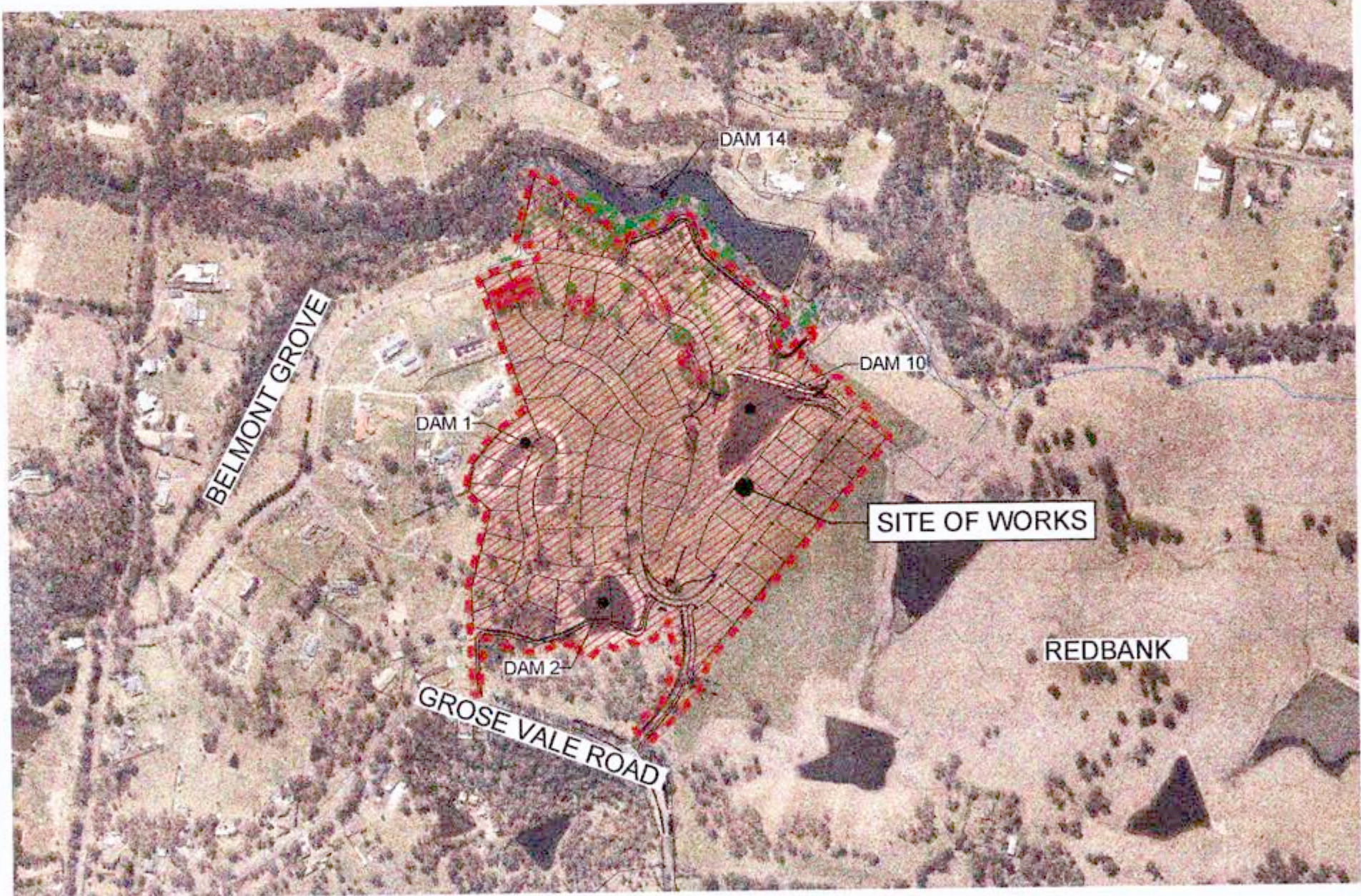




REDBANK - BELMONT PRECINCT PROPOSED LOT, ROAD & DRAINAGE WORKS SUBDIVISION OF LOT 74 D.P. 1187236 CONSTRUCTION CERTIFICATE

HAWKESBURY CITY COUNCIL REF: DA0438-14, DA0451-14, DA0452-14 & DA0467-15



LOCALITY SKETCH

Prepared By:

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399
W www.jwprince.com.au
E jwp@jwprince.com.au

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARMICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

Survey By:
VINCE MORGAN SURVEYORS
REGISTERED SURVEYORS
1/77 UNION ROAD PENRITH NSW 2750
Ph. (02) 4721 5293
REF: NORTH RICHMOND - DETAIL SURVEY UPDATE 4 July 2016
LOT LAYOUT PLAN OF PROPOSED SUBDIVISION REF: 16800-6-P3(C) & 16800-12-L3(B)

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer *[Signature]* BPB0565
Accreditation No. BPB0565
These plans/specifications form part of the certificate issued 31 July 2017

ISSUED FOR CONSTRUCTION APPROVAL
PLAN No. 110185BEL/CC00 E
FILE No. 110185BELCC00

Plotted: 18 July 2017 4:50:24 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC01.dwg

DESCRIPTION	LEGEND		
	PROPOSED	EXISTING	FUTURE
EXTENT OF WORKS			
KERB & GUTTER	KG		
ROLL KERB	RK		
KERB ONLY	KO		
EDGE RESTRAINT	ER		
DISH CROSSING	DC		
PRAM RAMP			
DRAINAGE LINE, PIT & EASEMENT			
DRAINAGE LINE & PIT			
HEADWALL			
GUIDE POSTS			
EXTENT OF FILL			
EXTENT OF CUT			
CONTOURS	46.0	47.0	
CATCH DRAIN			
SUBSOIL DRAIN			
KERB RETURN No	KR		
ELECTRICITY, POWER POLE			
TELECOM, BOX			
WATER, STOP VALVE, HYDRANT			
SEWER, MANHOLE			
GAS			
TREES TO BE PROTECTED			
TREES TO BE REMOVED			
STREET NAME SIGNS	SP		
SURVEY MARKS - BENCH MARKS			
STATE SURVEY MARKS			
STABILISED SITE ACCESS			
SEDIMENT FENCE			
STRAW BALE BARRIER			
STOCKPILE			
PROTECTIVE FENCING			
MESH AND GRAVEL INLET FILTER			
GEOTEXTILE INLET FILTER			

GENERAL NOTES

- ALL WORKS ARE TO BE IN ACCORDANCE WITH HAWKESBURY CITY COUNCIL CIVIL WORKS SPECIFICATION - APPENDIX E. WHERE DISCREPANCIES OCCUR BETWEEN NOTES PRESENT ON DRAWINGS AND COUNCIL'S NOTES, THE COUNCIL'S NOTES TAKE PRECEDENCE.
- THE CONTRACTOR SHALL LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION AND MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST IF NECESSARY.
- THE CONTRACTOR SHALL NOT ENTER UPON NOR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT THE WRITTEN PERMISSION OF THE OWNERS. TO BE PROVIDED PRIOR TO THE APPROVAL OF THE PLANS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO ADJOINING PROPERTIES.
- NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL'S ENGINEER. REFER TO ARTERRA'S TREES RETAINED/REMOVED PLAN.
- TREES TO BE RETAINED ON SITE SHALL BE PROTECTED BY SUITABLE STURDY APPROVED PROTECTIVE FENCING PRIOR TO COMMENCEMENT OF SITE WORKS.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, AND DEBRIS ETC.
- FILLING IS TO BE FROM A NOMINATED SOURCE, OF SOUND CLEAN MATERIAL, FREE FROM LARGE ROCK, STUMPS, CONTAMINATED MATTER, INDUSTRIAL AND BUILDING WASTE, ORGANIC MATTER AND OTHER DEBRIS. PLACING OF FILLING ON THE PREPARED AREAS SHALL NOT COMMENCE UNTIL THE AUTHORITY TO DO SO HAS BEEN OBTAINED FROM THE COUNCIL OR THE PRINCIPAL'S NOMINATED CONSULTANTS FOR BOTH GEOTECHNICAL AND CONTAMINATION.
- SITE FILL AREAS: - THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
- ALL SITE FILLING TO BE COMPACTED TO 95% STANDARD COMPACTION AND SHALL BE CONTROLLED BY A REGISTERED SOIL LABORATORY IN ACCORDANCE WITH COUNCIL'S DEVELOPMENT CONTROL PLAN APPENDIX 'E' - CIVIL WORKS SPECIFICATIONS, PART 2 CONSTRUCTION SPECIFICATIONS.
- ALL SITE REGRADING AREAS SHALL BE GRADED AT A MINIMUM 1% TO THE ENGINEERS' REQUIREMENTS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED BY THE SUPERINTENDENT.
- ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- DIMENSIONS OF ANY DETAIL SHALL NOT BE SCALED - DIMENSIONS, IF IN DOUBT, SHALL BE VERIFIED BY THE SUPERINTENDENT.
- ALL CONSTRUCTION AND RESTORATION WORK ON COUNCIL'S ROAD AND FOOTPATH AREA ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED DRAWINGS AND COUNCIL'S STANDARD SPECIFICATIONS.
- SERVICE ADJUSTMENTS TO BE AT DEVELOPERS EXPENSE.
- IF TWO OF MORE SPECS ARE APPLICABLE FOR PARTICULAR ELEMENT, AREA, ZONE OR PHASE OF WORK, THE PREVALENCE OF THESE MULTIPLE SPECIFICATIONS IS TO BE IDENTIFIED BY THE CONTRACTOR TO THE SUPERINTENDENT FOR DIRECTION. NOTING THAT IS THE INTENTION OF THIS CONSTRUCTION CERTIFICATE AND ITS APPROVAL BY THE ACCREDITED CERTIFIER FOR THE HIGHER SPECIFICATION TO BE SELECTED BY THE SUPERINTENDENT FOR APPLICATION TO THE WORKS TO BE DONE.

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE:
 PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE 31/2/18 PER 1680012

COMPACTION SPECIFICATION

- WITHIN FULL WIDTH OF ROAD CARRIAGEWAY PLUS 1.0M EITHER SIDE -
 - ALL SUBGRADE SHALL BE CARRIED UP IN HORIZONTAL LAYERS, OF NOT MORE THAN 300MM THICK LOOSE MEASUREMENT, IF REQUIRED, AND SHALL HAVE EACH LAYER COMPACTED TO A 100% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
 - ALL SUB-BASE COURSE SHALL BE PLACED AND COMPACTED TO AT LEAST 98% MODIFIED DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
 - ALL BASE COURSE SHALL BE PLACED AND COMPACTED TO AT LEAST 98% MODIFIED DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
 - ALL ROAD CROSSINGS TO BE PROVIDED IN EXISTING ROADS, THE TRENCHES SHALL BE BACKFILLED AND COMPACTED WITH A SAND/CEMENT BLEND 20:1 MIX TO SUBGRADE LEVEL, THEN DGB20 TO WITHIN 50MM OF THE ROAD SURFACE, OR IF REQUIRED TO A HIGHER SPECIFICATION BY A SPECIFIC UTILITY AUTHORITY, TO THAT SPECIFICATION AS INSTRUCTED BY THE PROJECT SUPERINTENDENT.
 - ALL TESTS TO BE TAKEN EVERY 50 METRE LENGTH OF PAVEMENT, TAKEN 1.0M FROM ALTERNATE SIDES OF PAVEMENT, BY A NAT REGISTERED LABORATORY.
 - THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
 - ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
- WITHIN FULL WIDTH OF ROAD FOOTPATH / VERGE EXCLUDING 1.0M BESIDE ROAD CARRIAGEWAY EITHER SIDE -
 - ALL FILL SHALL BE CARRIED OUT IN HORIZONTAL LAYERS, EXTENDING THE FULL WIDTH OF THE AREA BEING FILLED, OF NOT MORE THAN 300MM CONSOLIDATED THICKNESS EACH LAYER SHALL BE COMPACTED TO AT LEAST 98% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
 - ALL TESTS TO BE TAKEN EVERY 50 METRE LENGTH OF ROAD FOOTPATH / VERGE ON CENTRELINE, BY A NATA REGISTERED LABORATORY
 - ALL TRENCHES TO BE BACKFILLED TO HAVE EQUAL COMPACTION (+2%/-0% VARIATION) AS THE SURROUNDING ROAD FOOTPATH / VERGE.
 - ALL TRENCH TESTS TO BE TAKEN IN EACH 300MM LAYER AND EVERY 50 METRES OF TRENCH, BY A NATA REGISTERED LABORATORY.
 - THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
 - ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
- WITHIN LOTS -
 - ALL FILL SHALL BE CARRIED OUT IN HORIZONTAL LAYERS, EXTENDING THE FULL WIDTH OF THE AREA BEING FILLED, OF NOT MORE THAN 300MM CONSOLIDATED THICKNESS. EACH LAYER SHALL BE COMPACTED TO A DENSITY OF AT LEAST 98% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO". THE DEPTHS OF FILL AND THE COMPACTION THEREOF ARE TO BE VERIFIED BY THE SUBMISSION OF COMPACTION CERTIFICATES AND A PLAN SHOWING CONTOURED DEPTHS OF FILL IN RELATION TO LOT BOUNDARIES.
 - ALL TRENCHES TO BE BACKFILLED TO HAVE EQUAL COMPACTION (+2%/-0% VARIATION) AS THE SURROUNDING LOTS.
 - ALL TRENCH TESTS TO BE TAKEN IN EACH 300MM LAYER AND EVERY 50 METRES OF TRENCH, BY A NATA REGISTERED LABORATORY.
 - THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
 - ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.

STORMWATER NOTES

- STORMWATER DESIGN CRITERIA:
AVERAGE RECURRANCE INTERVAL:
1:100 MAJOR SYSTEM
1:5 MINOR SYSTEM
- PIPES TO BE INSTALLED TO TYPE HS1 SUPPORT IN ACCORDANCE WITH AS 3725 (1989) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE, WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL, COMPACTED IN 300mm LAYERS TO MINIMUM 100% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
- ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998).
- CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- GRATES AND COVERS SHALL CONFORM TO AS 3996.
- AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THE FOLLOWING EASEMENTS: -
 - 1.2m WIDE FOR PIPELINE ≤ 2250 TO BE CREATED.
 - 2.5m WIDE FOR PIPELINE ≥ 3000 TO BE CREATED
 - STREET DRAINS - REFER TO COUNCIL'S DESIGN GUIDELINES SUBDIVISION/ DEVELOPMENTS.
- DRAINAGE LINES UNDER ROADS SHALL BE BACKFILLED WITH NON-COHESIVE SAND AND HAVE 3m OF SUBSOIL DRAIN WRAPPED IN APPROVED FILTER SOCK, DISCHARGING INTO DOWN STREAM PITS. FOR PIPELINES GREATER THAN 5250, SUBSOIL DRAIN SHALL BE PROVIDED ON BOTH SIDES OF THE TRENCH.
- ALL STORMWATER PIPES WITHIN ROADS TO BE REINFORCED CONCRETE PIPE (RR-1) CLASS 2 OR FRC CLASS 2.
- ALL INTERALLOTMENT DRAINAGE LINES SHALL BE LAID AT A MINIMUM GRADE OF 1% UNLESS OTHERWISE INDICATED.
- DRAINAGE LINES ON PLANS ARE DIAGRAMMATIC ONLY AND PIPE CENTRELINES SHALL ENTER AND EXIT PITS AT THE CENTRE OF THE RESPECTIVE PIT WALLS.
- STEP IRONS REQUIRED WHERE THE PIT EXCEEDS 1200 IN DEPTH. REFER TO COUNCIL DRAWING SD41.
- WHERE GRADES EXCEED 14.0%, BULKHEADS TO BE PROVIDED IN ACCORDANCE WITH SECTION 5.12 OF COUNCIL'S CIVIL WORKS SPECIFICATION PART 2 CONSTRUCTION.
- SUBSOIL DRAIN TO BE RUN BOTH SIDE OF ROAD WITH CAPPED FLUSH POINTS AND CONNECTED TO NEAREST STORMWATER PIT.
- ALL PIT GRATES TO HAVE LOCKING CLIP.

SURVEY SET OUT INFORMATION NOTES:

- ALL SITE SET OUT AND CONTROL POINTS ARE TO BE CERTIFIED BY A REGISTERED SURVEYOR.
- THE INFORMATION DETAILED ON THE CERTIFIED CONSTRUCTION CERTIFICATE PLANS TAKES PRECEDENCE OVER ALL ELECTRONIC INFORMATION PROVIDED. THE ORDER OF PRIORITY FOR USE OF ALL INFORMATION PROVIDED IS AS FOLLOWS:
 - CERTIFIED CONSTRUCTION CERTIFICATE DRAWINGS
 - 2D DRAFTING BASE (ELECTRONIC FILE)
 - 3D DTM (ELECTRONIC FILE)
- ANY DISCREPANCY BETWEEN ANY OF THE INFORMATION CONTAINED WITHIN THESE FILES IS TO BE BROUGHT TO THE ATTENTION OF THE SUPERINTENDENT WHO WILL SEEK CLARIFICATION AND ISSUE INSTRUCTIONS ON THE APPROPRIATE COURSE OF ACTION.

ROCKWALL NOTES

- NATURE OF FOUNDATION:**
THE WALL MAY BE PLACED ON SUITABLE SOIL FOUNDATIONS. SUITABLE FOUNDING SOILS WOULD NORMALLY BE RESIDUAL SANDSTONE OR OTHER DENSE CLAYEY SANDS. CLEAN SANDS, SILTY SANDS OR HIGH CLAY CONTENT SOILS SUCH AS RESIDUAL SHALE ARE GENERALLY UNACCEPTABLE AS FOUNDING MATERIALS FOR ROCK RETAINING WALLS.
- DRAINAGE:**
DRAINAGE OF THE WALL FOUNDATION SHALL BE ACHIEVED BY INSTALLING A CONTINUOUS 150mm DIAMETER SUBSOIL DRAIN AT THE REAR OF THE WALL. ALL SURFACE RUNOFF SHALL BE DIRECTED AWAY FROM THE BACK OF THE WALL SO AS TO PREVENT INFILTRATION OF SUCH SURFACE RUNOFF INTO THE GRANULAR BACKFILL.
- MATERIALS:**
MATERIALS USED FOR CONSTRUCTION OF THE WALL SHALL BE LARGE, COMPETENT BOULDERS, IN GENERAL AT LEAST 2m x 0.5m x 0.5m.
- FOUNDATION PREPARATION - ROCK:**
WHERE THE WALL IS FOUNDED ON BEDROCK THE PREPARATION OF THE FOUNDATION SHALL INCLUDE THE REMOVAL OF ALL LOOSE ROCK AND SOIL. ANY IRREGULARITIES IN THE LEVEL OF THE BEDROCK SHALL BE FILLED WITH MASS CONCRETE OR RIPPED ROCK COMPACTED TO A MINIMUM DRY DENSITY OF 98% STANDARD.
- FOUNDATION PREPARATION - SOIL:**
WHERE THE WALL IS TO BE FOUNDED ON SOIL THE EXPOSED FOUNDATION SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 300mm, WETTED TO BRING IT NEAR TO THE STANDARD OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM DRY DENSITY RATIO OF 95% STANDARD. ANY AREA WHICH REMAINS SOFT OR SPONGY AFTER THE COMPACTION, SHALL BE EXCAVATED AND FILLED. ALL FILL SHOULD BE PLACED IN LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 250mm AND COMPACTED IN THE MANNER DESCRIBED ABOVE. THE BASE LAYER OF BOULDERS SHALL BE SET IN CONCRETE OR MORTAR PLACED ON THE PREPARED SOIL FOUNDATION WITHIN THE KEY EXCAVATION.
- FOUNDATION DEPTH:**
INSITU ROCK A MINIMUM DEPTH OF 200mm BELOW THE FINISHED SURFACE LEVEL AT THE TOE OF THE WALL. WHERE ADDITIONAL RESISTANCE TO SLIDING IS REQUIRED THE BASE OF THE WALL SHALL BE LAID INTO THE FOUNDATION ROCK BY CONCRETING THE BASE COURSE OF BOULDERS. WHERE THE WALL IS TO BE FOUNDED ON A COMPACTED SOIL THE BASE OF THE WALL SHALL BE AT A LEVEL WHICH IS A MINIMUM DEPTH OF 400mm BELOW THE FINISHED LEVEL AT THE TOE OF THE WALL.
- PLACEMENT OF ROCK:**
ROCK IS TO BE PLACED TO ENSURE THAT INDIVIDUAL BLOCKS ARE INTERLOCKING. TO ACHIEVE THIS, BLOCKS SHOULD BE LAID ROUGHLY COURSED AND BEDDED ON THEIR BROADEST BASES.
- BACKFILL - MATERIALS:**
MATERIAL USED FOR BACKFILLING BEHIND THE WALL SHALL BE ESSENTIALLY GRANULAR CONSISTING OF SAND, CLAYEY SAND, RIPPED SANDSTONE OR GRAVELLY MATERIAL.
- BACKFILL - COMPACTION:**
ANY COMPACTION OF FILL PLACED BEHIND THE WALL SHALL BE CAREFULLY CARRIED OUT TO MINIMISE THE INDUCED LATERAL STRESS AGAINST THE WALL. ALL FILL SHOULD BE PLACED IN LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 250mm AND COMPACTED TO A DRY DENSITY RATIO OF NOT LESS THAN 95% BASED ON STANDARD COMPACTION. WHERE PAVEMENT CONSTRUCTION IS TO TAKE PLACE USING THE BACKFILL AS SUBGRADE MATERIAL, NEAR SURFACE COMPACTION OF THE BACKFILL SHALL BE CARRIED OUT IN ACCORDANCE WITH PAVEMENT COMPACTION REQUIREMENTS.
- DRAINAGE:**
WHERE THE POTENTIAL EXISTS FOR SIGNIFICANT SURFACE RUNOFF OR SURFACE GROUNDWATER FLOW, SUFFICIENT DRAINAGE MEASURES SHALL BE INCORPORATED TO ENSURE THAT WATER PRESSURE DOES NOT DEVELOP IN THE MATERIAL RETAINED BY THE WALL.
- SLOPE STABILITY:**
WHERE REQUIRED THE OVERALL STABILITY OF THE SLOPE AND ROCK WALL SHALL BE EVALUATED. SUCH AN EVALUATION SHALL BE CARRIED OUT BY A SUITABLY QUALIFIED OR EXPERIENCED GEOTECHNICAL ENGINEER PRIOR TO COMMENCING PLACEMENT OF THE WALL ROCK.
- APPURTENANT STRUCTURE:**
WHERE PIPES ARE TO PASS THROUGH OR BENEATH THE ROCK WALL THEY SHALL BE ENCASED IN CONCRETE TO ENSURE THAT THE BASE OF THE WALL FOUNDED IN COMPETENT MATERIAL, AND WALL FOUNDATION PIERS AS REQUIRED BY THE STRUCTURAL ENGINEER WHERE REQUIRED.

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer
 Accreditation No. BPPS0565
 These plans/specifications form part of the certificate issued 31 July 2017



UTILITIES SHOWN ARE DIAGRAMMATIC ONLY. CONTRACTORS ARE RESPONSIBLE TO LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDE LINES & STANDARDS.

NOTE: UTILITIES SHOWN MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS

AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

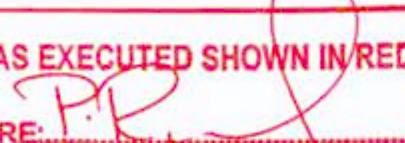
CLIENT:
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 GENERAL NOTES & LEGEND
 PLAN No: 110185BEL/CC01 **E**
 FILE No: 110185BELCC01
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 4:50:40 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC02.dwg

Drawing Number	Drawing Title	Revision Number
110185BEL/CC00	COVER SHEET	E
110185BEL/CC01	GENERAL NOTES & LEGEND	E
110185BEL/CC02	INDEX	G
110185BEL/CC03	LAYOUT PLAN	F
110185BEL/CC04	SETOUT PLAN SHEET 1	F
110185BEL/CC05	SETOUT PLAN SHEET 2	E
110185BEL/CC06	ENGINEERING PLAN SHEET 1	F
110185BEL/CC07	ENGINEERING PLAN SHEET 2	F
110185BEL/CC08	ENGINEERING PLAN SHEET 3	F
110185BEL/CC09	ENGINEERING PLAN SHEET 4	F
110185BEL/CC10	ENGINEERING PLAN SHEET 5	F
110185BEL/CC11	ENGINEERING PLAN SHEET 6	F
110185BEL/CC12	ENGINEERING PLAN SHEET 7	F
110185BEL/CC13	LONGITUDINAL SECTIONS SHEET 1	F
110185BEL/CC14	LONGITUDINAL SECTIONS SHEET 2	F
110185BEL/CC15	LONGITUDINAL SECTIONS SHEET 3	E
110185BEL/CC16	LONGITUDINAL SECTIONS SHEET 4	E
110185BEL/CC17	LONGITUDINAL SECTIONS SHEET 5	F
110185BEL/CC18	LONGITUDINAL SECTIONS SHEET 6	F
110185BEL/CC19	LONGITUDINAL SECTIONS SHEET 7	F
110185BEL/CC20	LONGITUDINAL SECTIONS SHEET 8	F
110185BEL/CC21	ROAD CROSS SECTIONS SHEET 1	E
110185BEL/CC22	ROAD CROSS SECTIONS SHEET 2	E
110185BEL/CC23	ROAD CROSS SECTIONS SHEET 3	F
110185BEL/CC24	ROAD CROSS SECTIONS SHEET 4	F
110185BEL/CC25	ROAD CROSS SECTIONS SHEET 5	F
110185BEL/CC26	ROAD CROSS SECTIONS SHEET 6	F
110185BEL/CC27	ROAD CROSS SECTIONS SHEET 7	E
110185BEL/CC28	ROAD CROSS SECTIONS SHEET 8	E
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110185BEL/CC30	ROAD CROSS SECTIONS SHEET 10	F
110185BEL/CC31	ROAD CROSS SECTIONS SHEET 11	F
110185BEL/CC32	ROAD CROSS SECTIONS SHEET 12	F
110185BEL/CC33	ROAD CROSS SECTIONS SHEET 13	F
110185BEL/CC34	ROAD CROSS SECTIONS SHEET 14	F
110185BEL/CC35	ROAD CROSS SECTIONS SHEET 15	E
110185BEL/CC36	ROAD CROSS SECTIONS SHEET 16	E
110185BEL/CC37	ROAD CROSS SECTIONS SHEET 17	F
110185BEL/CC38	ROAD CROSS SECTIONS SHEET 18	F
110185BEL/CC55	KERB RETURN PLAN & SECTIONS SHEET 1	E
110185BEL/CC56	KERB RETURN PLAN & SECTIONS SHEET 2	F
110185BEL/CC57	KERB RETURN PLAN & SECTIONS SHEET 3	F
110185BEL/CC58	KERB RETURN PLAN & SECTIONS SHEET 4	E
110185BEL/CC59	KERB RETURN PLAN & SECTIONS SHEET 5	E
110185BEL/CC60	KERB RETURN PLAN & SECTIONS SHEET 6	E
110185BEL/CC61	CATCHMENT PLAN SHEET 1	E
110185BEL/CC62	CATCHMENT PLAN SHEET 2	F
110185BEL/CC63	DRAINAGE LONGITUDINAL SECTIONS SHEET 1	E
110185BEL/CC64	DRAINAGE LONGITUDINAL SECTIONS SHEET 2	F
110185BEL/CC65	DRAINAGE LONGITUDINAL SECTIONS SHEET 3	E
110185BEL/CC66	DRAINAGE LONGITUDINAL SECTIONS SHEET 4	E
110185BEL/CC67	DRAINAGE LONGITUDINAL SECTIONS SHEET 5	E

110185BEL/CC68	DRAINAGE LONGITUDINAL SECTIONS SHEET 6	E
110185BEL/CC69	DRAINAGE LONGITUDINAL SECTIONS SHEET 7	E
110185BEL/CC70	DRAINAGE LONGITUDINAL SECTIONS SHEET 8	F
110185BEL/CC71	PIT SCHEDULE & PIT SETOUT	F
110185BEL/CC72	HYDROLOGIC CALCULATIONS SHEET 1	E
110185BEL/CC73	HYDROLOGIC CALCULATIONS SHEET 2	E
110185BEL/CC74	HYDRAULIC CALCULATIONS SHEET 1	E
110185BEL/CC75	HYDRAULIC CALCULATIONS SHEET 2	E
110185BEL/CC76	CULVERT 1 PLAN, SECTION, HEADWALL 1 & RETAINING WALL 1 PROFILE	F
110185BEL/CC77	CULVERT 2 PLAN, SECTION & HEADWALL 3 & 4 PROFILES	E
110185BEL/CC78	SPILLWAY PLAN, SECTION & DETAILS	E
110185BEL/CC79	OUTLET PLAN, LONGITUDINAL SECTION & DETAILS	E
110185BEL/CC80	OUTLET CONTROL CROSS SECTIONS	E
110185BEL/CC81	DROP STRUCTURE & ENERGY DISSIPATOR & DETAILS	E
110185BEL/CC82	RETAINING WALL 3 & F1 PLAN & SECTION	F
110185BEL/CC83	RETAINING WALLS L1, L2 & L3 PLAN & SECTIONS	D
110185BEL/CC84	CARPARK PLAN, SECTIONS & DETAILS	D
110185BEL/CC85	NOT USED	-
110185BEL/CC86	NOT USED	-
110185BEL/CC87	NOT USED	-
110185BEL/CC88	SOIL & WATER MANAGEMENT PLAN PHASE 1 - OVERALL SITE	G
110185BEL/CC89	NOT USED	D
110185BEL/CC90	NOT USED	D
110185BEL/CC91	SOIL & WATER MANAGEMENT PLAN PHASE 1A - DAM 10 SEDIMENT BASIN	G
110185BEL/CC92	SOIL & WATER MANAGEMENT PLAN PHASE 2 BULK EARTHWORKS	G
110185BEL/CC93	SOIL & WATER MANAGEMENT PLAN PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 1	G
110185BEL/CC94	SOIL & WATER MANAGEMENT PLAN PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 2	F
110185BEL/CC95	SOIL & WATER MANAGEMENT DETAILS	F
110185BEL/CC96	SOIL & WATER MANAGEMENT NOTES	F
110185BEL/CC97	SIGNPOSTING & LINEMARKING SHEET 1	E
110185BEL/CC98	SIGNPOSTING & LINEMARKING SHEET 2	E
110185BEL/CC99	SIGNPOSTING & LINEMARKING SHEET 3	E
110185BEL/CC100	SIGNPOSTING & LINEMARKING SHEET 4	F
110185BEL/CC101	SIGNPOSTING & LINEMARKING SHEET 5	E
110185BEL/CC102	100YR HYDROLOGIC CALCULATIONS SHEET 1	B
110185BEL/CC103	100YR HYDROLOGIC CALCULATIONS SHEET 2	B
110185BEL/CC104	100YR HYDRAULIC CALCULATIONS SHEET 1	B
110185BEL/CC105	100YR HYDRAULIC CALCULATIONS SHEET 2	B
110185BEL/CC106	TRAFFIC MANAGEMENT PLAN SHEET 1	B
110185BEL/CC107	TRAFFIC MANAGEMENT PLAN SHEET 2	B
110185BEL/CC300	OUTLET CONTROLS LAYOUT PLAN	B
110185BEL/CC301	OUTLET CONTROLS OUTLET DETAIL SHEET 1	B
110185BEL/CC302	OUTLET CONTROLS OUTLET DETAIL SHEET 2	B
110185BEL/CC303	OUTLET CONTROLS OUTLET DETAIL SHEET 3	B

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: 
PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 1680012



UTILITIES SHOWN ARE DIAGRAMMATIC ONLY, CONTRACTORS ARE RESPONSIBLE TO LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDE LINES & STANDARDS.

