO A MINIMUM DEPTH OF 200mm BELOW FINISHED SURFACE LEVELS AND THEN COMPACTED TO A MOISTURE CONTENT ABOVE OPTIMUM 2% TO 4%.
- 4. AFTER COMPACTION THE FLOOR ZONES ARE TO REMAIN MOIST (M/C 2-4%) UNTIL THE POND IS FILLED.
- 5. THE REMAINING 200mm OF COMPACTED TOPSOIL IS TO THEN BE FINISHED TO THE DESIGN FINISHED SURFACE LEVEL AND PLANTED TO LANDSCAPE ARCHITECT'S REQUIREMENTS UPON COMPLETION OF UPSTREAM WORKS.



NOTES: - STACKED ROCK HEADWALLS

1. BACKFILL IS TO BE GRANULAR, FREE DRAINING AND COMPACTED TO 95% MAXIMUM DRY

2. FOUNDATION TO BE APPROVED FOR 200 kPa BEARING CAPACITY.

3. ROCK IS TO BE SOUND DURABLE BASALT OR OTHER MATERIAL APPROVED BY COUNCIL ENGINEER.

4. ROCKS SHALL BE PLACED IN SUCH A MANNER THAT THEY ARE STABLE AND INTERLOCKING AND LAID ROUGHLY COURSED AND BEDDED ON THEIR BROADEST BASE.

5. EACH ROCK SHALL BE:
- ELONGATED TO ALLOW STACKING ON THE LONGEST AXIS.

ANGULAR IN SHAPE (PROMOTES INTERLOCKING)
 FREE FROM OVERBURDEN, SPOIL, SHALE AND ORGANIC MATERIAL.

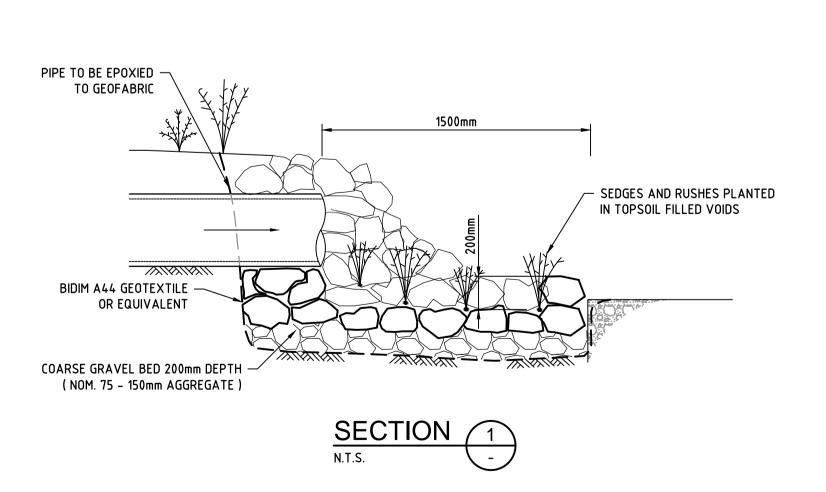
6. WALL CONSTRUCTION TO BE SUPERVISED BY A SUITABLY.

7. AIR VOIDS SHALL NOT EXCEED 30% VOLUME.
8. THE TOP COURSE OF ROCKS ON EMBANKMENT AND ADJACENT TO PIPE SHALL BE

MORTARED INTO POSITION.

9. HEADWALL ROCK SPECIFICATION: BREADTH (B): 0.4 TO 0.6m

WIDTH (W): 0.4 TO 0.6m LENGTH (L): 2x (B OR W) < L < 3 x (B OR W)



FOR CONSTRUCTION CERTIFICATE APPROVAL

1 PW BJH RP RP 10/09/2013 ISSUED FOR CONSTRUCTION CERTIFICATE APPROVAL

First PW BJH RP RP 29/08/2013 | Revision Details

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BY: ROBERT PETERSON

BE Grad Dip (Env) MIEAust CPEng

NPER Manager

SIGN:

DATE:

CLARON CONSULTING

126 ANDREWS ROAD PENRITH
WETLAND & CONCRETE HARDSTAND DESIGN

FINISHED SURFACE

COMPACTED TOPSOIL

COMPACTED CLAY MATERIAL.

REFER WETLAND LINER NOTES

THICKNESS REQUIREMENTS.