NOTE: UTILITIES SHOWN MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer 
 Accreditation No. 88P0565
These plans/specifications form part of the certificate issued 31 July 2017

REV	DESCRIPTION	MP	MG	RO	MS	DATE
G	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
F	INDEX UPDATED	MP	NA	MS	MS	13/02/17
E	ISSUED FOR COUNCIL APPROVAL	VG	VG	RO	MS	25/10/16
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
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AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

CLIENT:

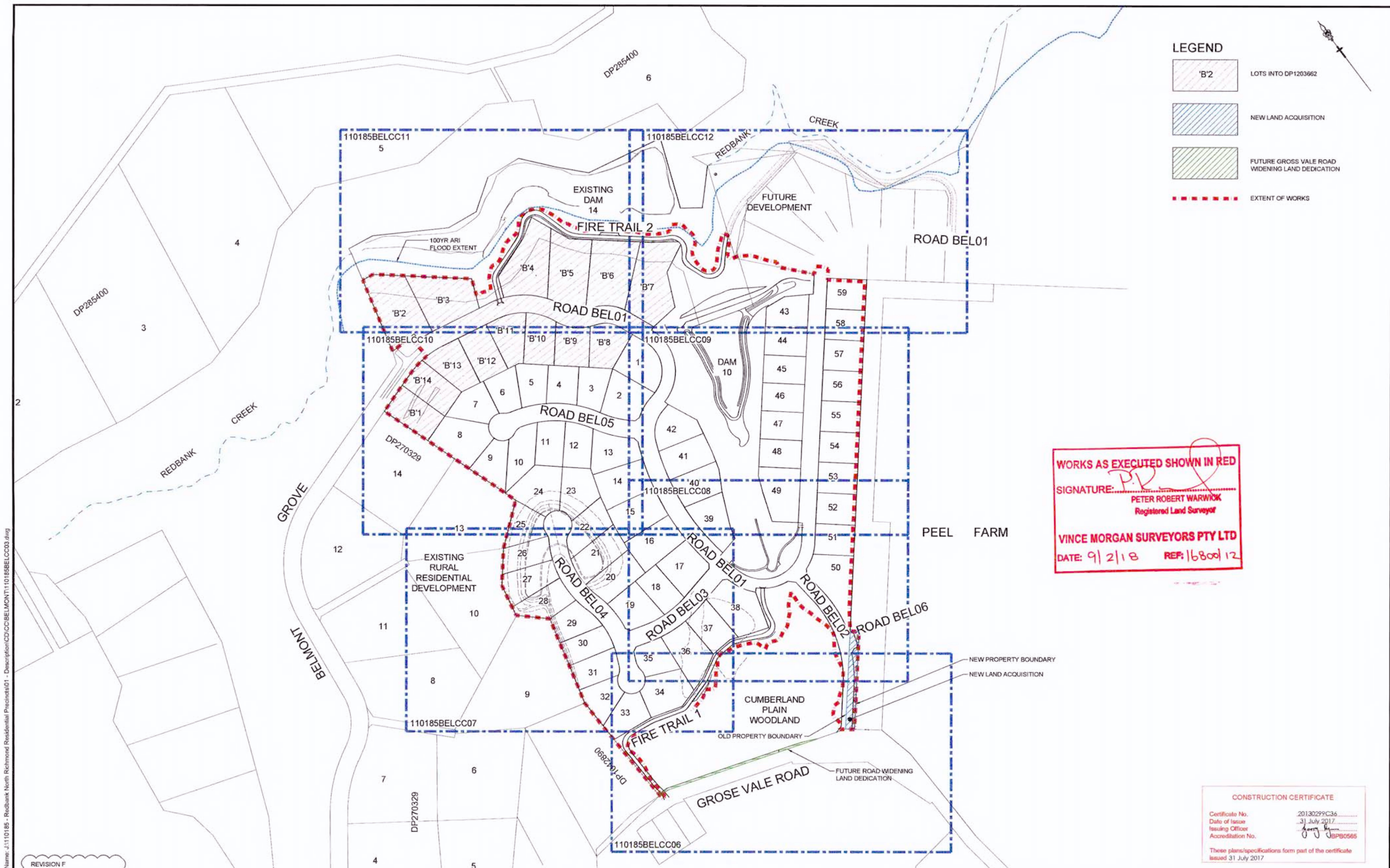


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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
 BELMONT
 INDEX

PLAN No: 110185BEL/CC02 **G**
 FILE No: 110185BELCC02
 SHEET SIZE: A1 ORIGINAL



LEGEND

- 'B'2 LOTS INTO DP1203662
- NEW LAND ACQUISITION
- FUTURE GROSS VALE ROAD WIDENING LAND DEDICATION
- EXTENT OF WORKS

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *PR*
 PETER ROBERT WARWICK
 Registered Land Surveyor

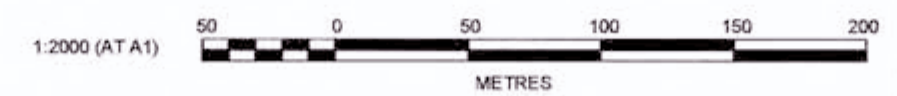
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REP: 1680012

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. BPO565

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REVISION F
 FIRE TRAIL 1 & 2
 ALIGNMENTS AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
F	MP	MG	RO	MS	18/07/17
E	MP	NA	MS	MS	13/02/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16

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CLIENT: **REDBANK**

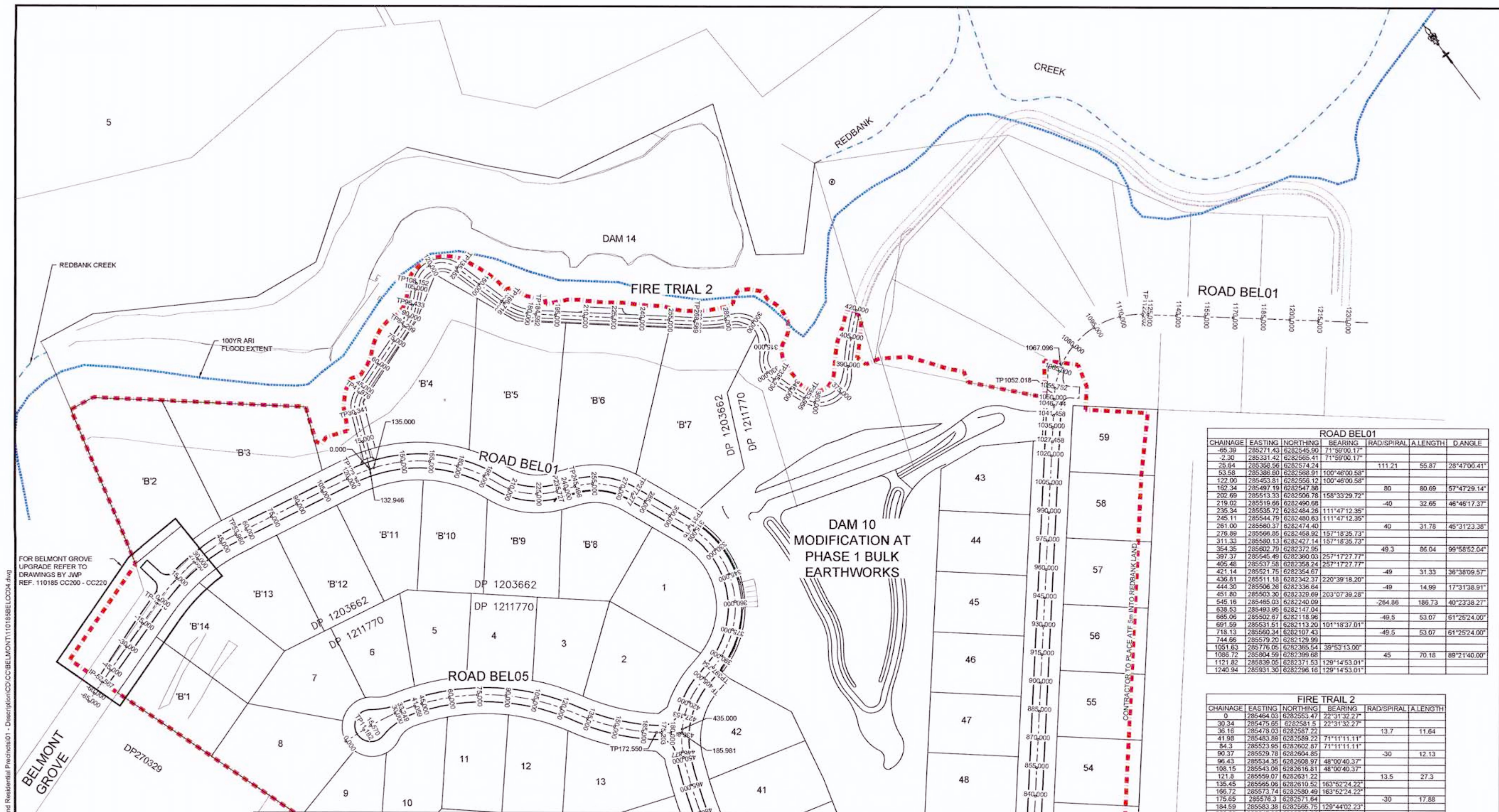
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REDBANK, NORTH RICHMOND
 BELMONT
 LAYOUT PLAN

PLAN No: 110185BEL/CC03 **F**
 FILE No: 110185BELCC03
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 4:51:04 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\BELMONT\110185BELCC03.dwg



ROAD BEL01						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A.LENGTH	D.ANGLE
-65.39	285271.43	6282545.90	71°59'00.17"			
-2.30	285331.42	6282565.41	71°59'00.17"			
25.84	285358.56	6282574.24		111.21	55.87	28°47'00.41"
53.58	285386.60	6282568.91	100°46'00.58"			
122.00	285453.81	6282556.12	100°46'00.58"			
162.34	285497.19	6282547.88		80	80.69	57°47'29.14"
202.69	285513.33	6282506.78	158°33'29.72"			
219.02	285519.66	6282490.68		-40	32.65	46°45'17.37"
235.34	285535.72	6282484.28	111°47'12.35"			
245.11	285544.79	6282480.63	111°47'12.35"			
261.00	285560.37	6282474.40		40	31.78	45°31'23.38"
276.89	285566.85	6282458.92	157°18'35.73"			
311.33	285580.13	6282427.14	157°18'35.73"			
354.35	285602.79	6282372.95		49.3	85.04	99°58'52.04"
397.37	285545.49	6282360.03	257°17'27.77"			
405.48	285537.58	6282354.24	257°17'27.77"			
421.14	285521.75	6282354.67		-49	31.33	36°38'09.57"
436.81	285511.18	6282342.37	220°39'18.20"			
444.30	285506.26	6282336.64		-49	14.99	17°31'38.91"
451.80	285503.30	6282329.69	203°07'39.28"			
545.16	285465.03	6282240.09		-284.86	186.73	40°23'38.27"
638.53	285493.95	6282147.04				
665.06	285502.67	6282118.96		-49.5	53.07	61°25'24.00"
691.59	285531.51	6282113.20	101°18'37.01"			
718.13	285560.34	6282107.43		-49.5	53.07	61°25'24.00"
744.66	285579.20	6282129.99				
1051.63	285776.05	6282365.54	39°53'13.00"			
1086.72	285804.59	6282399.68		45	70.18	89°21'40.00"
1121.82	285839.05	6282371.53	129°14'53.01"			
1240.94	285931.30	6282296.16	129°14'53.01"			

FIRE TRAIL 2						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A.LENGTH	D.ANGLE
0	285464.03	6282553.47	22°31'32.27"			
30.34	285475.65	6282581.5	22°31'32.27"			
36.16	285478.03	6282587.22		13.7	11.64	
41.98	285483.89	6282589.22	71°11'11.11"			
84.3	285523.95	6282602.67	71°11'11.11"			
90.37	285529.78	6282604.85		-30	12.13	
96.43	285534.35	6282608.97	48°00'40.37"			
108.15	285543.96	6282616.81	48°00'40.37"			
121.8	285559.07	6282631.22		13.5	27.3	
135.45	285565.06	6282610.52	163°52'24.22"			
166.72	285573.74	6282580.49	163°52'24.22"			
175.65	285576.3	6282571.64		-30	17.88	
184.59	285583.38	6282565.75	129°44'02.23"			
268.59	285647.98	6282512.06				
278.77	285655.85	6282505.52		-80	20.35	
288.94	285665.11	6282501.17				
304.18	285687.82	6282490.5		14.6	30.48	
319.42	285667.33	6282476.02				
327.33	285659.74	6282470.67		-12	15.81	
335.23	285663.02	6282461.98	159°18'00.01"			
353.95	285669.84	6282444.46	159°18'00.01"			
369.6	285678.73	6282420.4		-15	31.29	
385.24	285695.2	6282440.17	39°47'54.00"			
397.63	285703.14	6282449.7		193.5	24.79	
410.03	285712.24	6282458.14	47°08'14.44"			
414.37	285715.43	6282461.1		193.5	8.7	
418.72	285718.74	6282463.91	49°42'46.82"			
420.49	285720.09	6282465.05		193.5	3.53	
422.25	285721.46	6282466.17	50°45'28.06"			

ROAD BEL05						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A.LENGTH	D.ANGLE
0.00	285367.01	6282446.62	94°49'10.62"			
11.18	285378.15	6282445.68	94°49'10.62"			
70.10	285442.08	6282440.29		120	117.83	56°15'30.06"
129.01	285473.11	6282384.14	151°04'40.68"			
150.78	285483.76	6282364.86		-115	43.54	21°41'33.45"
172.55	285500.79	6282350.88				
185.98	285511.18	6282342.37	129°18'03.35"			

REFER TO DRAWING 110185BELCC05 FOR CONTINUATION

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P.R. Warwick*
PETER ROBERT WARWICK
 Registered Land Surveyor

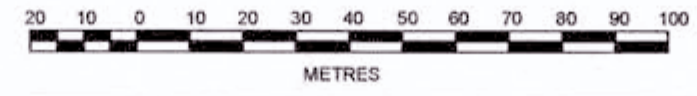
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16200/12

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *George*
 Accreditation No. 88PB0566

These plans/specifications form part of the certificate issued 31 July 2017

REVISION F
 FIRE TRAIL 2 ALIGNMENT AND SETOUT AMENDED



NO.	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	FIRE TRAIL 2 AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PO Box 4366 PENRITH WESTFIELD NSW 2750
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CLIENT: **REDBANK**

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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
 BELMONT
 SETOUT PLAN
 SHEET 1

PLAN No: 110185BEL/CC04 **F**
 FILE No: 110185BELCC04
 SHEET SIZE: A1 ORIGINAL

REFER TO DRAWING 110185BELCC04 FOR CONTINUATION

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285474.11	6281918.58	39°54'50.95"			
71.26	285519.83	6281973.23	39°54'50.95"			
125.79	285556.86	6282017.49		-135.11	109.06	46°14'56.80"
180.32	285550.49	6282074.83	353°39'54.15"			
218.22	285546.31	6282112.50	353°39'54.15"			

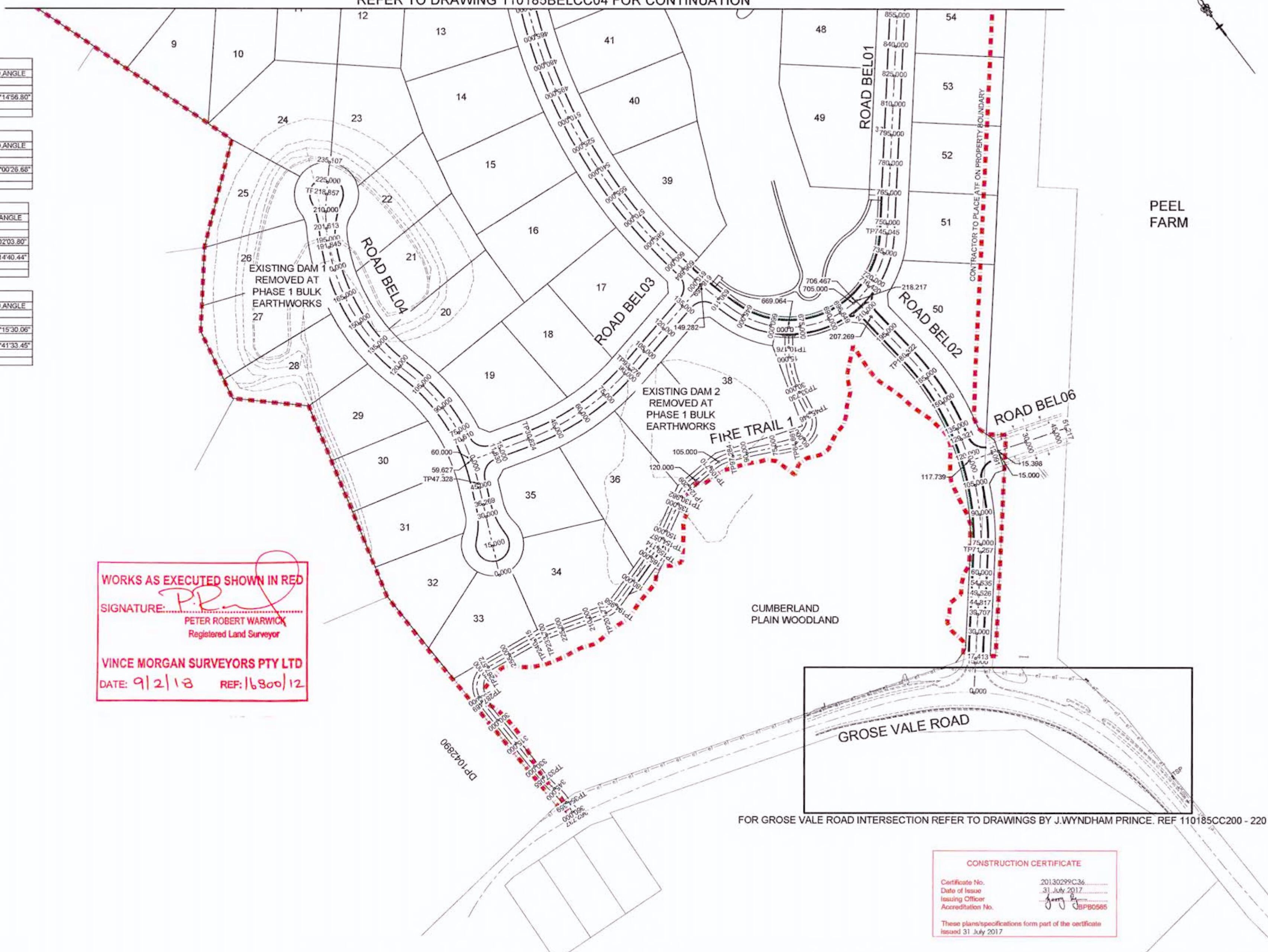
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285342.75	6282165.99	106°52'19.18"			
30.62	285372.06	6282157.11	106°52'19.18"			
61.95	285402.69	6282147.81		-123.75	62.65	29°00'26.68"
93.28	285433.99	6282154.54	77°51'52.50"			
149.28	285488.74	6282166.32	77°51'52.50"			

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285319.03	6282111.32	24°10'58.27"			
47.33	285338.41	6282194.49				
82.26	285353.34	6282187.73		-100	69.87	40°02'03.80"
117.20	285343.39	6282222.77				
168.03	285328.17	6282276.36		100	101.66	58°14'40.44"
218.86	285365.73	6282317.51	42°23'34.91"			
235.11	285376.69	6282329.51	42°23'34.91"			

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285367.01	6282446.62	94°49'10.62"			
11.18	285378.15	6282445.68	94°49'10.62"			
70.10	285442.08	6282440.29		120	117.83	56°15'30.06"
129.01	285473.11	6282384.14	151°04'40.68"			
150.78	285483.76	6282364.86		-115	43.54	21°41'33.45"
172.55	285500.79	6282350.88				
185.98	285511.18	6282342.37	129°18'03.35"			

CHAINAGE	EASTING	NORTHING	BEARING
0.00	285543.00	6282013.26	108°26'33.39"
51.22	285591.59	6281997.06	108°26'33.39"

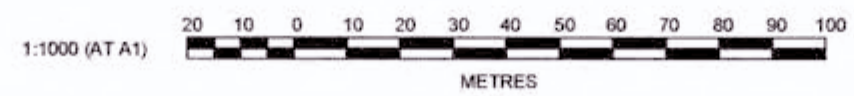
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	285511.18	6282122.41	217°23'19.03"		
10.18	285504.98	6282114.32	217°23'19.03"		
21.95	285497.69	6282104.79		-50	23.55
33.73	285495.53	6282092.98			
45.35	285493.61	6282081.53			
55	285491.33	6282067.93		10.5	19.31
64.66	285478.83	6282073.74			
97.28	285449.24	6282087.47	294°54'06.60"		
103.5	285443.48	6282090.15		-25	12.43
109.71	285437.16	6282089.75	266°25'25.76"		
124.21	285422.68	6282088.85	266°25'25.76"		
127.6	285419.25	6282088.63		-15.5	6.77
130.98	285416.23	6282086.98	241°23'21.73"		
154.06	285395.97	6282075.93	241°23'21.73"		
156.59	285393.74	6282074.72		25	5.06
159.11	285391.32	6282073.96	252°58'46.21"		
194.96	285367.04	6282063.48	252°58'46.21"		
198.36	285353.69	6282062.46		11.5	6.81
201.77	285350.33	6282063.48	286°55'39.12"		
233.7	285318.79	6282072.77	286°55'39.12"		
236.91	285316.71	6282073.71		-37	6.42
240.12	285313.52	6282074.1			
267.57	285286.3	6282077.7	277°31'27.01"		
277.53	285272.89	6282079.47		-11.5	19.92
287.49	285273.3	6282065.95	178°17'33.00"		
337.05	285274.77	6282016.41	178°17'33.00"		
341.37	285274.9	6282012.09		-50	8.63
345.68	285275.77	6282007.85	166°24'18.27"		
350.02	285276.65	6282003.57		30	8.68
354.36	285276.27	6281999.22	184°58'33.54"		
362.74	285276.54	6281990.87	184°58'33.54"		



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *[Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]* JSP0585
 Accreditation No. JSP0585
 These plans/specifications form part of the certificate
 issued 31 July 2017

REVISION E
 FIRE TRAIL 1 ALIGNMENT &
 SETOUT TABLE AMENDED



REVISION	DESCRIPTION	DES	DRN	CKD	APR	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO		21/06/16

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3359 W www.jwprince.com.au E jw@jwprince.com.au

CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

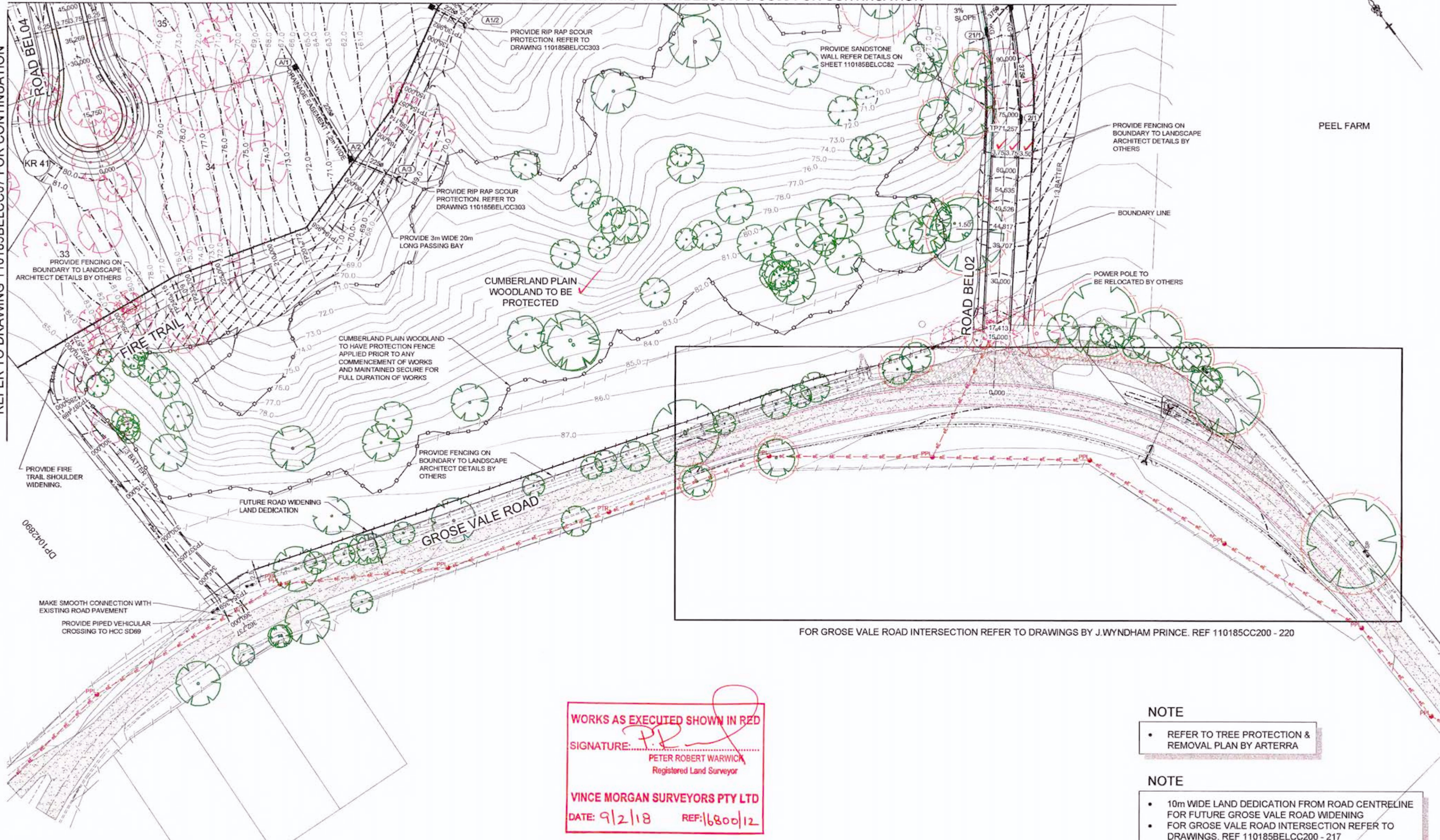
ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND
 BELMONT
 SETOUT PLAN
 SHEET 2

PLAN No: 110185BEL/CC05 **E**
 FILE No: 110185BELCC05
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 4:52:17 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CCBELMONT\110185BELCC05.dwg

REFER TO DRAWING 110185BELCC07 & CC08 FOR CONTINUATION

REFER TO DRAWING 110185BELCC07 FOR CONTINUATION



MAKE SMOOTH CONNECTION WITH EXISTING ROAD PAVEMENT
PROVIDE PIPED VEHICULAR CROSSING TO HCC SD69

FOR GROSE VALE ROAD INTERSECTION REFER TO DRAWINGS BY J.WYNDHAM PRINCE. REF 110185CC200 - 220

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

NOTE
 • REFER TO TREE PROTECTION & REMOVAL PLAN BY ARTERRA

NOTE
 • 10m WIDE LAND DEDICATION FROM ROAD CENTRELINE FOR FUTURE GROSE VALE ROAD WIDENING
 • FOR GROSE VALE ROAD INTERSECTION REFER TO DRAWINGS. REF 110185BELCC200 - 217

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. 0BP0505
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Plotted: 18 July 2017 5:37:34 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\BELMONT\110185BELCC06.dwg

REV	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	SURFACE UPDATED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

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REDBANK, NORTH RICHMOND
BELMONT
ENGINEERING PLAN
SHEET 1

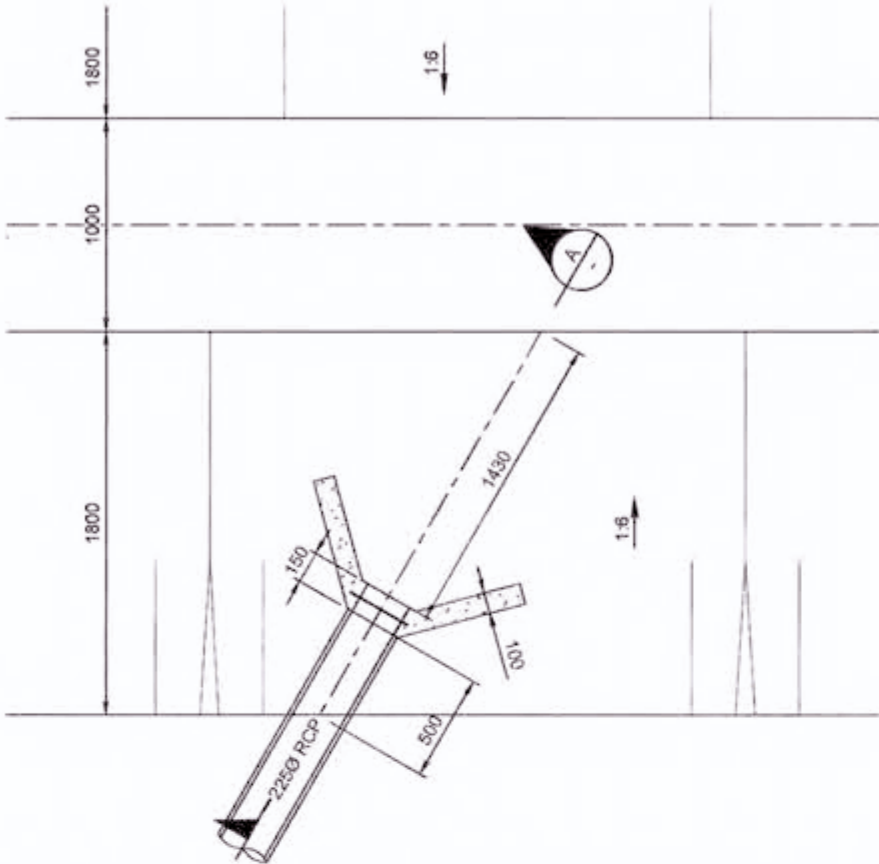
PLAN No: 110185BEL/CC06 **F**
 FILE No: 110185BELCC06
 SHEET SIZE: A1 ORIGINAL

REFER TO DRAWING 110185BELCC10 FOR CONTINUATION

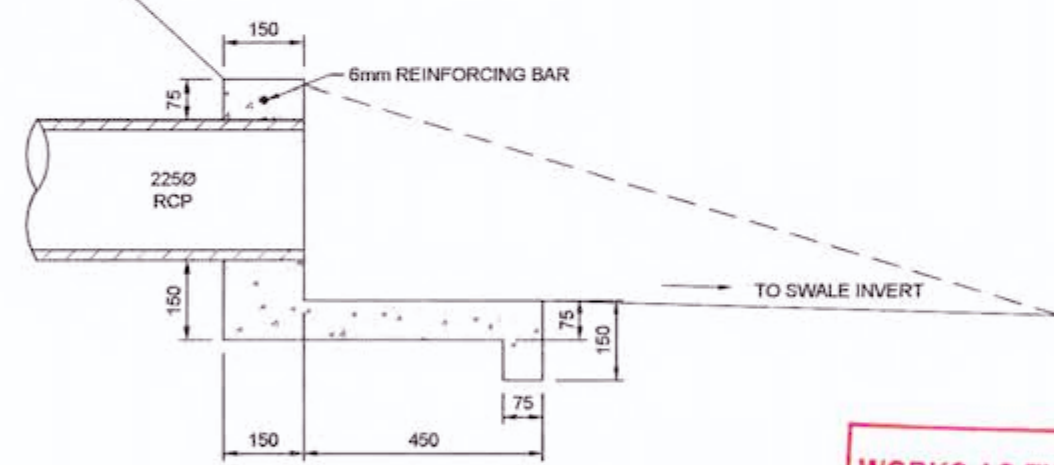
REFER TO DRAWING 110185BELCC09 FOR CONTINUATION

REFER TO DRAWING 110185BELCC08 FOR CONTINUATION

REFER TO DRAWING 110185BELCC06 FOR CONTINUATION



ROOF WATER CONNECTION TO SWALE DRAIN
LOTS 9-12, 13-19, 29-33, 'B'1, 'B'8 & 'B'14
SCALE 1:25



SECTION A
SCALE 1:10

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R. Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

NOTE

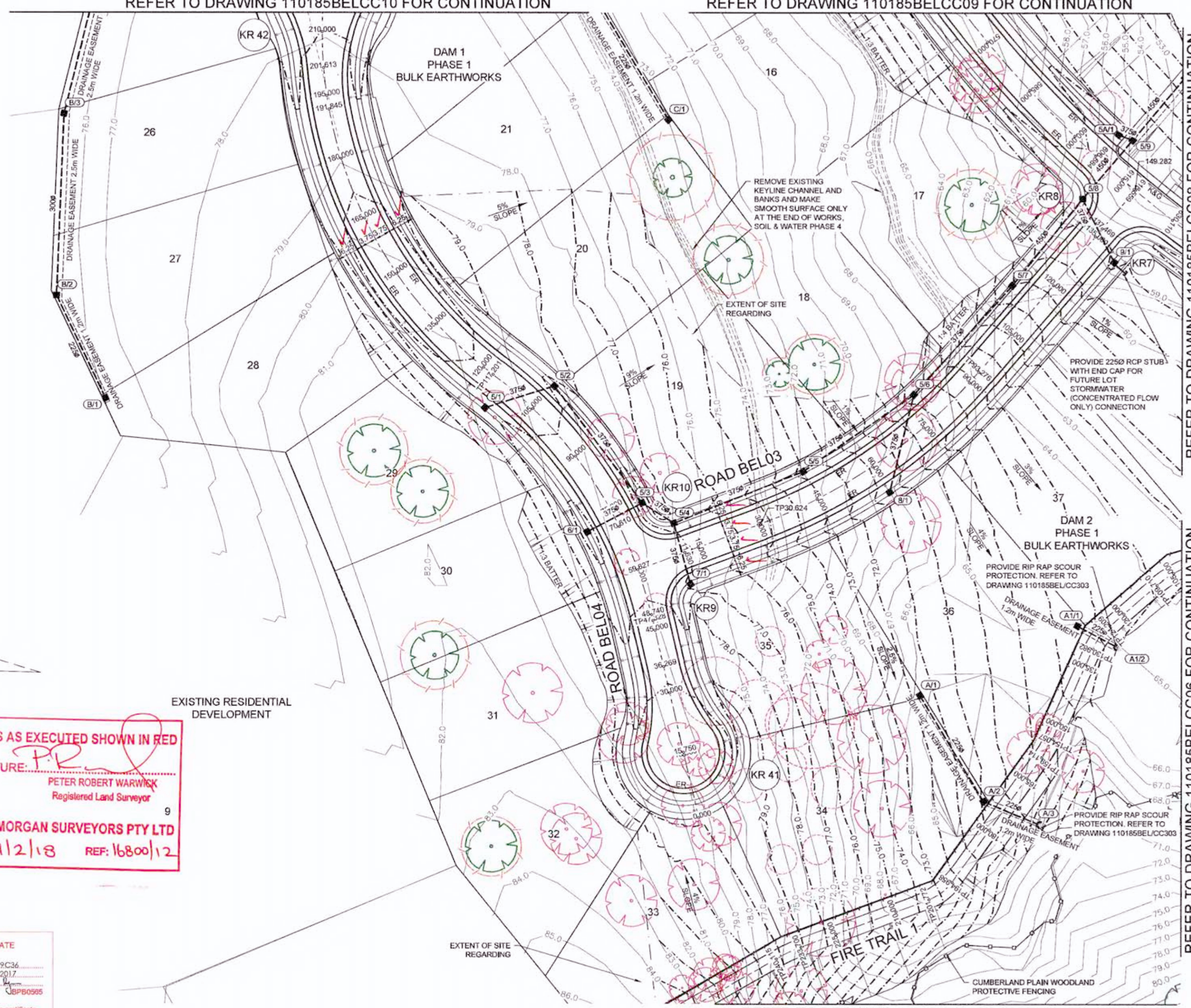
- REFER TO TREE PROTECTION & REMOVAL PLAN BY ARTERRA

NOTE

LOTS 9-12, 13-19, 29-33, 'B'1, 'B'8 & 'B'14
ROOFWATER DIRECT CONNECTION TO SWALE DRAIN. REFER TO DETAIL ABOVE.