FOR COMPACTION AND

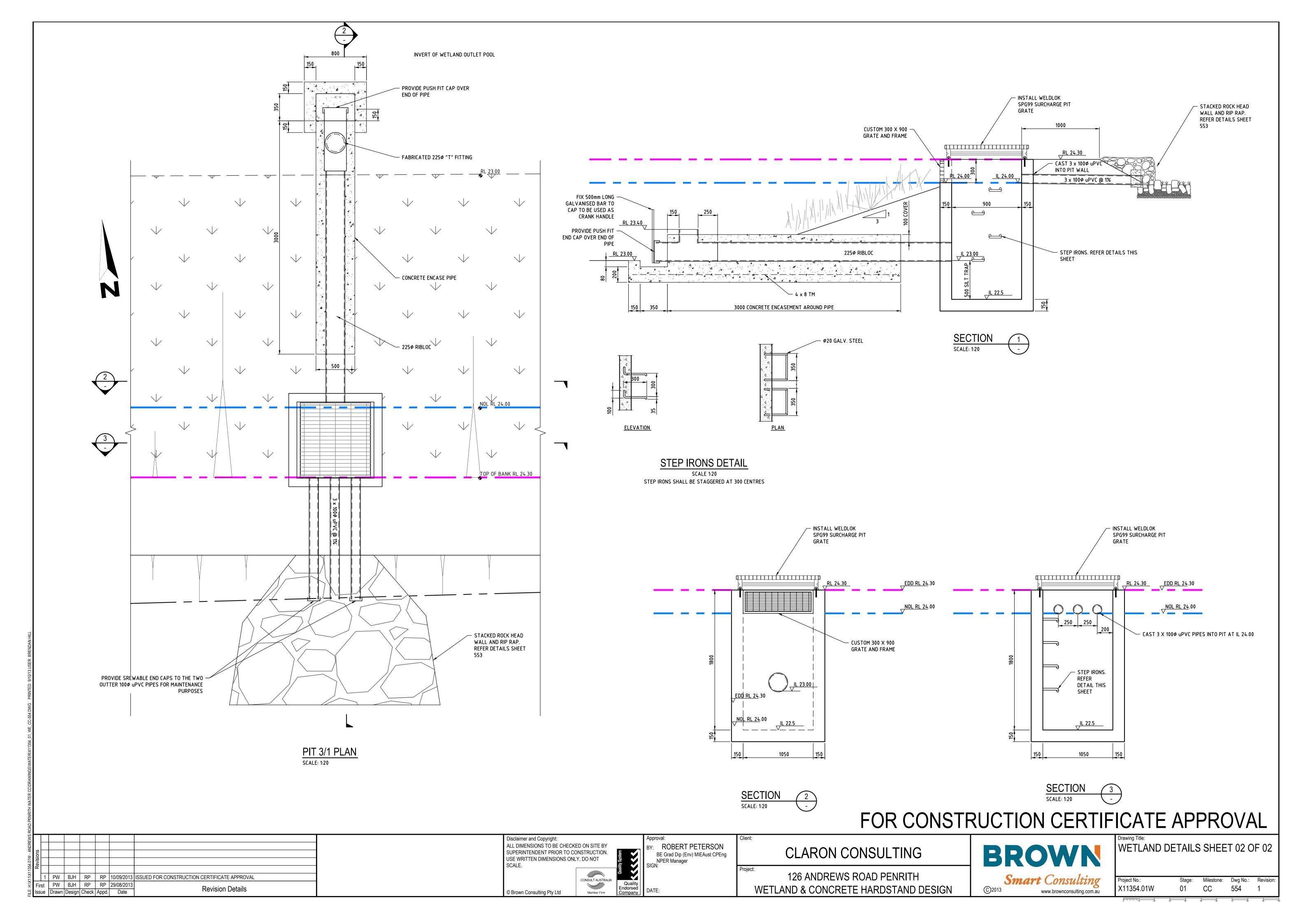
WETLAND LINER DETAIL

N.T.S.



Drawing Title:
WETLAND DETAILS SHEET 01 OF 02

Project No.: Stage: Milestone: Dwg No.: Revision X11354.01W 01 CC 553 1





EROSION AND SEDIMENT CONTROL NOTES

- 1. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO THE COMMENCEMENT OF ANY WORKS BEING CARRIED OUT. ALL SOIL AND EROSION MEASURES SHALL BE MAINTAINED AND KEPT IN PLACE FOR THE FULL DURATION OF THE WORKS AND SHALL ONLY BE REMOVED AT FINAL STABILISATION OF THE WORKS. WHERE IT IS NECESSARY TO UNDERTAKE STRIPPING IN ORDER TO CONSTRUCT A SEDIMENT CONTROL DEVICE ONLY SUFFICIENT GROUND SHALL BE STRIPPED TO ALLOW
- 2. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED AS INDICATED ON THESE DRAWINGS. LOCATION AND EXTENT OF SOIL AND WATER MANAGEMENT DEVICES IS DIAGRAMMATIC ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT.
- 3. CONFORMITY WITH THIS PLAN SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ANY NECESSARY CONTROL IS IN PLACE EVEN THOUGH SUCH CONTROL MAY NOT BE SHOWN ON THE PLAN.
- 4. THE CONTRACTOR SHALL INFORM ALL SUBCONTRACTORS AND ALL EMPLOYEES OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSTREAM AREAS
- 5. APART FROM SEDIMENT BASINS, THE CONTRACTOR SHALL REGULARLY MAINTAIN SEDIMENT AND EROSION CONTROL STRUCTURES AND DESILT SUCH STRUCTURES PRIOR TO THE REDUCTION IN CAPACITY OF 30% DUE TO ACCUMULATED SEDIMENT. THE SEDIMENT SHALL BE DISPOSED OF ON SITE IN A MANNER APPROVED BY THE ENGINEER.
- 6. THE CONTRACTOR SHALL TEMPORARILY REHABILITATE WITHIN TEN (10) DAYS ANY DISTURBED AREAS PROVIDING A MINIMUM 60% COVER. FINAL REHABILITATION IS TO BE PROVIDED WITHIN A FURTHER 60 DAYS WITH A MINIMUM 70% COVER.
- 7. ALL BATTERS AND DISTURBED LAND TO BE REVEGETATED AS SPECIFIED IN THE LANDSCAPE DRAWINGS.
- 8. THE CONTRACTOR SHALL PROVIDE WATERING OF THE VEGETATED BATTERS FOR THE MAINTENANCE PERIOD TO LANDSCAPE

- ARCHITECT SPECIFICATIONS. PLANT, MACHINERY AND OTHER VEHICLES SHALL NOT BE DRIVEN OVER THE REVEGETATED AREAS.
- 9. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS QUICKLY AS POSSIBLE TO MINIMISE RISK OF EROSION.
- 10. SITE ACCESS SHALL BE RESTRICTED TO THE NOMINATED POINTS.
- 11. DUST AND SITE DISTURBANCE MUST BE KEPT TO A MINIMUM ALWAYS. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS MUST BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO REDUCE WIND EROSION. ERECT BARRIER FENCING TO MINIMISE LAND DISTURBANCE BY PREVENTING VEHICULAR AND PEDESTRIAN ACCESS TO AREAS BEING REHABILATATED AND LANDS THAT DO NOT NEED TO BE DISTURBED BY THIS PROJECT.
- 12. STOCKPILE TOPSOILS, SUBSOILS AND OTHER MATERIALS SEPARATELY

THE CONTOUR BEFORE APPLYING TOPSOIL.

METAL WALLED INDUSTRIAL BUILDING FLOOR LEVEL 25.44 AHD

POSSIBLE

STOCKPILE SITE

- 13. TOPSOIL SHALL BE STORED IN LOW MOUNDS NO MORE THAN 2 METRES HIGH AND RE-USED WITHIN TWO MONTHS TO MAINTAIN ACTIVE POPULATIONS OF BENEFICIAL SOIL MICROBES AND SEED.
- 14. PLACE ALL STOCKPILES AT LEAST FIVE METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS, ESPECIALLY EARTH BANKS AND ROADS. IF NECESSARY, EARTH BANKS OR DRAINS WILL BE CONSTRUCTED TO DIVERT LOCALISED RUN-ON.
- 15. TURN TOPSOIL STOCKPILES OVER TO AERATE THEM AT MONTHLY INTERVALS. ENSURE VEGETATION IS NOT INCORPORATED INTO
- 16. AVOID REVERSING THE SOIL PROFILE MATERIALS DURING FILL OPERATIONS REPLACE DISTURBED SOILS IN THEIR ORIGINAL ORDER.
- 17. ON COMPLETION OF MAJOR EARTHWORKS AND BEFORE ADDING TOPSOIL, LEAVE DISTURBED LANDS WITH A LOOSE SURFACE. ALTERNATELY, DISTURBED AREAS PREVIOUSLY COMPACTED BY CONSTRUCTION WORKS WILL BE RIPPED TO ME THAN 200mm ALONG
- 18. LEAVE TOPSOIL IN A SCARIFIED OR ROUGH CONDITION ONCE REPLACED TO HELP MOISTURE INFILTRATION AND REDUCE SOIL EROSION.

- 19. HANDLE TOPSOIL ONLY WHEN IT IS MOIST (NOT WET OR DRY) TO AVOID DECLINE OF SOIL STRUCTURE.
- 20. SEDIMENT BASINS SHALL BE MAINTAINED FOR THE ENTIRE DURATION OF THE PROJECT OR UNTIL SUCH TIME AS ALL DISTURBED AREAS ARE HYDROMULCHED.
- 21. ANY DAMS TO BE DESILTED SHALL BE FLOCCULATED TO SETTLE ANY SUSPENDED SOLIDS, CLEAR WATER SHALL THEN BE PUMPED OUT IN A MANNER WHICH WILL NOT CAUSE DOWNSTREAM EROSION. THE DAM WALL SHALL THEN BE BREACHED AND ANY SILT REMOVED AND PLACED IN A SUITABLY CONSTRUCTED DRYING BASIN. WHEN DRY, THE SILT SHALL BE REMOVED FROM THE SITE OR MIXED WITH TOPSOIL FOR FUTURE SPREADING.
- 22. THE CONTRACTOR SHALL MAINTAIN A LOG BOOK DETAILING:
- RECORDS OF ALL RAINFALL

WATERS.

- CONDITION OF SOIL AND WATER MANAGEMENT STRUCTURES
- ANY APPLICATION OF FLOCCULATING AGENTS TO THE SEDIMENT BASIN VOLUMES OF ALL WATER DISCHARGED FROM SEDIMENT BASINS
- ANY ADDITIONAL REMEDIAL WORKS REQUIRED.
- 23. INSPECTIONS SHOULD BE CONDUCTED AND TO CHECK ON THE CONDITION OF THE SOIL AND WATER MANAGEMENT DEVICES WITH PARTICULAR INTEREST BEING PAID TO:
- LOCATIONS WHERE VEHICLES ENTER AND LEAVE THE SITE;
- ALL INSTALLED EROSION AND SEDIMENT CONTROL MEASURES, ENSURING THEY ARE OPERATING CORRECTLY;
- AREAS THAT MIGHT SHOW WHETHER SEDIMENT OR OTHER POLLUTANTS ARE LEAVING THE SITE OR HAVE POTENTIAL TO DO SO,
 - ALL DISCHARGE POINTS • TO ASSESS WHETHER THE EROSION AND SEDIMENT CONTROL MEASURES ARE EFFECTIVE IN PREVENTING IMPACTS TO THE RECEIVING
 - 24. A SITE INSPECTION USING A CHECK SHEET IS TO BE MADE BY THE SITE MANAGER AT LEAST WEEKLY, IMMEDIATELY BEFORE SITE

EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF WORKS ON SITE INCLUDING APPROVED CLEARING OF SITE VEGETATION. THE EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE MAINTAINED IN ACCORDANCE THE DEPATMENT OF HOUSING'S "MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION" 2004.