- REVISION F
- FIRE TRAIL 1 ALIGNMENT AMENDED
 - DESIGN SURFACE & BATTER INTERFACE AMENDED

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer *Joey B*
Accreditation No. JPB0595
These plans/specifications form part of the certificate issued 31 July 2017



NO.	REVISION	DATE	BY	CHECKED	APPROVED
F	ISSUE FOR CONSTRUCTION APPROVAL	18/07/17	MP	MG	RO
E	ROAD 03 & 04 BATTER AMENDED	13/02/17	MP	NA	MS
D	CERTIFIER COMMENTS	27/09/16	MP	MG	RO
C	ISSUED FOR CONSTRUCTION APPROVAL	29/07/16	MP	MG	RO
B	CLIENT COMMENTS	13/07/16	MP	MG	MS
A	ADVANCED COPY	21/06/16	MP	MG	RO
	AMENDMENT		DES	DRN	CKD

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3359 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: **REDBANK**
AZIMUTH: MGA
DATUM: AHD
ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
BELMONT
ENGINEERING PLAN
SHEET 2

PLAN No. 110185BEL/CC07 **F**
FILE No. 110185BELCC07
SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:37:02 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMNT110185BELCC07.dwg

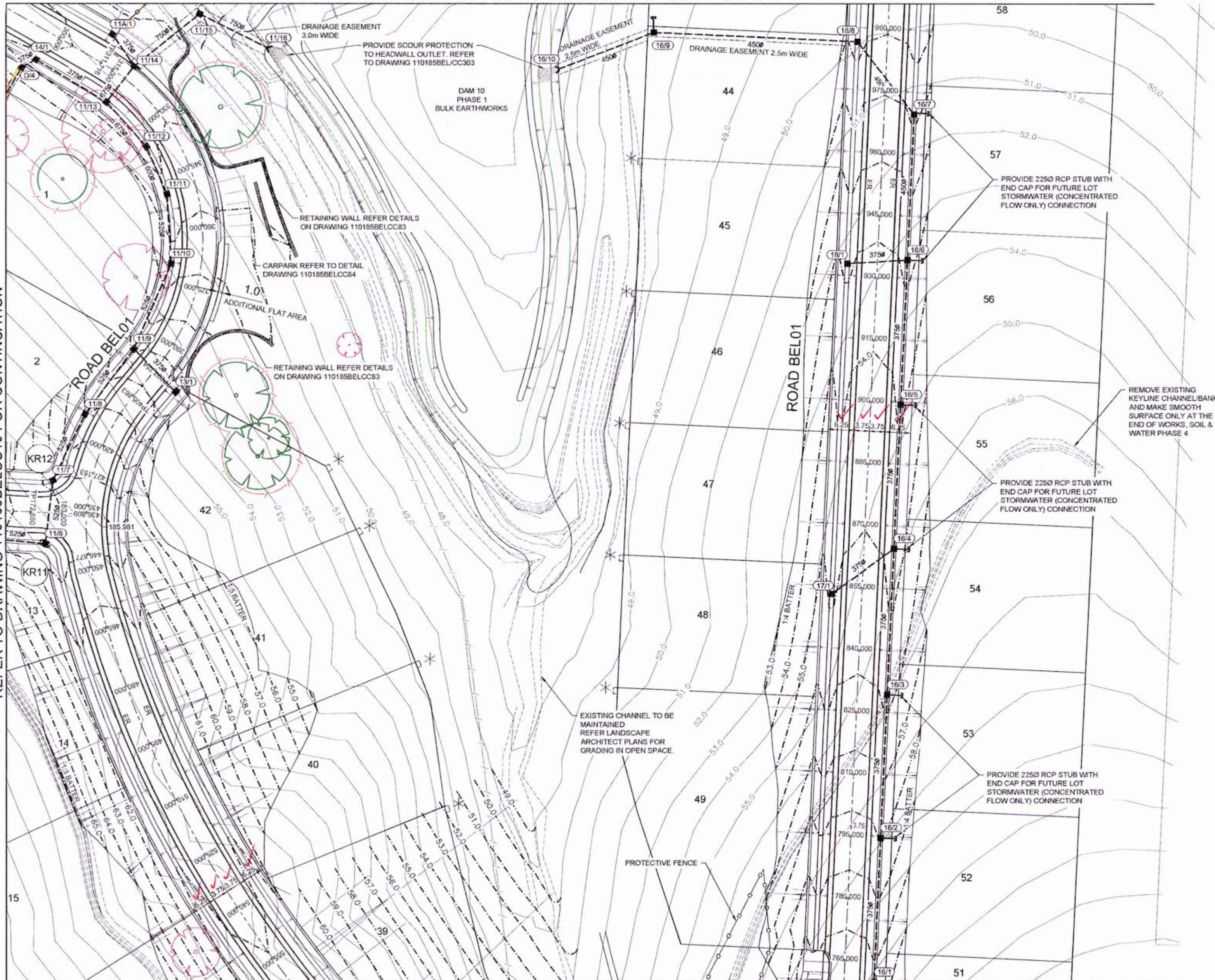
REFER TO DRAWING 110185BELCC12 FOR CONTINUATION

LEGEND

LOT B'DY *
EASEMENT TO DRAIN WATER 1m x 1.5m WIDE PROVIDED FOR EACH LOT DRAINING DIRECTLY TO OPEN SPACE



REFER TO DRAWING 110185BELCC10 FOR CONTINUATION



REFER TO DRAWING 110185BELCC08 FOR CONTINUATION

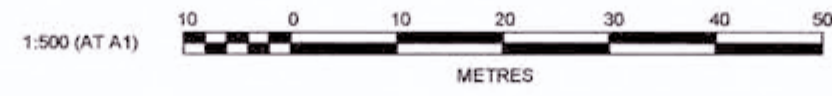
WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 1680012

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer [Signature]
Accreditation No. BPP90565
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NOTE
LOTS 9-12, 13-19, 29-33, 'B'1, 'B'8 & 'B'14 ROOFWATER DIRECT CONNECTION TO SWALE DRAIN. REFER TO DETAIL ON DRAWING 110185BEL/CC07.

NOTE
REFER TO TREE PROTECTION & REMOVAL PLAN BY ARTERRA

REVISION F
• DESIGN SURFACE & BATTER INTERFACE AMENDED
• DRAINAGE EASEMENT AMENDED



NO.	DESCRIPTION	BY	CHKD	DATE		
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	BATTER AMENDED	MP	NA	MS	MS	13/02/17
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C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/05/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: REDBANK
AZIMUTH: MGA
DATUM: AHD
ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

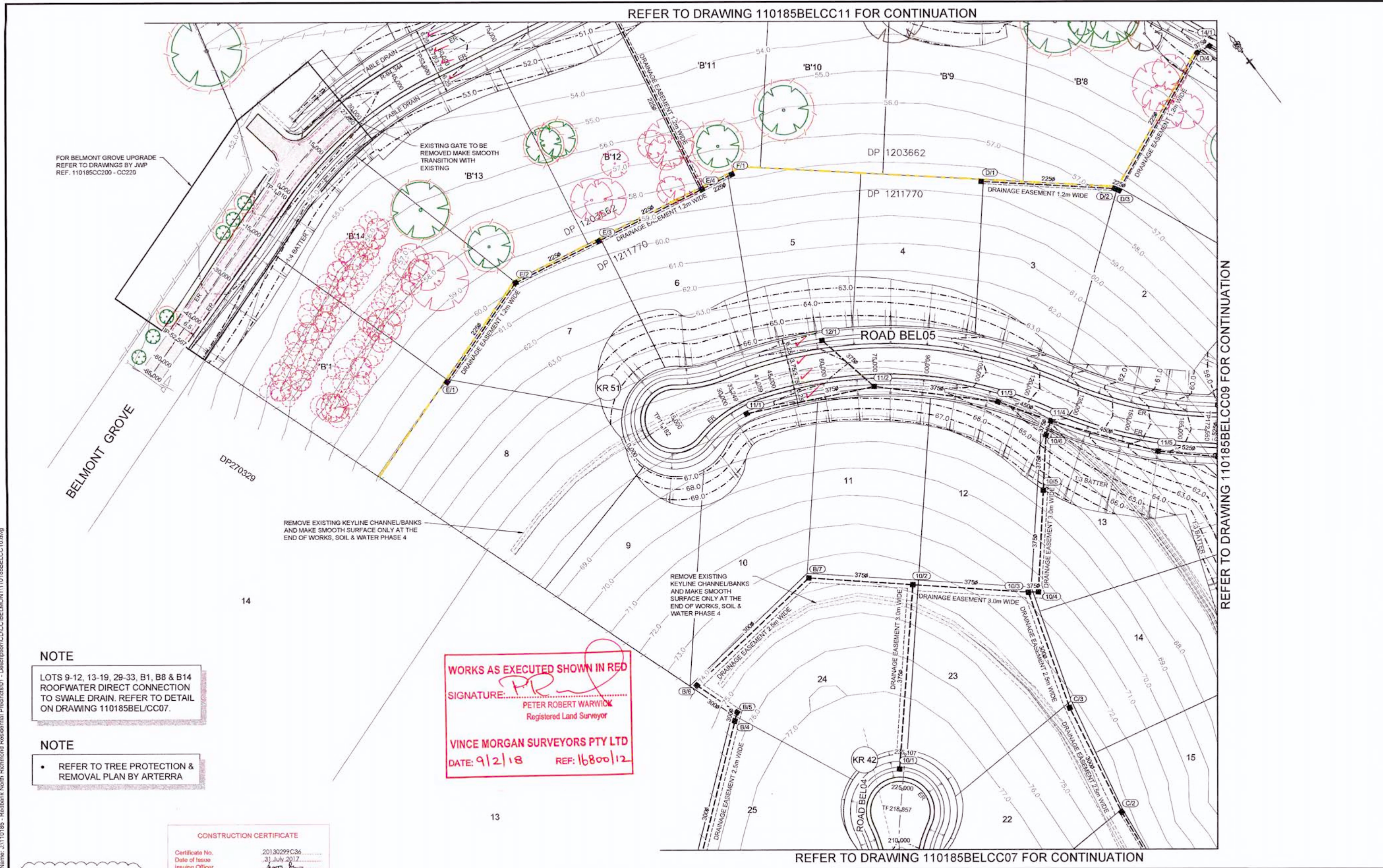
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
BELMONT
ENGINEERING PLAN
SHEET 4

PLAN No: 110185BEL/CC09 **F**
FILE No: 110185BELCC09
SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:39:53 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC09.dwg

REFER TO DRAWING 110185BELCC11 FOR CONTINUATION



REFER TO DRAWING 110185BELCC09 FOR CONTINUATION

REFER TO DRAWING 110185BELCC07 FOR CONTINUATION

FOR BELMONT GROVE UPGRADE
REFER TO DRAWINGS BY JWP
REF. 110185CC200 - CC220

EXISTING GATE TO BE
REMOVED MAKE SMOOTH
TRANSITION WITH
EXISTING

REMOVE EXISTING KEYLINE CHANNEL/BANKS
AND MAKE SMOOTH SURFACE ONLY AT THE
END OF WORKS, SOIL & WATER PHASE 4

REMOVE EXISTING
KEYLINE CHANNEL/BANKS
AND MAKE SMOOTH
SURFACE ONLY AT THE
END OF WORKS, SOIL &
WATER PHASE 4

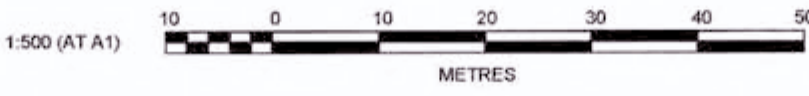
NOTE
LOTS 9-12, 13-19, 29-33, B1, B8 & B14
ROOFWATER DIRECT CONNECTION
TO SWALE DRAIN. REFER TO DETAIL
ON DRAWING 110185BEL/CC07.

NOTE
REFER TO TREE PROTECTION &
REMOVAL PLAN BY ARTERRA

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *PR*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer [Signature]
Accreditation No. JWPB0565
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issued 31 July 2017

REVISION F
DESIGN SURFACE & BATTER
INTERFACE AMENDED



REVISION	DESCRIPTION	DES	DRN	CKD	APR	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	BATTER AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16

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& PROJECT MANAGERS
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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT:
REDBANK
AZIMUTH: MGA
DATUM: AHD
ORIGIN:
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REDBANK, NORTH RICHMOND
BELMONT
ENGINEERING PLAN
SHEET 5
PLAN No: 110185BEL/CC10 **F**
FILE No: 110185BELCC10
SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:42:11 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC10.dwg

NOTE

- REFER TO TREE PROTECTION & REMOVAL PLAN BY ARTERRA

NOTE

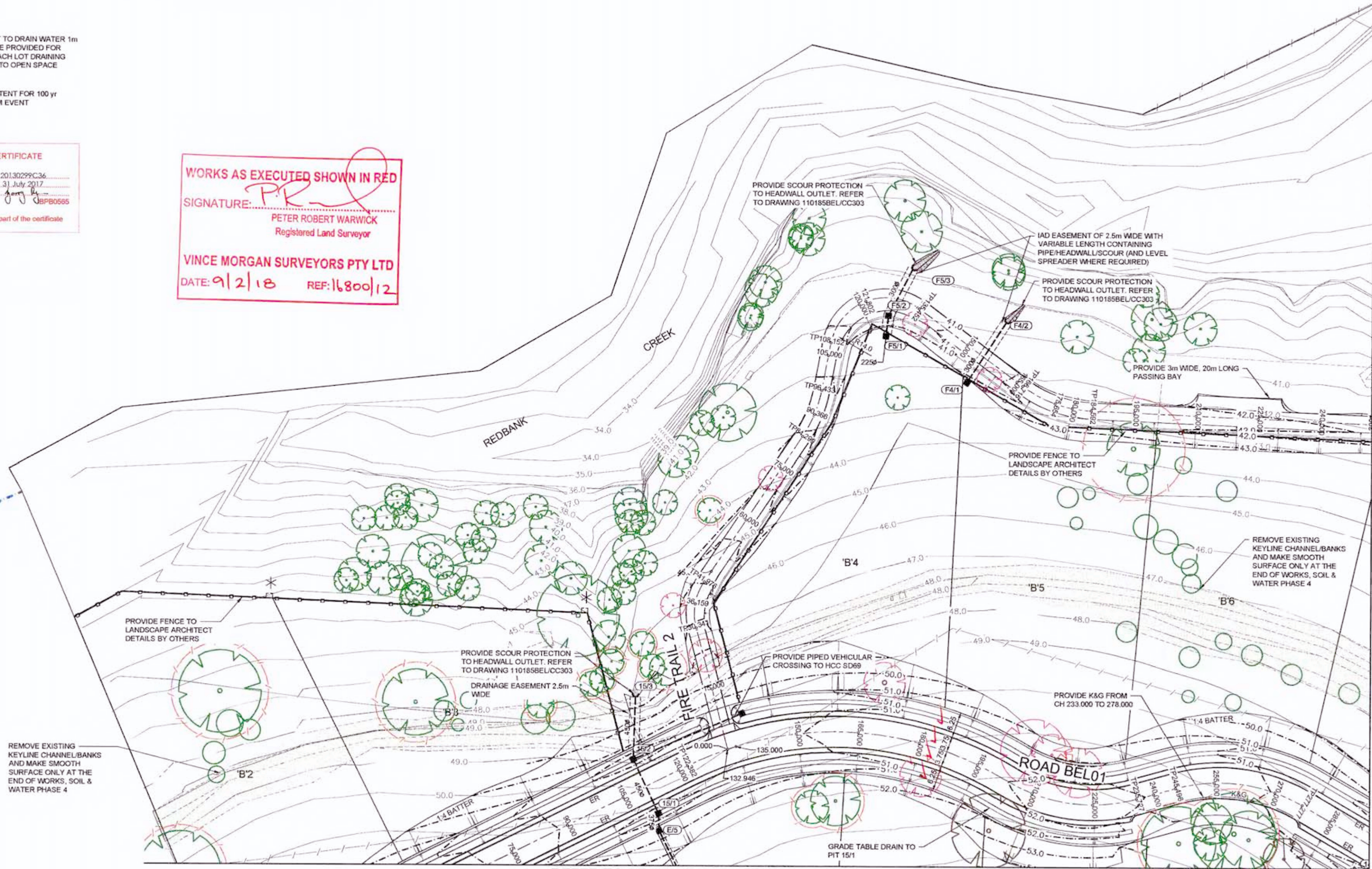
LOTS 9-12, 13-19, 29-33, B1, B8 & B14 ROOFWATER DIRECT CONNECTION TO SWALE DRAIN. REFER TO DETAIL ON DRAWING 110185BEL/CC07.

LEGEND

- EASEMENT TO DRAIN WATER 1m x 1.5m WIDE PROVIDED FOR FUTURE EACH LOT DRAINING DIRECTLY TO OPEN SPACE
- FLOOD EXTENT FOR 100 yr ARI STORM EVENT

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. JBPB0565
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WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



REFER TO DRAWING 110185BELCC12 FOR CONTINUATION

REFER TO DRAWING 110185BELCC10 FOR CONTINUATION

- REVISION F**
- FIRE TRAIL 2 ALIGNMENT AMENDED
 - DESIGN SURFACE & BATTER INTERFACE AMENDED



F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	FIRE TRAIL 2 AMENDED	MP	NA	MS	MS	13/02/17
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C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 ENGINEERING PLAN
 SHEET 6

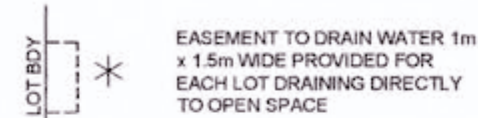
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 FILE No: 110185BELCC11
 SHEET SIZE: A1 ORIGINAL

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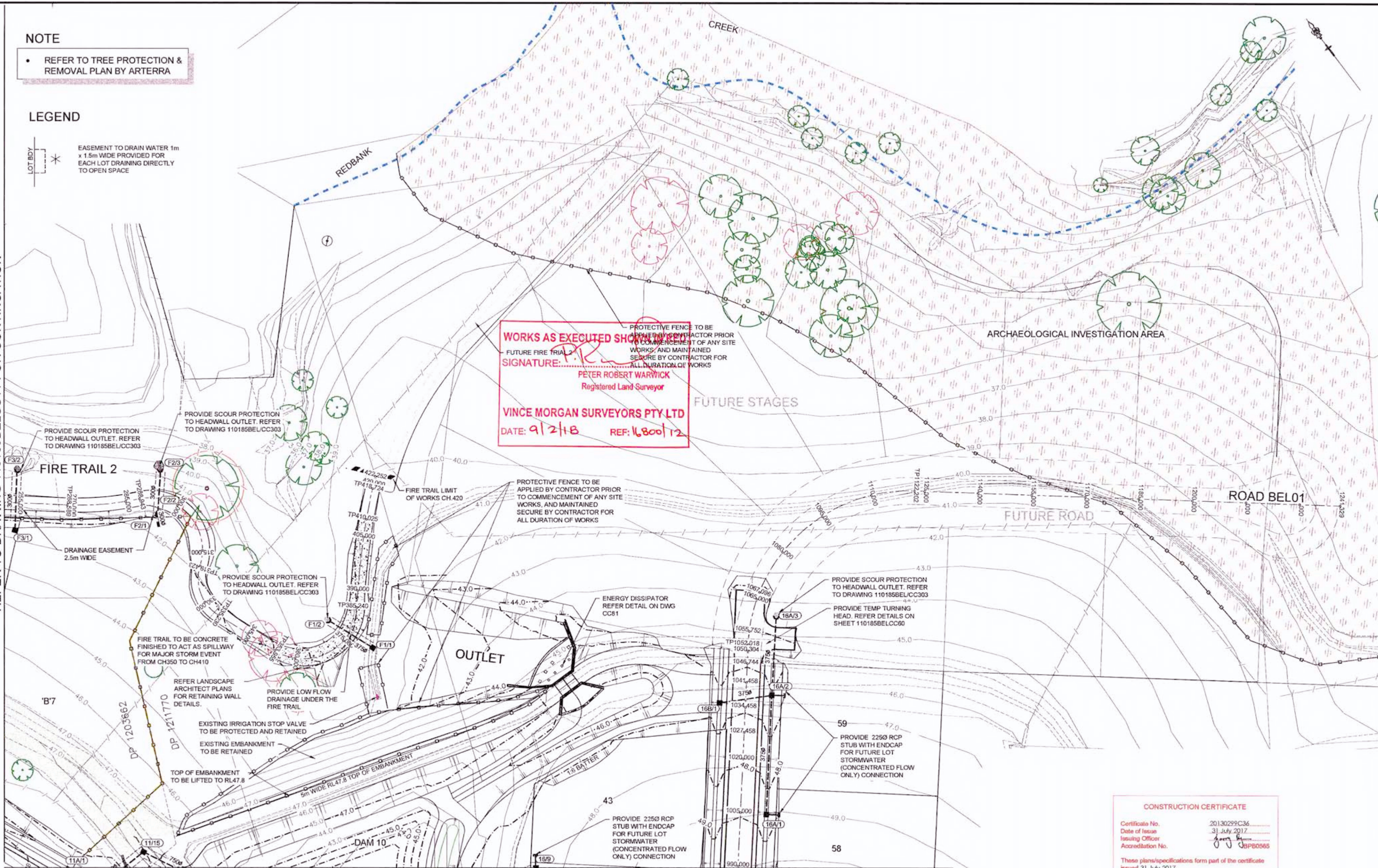
NOTE

- REFER TO TREE PROTECTION & REMOVAL PLAN BY ARTERRA

LEGEND



REFER TO DRAWING 110185BELCC11 FOR CONTINUATION

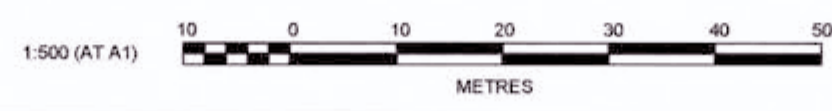


WORKS AS EXECUTED SHOWN
 FUTURE FIRE TRAIL
 SIGNATURE: *[Signature]*
PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. JBSP0565
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- REVISION F**
- FIRE TRAIL 2 ALIGNMENT AMENDED
 - DESIGN SURFACE & BATTER INTERFACE AMENDED

REFER TO DRAWING 110185BELCC09 FOR CONTINUATION



Plotted: 18 July 2017 5:42:44 PM File Name: \\110185 - Redbank North Richmond Residential Precinct01 - Description\CD\CC\BELMONT\110185BELCC12.dwg

NO	DESCRIPTION	MP	MG	RO	MS	DATE
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D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
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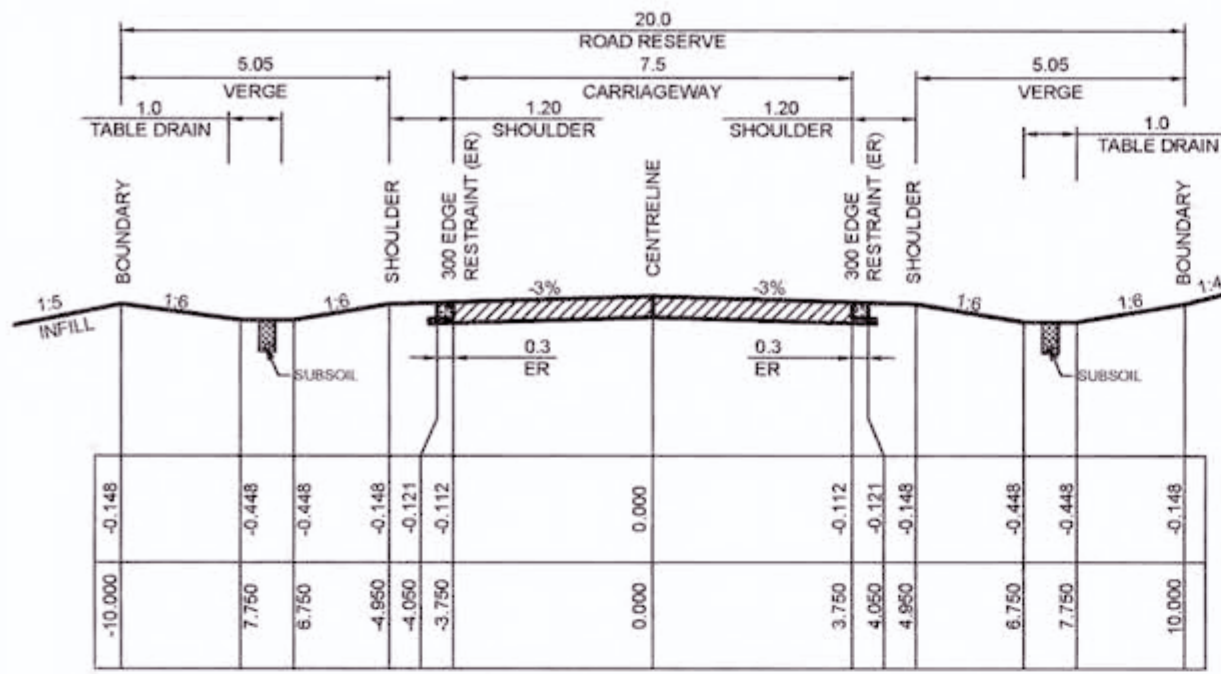
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:
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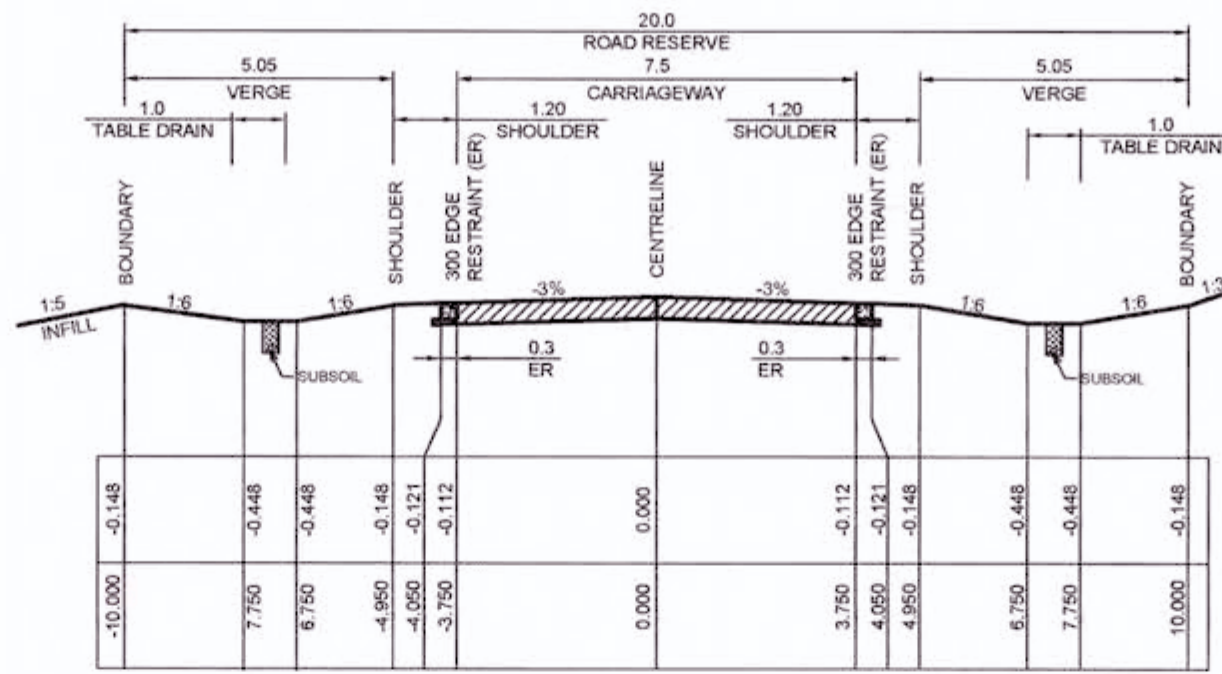
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 ENGINEERING PLAN SHEET 7

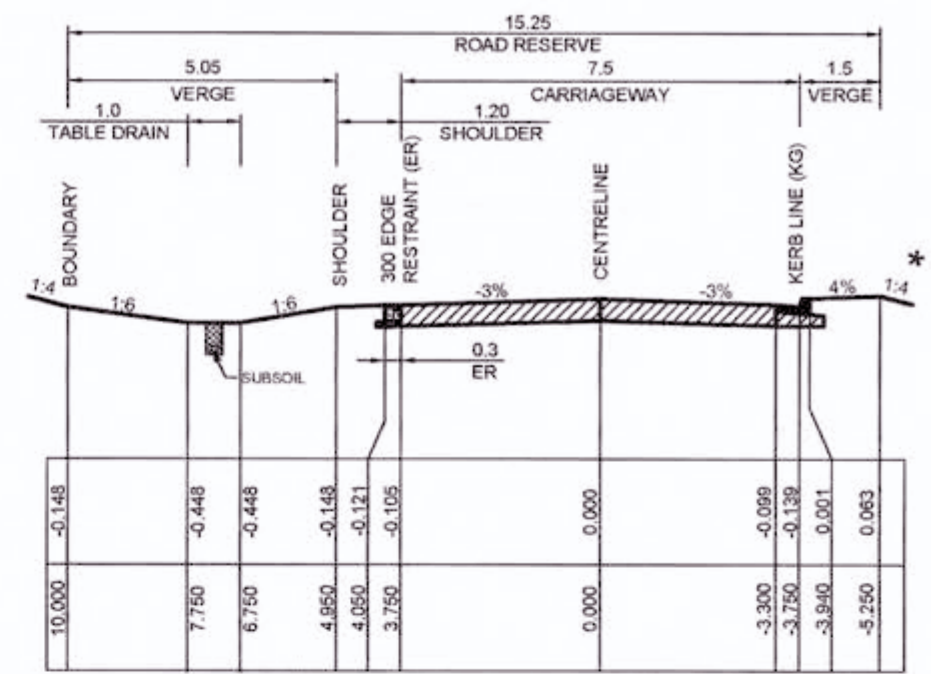
PLAN No: **110185BEL/CC12** **F**
 FILE No: 110185BELCC12
 SHEET SIZE: A1 ORIGINAL



TYPICAL CROSS SECTION ROAD BEL01
 CHAINAGE 27.55 - 233.00
 CHAINAGE 278 - 311.31
 CHAINAGE 397.368 - 427.153
 CHAINAGE 766.00 - 1050.00
 1:100 NATURAL



TYPICAL CROSS SECTION ROAD BEL01
 CHAINAGE 427.153 - 606.684
 1:100 NATURAL



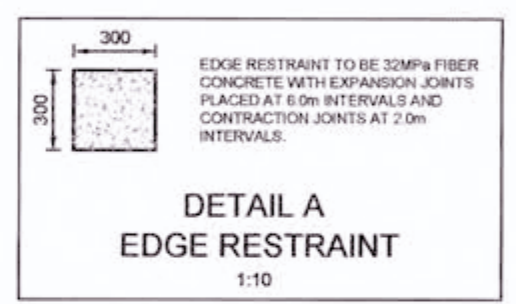
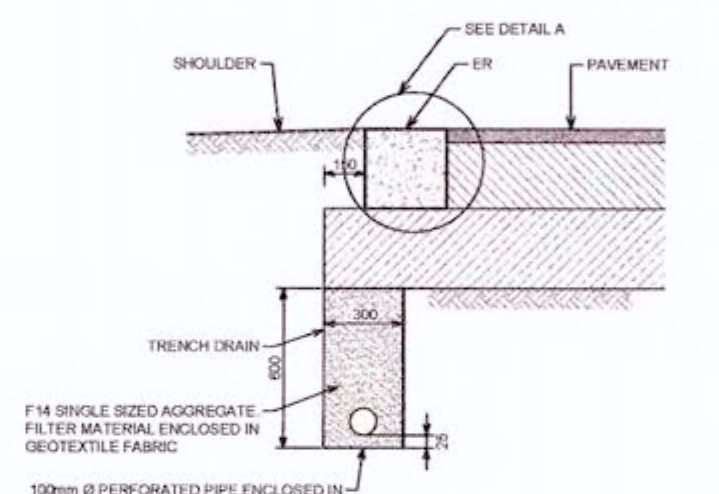
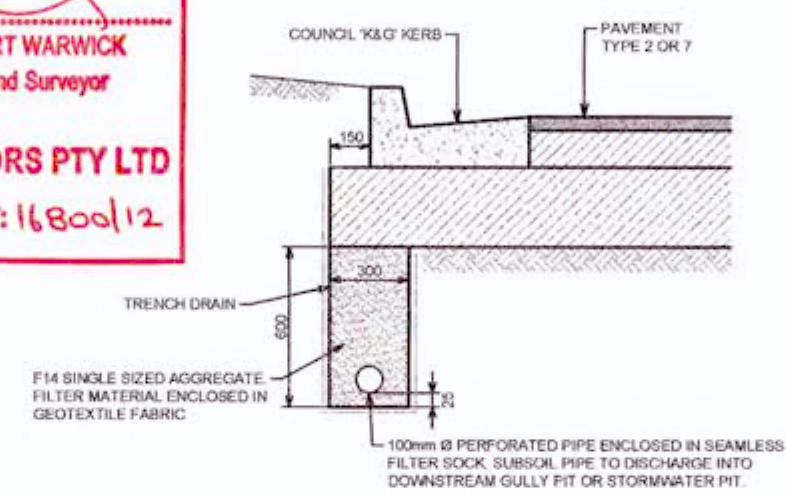
TYPICAL CROSS SECTION ROAD BEL01
 CHAINAGE 233.000 - 278.000
 1:100 NATURAL

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. BPP0565
 These plans/specifications form part of the certificate issued 31 July 2017

REFER TO ENGINEERING PLANS FOR SITE REGRADING

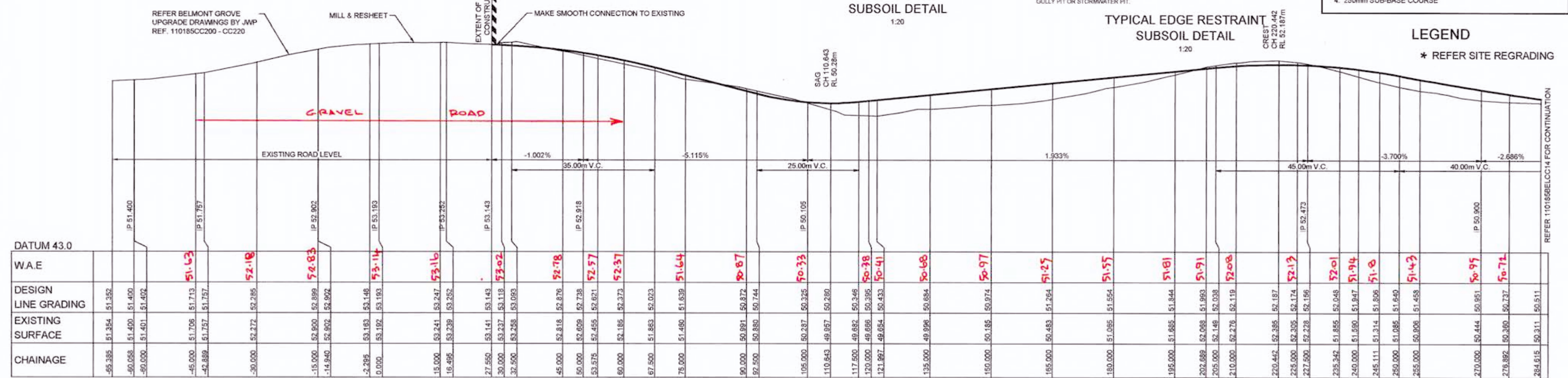
SUBSOIL DRAINAGE SHALL BE PROVIDED UNDER KERBS ON BOTH SIDES OF ROADS EXCEPT WHERE STREET DRAINAGE IS PRESENT
 REFER HCC STANDARD DRAWING No. SD3.