INLET SEDIMENT TRAP DURING

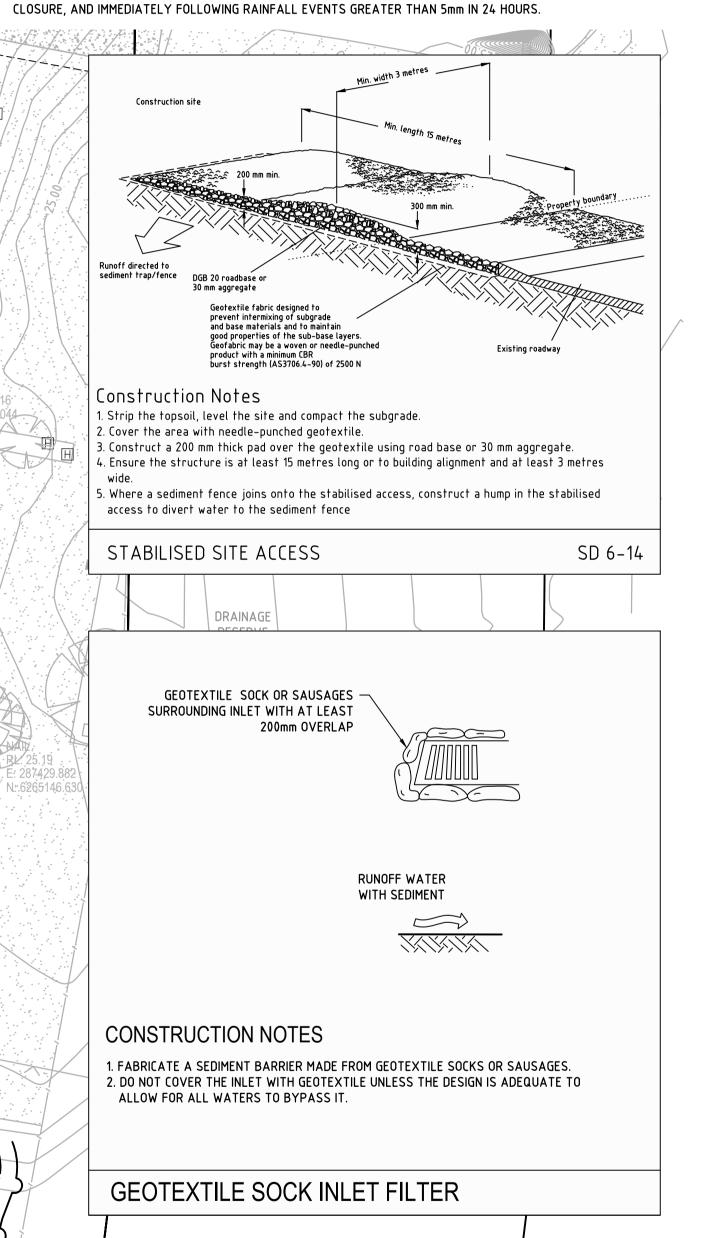
CONTROL AFTER CONSTRUCTION

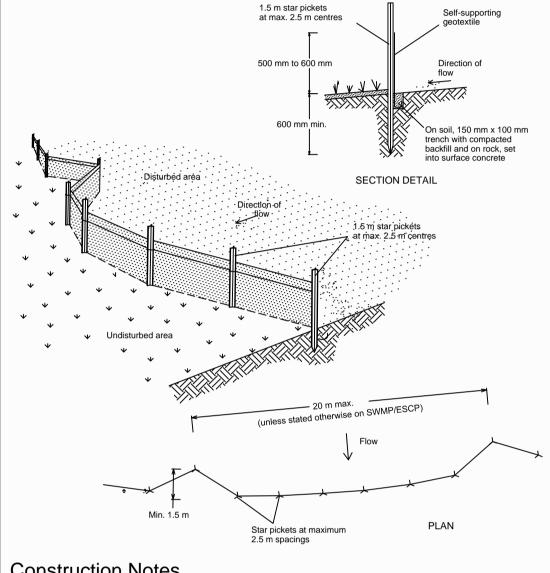
CONSTRUCTION, KERB INLET

STABILISED SITE ACCESS

PROPOSED WETLAND TO BE USED AS SEDIMENT BASIN DURING CONSTRUCTION

LEGEND

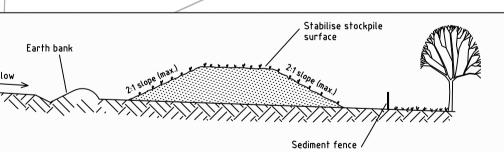




Construction Notes

- 1. Construct sediment fences as close as possible to being parallel to the contours of the site. but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to
- 50 litres per second in the design storm event, usually the 10-year event. 2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to
- 3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope
- edge of the trench. Ensure any star pickets are fitted with safety caps. 4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of
- the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this
- purpose is not satisfactory.
- 5. Join sections of fabric at a support post with a 150-mm overlap.6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE



Construction Notes

- 1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated
- water flow, roads and hazard areas. 2. Construct on the contour as low, flat, elongated mounds.
- 3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
- 4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
- 5. Construct earth banks (Standard Drawing 5–5) on the upslope side to divert water around

stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES

SD 4-1

SD 6-8

NEPEAN RUGBY PARK

FOR CONSTRUCTION CERTIFICATE APPROVAL

SCALE 1:500 (A1) PW | BJH | RP | RP |10/09/2013 ISSUED FOR CONSTRUCTION CERTIFICATE APPROVAL PW BJH RP RP 29/08/2013 Revision Details

ssue Drawn Design Check Appd. Date

35 40 45 50 SCALE 1:1000 (A3)