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



PAVEMENT NOTES (ROAD BEL1 & BEL2)
 2x10" ESA (GEOTECHNICAL REPORT BY GEOTECHNIQUE, REF: 12261/14-AA-R2)
 1. 50mm WEARING COURSE AC10
 2. ONE COAT HOT BITUMEN FLUSH SEAL
 3. 125mm DGB 20 BASE COURSE
 4. 250mm SUB-BASE COURSE

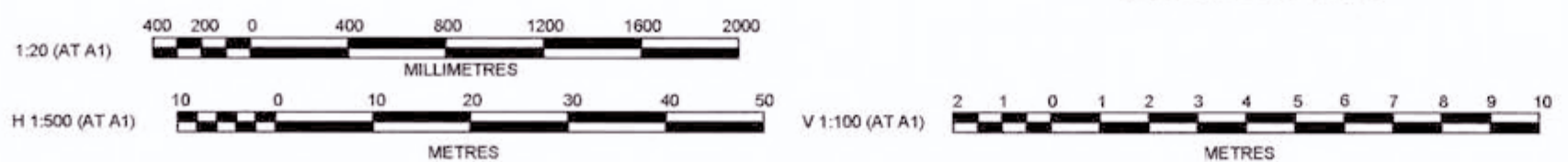
LEGEND
 * REFER SITE REGRADING



LONGITUDINAL SECTION ROAD BEL01
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100

± LEVELS OBSERVED ON FIRST LAYER OF AC

REVISION F
 • BEL01 ROAD LONGITUDINAL SECTION AMENDED
 • TYPICAL CROSS SECTIONS AMENDED
 • DETAIL A AMENDED



F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	BATTER AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

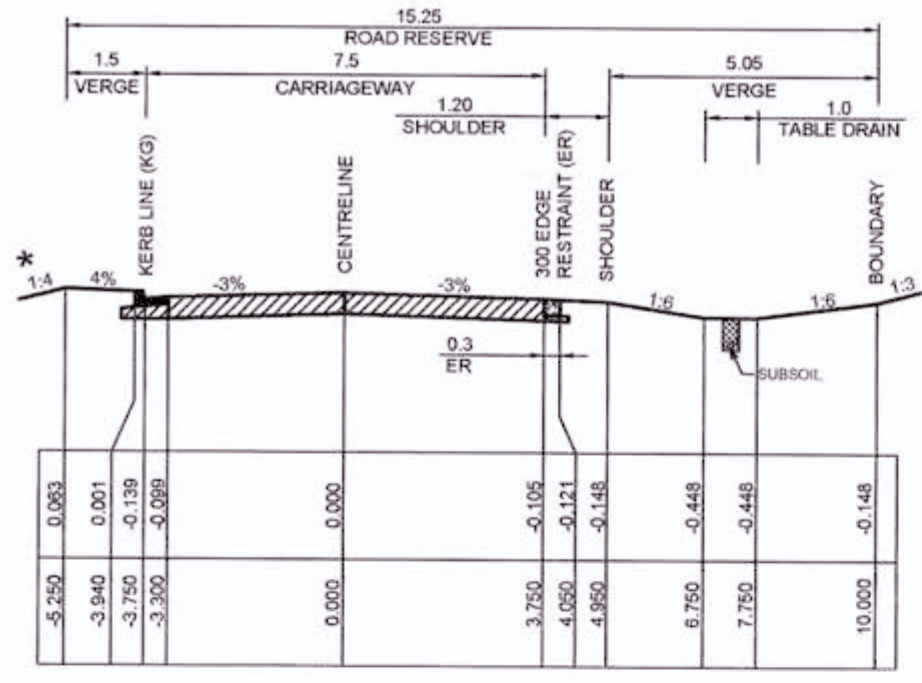
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jw@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 LONGITUDINAL SECTIONS SHEET 1
 PLAN No: 110185BEL/CC13 F
 FILE No: 110185BELCC13
 SHEET SIZE: A1 ORIGINAL

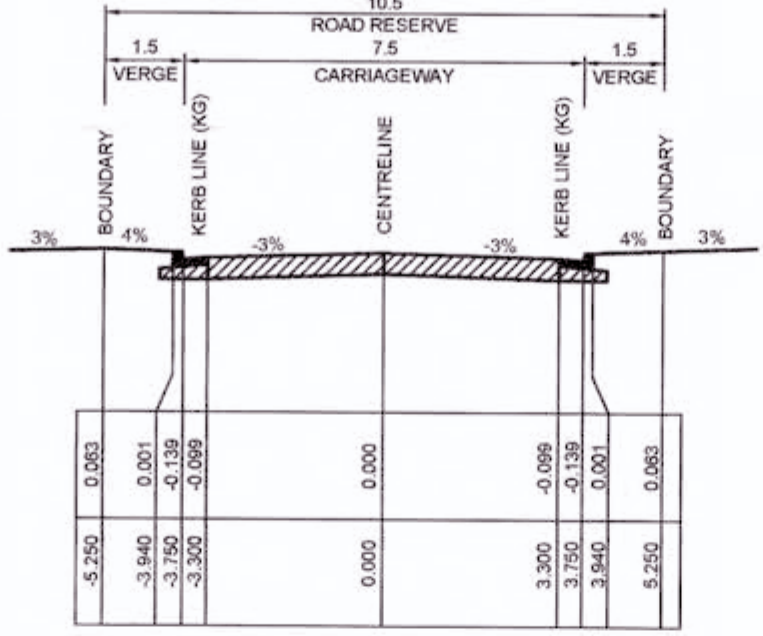
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CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. SPB0565
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TYPICAL CROSS SECTION ROAD BEL01

CHAINAGE 311.331 - 397.368
 CHAINAGE 606.684 - 659.500
 CHAINAGE 696.649 - 766.000
 1:100 NATURAL



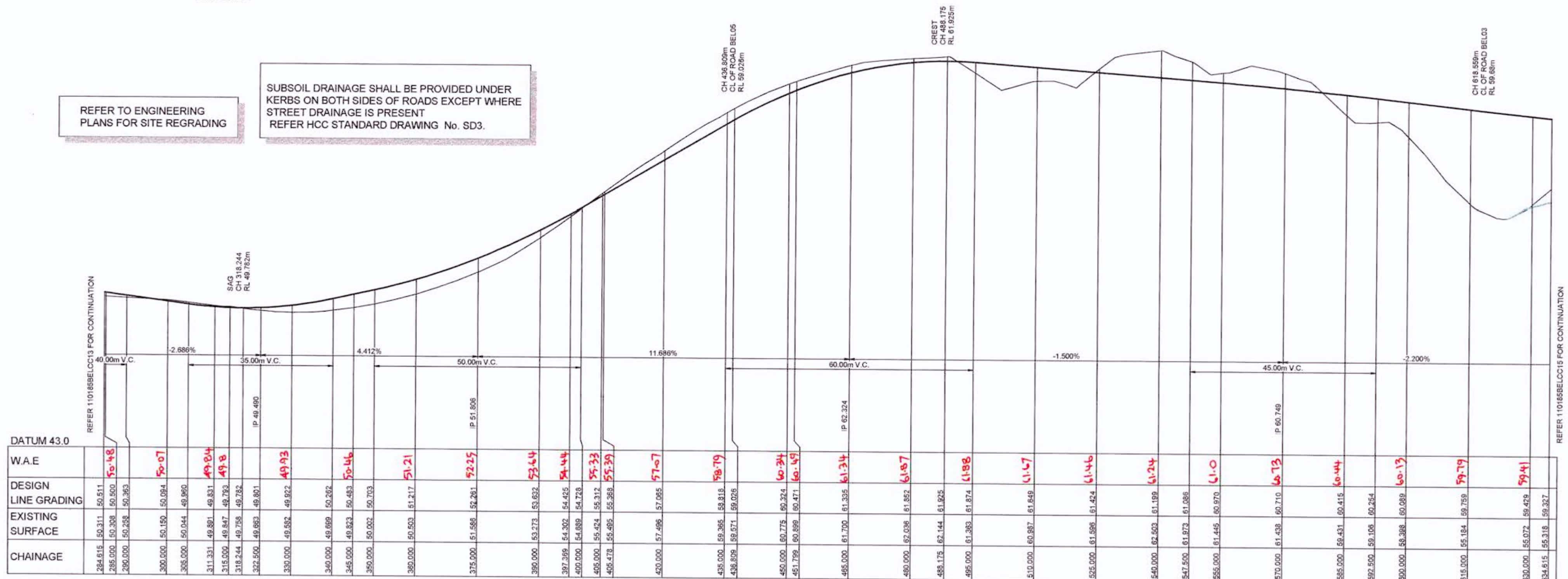
TYPICAL CROSS SECTION ROAD BEL01

CHAINAGE 659.000 - 696.649
 1:100 NATURAL

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

REFER TO ENGINEERING PLANS FOR SITE REGRADING

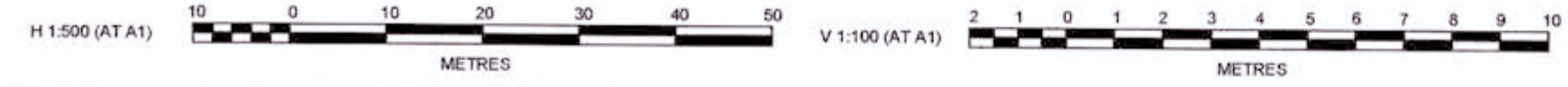
SUBSOIL DRAINAGE SHALL BE PROVIDED UNDER KERBS ON BOTH SIDES OF ROADS EXCEPT WHERE STREET DRAINAGE IS PRESENT REFER HCC STANDARD DRAWING No. SD3.



LONGITUDINAL SECTION ROAD BEL01
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100

W.A.E	DESIGN LINE GRADING	EXISTING SURFACE	CHAINAGE
50.48			284.615
50.07			285.000
49.84			290.000
49.8			300.000
49.93			305.000
49.84			311.331
49.8			315.000
49.8			318.244
49.801			322.500
49.822			330.000
50.262			340.000
50.46			345.000
50.703			350.000
51.21			360.000
52.25			375.000
53.44			390.000
54.44			397.368
55.33			400.000
55.39			405.000
57.07			405.478
58.79			420.000
60.34			438.809
60.49			450.000
61.34			460.000
61.87			465.000
61.88			480.000
61.67			488.175
61.46			495.000
61.24			510.000
61.0			525.000
60.73			540.000
60.44			547.500
60.13			555.000
59.79			565.000
59.479			592.500
59.41			600.000
			615.000
			630.000
			634.615

REVISION F
 • BEL 01 ROAD LONGITUDINAL SECTION AMENDED
 • TYPICAL CROSS SECTIONS AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
F	MP	MG	RO	MS	18/07/17
E	MP	NA	MS	MS	13/02/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

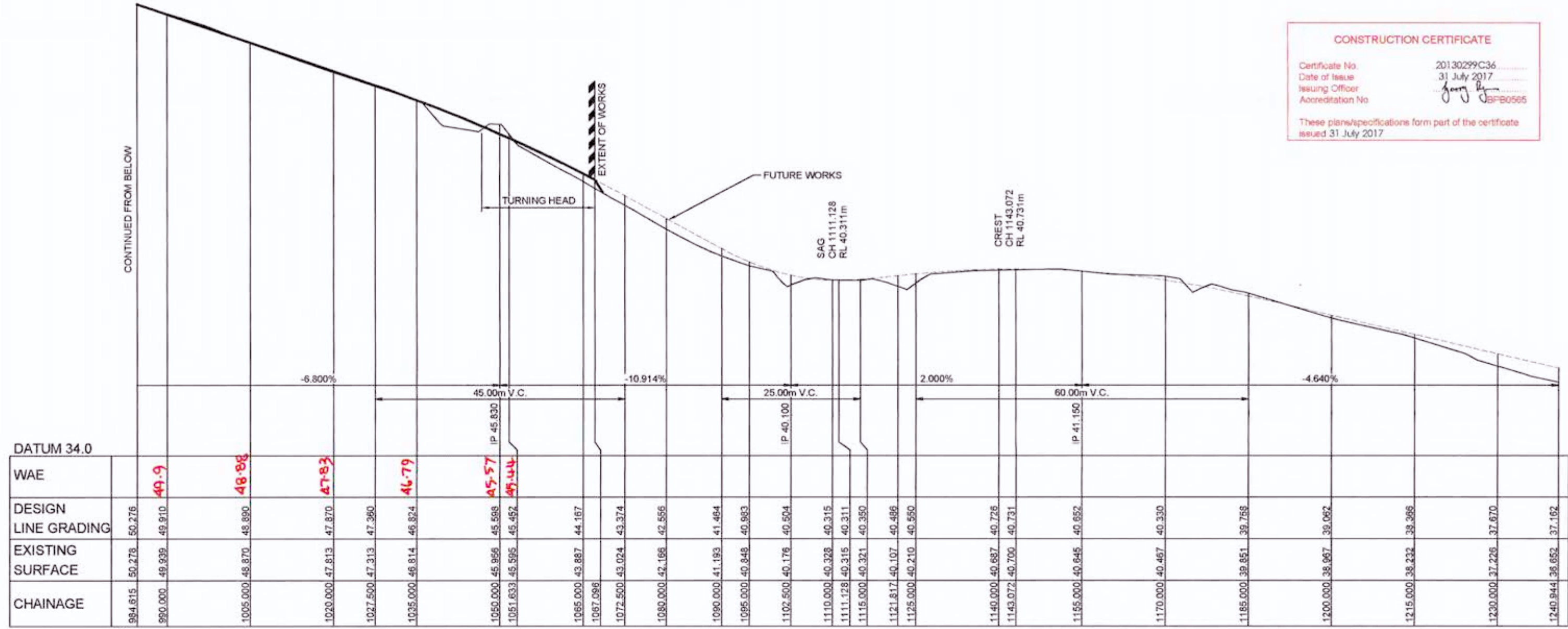
CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: [Blank]

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 LONGITUDINAL SECTIONS SHEET 2
 PLAN No: 110185BEL/CC14 F
 FILE No: 110185BELCC14
 SHEET SIZE: A1 ORIGINAL

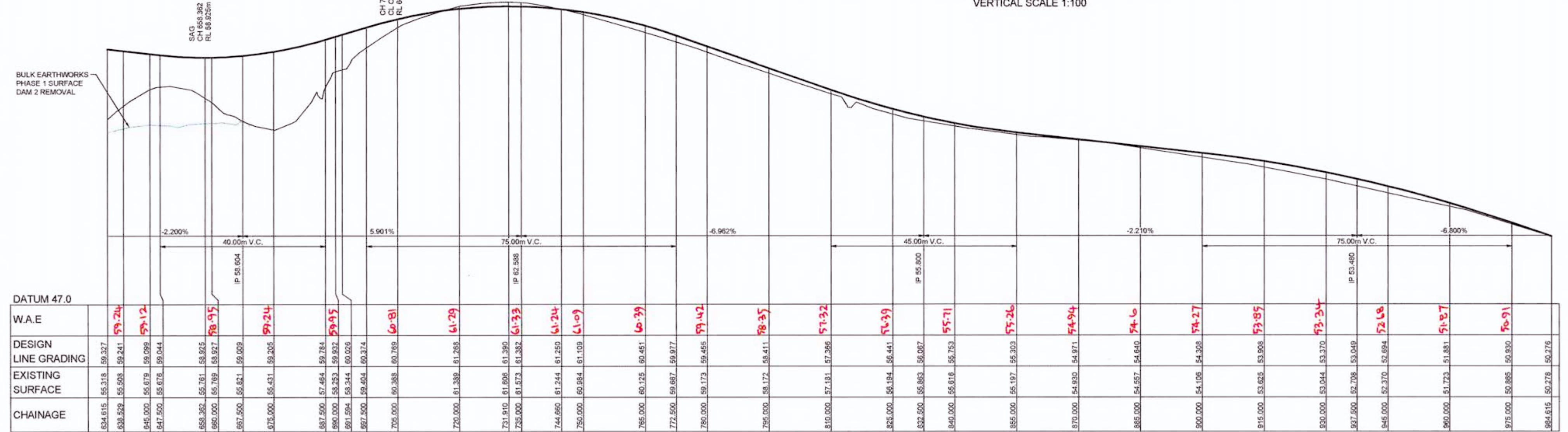
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 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Joey King*
 Accreditation No. 8180565
 These plans/specifications form part of the certificate issued 31 July 2017.

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

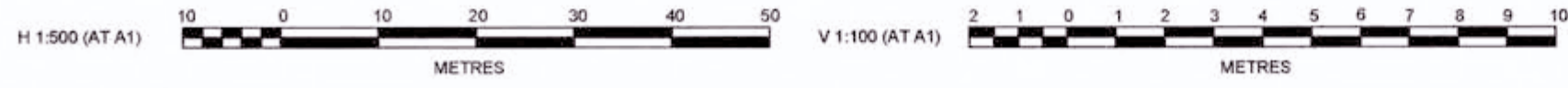


LONGITUDINAL SECTION ROAD BEL01
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100



LONGITUDINAL SECTION ROAD BEL01
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100

REVISION E
 BEL01 ROAD LONGITUDINAL SECTION AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

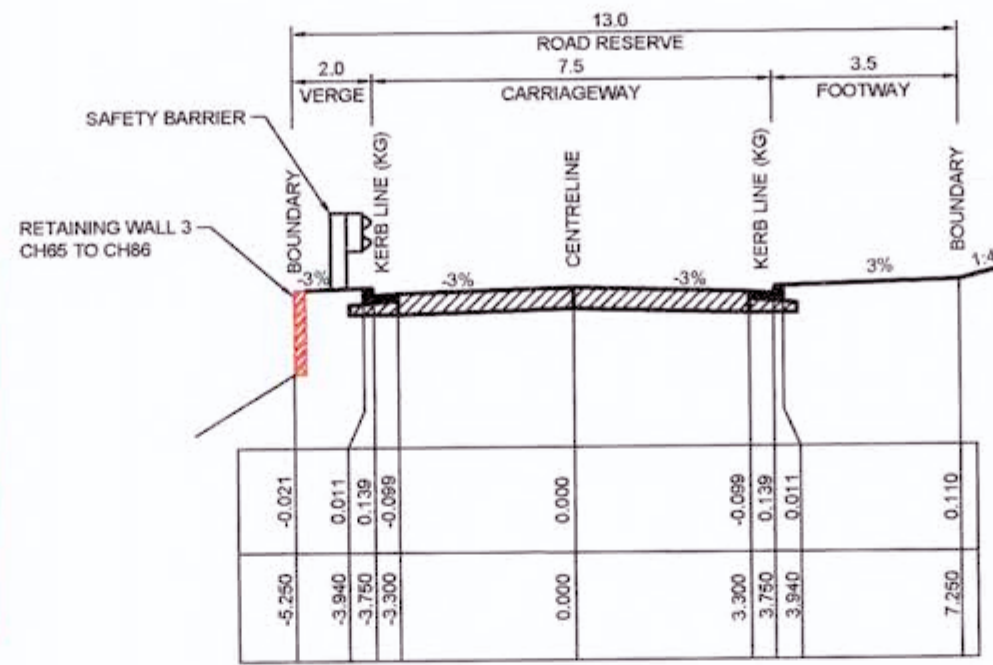
REDBANK, NORTH RICHMOND BELMONT
 LONGITUDINAL SECTIONS SHEET 3

PLAN No: 110185BEL/CC15 E
 FILE No: 110185BELCC15
 SHEET SIZE: A1 ORIGINAL

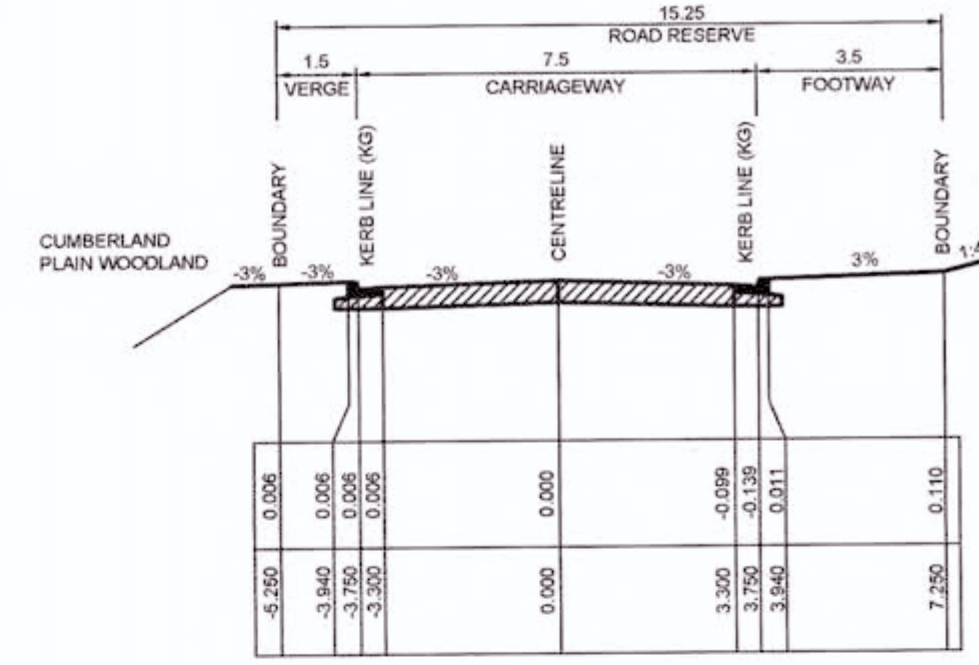
Plotfile: 18 July 2017 5:02:03 PM File Name: J110185 - Redbank North Richmond Residential Precincts01 - Description/CC/BELMONT/110185BELCC16.dwg

CH 0m
CL OF GROSE VALE ROAD
RL 86.292m
CREST
CH 8.257
RL 86.551m

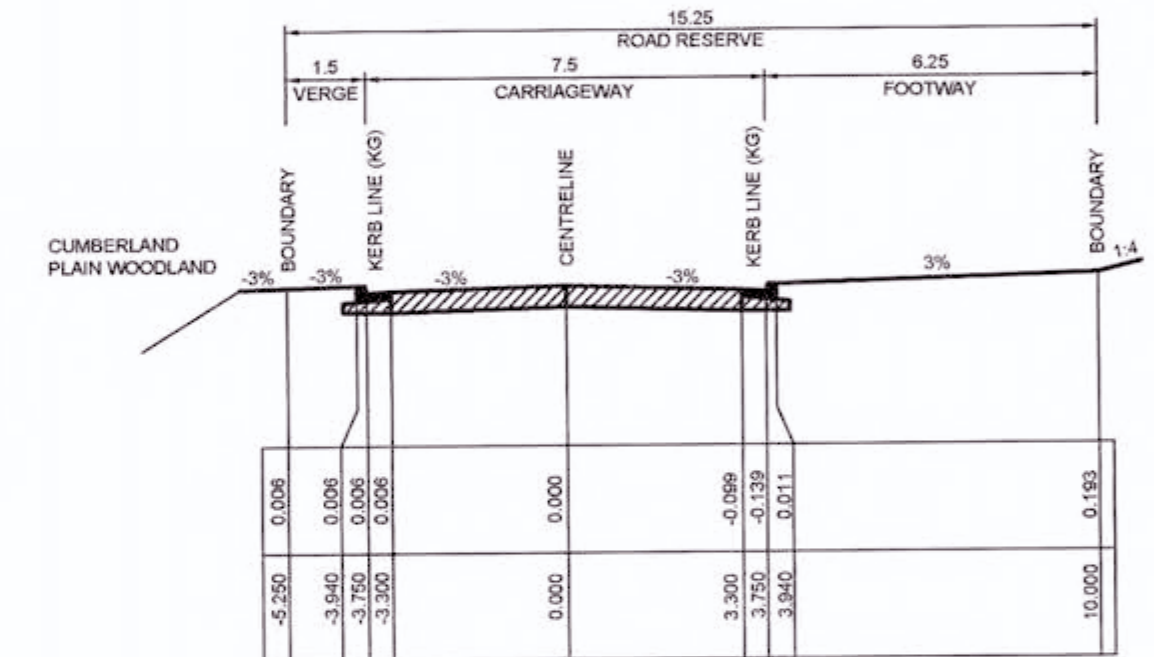
WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12



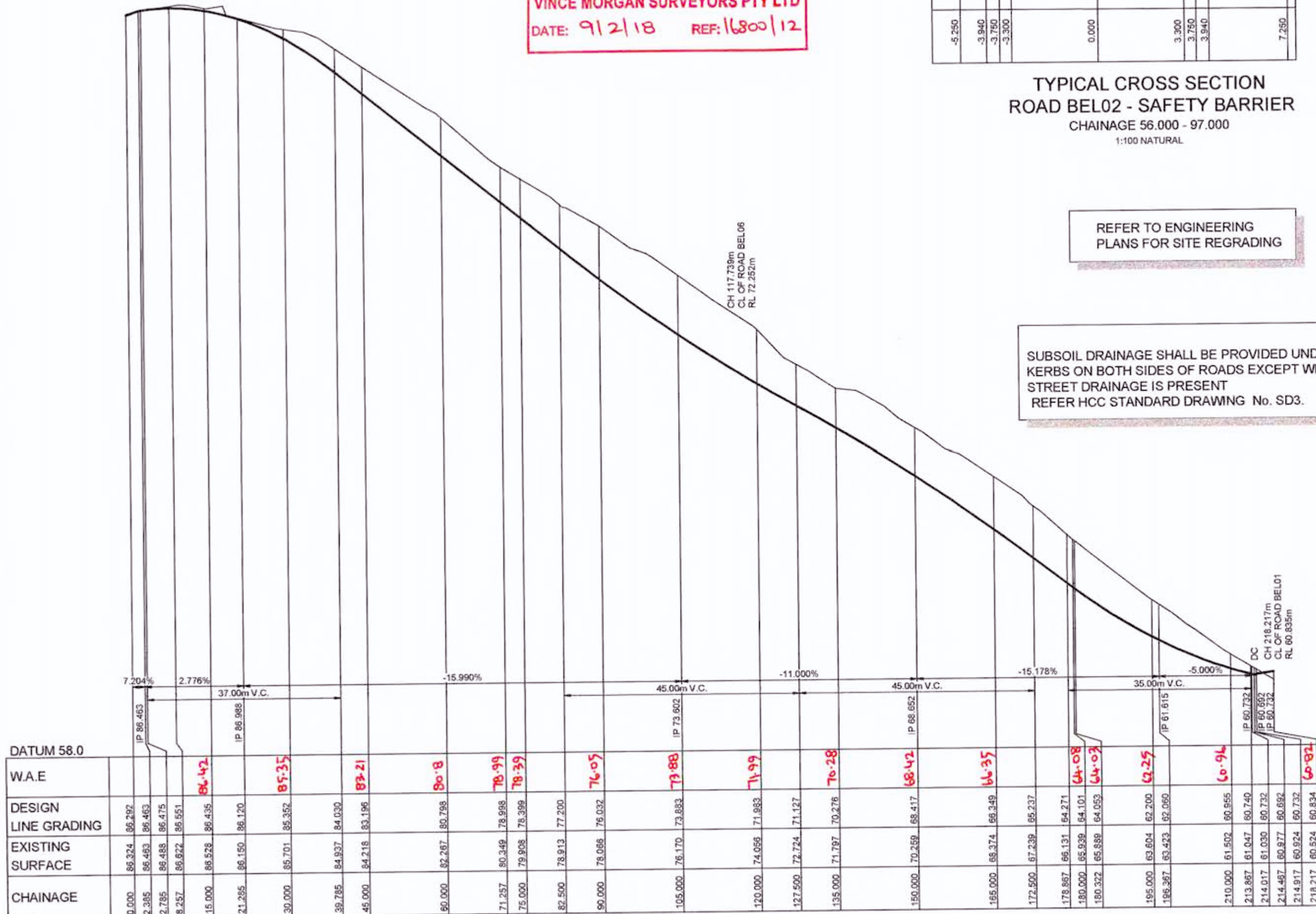
**TYPICAL CROSS SECTION
ROAD BEL02 - SAFETY BARRIER**
CHAINAGE 56.000 - 97.000
1:100 NATURAL



**TYPICAL CROSS SECTION
ROAD BEL02**
CHAINAGE 17.413 - 56.000
CHAINAGE 97.000 - 129.000
1:100 NATURAL

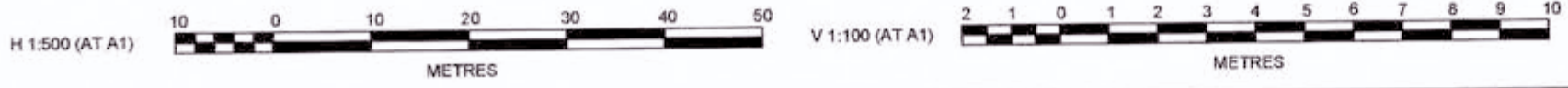


**TYPICAL CROSS SECTION
ROAD BEL02**
CHAINAGE 129.000 - 207.260
1:100 NATURAL



LONGITUDINAL SECTION ROAD BEL02
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

REVISION E
BEL02 ROAD LONGITUDINAL SECTION
AMENDED



NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/09/16

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CLIENT: REDBANK
AZIMUTH: MGA
DATUM: AHD
ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

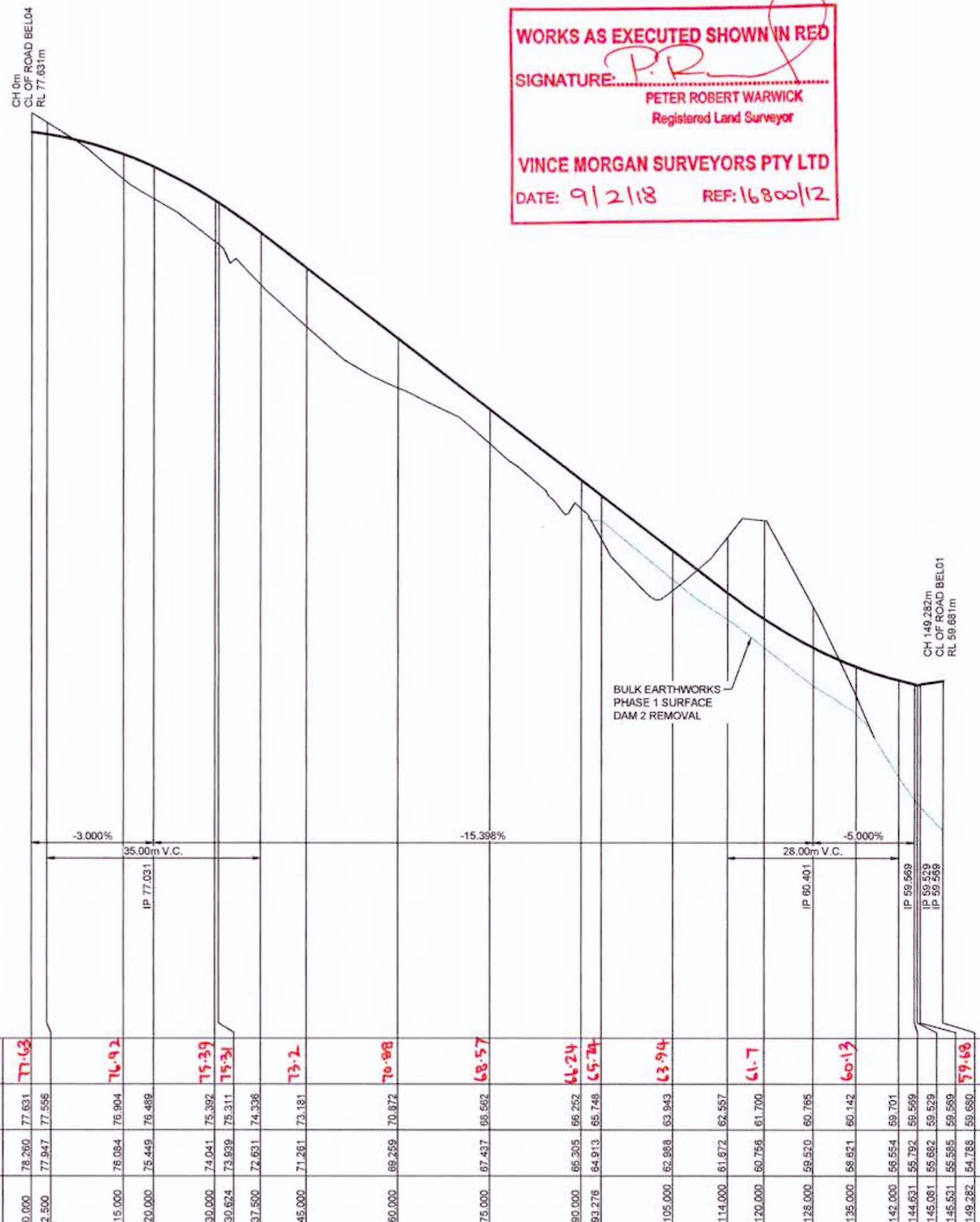
REDBANK, NORTH RICHMOND
BELMONT
LONGITUDINAL SECTIONS
SHEET 4

PLAN No: 110185BEL/CC16 E
FILE No: 110185BELCC16
SHEET SIZE: A1 ORIGINAL

PAVEMENT NOTES (ROAD BEL2)
2x10³ESA (GEOTECHNICAL REPORT BY GEOTECHNIQUE, REF: 12261/14-AA-R2)
1. 50mm WEARING COURSE AC10 2x25mm
2. ONE COAT HOT BITUMEN FLUSH SEAL
3. 125mm DGB 20 BASE COURSE
4. 250mm SUB-BASE COURSE

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer [Signature]
Accreditation No. BPB0565
These plans/specifications form part of the certificate issued 31 July 2017

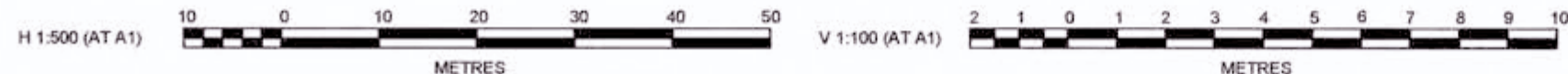
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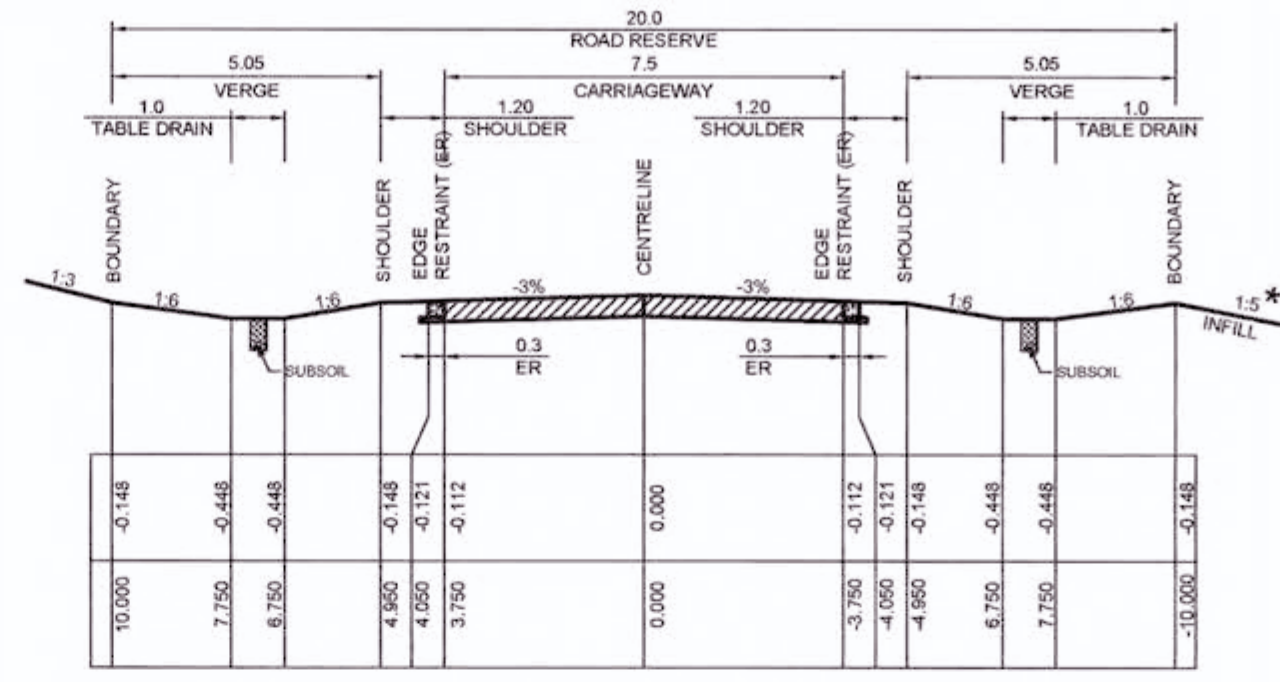
CHAINAGE	EXISTING SURFACE	DESIGN LINE GRADING	W.A.E
0.000	78.260	77.631	77.63
2.500	77.947	77.556	
15.000	76.054	76.904	76.92
20.000	75.449	76.489	
30.000	74.041	75.392	75.39
30.624	73.839	75.311	75.31
37.500	72.631	74.336	
45.000	71.281	73.181	73.2
60.000	69.259	70.872	70.88
75.000	67.437	68.562	68.57
90.000	65.305	66.252	66.24
92.276	64.913	65.748	65.74
105.000	62.888	63.943	63.94
114.000	61.672	62.557	
120.000	60.756	61.700	61.7
128.000	59.520	60.785	
135.000	58.821	60.142	60.13
142.000	58.554	59.701	
144.631	58.792	59.599	
145.081	58.682	59.529	
146.531	58.585	59.589	
149.882	54.788	59.680	59.68

LONGITUDINAL SECTION ROAD BEL03
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

REVISION F
• BEL03 ROAD LONGITUDINAL SECTION AMENDED



WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12



TYPICAL CROSS SECTION - ROAD BEL03
1:100 NATURAL

REFER TO ENGINEERING PLANS FOR SITE REGRADING

SUBSOIL DRAINAGE SHALL BE PROVIDED UNDER KERBS ON BOTH SIDES OF ROADS EXCEPT WHERE STREET DRAINAGE IS PRESENT
REFER HCC STANDARD DRAWING No. SD3.

PAVEMENT NOTES (ROAD BEL3)
5x10' ESA (GEOTECHNICAL REPORT BY GEOTECHNIQUE, REF: 12261/14-AA-R2)
1. 50mm WEARING COURSE AC10 2x25mm
2. ONE COAT HOT BITUMEN FLUSH SEAL
3. 125mm DGB 20 BASE COURSE
4. 200mm SUB-BASE COURSE

LEGEND
* REFER SITE REGRADING

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer [Signature]
Accreditation No. JBPB0565
These plans/specifications form part of the certificate issued 31 July 2017

NO.	REVISION	DATE	BY	CHECKED	APPROVED
F	ISSUE FOR CONSTRUCTION APPROVAL	18/07/17	MP	MG	RO
E	BATTER AMENDED	13/02/17	MP	NA	MS
D	CERTIFIER COMMENTS	27/09/16	MP	MG	RO
C	ISSUED FOR CONSTRUCTION APPROVAL	29/07/16	MP	MG	RO
B	CLIENT COMMENTS	13/07/16	MP	MG	MS
A	ADVANCED COPY	21/06/16	MP	MG	RO
	AMENDMENT		DES	DRN	CKD

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PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: **REDBANK**
AZIMUTH: MGA
DATUM: AHD
ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
LONGITUDINAL SECTIONS SHEET 5
PLAN No: 110185BEL/CC17 [F]
FILE No: 110185BELCC17
SHEET SIZE: A1 ORIGINAL

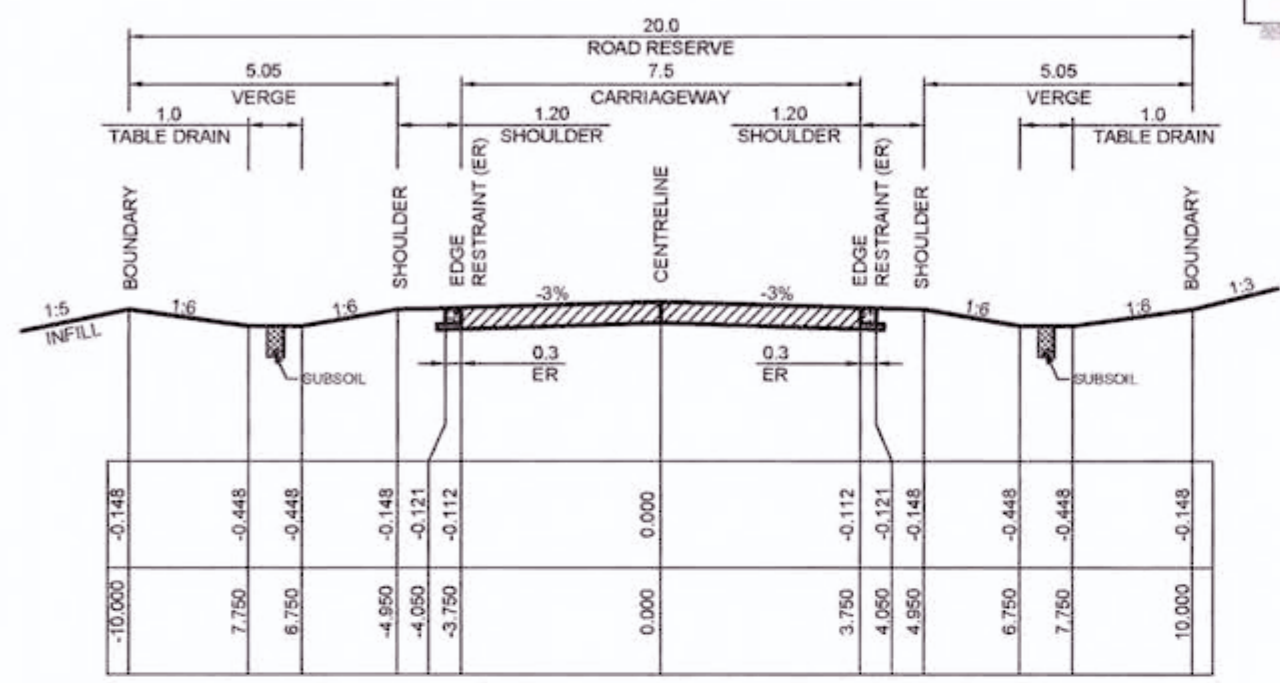
CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. BPB0565
 These plans/specifications form part of the certificate issued 31 July 2017

PAVEMENT NOTES (ROAD BEL4, BEL5 & BEL06)

- 5x10³ ESA (GEOTECHNICAL REPORT BY GEOTECHNIQUE, REF: 2261/14-AA-R2)
- 1. 50mm WEARING COURSE AC10 2x25mm
- 2. ONE COAT HOT BITUMEN FLUSH SEAL
- 3. 125mm DGB 20 BASE COURSE
- 4. 200mm SUB-BASE COURSE

SUBSOIL DRAINAGE SHALL BE PROVIDED UNDER KERBS ON BOTH SIDES OF ROADS EXCEPT WHERE STREET DRAINAGE IS PRESENT
 REFER HCC STANDARD DRAWING No. SD3.

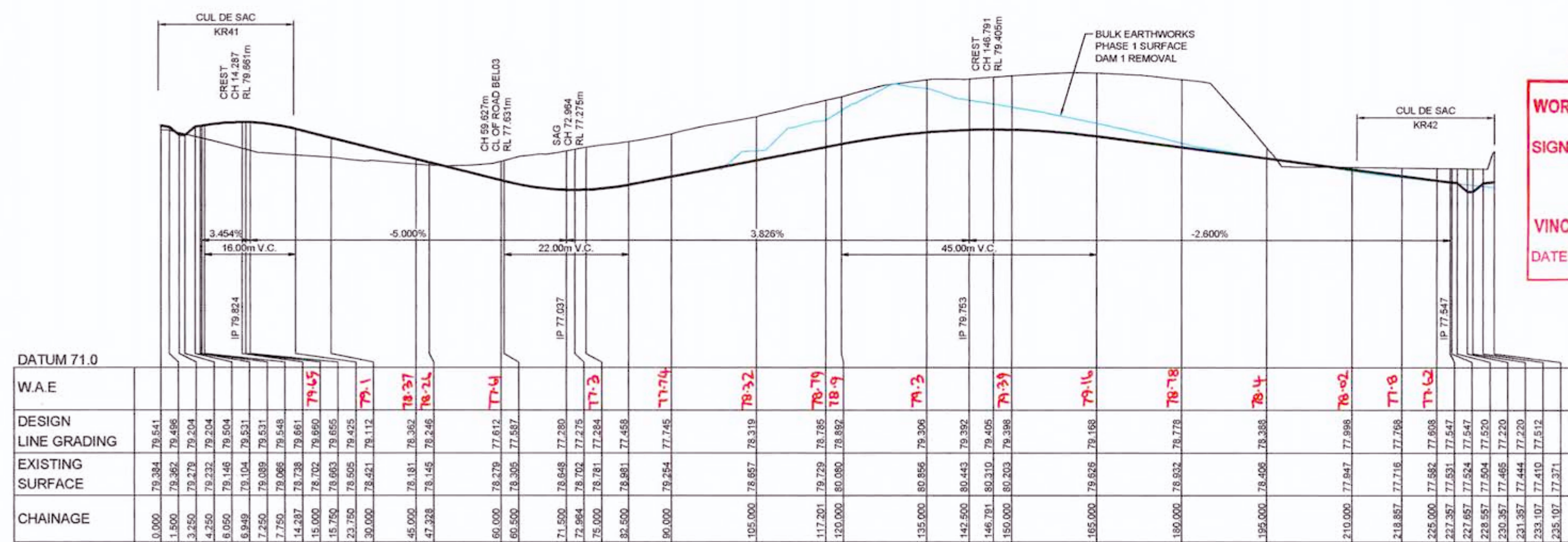
REFER TO ENGINEERING PLANS FOR SITE REGRADING



TYPICAL CROSS SECTION - ROAD BEL04, BEL05 & BEL06
 1:100 NATURAL

W.A.E	DESIGN LINE GRADING	EXISTING SURFACE	CHAINAGE
0.000	87.062	86.532	0.000
1.321	87.054	86.799	1.321
3.272	87.043	86.409	3.272
4.089	87.038	86.409	4.089
5.872	87.028	86.769	5.872
7.072	87.021	86.796	7.072
11.182	86.987	86.659	11.182
15.000	86.878	86.894	15.000
15.572	86.835	86.885	15.572
15.929	86.812	86.885	15.929
24.072	86.385	86.810	24.072
30.000	86.437	86.701	30.000
45.000	86.092	86.425	45.000
60.000	85.850	86.149	60.000
75.000	85.714	85.873	75.000
80.000	85.587	85.597	80.000
105.000	85.418	85.127	105.000
112.500	85.318	84.746	112.500
120.000	85.184	84.267	120.000
128.010	84.972	83.563	128.010
135.000	84.781	83.018	135.000
150.000	83.818	81.814	150.000
157.500	83.084	80.943	157.500
165.000	82.285	80.292	165.000
174.550	81.390	79.658	174.550
180.000	80.401	79.052	180.000
181.036	80.284	78.999	181.036
181.786	80.195	78.929	181.786
182.145	80.118	78.924	182.145
182.536	80.097	78.920	182.536
185.981	79.571	79.027	185.981

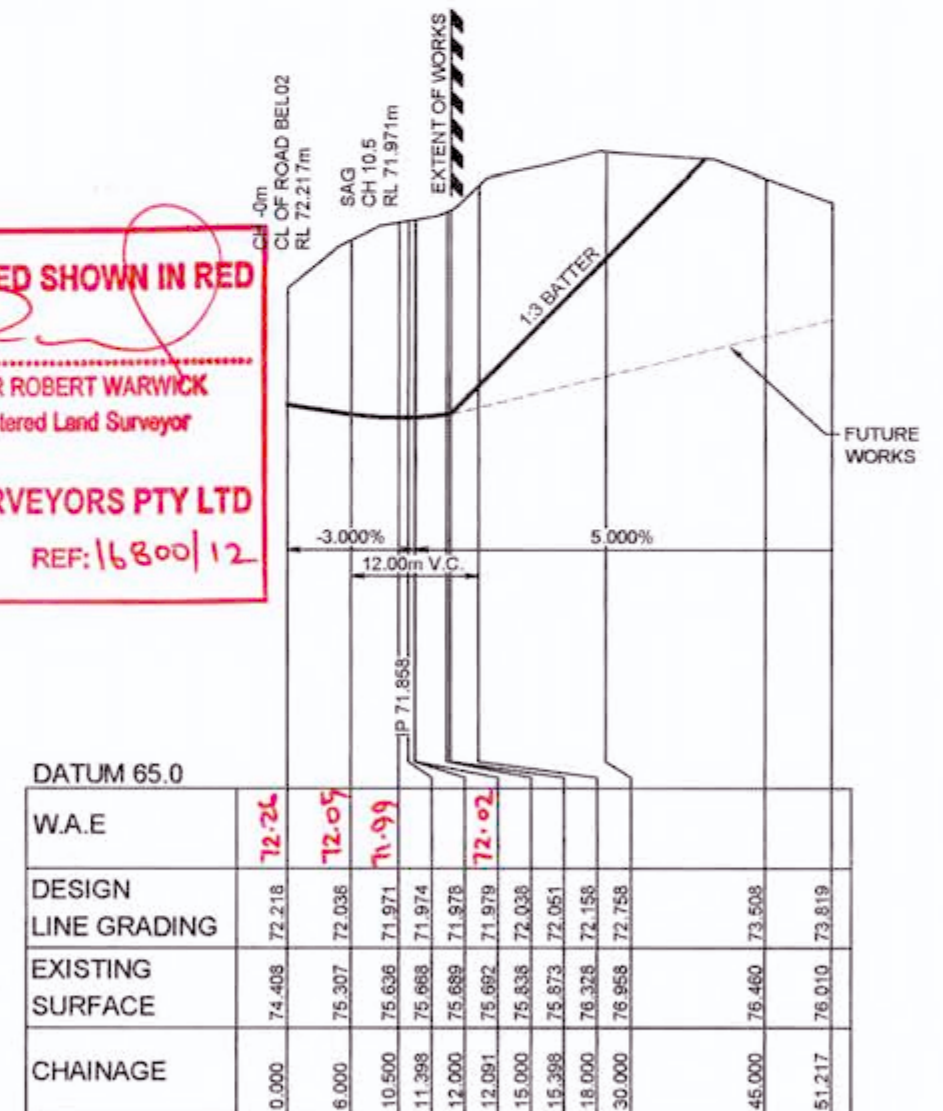
LONGITUDINAL SECTION ROAD BEL05
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100



LONGITUDINAL SECTION ROAD BEL04
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100

W.A.E	DESIGN LINE GRADING	EXISTING SURFACE	CHAINAGE
0.000	79.334	79.541	0.000
1.500	79.362	79.496	1.500
3.250	79.278	79.204	3.250
4.250	79.232	79.204	4.250
6.050	79.148	79.504	6.050
6.949	79.104	79.531	6.949
7.250	79.089	79.531	7.250
7.750	79.068	79.546	7.750
14.287	78.728	79.651	14.287
15.000	78.702	79.650	15.000
15.750	78.683	79.655	15.750
23.750	78.505	79.425	23.750
30.000	78.621	79.112	30.000
45.000	78.181	78.362	45.000
47.328	78.145	78.246	47.328
60.000	78.279	77.612	60.000
69.500	78.305	77.557	69.500
71.500	78.648	77.280	71.500
72.964	78.702	77.275	72.964
75.000	78.781	77.284	75.000
82.500	78.981	77.458	82.500
90.000	79.254	77.745	90.000
105.000	78.857	78.319	105.000
117.201	79.729	78.285	117.201
120.000	80.080	78.892	120.000
135.000	80.856	79.306	135.000
142.500	80.443	79.392	142.500
146.791	80.310	79.405	146.791
150.000	80.203	79.398	150.000
165.000	79.526	79.168	165.000
180.000	78.832	78.778	180.000
195.000	78.406	78.386	195.000
210.000	77.947	77.996	210.000
218.887	77.716	77.756	218.887
225.000	77.582	77.608	225.000
227.387	77.551	77.547	227.387
228.957	77.524	77.547	228.957
229.557	77.504	77.520	229.557
230.397	77.465	77.220	230.397
231.387	77.444	77.220	231.387
233.107	77.410	77.512	233.107
235.107	77.371		235.107

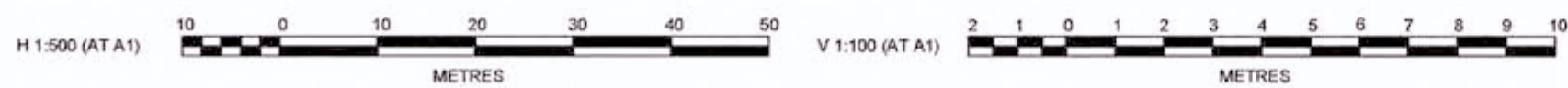
WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



LONGITUDINAL SECTION ROAD BEL06
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100

W.A.E	DESIGN LINE GRADING	EXISTING SURFACE	CHAINAGE
0.000	74.408	72.218	0.000
6.000	75.307	72.036	6.000
10.500	75.636	71.971	10.500
11.398	75.688	71.974	11.398
12.000	75.689	71.878	12.000
12.091	75.692	71.979	12.091
15.000	75.838	72.038	15.000
15.398	75.873	72.051	15.398
18.000	76.328	72.158	18.000
30.000	78.958	72.758	30.000
45.000	76.460	73.508	45.000
51.217	76.010	73.819	51.217

REVISION F
 BEL04 ROAD LONGITUDINAL SECTION AMENDED



DES	DRN	CKD	APR	DATE
F				18/07/17
E				13/02/17
D				27/09/16
C				29/07/16
B				13/07/16
A				21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
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 REDBANK, NORTH RICHMOND BELMONT
 LONGITUDINAL SECTIONS SHEET 6
 PLAN No: 110185BEL/CC18 F
 FILE No: 110185BELCC18
 SHEET SIZE: A1 ORIGINAL

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. JBPO565

These plans/specifications form part of the certificate issued 31 July 2017

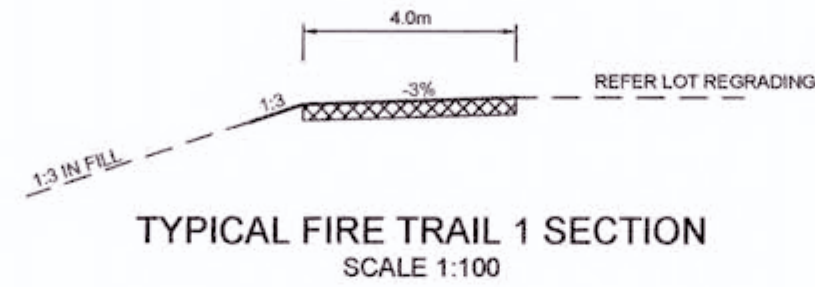
CH 362.73m
 CL OF GROSE VALE ROAD
 RL 90.946m

PAVEMENT NOTES (FIRE TRAIL)
 1x10' ESA (GEOTECHNICAL REPORT BY GEOTECHNIQUE, REF: 12261/14-AA-R2)
 1. TWO COAT HOT BITUMEN FLUSH SEAL
 2. 125mm DGB 20 BASE COURSE
 3. 200mm SUB-BASE COURSE

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16200/12

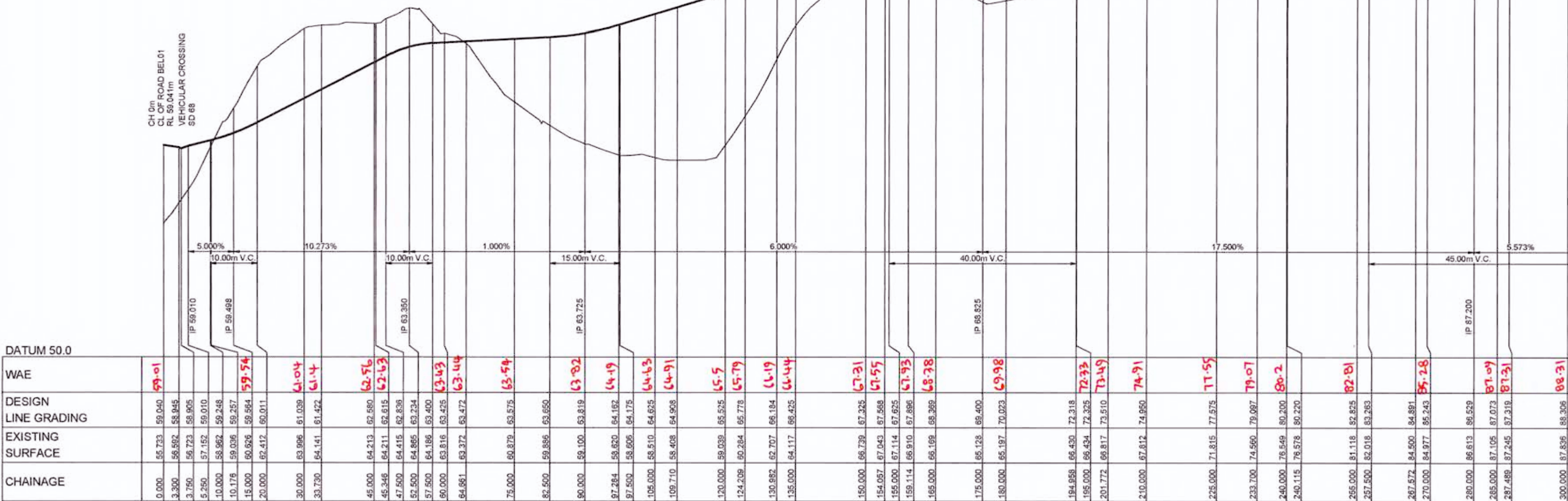


CONTINUED FROM BELOW

DATUM 82.0

CHAINAGE	EXISTING SURFACE	DESIGN LINE GRADING	WAE
300.000	87.636	88.306	88.31
302.500	87.956	88.454	
315.000	88.638	89.151	89.18
330.000	90.048	89.887	90.64
337.066	90.451	90.380	90.42
339.000	90.629	90.488	
345.000	90.606	90.769	90.83
346.683	90.634	90.794	
351.000	91.060	90.943	90.95
354.359	91.183	91.010	
357.124	91.065	91.085	
359.817	91.051	91.050	
360.000	91.045	91.044	91.07
362.737	90.947	90.947	

LONGITUDINAL SECTION FIRE TRAIL 1
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100



DATUM 50.0

CHAINAGE	EXISTING SURFACE	DESIGN LINE GRADING	WAE
0.000	55.733	59.040	59.01
3.300	56.562	58.945	
3.750	56.723	58.905	
5.250	57.152	59.010	
10.000	58.962	59.248	59.54
10.176	59.036	59.257	
15.000	60.926	59.554	
20.000	62.212	60.011	
30.000	63.996	61.039	61.04
33.730	64.141	61.472	61.4
45.000	64.213	62.680	62.56
45.346	64.211	62.615	62.63
47.500	64.415	62.636	
52.500	64.865	63.234	
57.500	64.186	63.400	63.43
60.000	63.816	63.425	
64.661	63.372	63.472	63.44
75.000	60.879	63.575	63.54
82.500	59.886	63.650	
90.000	59.100	63.819	63.92
97.284	58.620	64.162	64.19
97.500	58.606	64.175	
105.000	58.510	64.625	64.63
109.710	58.408	64.908	64.91
120.000	59.039	65.525	65.5
124.208	60.284	65.778	65.79
130.982	62.707	66.184	66.19
135.000	64.117	66.425	66.44
150.000	66.739	67.225	67.21
154.087	67.043	67.568	67.55
155.000	67.114	67.625	
159.114	66.910	67.886	67.93
165.000	66.169	68.269	68.28
175.000	65.128	69.400	69.48
180.000	65.197	70.023	
194.898	66.430	72.316	72.33
195.000	66.434	72.325	72.33
201.772	66.817	73.510	73.49
210.000	67.612	74.950	74.91
225.000	71.815	77.675	77.55
233.700	74.560	79.087	79.07
240.000	76.549	80.200	80.2
240.115	76.578	80.220	
255.000	81.118	82.825	82.81
257.500	82.018	83.263	
267.672	84.500	84.891	84.8
270.000	84.977	85.243	85.28
280.000	86.613	86.529	
285.000	87.105	87.073	87.09
287.488	87.245	87.219	87.21
300.000	87.856	88.306	88.31

LONGITUDINAL SECTION FIRE TRAIL 1

REVISION F
 • FIRE TRAIL 1 LONGITUDINAL SECTIONS AMENDED
 • TYPICAL FIRE TRAIL 1 CROSS SECTION AMENDED



CLIENT: REDBANK

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REDBANK, NORTH RICHMOND
 BELMONT
 LONGITUDINAL SECTIONS
 SHEET 7

PLAN No: 110185BEL/CC19 F
 FILE No: 110185BELCC19
 SHEET SIZE: A1 ORIGINAL

REV	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	ROAD LONG SECTION AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	MS	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKO	APR	DATE

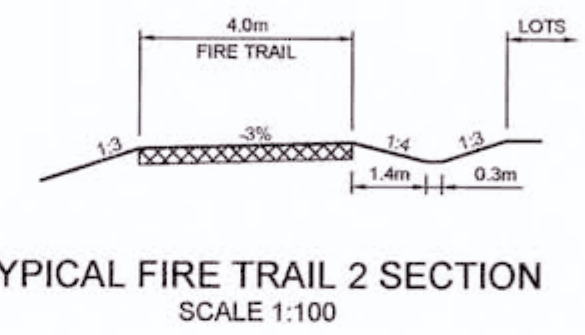
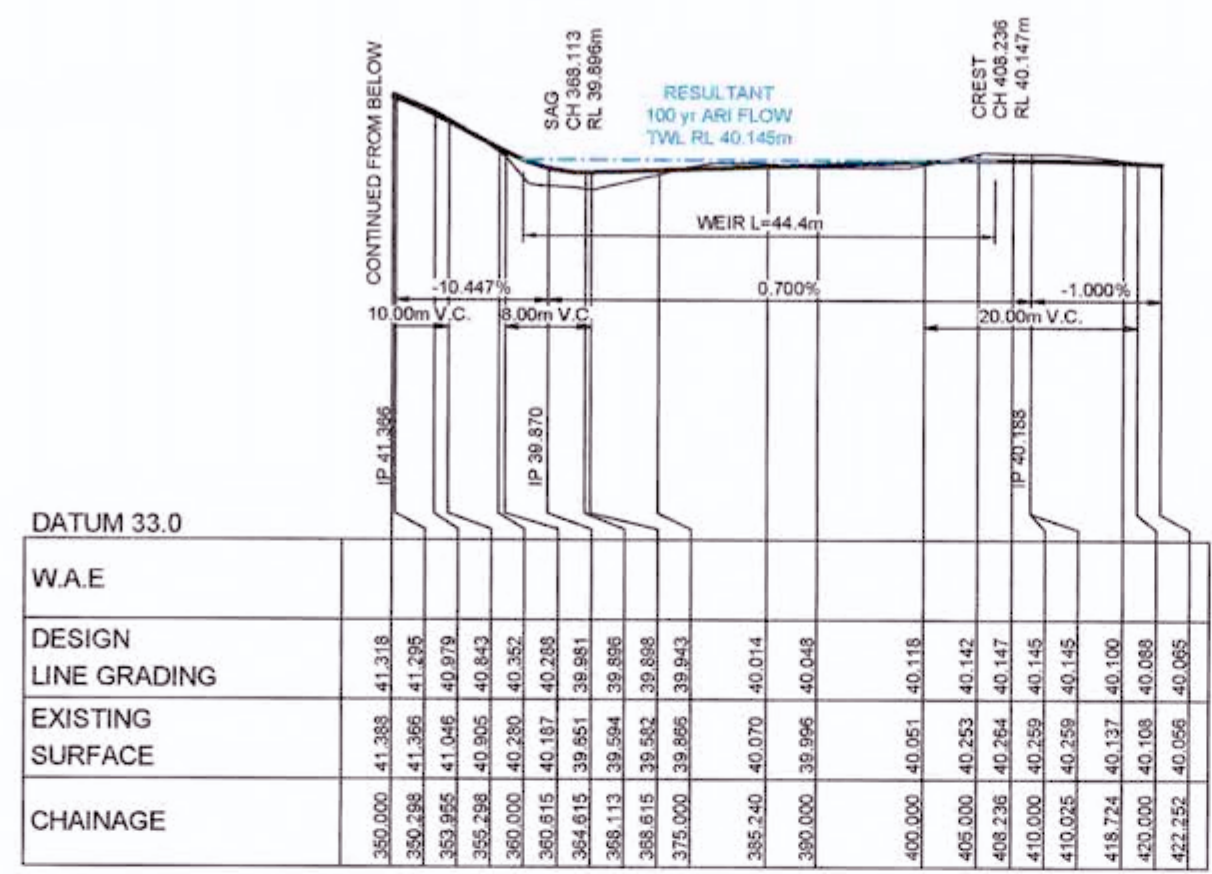
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
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AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. BPP0585
 These plans/specifications form part of the certificate issued 31 July 2017

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

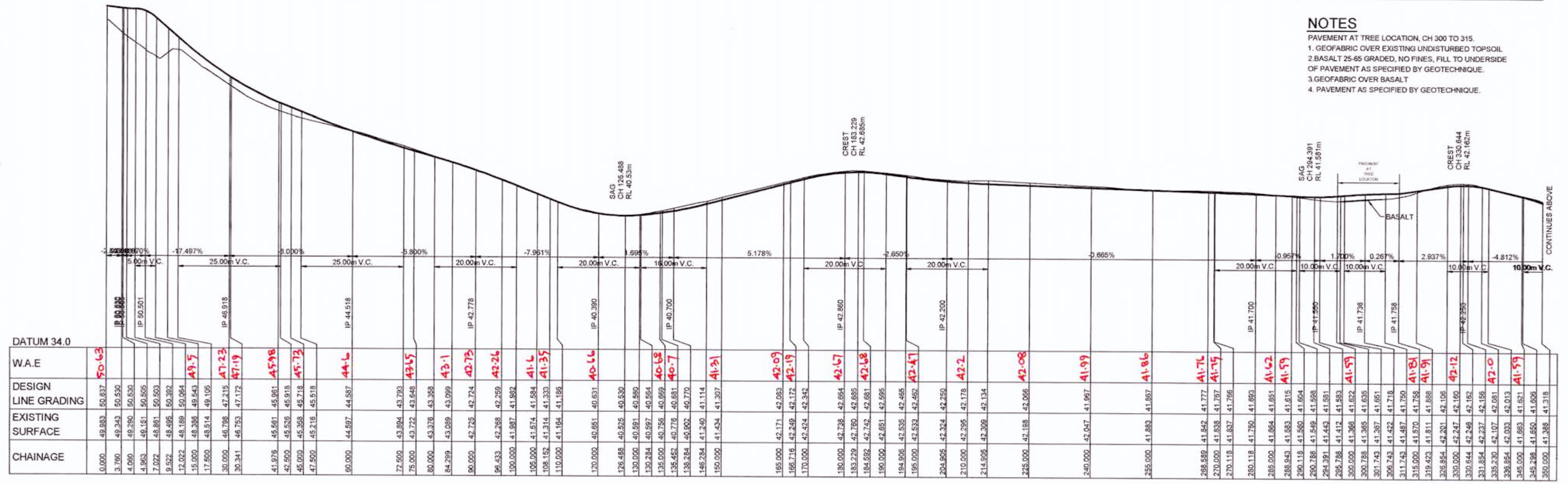


PAVEMENT NOTES (FIRE TRAIL)
 1x10' ESA (GEOTECHNICAL REPORT BY GEOTECHNIQUE, REF: 12261/14-AA-R2)
 1. TWO COAT HOT BITUMEN FLUSH SEAL
 2. 125mm DGB 20 BASE COURSE
 3. 200mm SUB-BASE COURSE

PAVEMENT NOTES (FIRE TRAIL 2 WEIR)
 1x10' ESA (GEOTECHNICAL REPORT REF: 12261/14-AA-R2)
 1. 150mm REINFORCED CONCRETE WITH 2XF72, HEAVY BROOM FINISH, REFER STRUCTURAL DESIGN FOR DETAILS
 2. 200mm SUB-BASE COURSE CRUSHED SANDSTONE (DGS40)

NOTES
 PAVEMENT AT TREE LOCATION, CH 300 TO 315.
 1. GEOFABRIC OVER EXISTING UNDISTURBED TOPSOIL
 2. BASALT 25-65 GRADED, NO FINES, FILL TO UNDERSIDE OF PAVEMENT AS SPECIFIED BY GEOTECHNIQUE.
 3. GEOFABRIC OVER BASALT
 4. PAVEMENT AS SPECIFIED BY GEOTECHNIQUE.