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CLARON CONSULTING

126 ANDREWS ROAD PENRITH WETLAND & CONCRETE HARDSTAND DESIGN



SOIL & WATER MANAGEMENT PLAN

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CONSTRUCTION NOTES

GENERAL

- COPYRIGHT OF ALL DRAWINGS AND DOCUMENTS PROVIDED BY BROWN CONSULTING (NSW) Pty Ltd FOR THIS PROJECT REMAIN ITS PROPERTY. THE PRINCIPAL ALONE SHALL HAVE A LICENCE TO USE THESE DOCUMENTS IN CONNECTION WITH THE PROJECT BUT SHALL NOT USE OR MAKE COPIES OF SUCH DOCUMENTS OTHER THAN IN CONNECTION WITH THIS PROJECT
- 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. ALL DISCREPANCIES SHALL BE REFERRED TO THE ARCHITECT AND ENGINEER FOR DECISION BEFORE PROCEEDING WITH THE WORK.
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT AUSTRALIAN STANDARDS AND WITH THE BY-LAWS AND ORDINANCES OF THE BUILDING CODE OF AUSTRALIA EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.
- G4 ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEERING DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS
- 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. ANY EXCAVATION IN THE VICINITY OF NEIGHBOURING BUILDINGS IS THE RESPONSIBILITY OF THE BUILDER. APPROVAL OF ALL PROPOSALS MUST BE GRANTED BY THE CONSULTING ENGINEER PRIOR TO COMMENCEMENT OF WORK.
- UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.
- GIVE THE STRUCTURAL ENGINEER 24 HOURS NOTICE FOR SITE INSPECTION AND ALLOW TIME FOR THE INSPECTION AND RECTIFICATION WORK.

FOUNDATIONS

- F1 ALL RESIDENTIAL FOOTINGS TO BE CONSTRUCTED IN ACCORDANCE WITH AS 2870
- FOOTINGS HAVE BEEN DESIGNED TO BEAR ON CONTROLLED FILL WITH AN ALLOWABLE BEARING INTENSITY OF 150 KPa
- THE BUILDER SHALL OBTAIN APPROVAL OF THE FOUNDATION MATERIAL BEFORE PLACING CONCRETE.
- FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE.
- F5 DO NOT BACKFILL BEHIND:
 - (A) CANTILEVER RETAINING WALLS BEFORE THEY REACH THEIR REQUIRED DESIGN STRENGTH.
 - PROPPED RETAINING WALLS UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM IS COMPLETED.

ENSURE FREE DRAINING BACKFILL AND DRAINAGE IS IN PLACE.

F6 FOOTINGS TO BE CONSTRUCTED AND BACKFILLED AS SOON AS POSSIBLE FOLLOWING EXCAVATION TO AVOID SOFTENING OR DRYING OUT BY EXPOSURE

BLOCKWORK

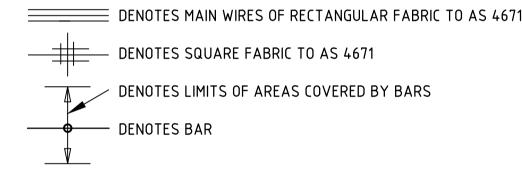
- B1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3700.
- REINFORCED CONCRETE BLOCKWORK SHALL COMPLY WITH THE FOLLOWING U.N.O. BLOCKS SHALL BE STRENGTH GRADE 15 CONFORMING TO AS 2733 MORTAR SHALL COMPRISE 1 CEMENT : 5 SAND.
- PROVIDE CLEANOUT HOLES AT BASE OF ALL WALLS AND ROD CORE HOLES TO REMOVE PROTRUDING MORTAR FINS.
 - CORE FILLING GROUT TO BE F'c=25 MPa, 10mm AGGREGATE, 230mm SLUMP +/- 30mm
- PROVIDE 55mm COVER FROM THE OUTSIDE OF THE BLOCKWORK TO ALLOW ADEQUATE GROUT COVER.
- PROVIDE VERTICAL CONTROL JOINTS AT 10m MAX CENTRES, AND 5m MAXIMUM FROM CORNERS IN ALL MASONRY WALLS, UNLESS SHOWN OTHERWISE ON THE STRUCTURAL DRAWINGS.
- BACKFILL TO RETAINING WALLS TO BE FREE DRAINING GRANULAR MATERIAL. PROVIDE SUB-SOIL DRAIN OR WEEP HOLES.

FORMWORK

- DESIGN AND CONSTRUCTION AND STRIPPING TIMES TO COMPLY WITH AS 3610 AND AS 3600 UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- F2 THE DESIGN CERTIFICATION & PERFORMANCE OF THE FORMWORK AND FALSE WORK IS THE RESPONSIBILITY OF THE BUILDER.
- F3 DURING CONSTRUCTION, SUPPORT PROPPING WILL BE REQUIRED WHERE LOADS FROM STACKED MATERIALS, FORMWORK AND OTHER SUPPORTED SLABS INDUCE LOADS IN A SLAB OR BEAM WHICH EXCEED THE DESIGN LOAD FOR STRENGTH OR SERVICEABILITY AT THAT AGE. ONCE THE NOMINATED 28 DAY STRENGTH HAS BEEN ATTAINED, THESE LOADS SHALL NOT EXCEED THE DESIGN SUPERIMPOSED LOADS SET OUT ON THE DRAWINGS.