CH 0m
 CL OF ROAD BELOW
 RL 50.637m



LONGITUDINAL SECTION FIRE TRAIL 2
 HORIZONTAL SCALE 1:500
 VERTICAL SCALE 1:100

REVISION F
 FIRE TRAIL 2 LONGITUDINAL SECTIONS AMENDED
 TYPICAL FIRE TRAIL 2 CROSS SECTION ADDED

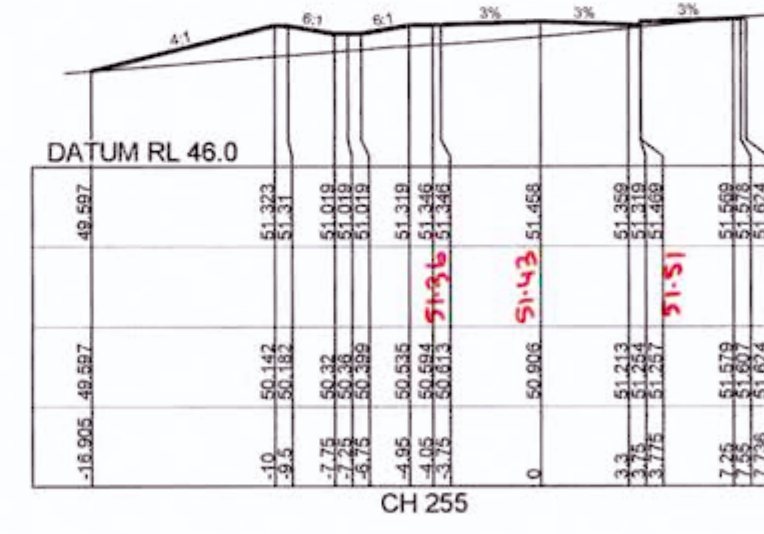
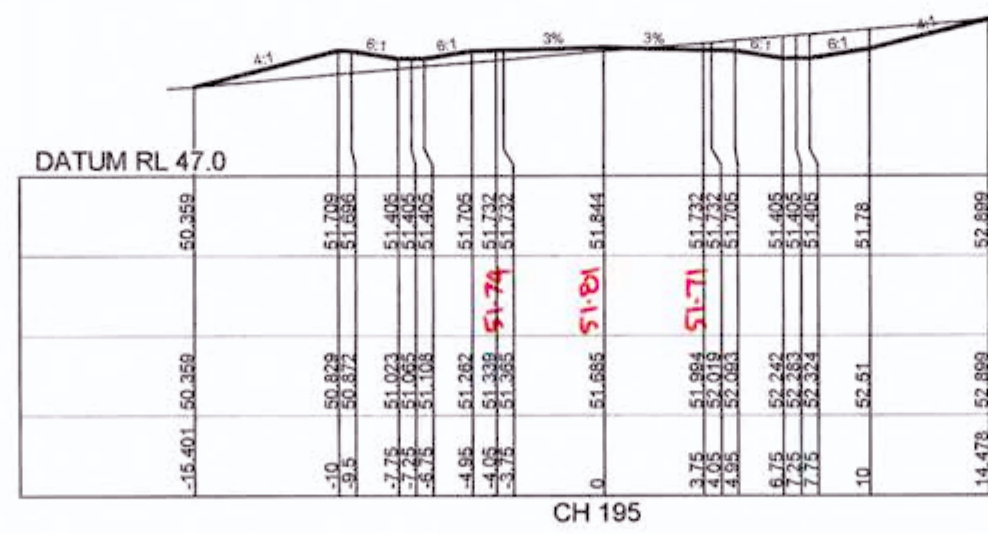
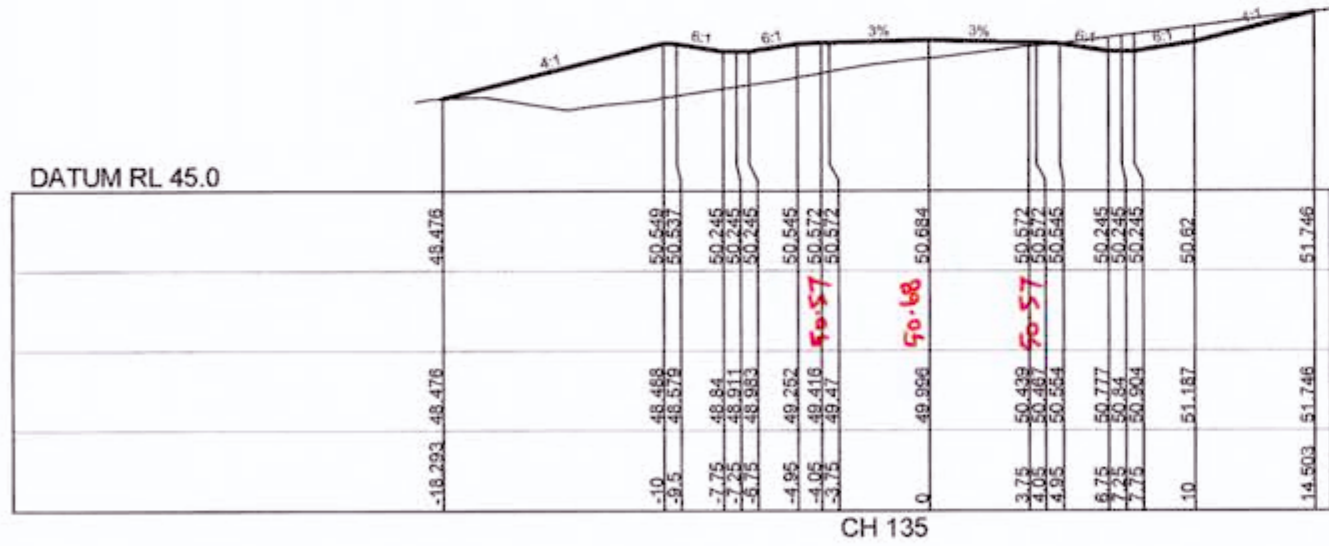
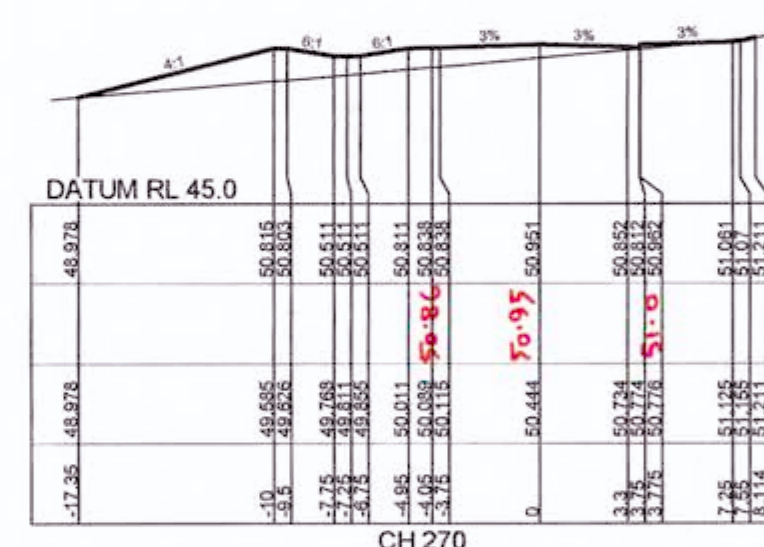
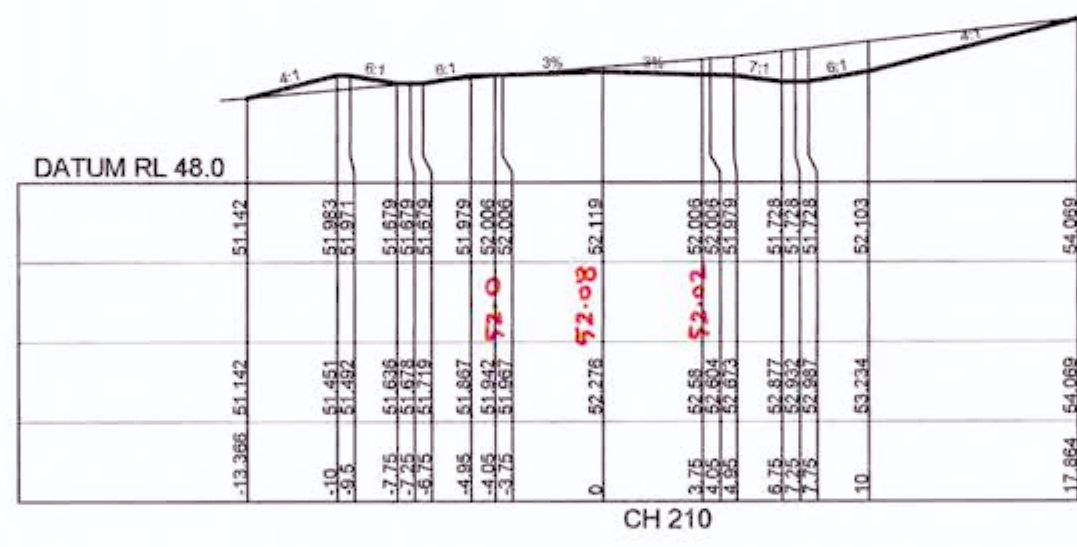
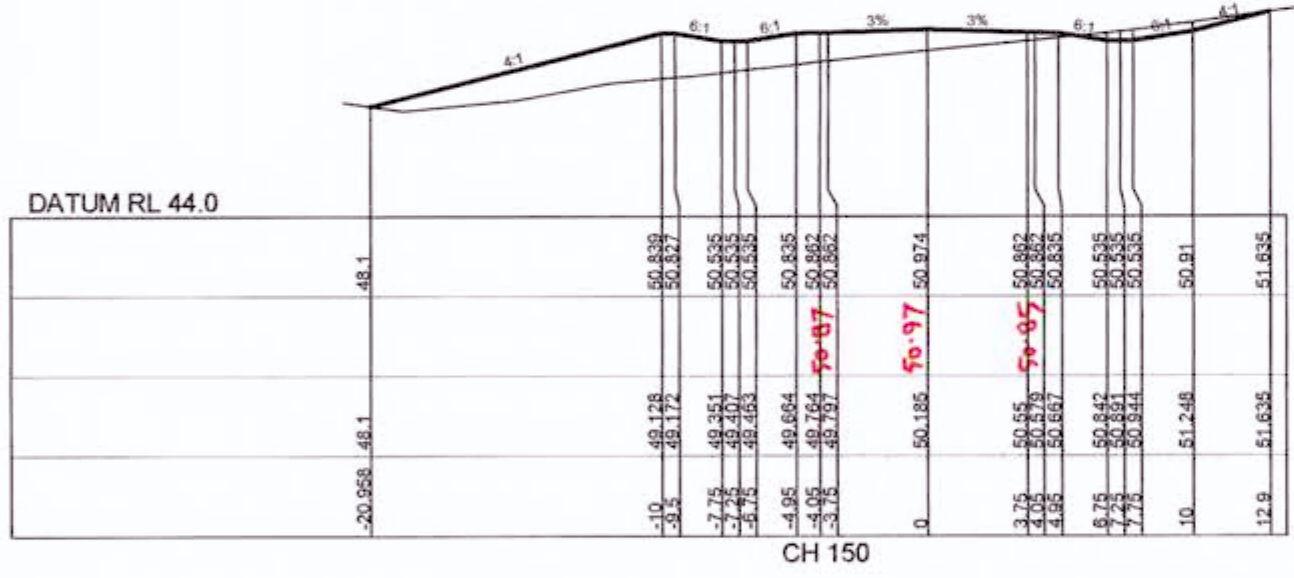
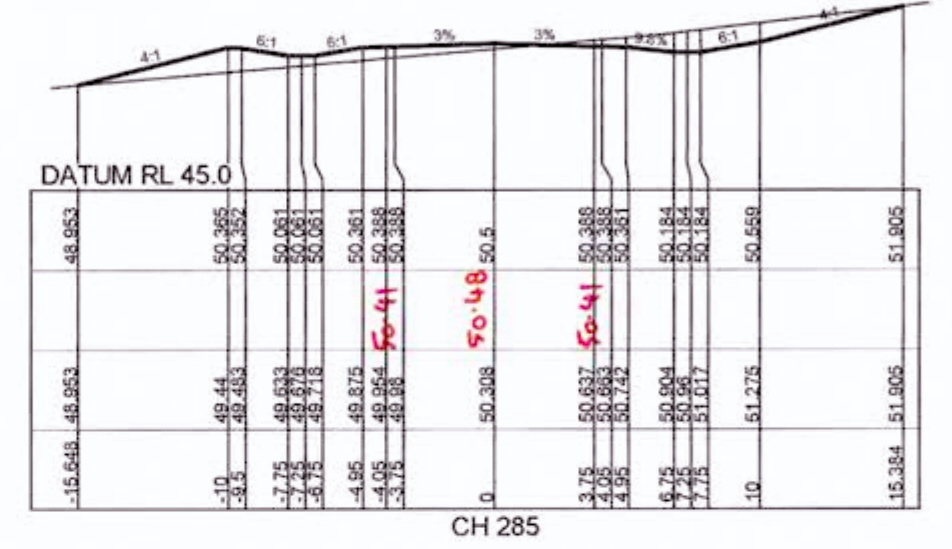
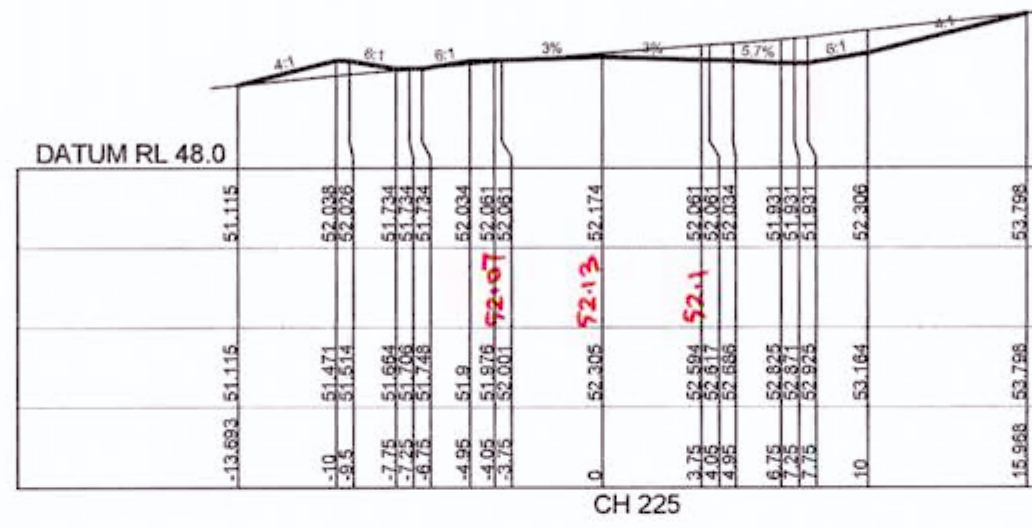
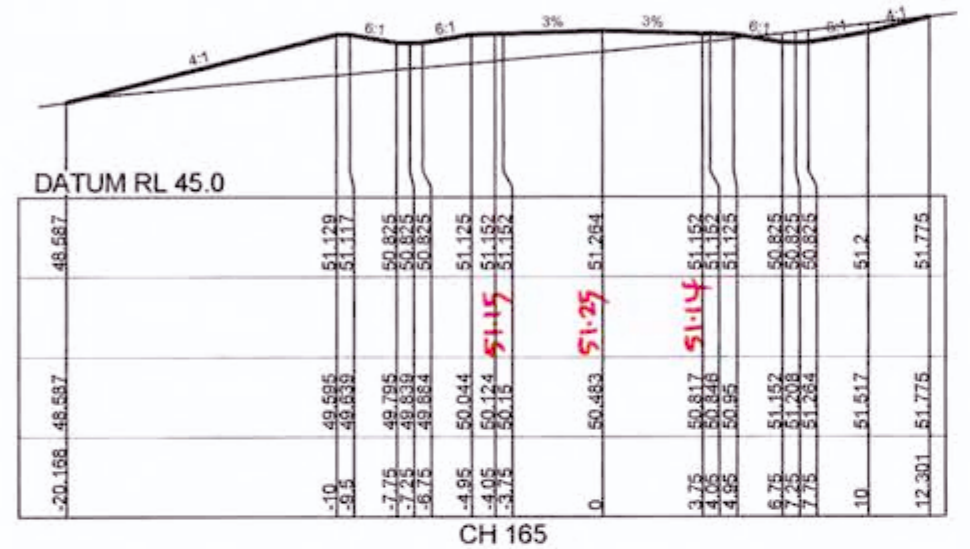
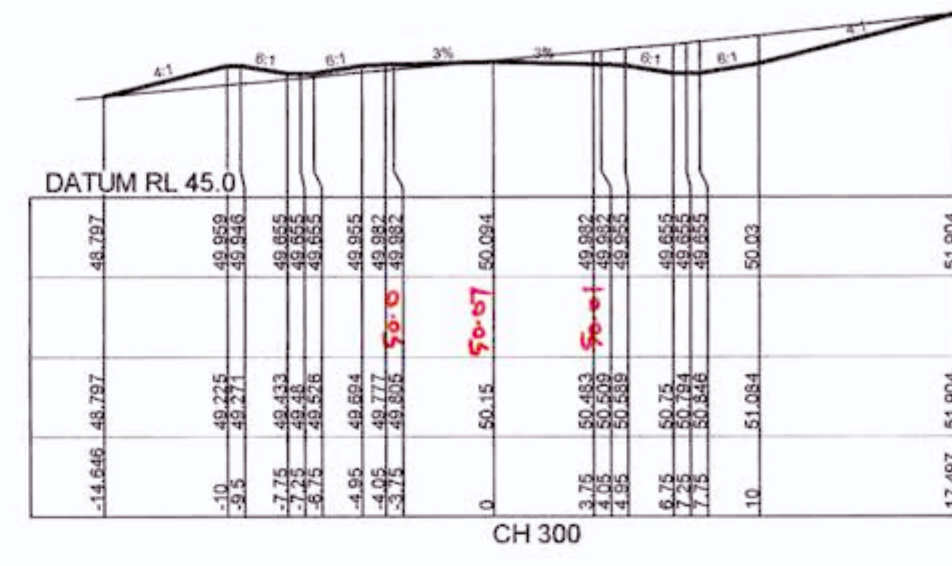
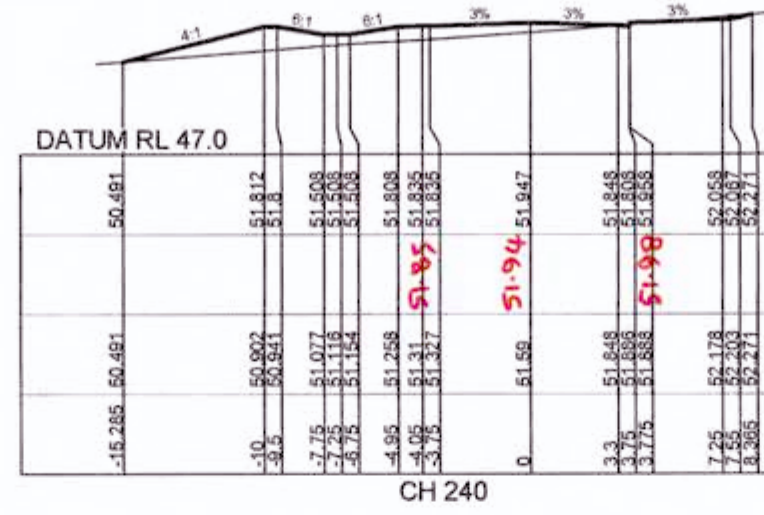
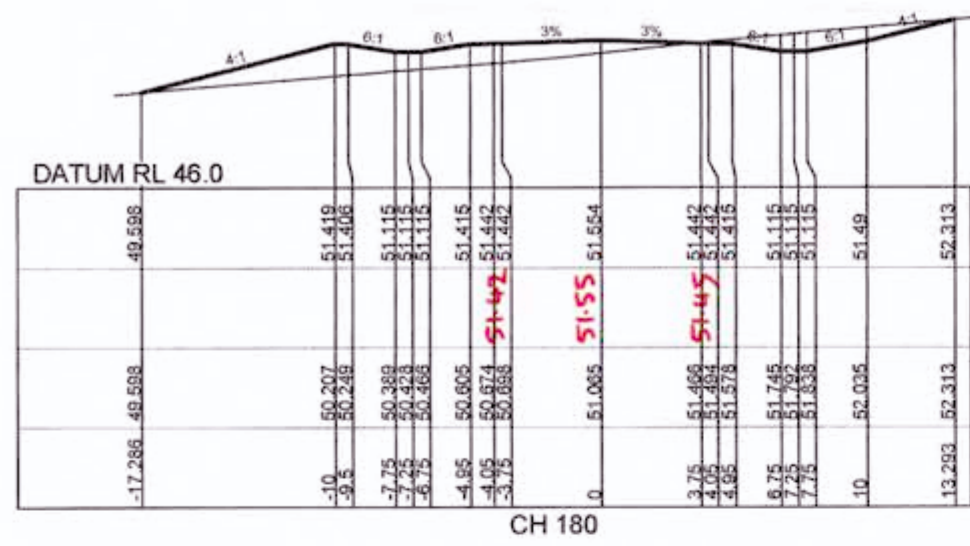


DES	DRN	CKD	APR	DATE	
F	MP	MG	RO	MS	18/07/17
E	MP	NA	MS	MS	13/02/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/08/16

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CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

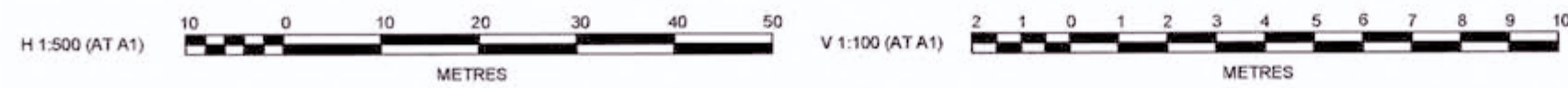
ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 LONGITUDINAL SECTIONS SHEET 8
 PLAN No: 110185BEL/CC20 F
 FILE No: 110185BELCC20
 SHEET SIZE: A1 ORIGINAL



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *PR*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 1680012

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Jerry*
 Accreditation No. JPB0566
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION E
 ROAD BEL01 CROSS SECTIONS AMENDED



ROAD BEL01

REV	DESCRIPTION	MP	MG	RO	MS	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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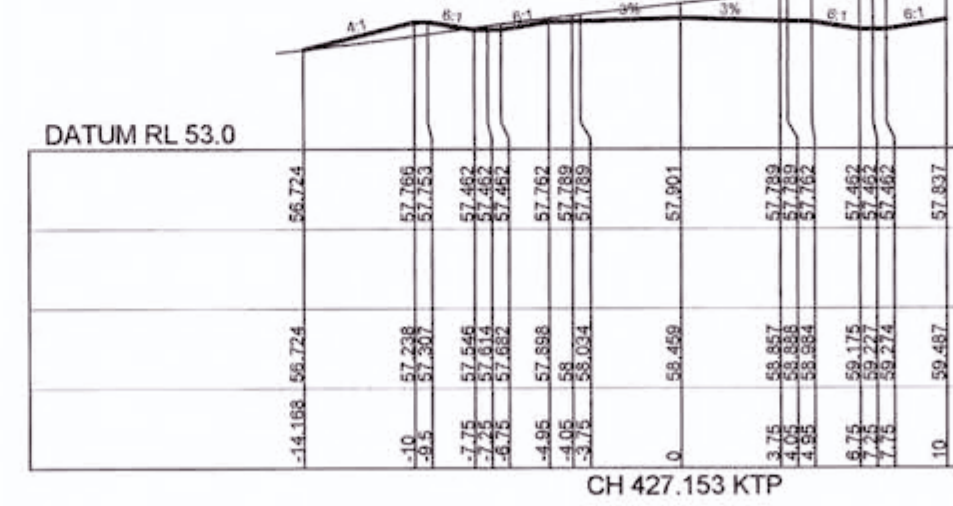
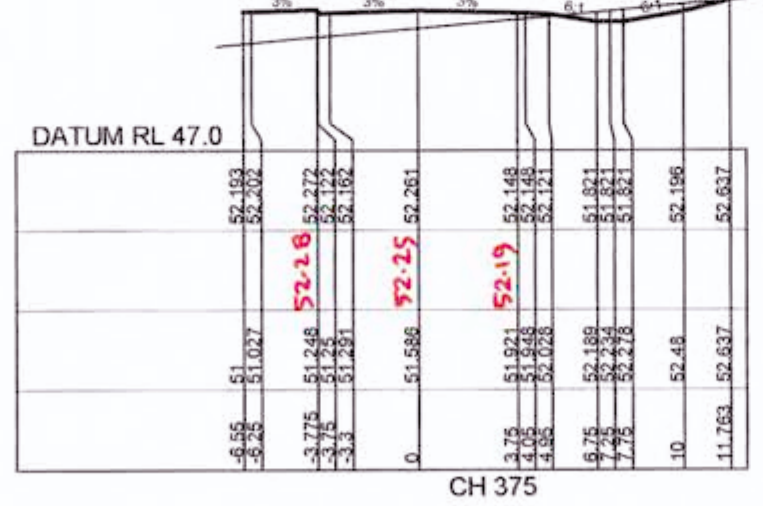
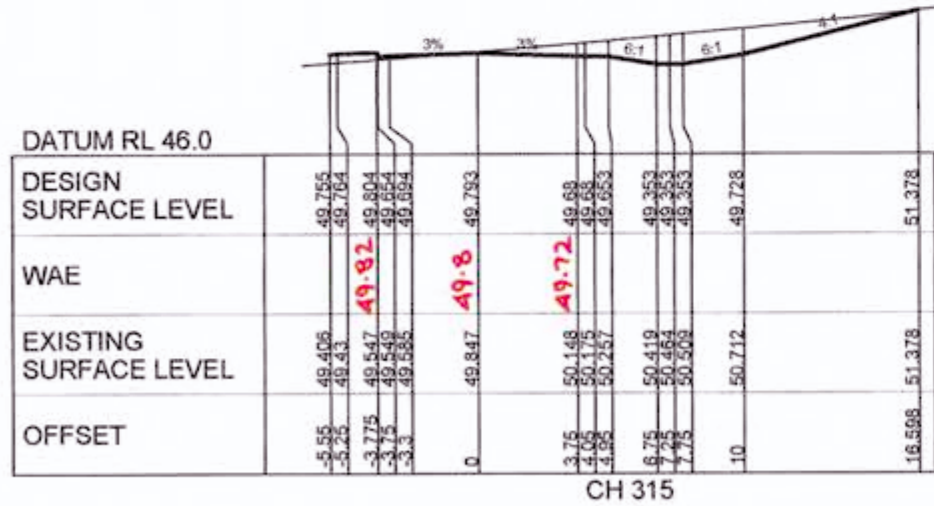
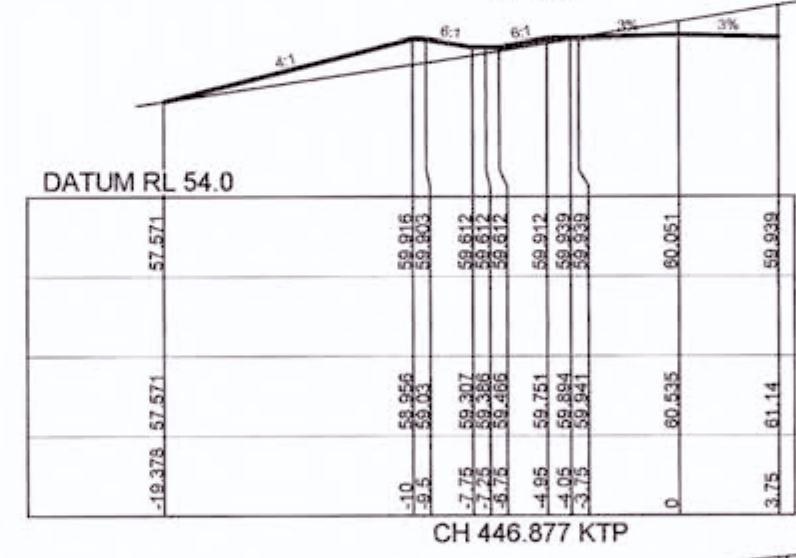
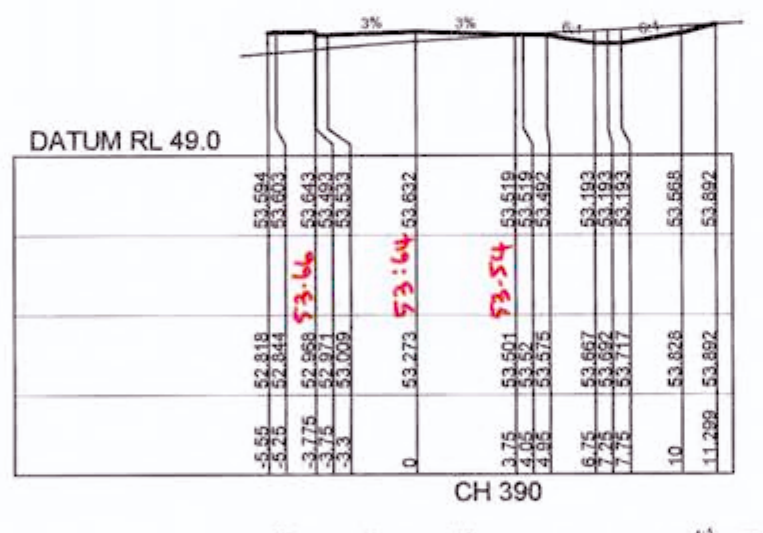
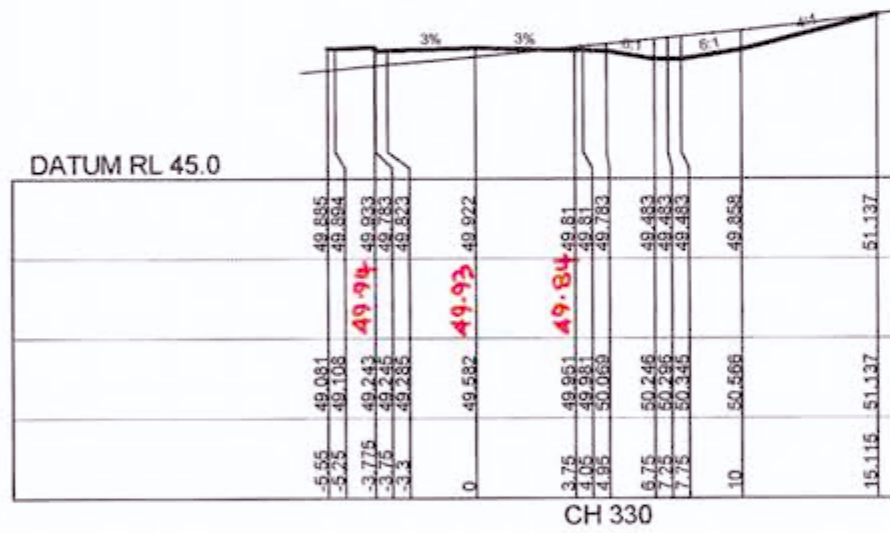
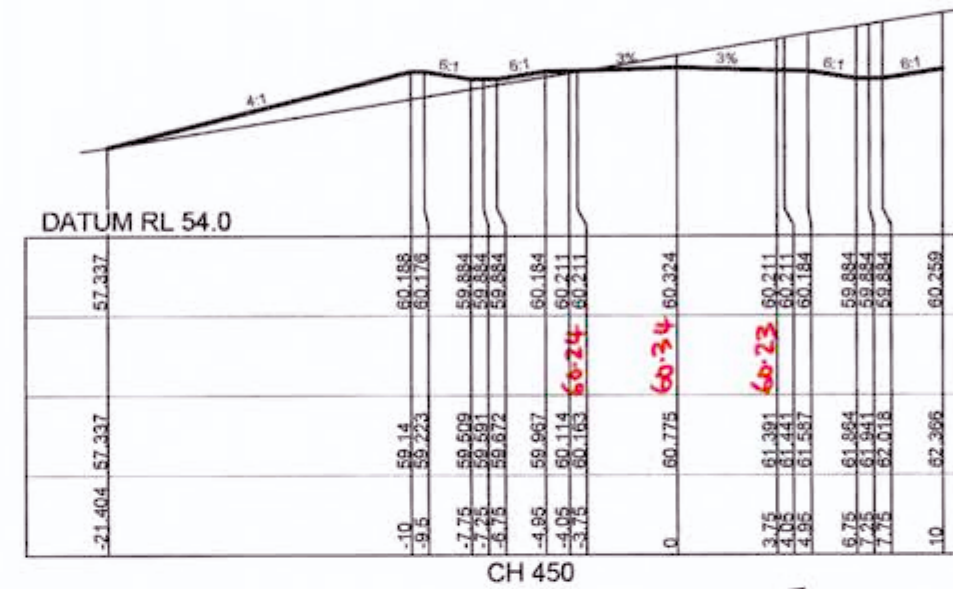
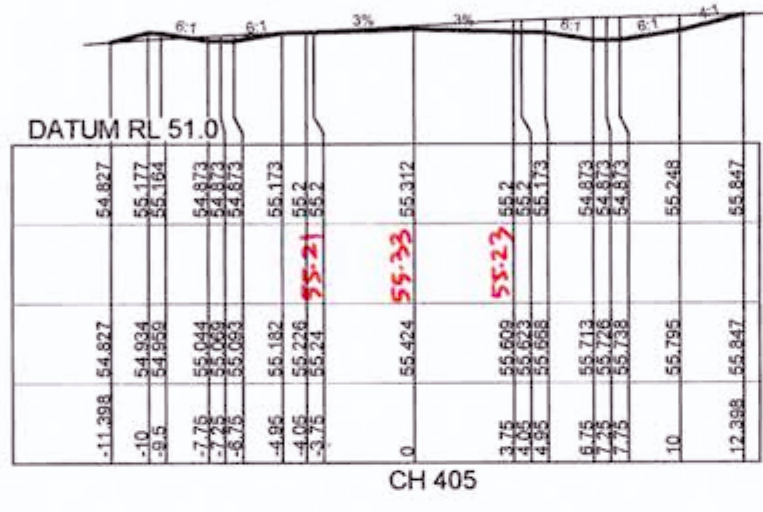
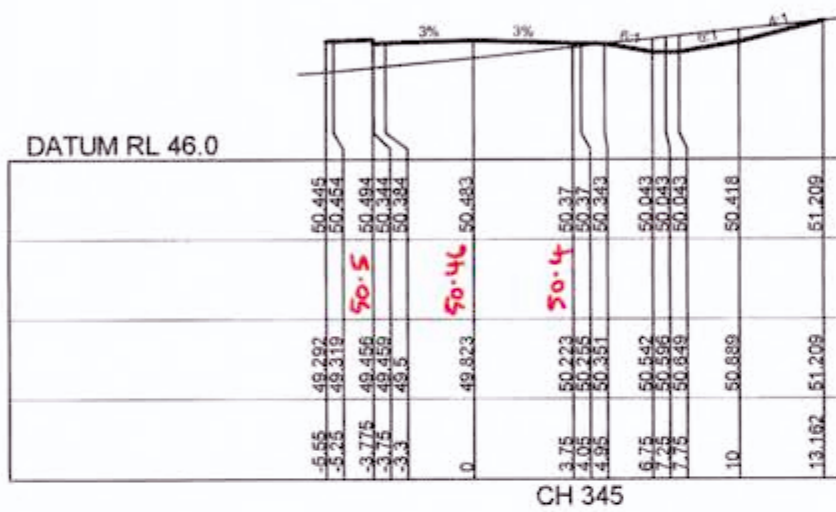
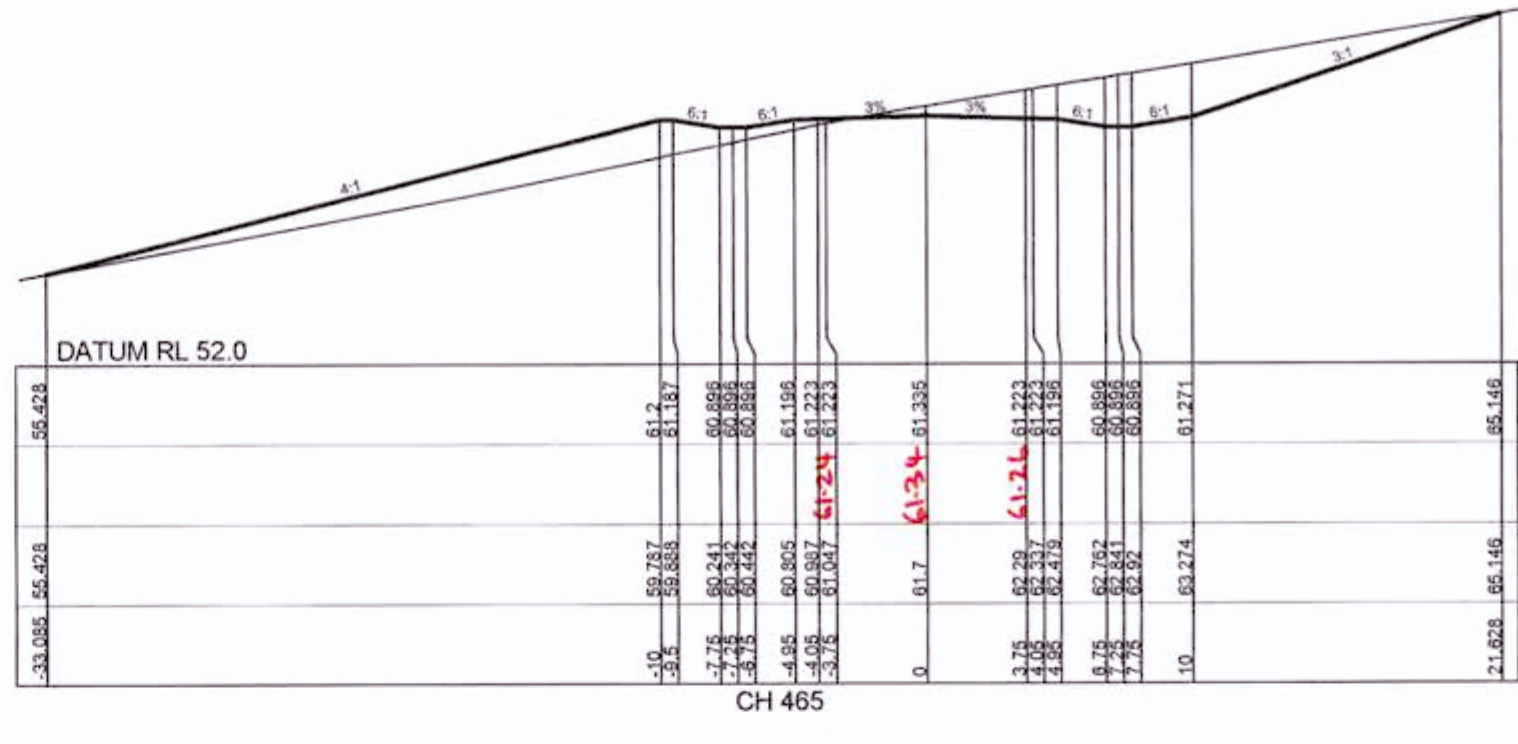
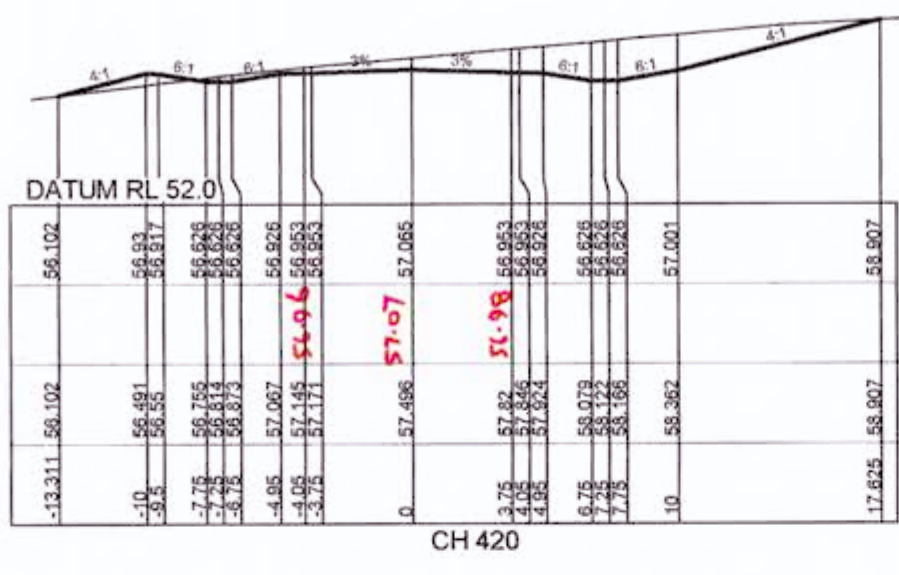
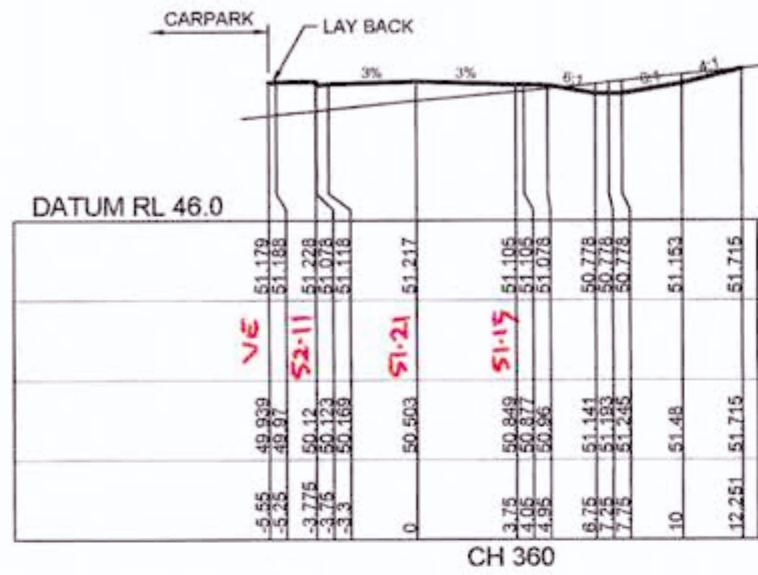
CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
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REDBANK, NORTH RICHMOND
 BELMONT
 ROAD CROSS SECTIONS
 SHEET 2

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FILE No:	110185BELCC22	
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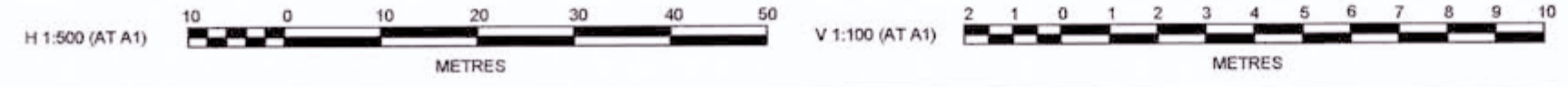
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WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. BPP0565
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION E
 ROAD BEL01 CROSS SECTIONS AMENDED



NO	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL					18/07/17
E	SECTION AMENDED					13/02/17
D	CERTIFIER COMMENTS					27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL					29/07/16
B	CLIENT COMMENTS					13/07/16
A	ADVANCED COPY					21/06/16

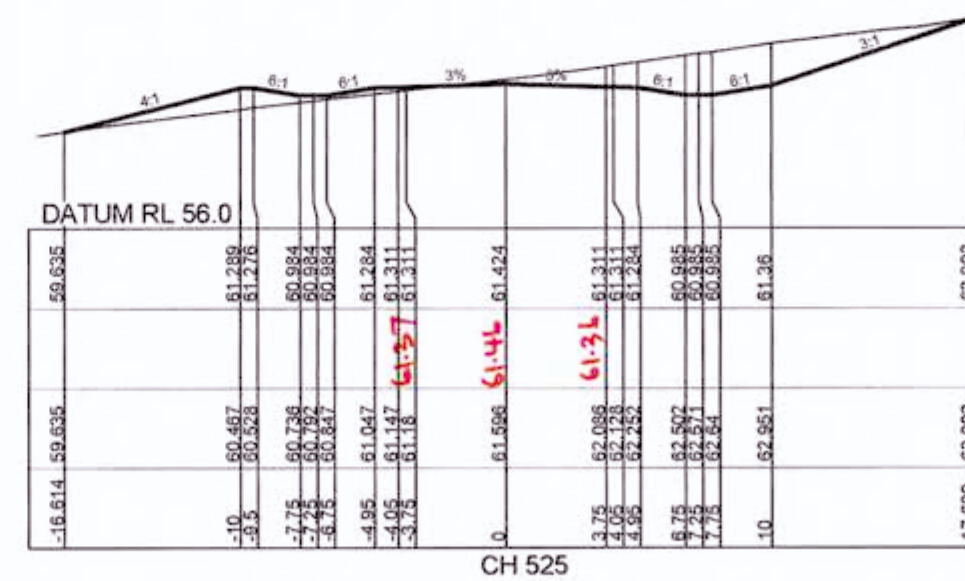
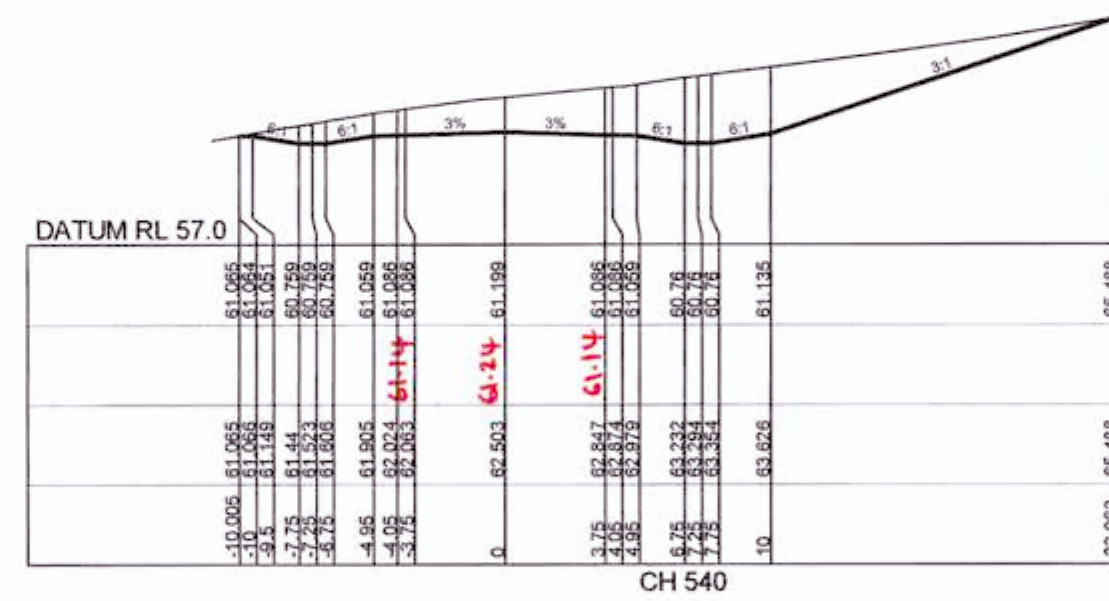
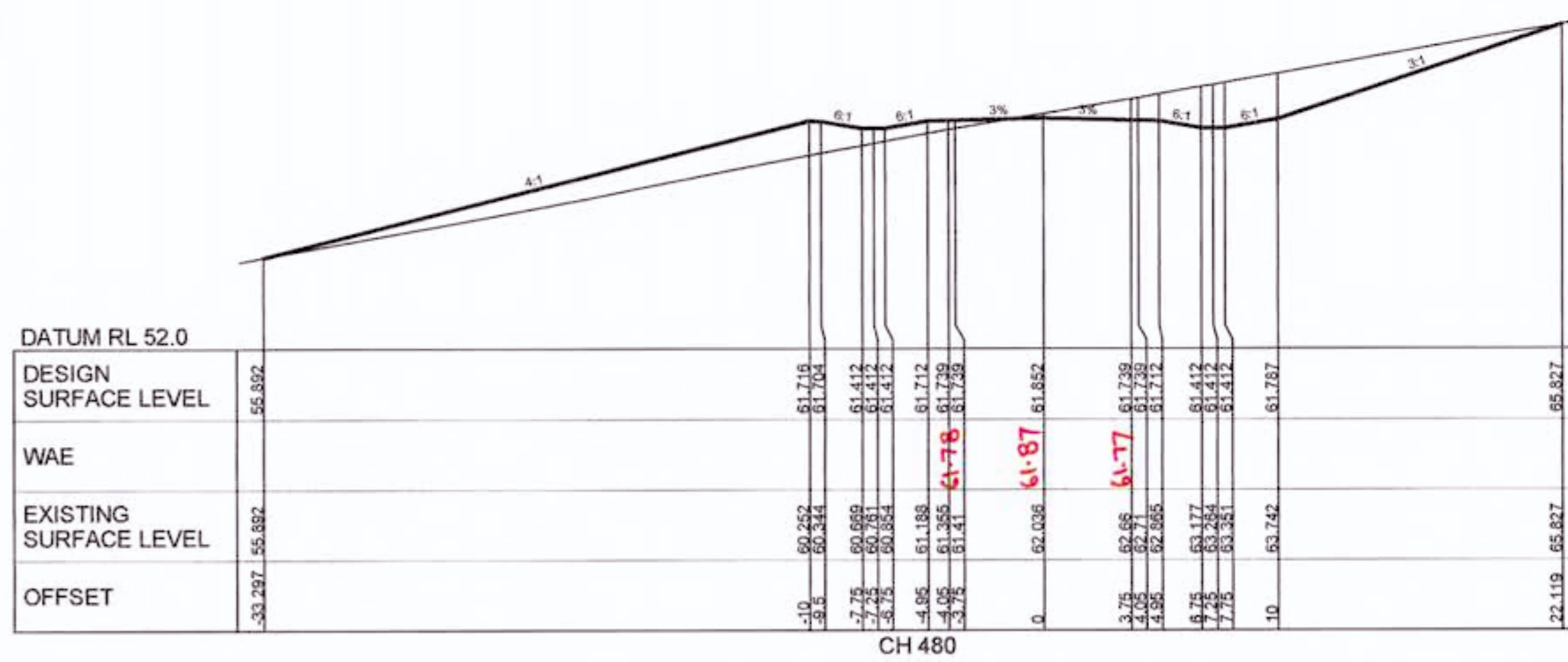
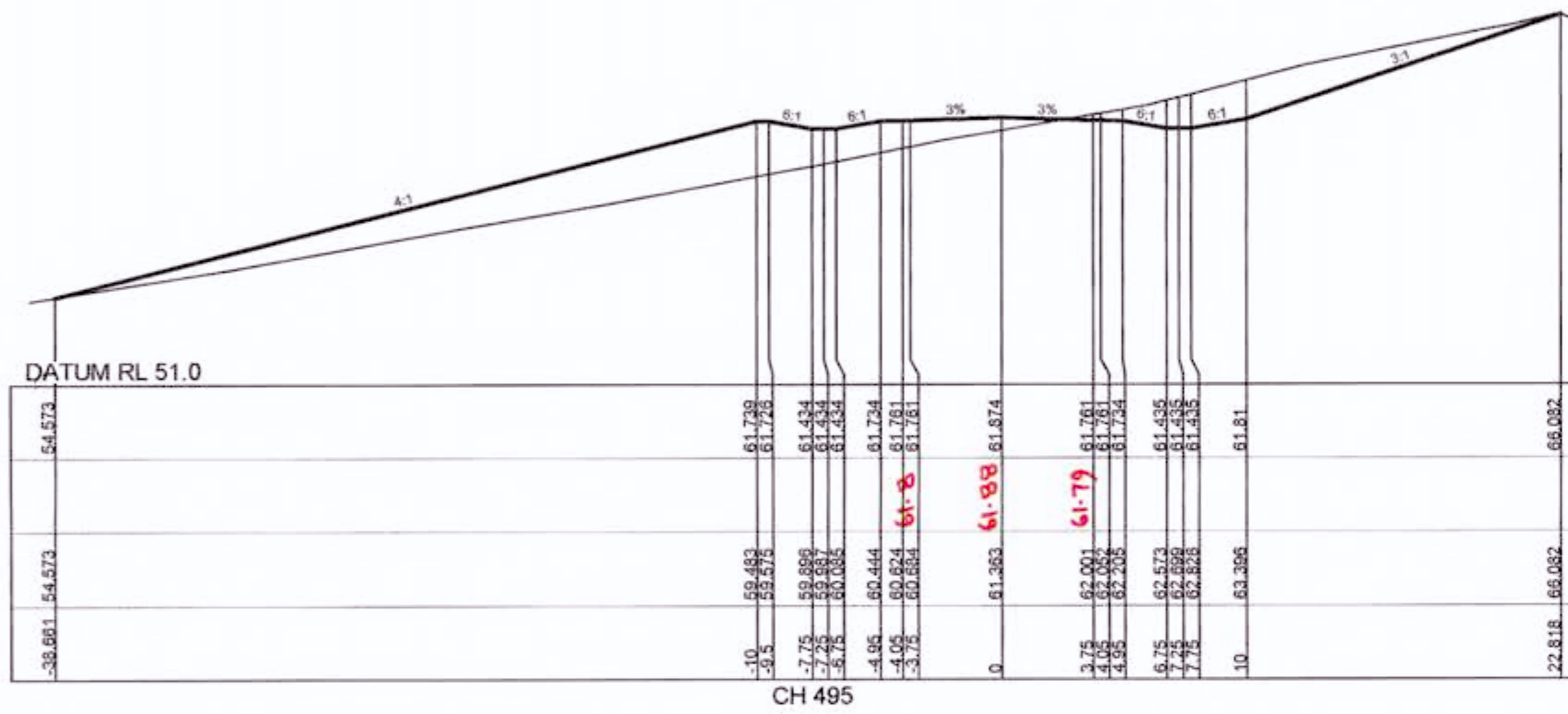
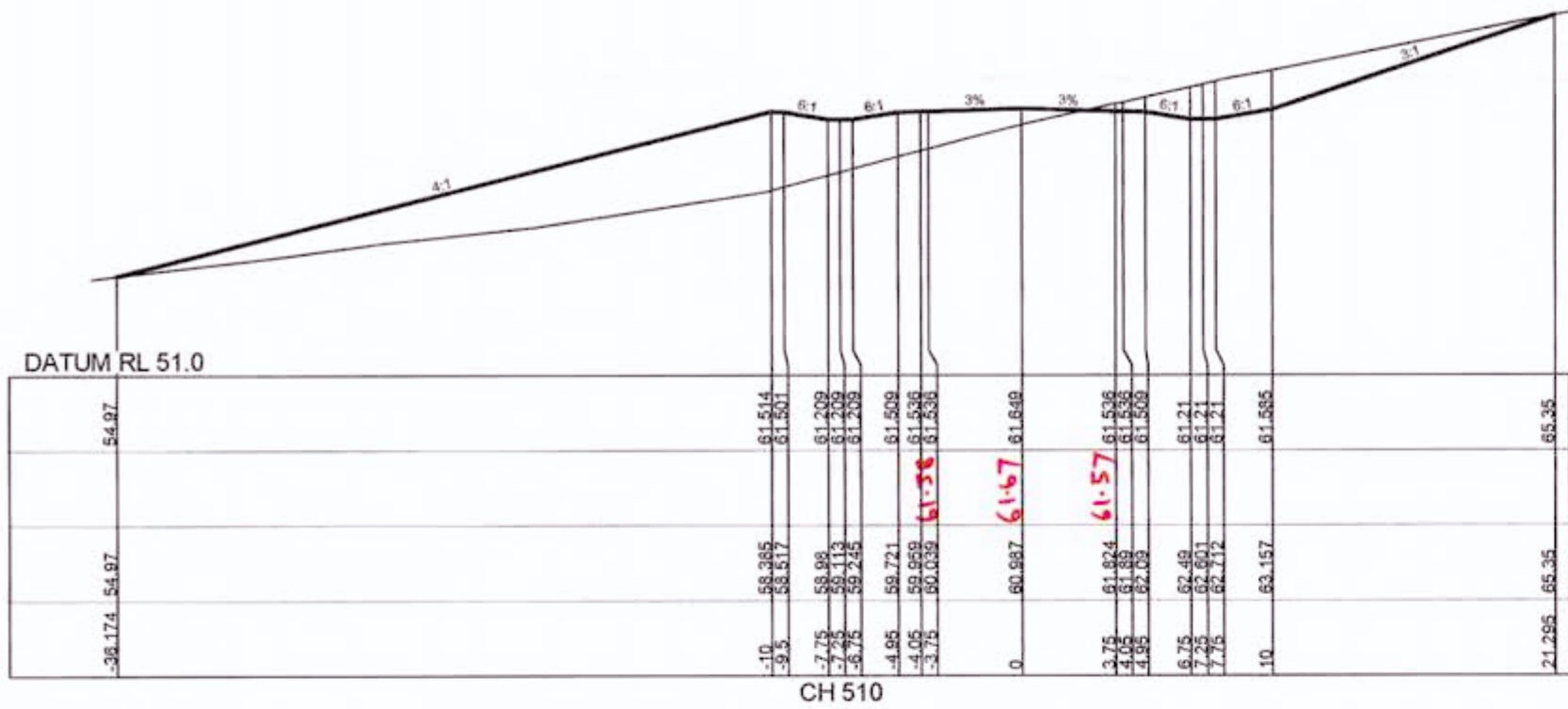
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
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 ROAD CROSS SECTIONS SHEET 3

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FILE No: 110185BELCC23	
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 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *James*
 Accreditation No. BPB0565
 These plans/specifications form part of the certificate issued 31 July 2017

ROAD BEL01

REVISION F
 ROAD BEL01 CROSS SECTIONS AMENDED



NO	REVISION	DATE	BY	CHECKED	APPROVED
F	ISSUE FOR CONSTRUCTION APPROVAL	18/07/17	MP	MG	RO
E	SECTION AMENDED	13/02/17	MP	NA	MS
D	CERTIFIER COMMENTS	27/09/16	MP	MG	RO
C	ISSUED FOR CONSTRUCTION APPROVAL	29/07/16	MP	MG	RO
B	CLIENT COMMENTS	13/07/16	MP	MG	MS
A	ADVANCED COPY	21/06/16	MP	MG	RO
	AMENDMENT		DES	DRN	CKD

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CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 4