CONCRETE

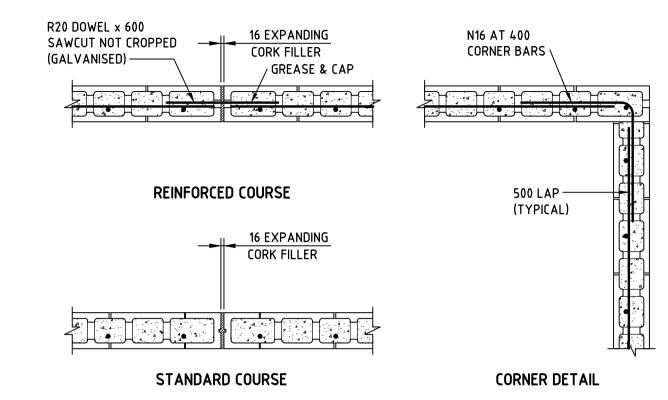
- C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS
- C2 CONCRETE QUALITY: ALL THE REQUIREMENTS OF THE ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.
- C3 PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 3600
- C4 NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.
- C5 CONCRETE STRENGTH AND COVER REFER TO RELEVANT DRAWING
- C6 CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- C7 DEPTH OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS.
- C8 FOR CHAMFERS, DRIP GROOVES, REGLETS, ETC. REFER TO ARCHITECT'S DETAILS, MAINTAIN COVER TO REINFORCEMENT AT THESE DETAILS.
- C9 CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
- C10 CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT. APPROVED SPRAYED ON CURING COMPOUNDS MAY BE USED WHERE NO FLOOR FINISHES ARE PROPOSED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED IF PROTECTED FROM WIND AND TRAFFIC.
- C11 FORMWORK TO REMAIN IN POSITION FOR A MINIMUM OF 14 DAYS U.N.O. WHERE SLABS AND BEAMS ARE TO SUPPORT BRICKWORK OVER. FORMWORK AND PROPS MUST BE REMOVED PRIOR TO COMMENCEMENT OF THIS BRICKWORK.
- C12 ALL CONCRETE TO BE MECHANICALLY VIBRATED AND THE VIBRATOR SHALL NOT BE USED TO SPREAD CONCRETE.
- C13 LOCATION OF CONDUITS, PIPES, ETC., GREATER THAN 25mm DIA FOR BEAMS NEEDS TO BE APPROVED BY THE ENGINEER.
- C14 LOCATION OF CONDUITS, PIPES, ETC., FOR SLABS TO BE LOCATED BETWEEN THE TOP AND BOTTOM REINFORCEMENT.
- C15 REINFORCEMENT SYMBOLS:



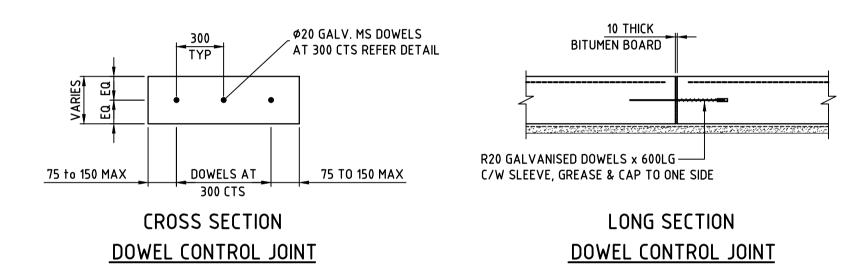
- SL DENOTES GRADE D500L REINFORCING SQUARE FABRIC TO AS 4671 DENOTES GRADE D500L REINFORCING RECTANGULAR FABRIC TO AS 4671
- DENOTES GRADE 250R HOT ROLLED PLAIN BARS TO AS 1302 DENOTES GRADE D500N BARS TO AS 4671
- C16 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY IN TRUE PROJECTION.
- C17 SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN AND SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT. FOR FABRIC THE OUTMOST WIRES SHOULD BE OVERLAPPED BY AT LEAST THE SPACING OF THESE OUTERMOST WIRES PLUS 25mm.
- WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWING.
- C19 BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF THE WIRE.
- C20 ALL UNSUPPORTED BARS SHALL BE TIED IN A TRANSVERSE DIRECTION WITH N12 AT
- C21 PROVIDE UPWARD CAMBER TO FORMWORK OF CANTILEVERS OF L/120, WHERE L IS THE SHORTEST PROJECTION BEYOND COLUMN OR WALL FACE, AND TO FORMWORK OF SLABS WHERE NOTED ON PLAN. MAINTAIN THE SLAB AND BEAM DEPTHS SHOWN.
- C22 ALL REINFORCEMENT TO BE ACCURATELY PLACED IN POSITION SHOWN TIED AND ADEQUATELY SUPPORTED TO GIVE SPECIFIED COVER.

SCALE 1:400 (A3)

C23 NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE ALLOWED.

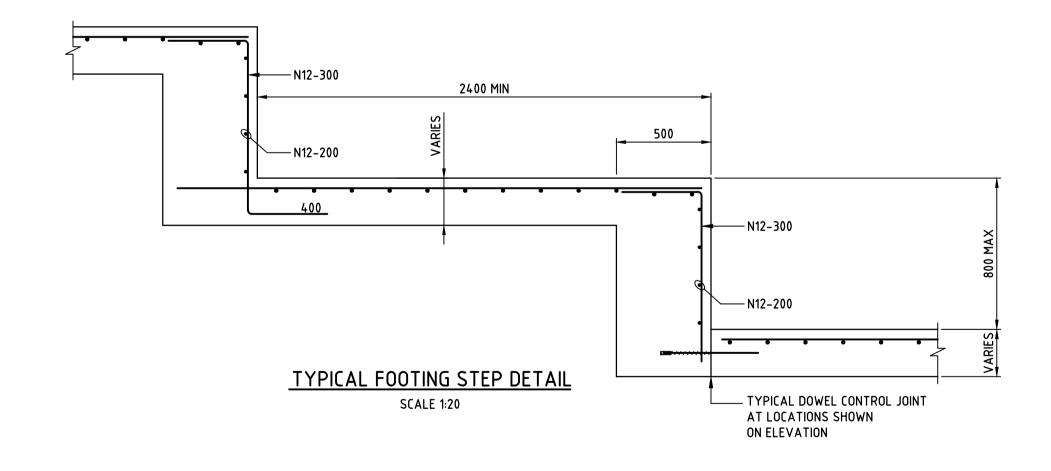


TYPICAL BLOCKWORK CONTROL JOINTS REFER TO GENERAL NOTES FOR JOINT SPACING



SCALE 1:20

RETAINING WALL FOOTING CONTROL JONT DETAILS TO LINE UP WITH BLOCKWORK CONTROL JOINT



SCALE 1:20

NOTES:

3. CONCRETE STRENGTH - UNLESS NOTED OTHERWISE

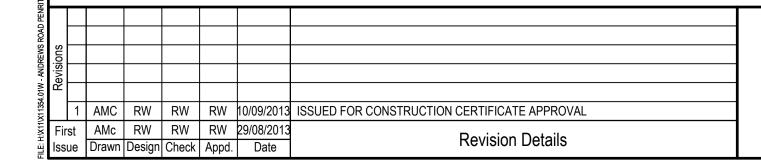
ELEMENT	f'c MPa (28 DAYS)	SLUMP	MAX AGG SIZE	CEMENT TYPE
FOOTINGS	32MPa	80mm	20mm	GP
CONCRETE WALLS	32MPa	80mm	20mm	GP
WALL GROUT	25MPa	220mm	10mm	GP

4. COVER - UNLESS NOTED OTHERWISE

ELEMENT	INTERIOR	EXTERIOR
		50mm
SLAB TOP	-	-
SLAB BOTTOM	-	-
BEAM TOP	-	-
BEAM BOTTOM	-	-
BEAM SIDE	-	-
COLUMNS	-	-
RETAINING WALL BLOCKS	60mm	60mm

5. R-DENOTES 1-N16 BAR x 1000 LONG

FOR CONSTRUCTION CERTIFICATE APPROVAL



10 15 20 25 30 35 40 45 50 SCALE 1:1000 (A3) SCALE 1:500 (A1) 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0

SCALE 1:200 (A1)

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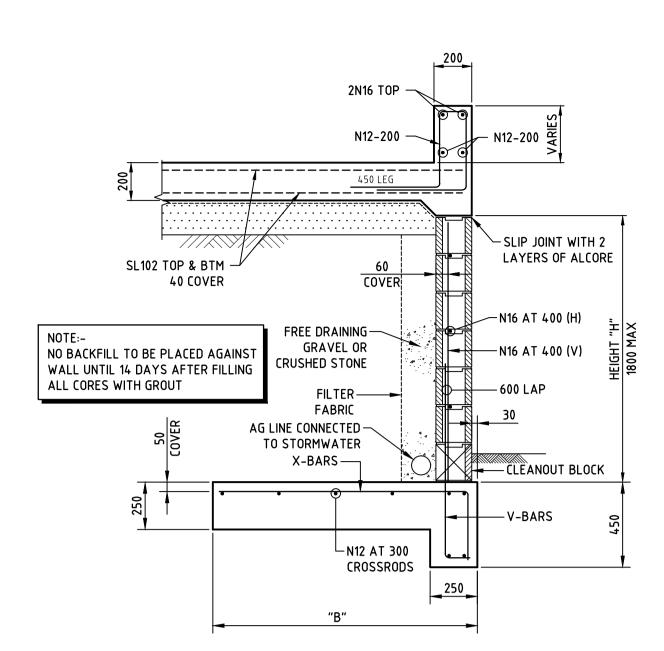
CLARON CONSULTING

126 ANDREWS ROAD PENRITH WETLAND & CONCRETE HARDSTAND DESIGN



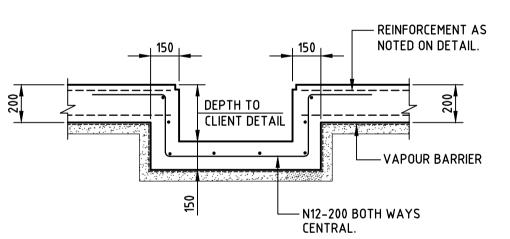
STRUCTURAL GENERAL AND **CONSTRUCTION NOTES**

Milestone: Dwg No.: Revision X11354.01W 901 www.brownconsulting.com.au

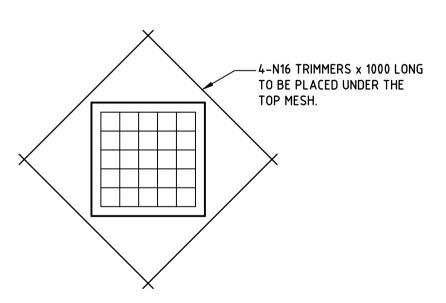


TYPICAL RETAINING WALL TYPE RW01 & RW02

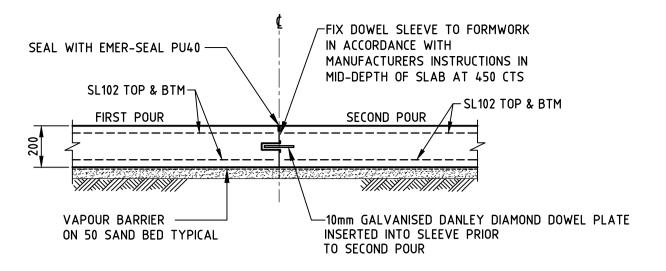
HEIGHT	WALL	WALL SCHEDULE (5 KPa SURCHARGE							
"H"mm	TYPE	"B"mm	V-BARS	X-BARS					
600		600	N16 AT 400	N16 AT 400					
1000	190	900	N16 AT 400	N16 AT 400					
1400		1150	N16 AT 400	N16 AT 400					
1800		1400	N16 AT 200	N16 AT 400					



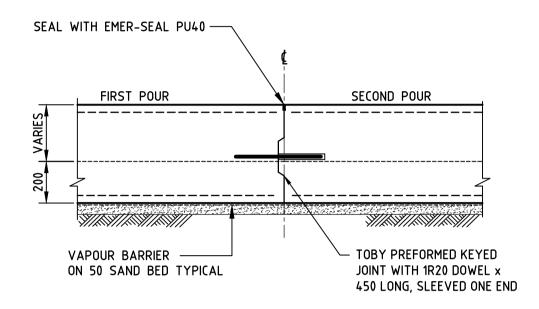
TYPICAL SUMP PIT DETAIL



TYPICAL SUMP PIT PLAN



TYPICAL SLAB CONSTRUCTION JOINT - CJ



BUND WALL JOINTING DETAIL
SCALE 1:20

R20 DOWELS x 450 LONG AT 450 CRS (GALVANISED). DRILL & EPOXY 150 INTO EXISTING SLAB.

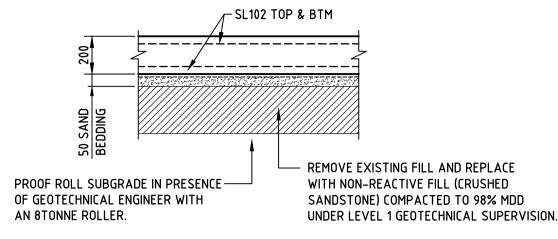
NEW SLAB

EX SLAB

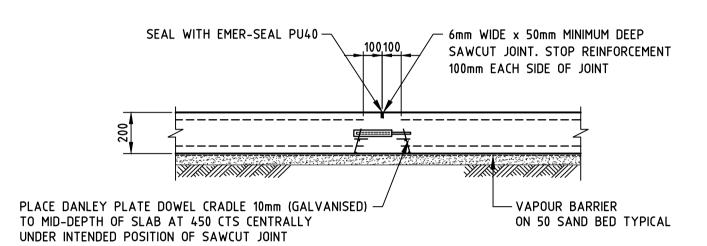
SL102

VAPOUR BARRIER

TYPICAL NEW TO EXISTING SLAB DETAIL
SCALE 1:20



TYPICAL CONCRETE SLAB DETAIL



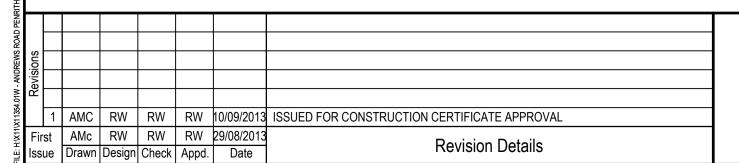
TYPICAL SLAB SAWN JOINT - SJ

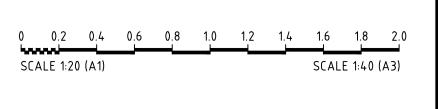
NOTE:MAXIMUM JOINT CENTRES 6m IN EACH DIRECTION. SAW
CUTTING TO BE COMPLETED WITHIN 24 HOURS OF
PLACING CONCRETE AT JOINT.

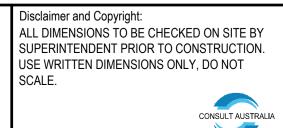
NOTES:

- THE APPROVED METHOD OF CURING SLAB SHALL BE IN PLACE FOR A MINIMUM PERIOD OF 7 DAYS
- A MINIMUM CBR VALUE OF 5% IS REQUIRED FOR THE SUBGRADE. THIS VALUE IS TO BE CONFIRMED BY A GEOTECHNICAL ENGINEER.
- SLAB GRADIENT TO BE DETERMINED BY BUILDER.

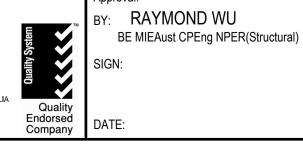
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126 ANDREWS ROAD PENRITH
WETLAND & CONCRETE HARDSTAND DESIGN



Drawing Title:
STRUCTURAL
DETAIL SHEET

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X11354.01WStage:
01Milestone:
CCDwg No.:
902Revision