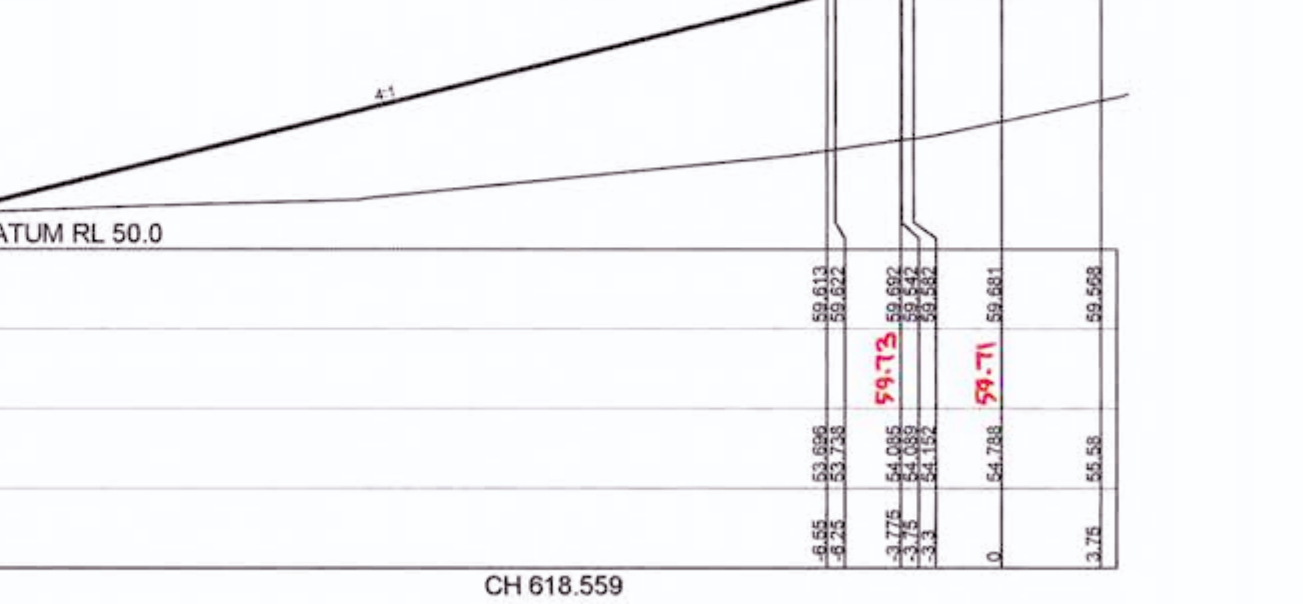
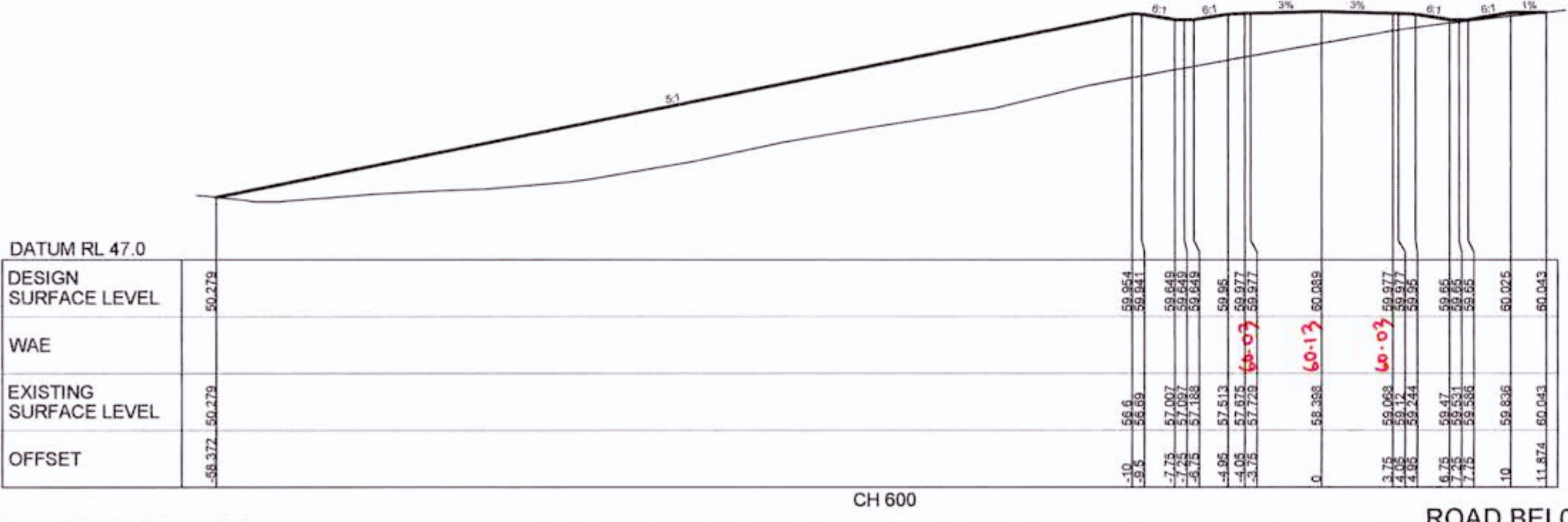
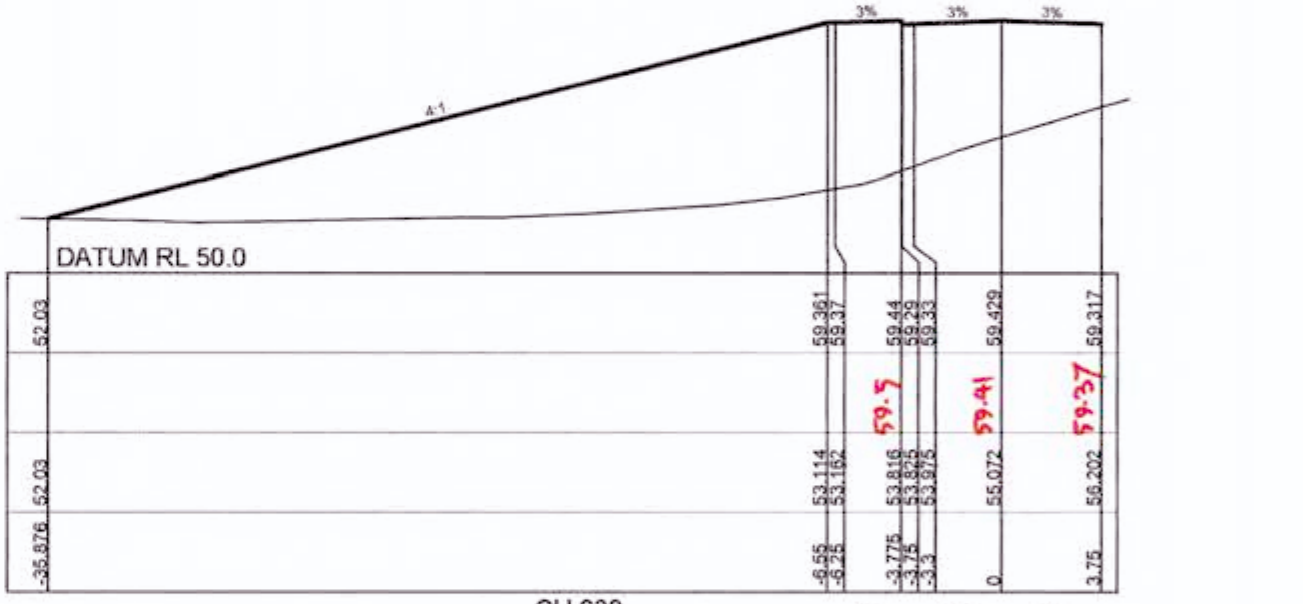
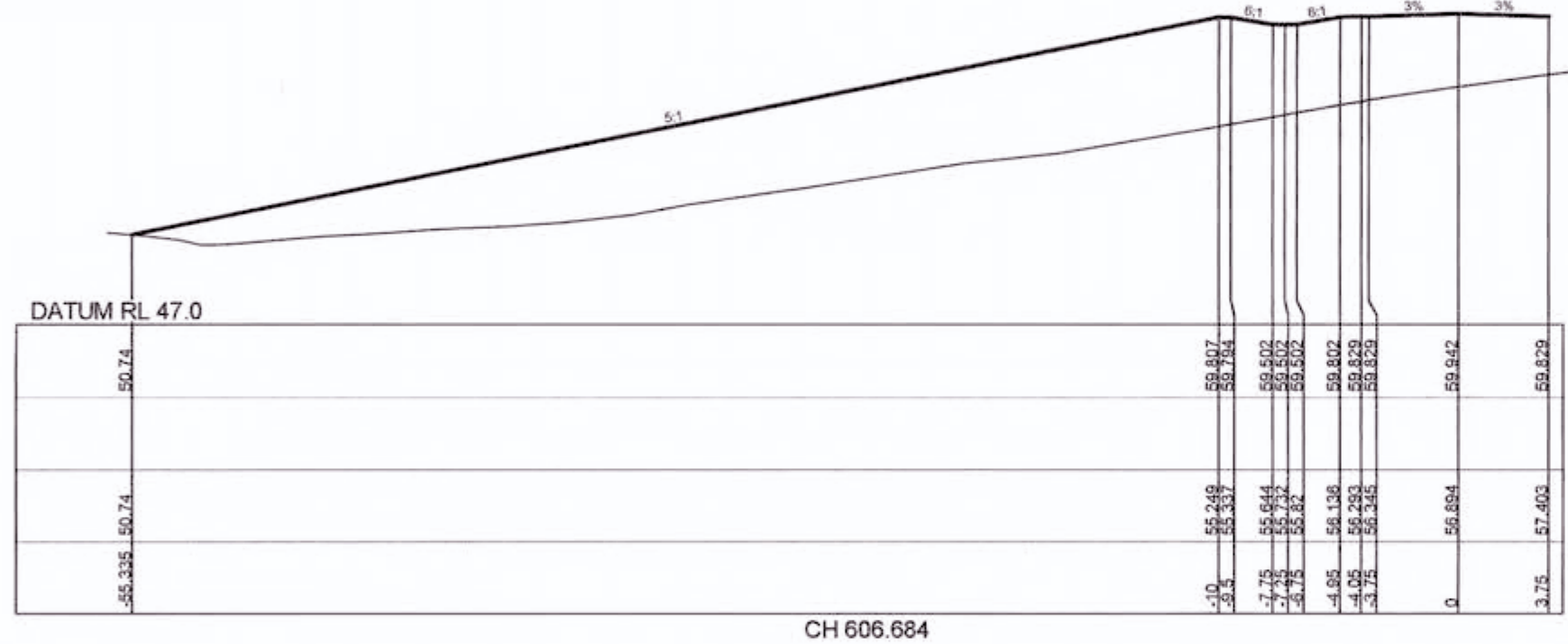
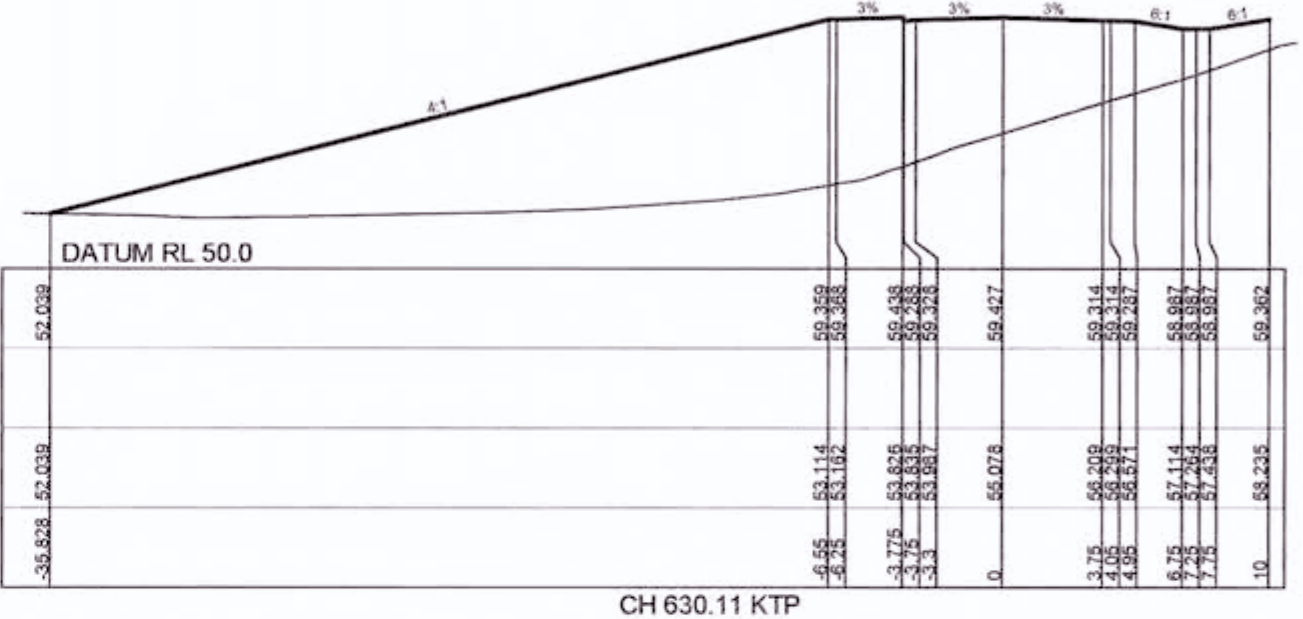
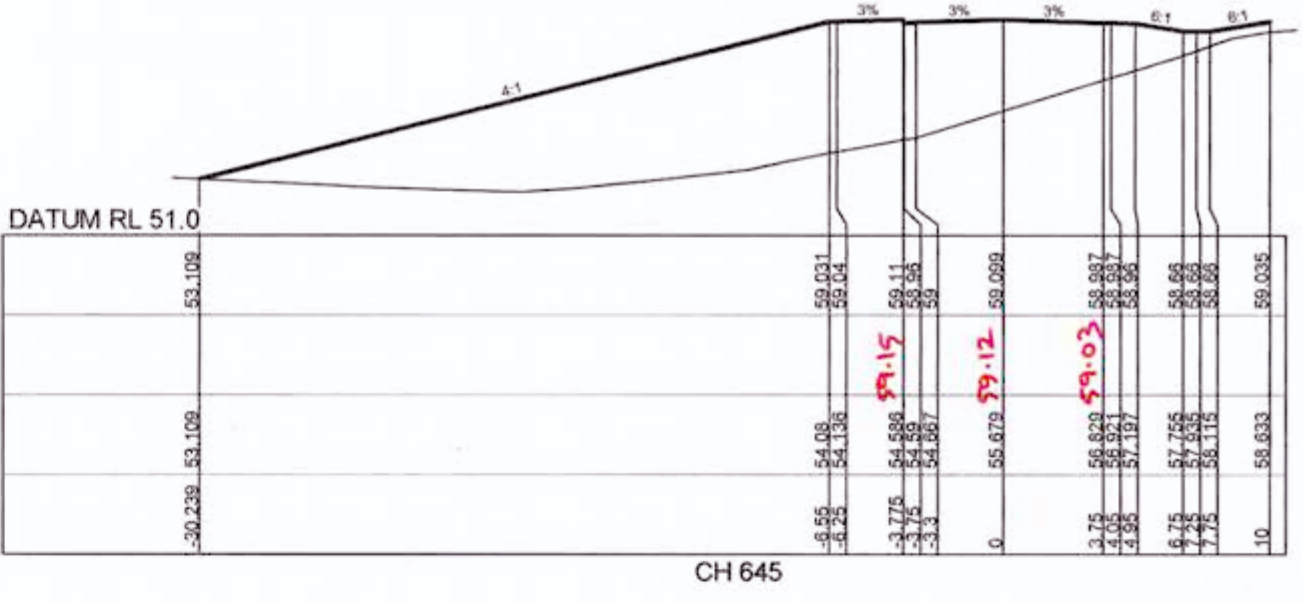
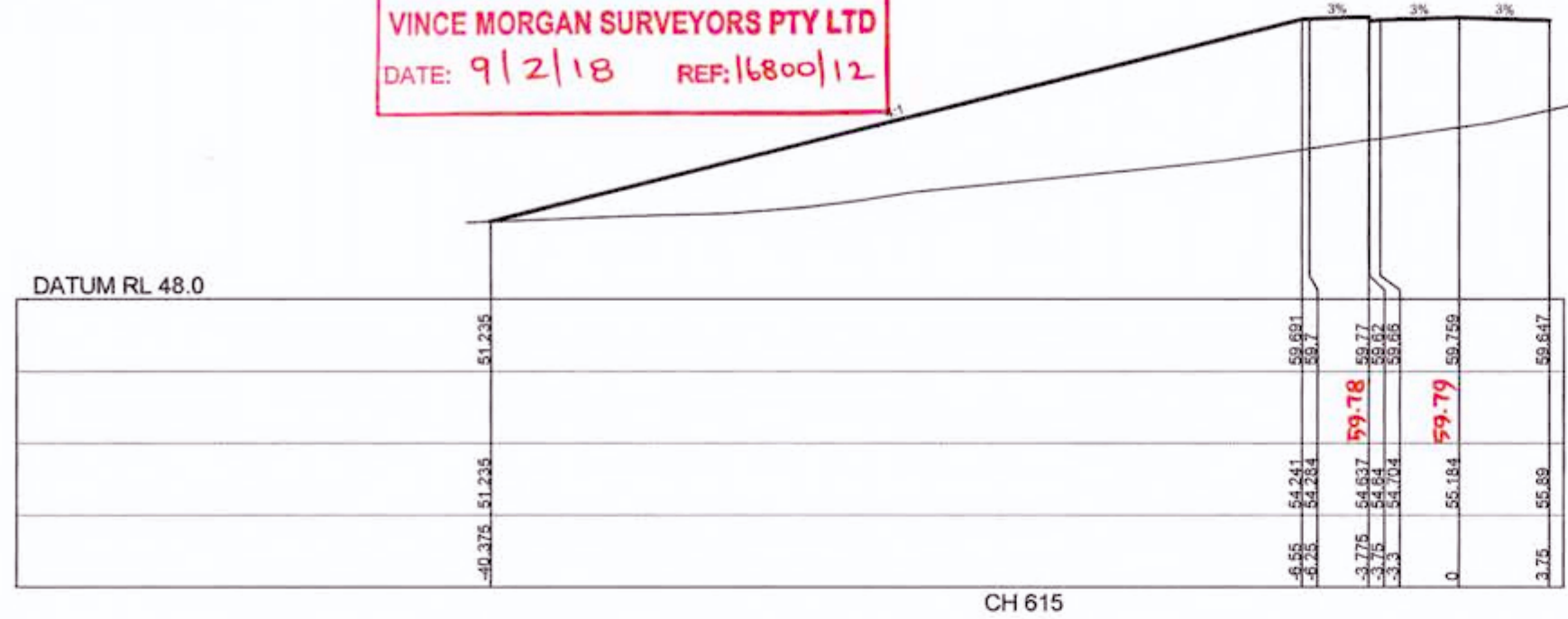
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CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. BPB0565
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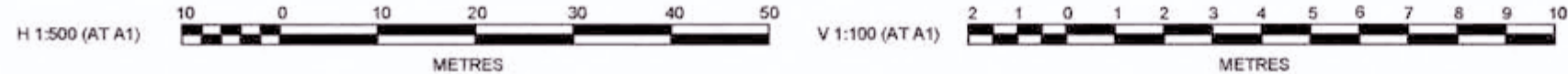
WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



DATUM RL 47.0	
DESIGN SURFACE LEVEL	50.279
WAE	
EXISTING SURFACE LEVEL	50.279
OFFSET	58.372

REVISION F
 ROAD BEL01 CROSS SECTIONS AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
F	MP	MG	RO	MS	18/07/17
E	MP	MG	RO	MS	13/02/17
D	MP	MG	RO	RO	27/09/16
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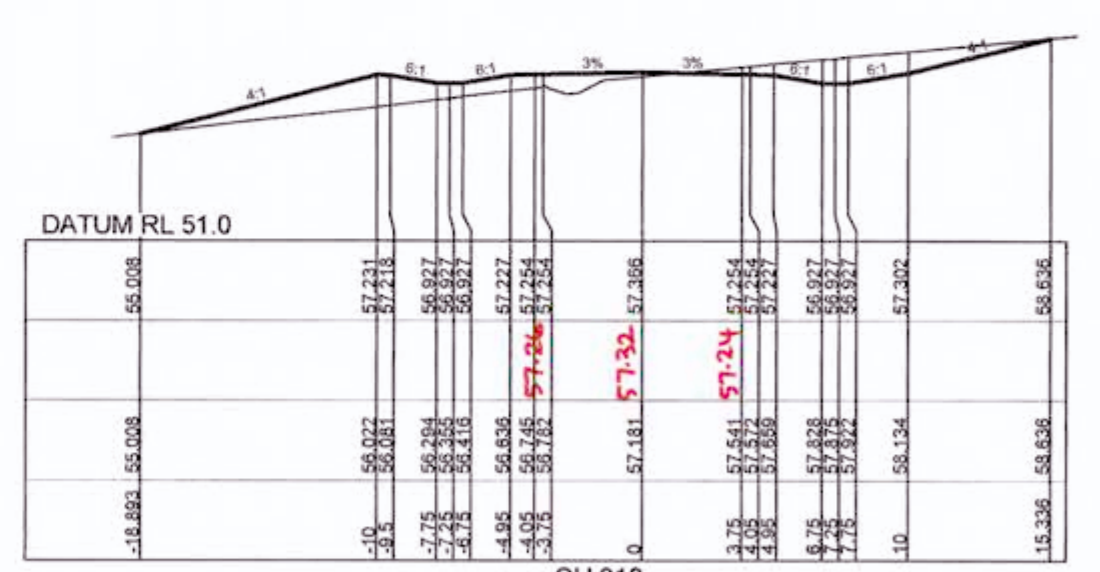
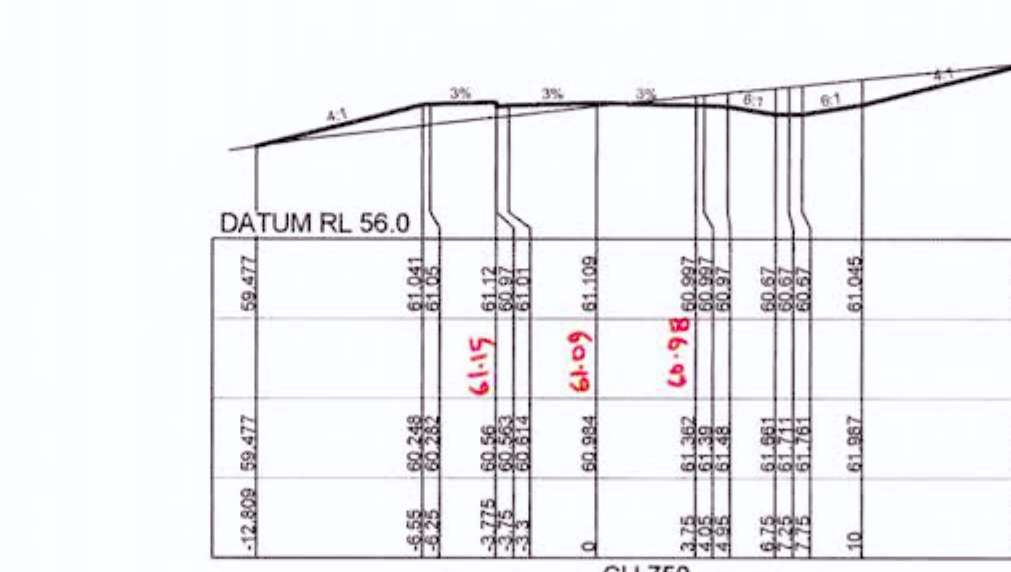
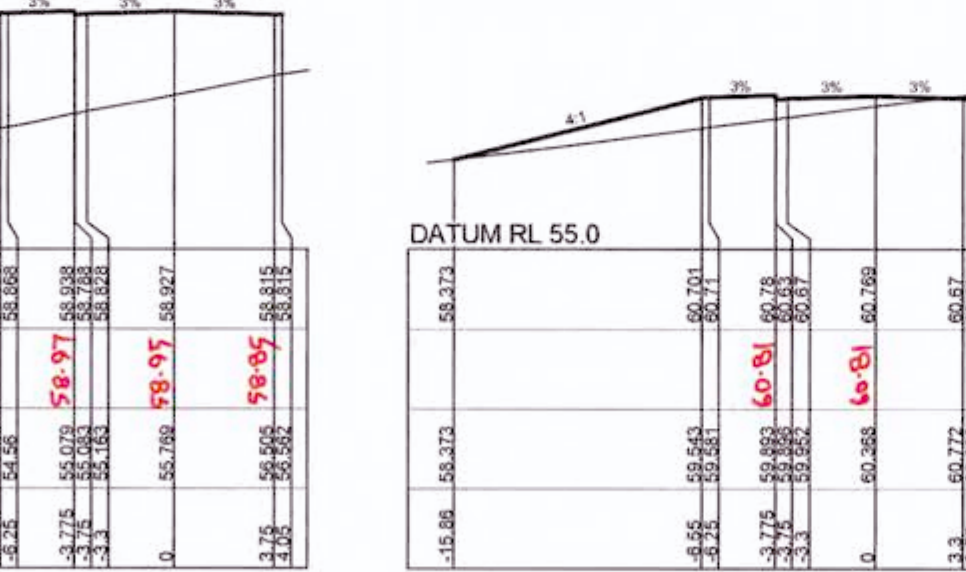
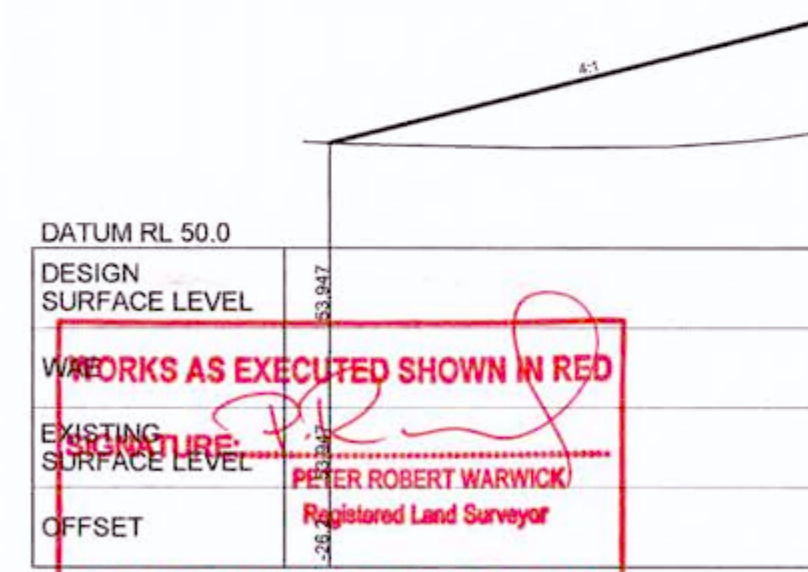
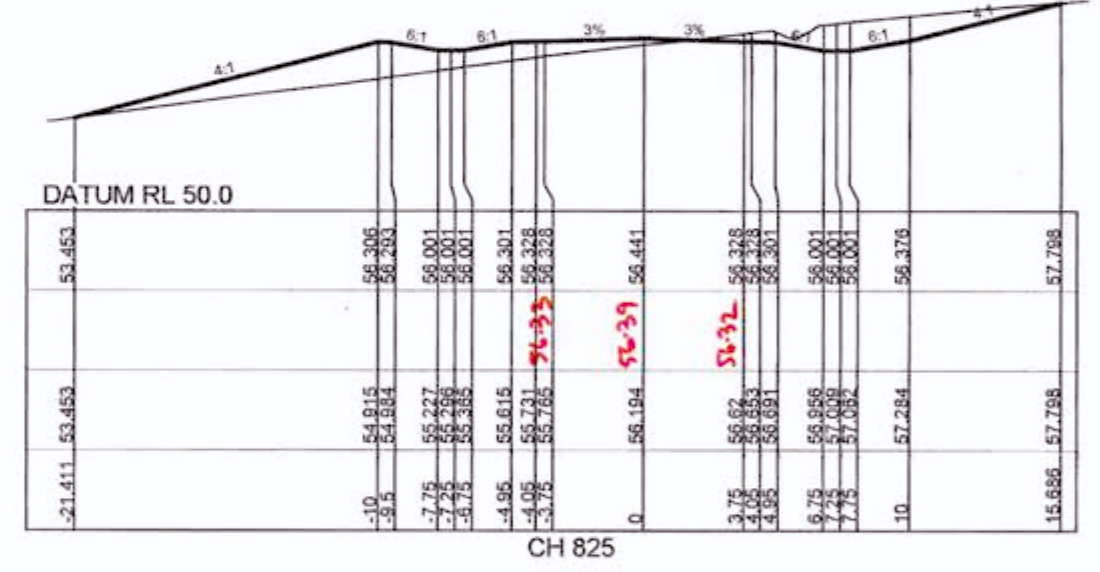
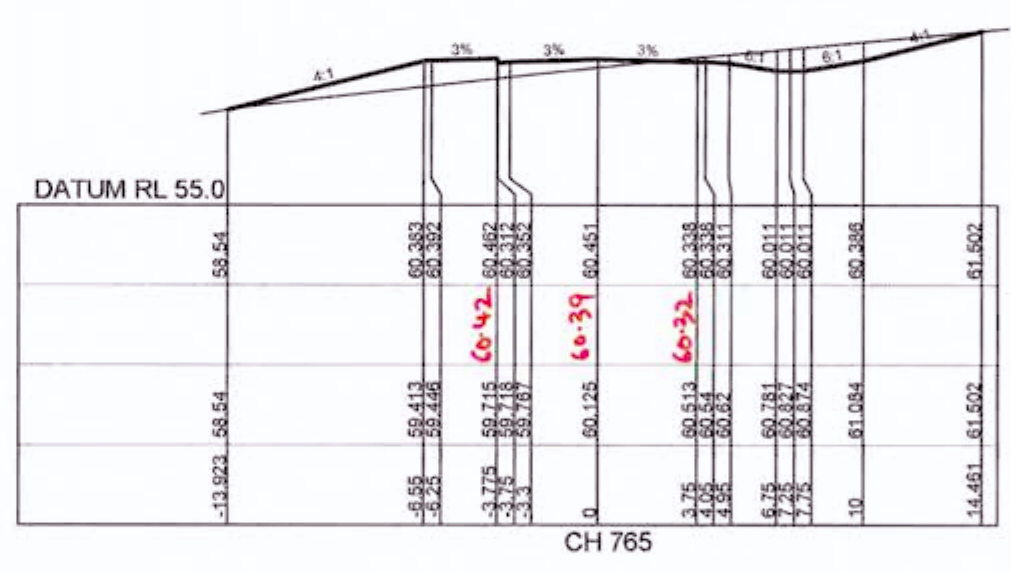
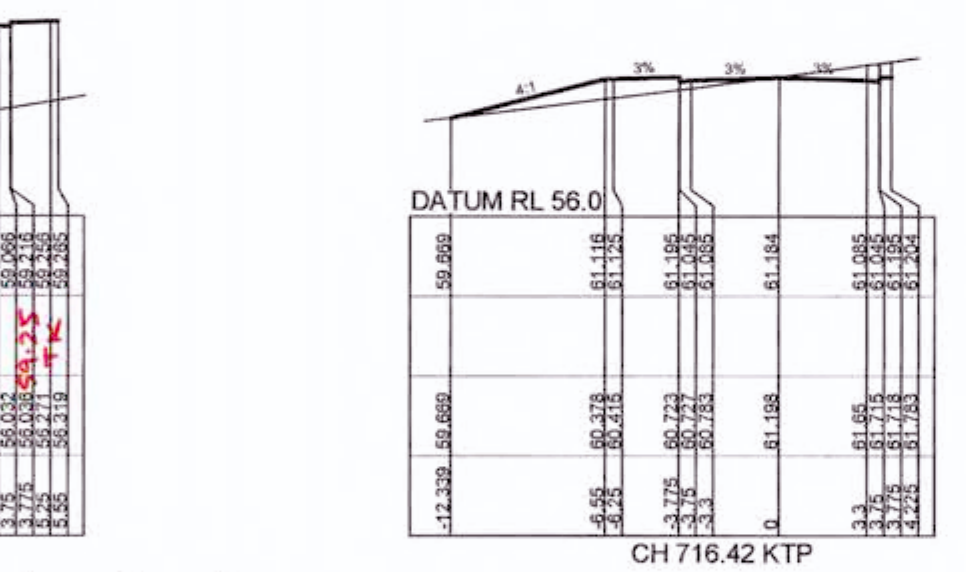
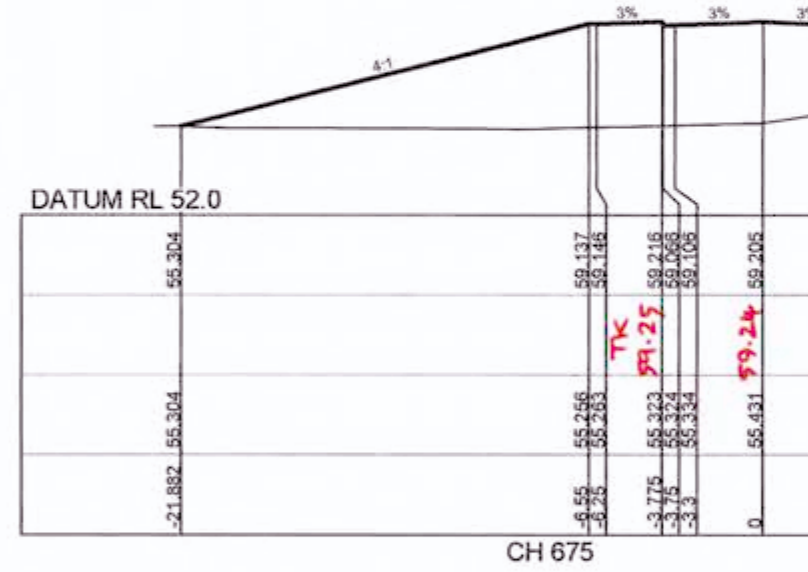
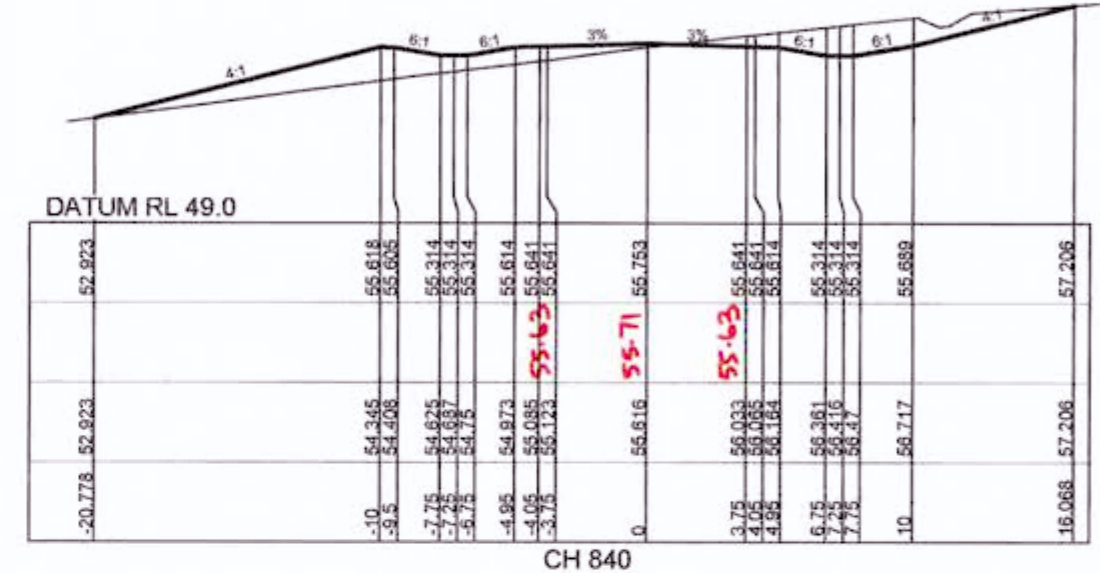
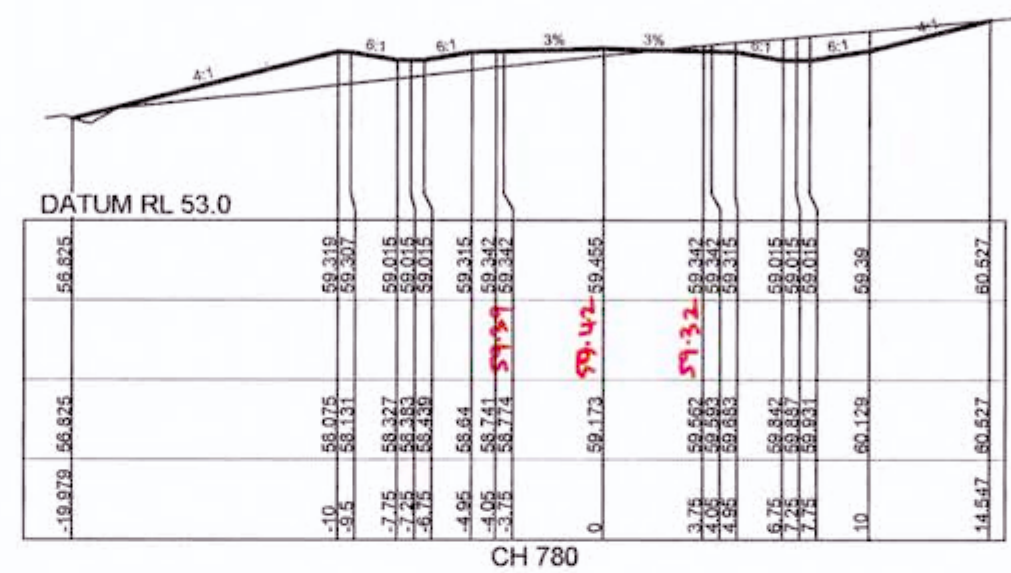
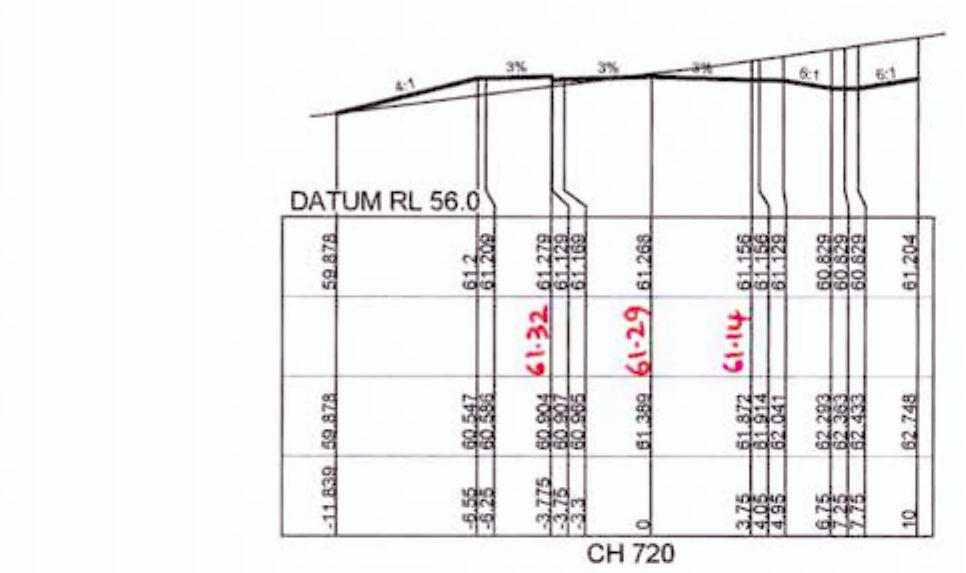
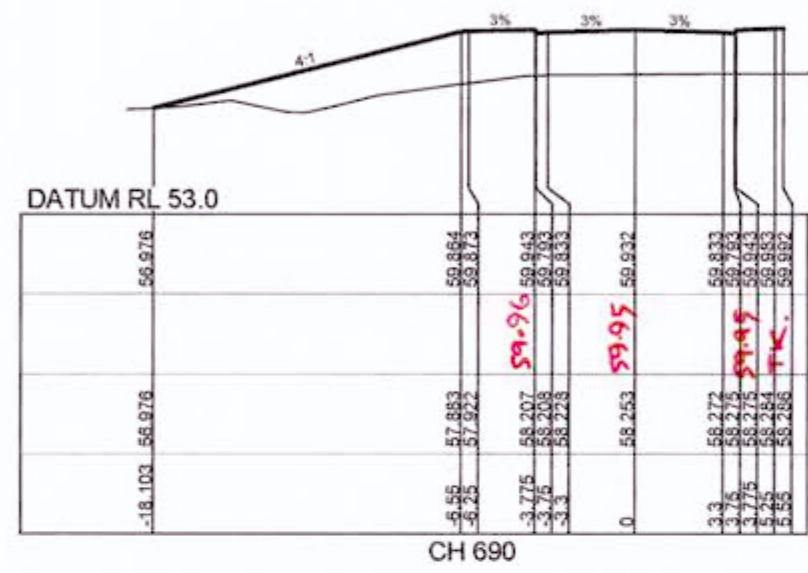
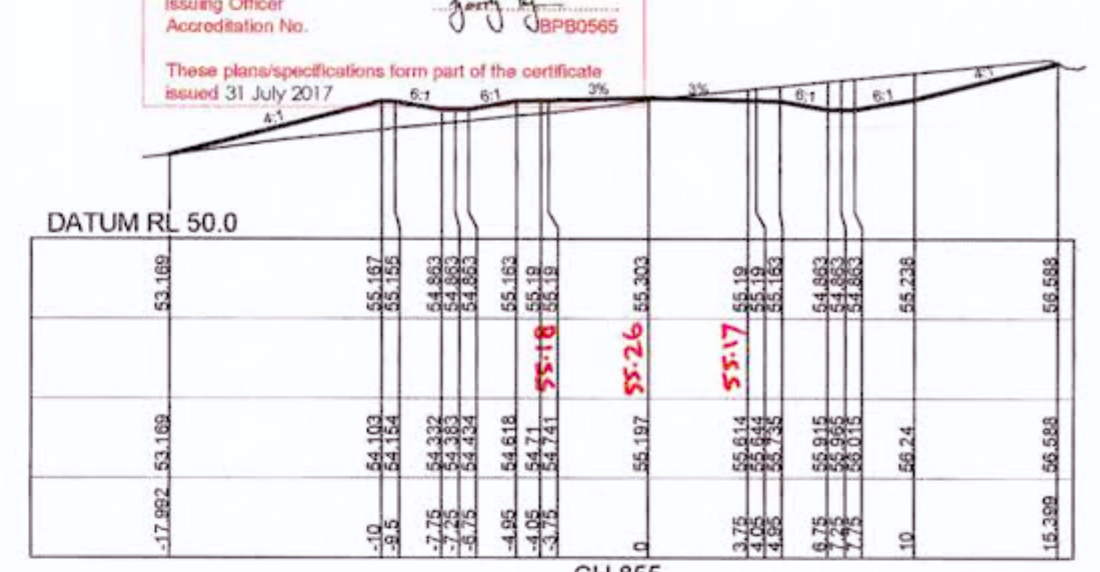
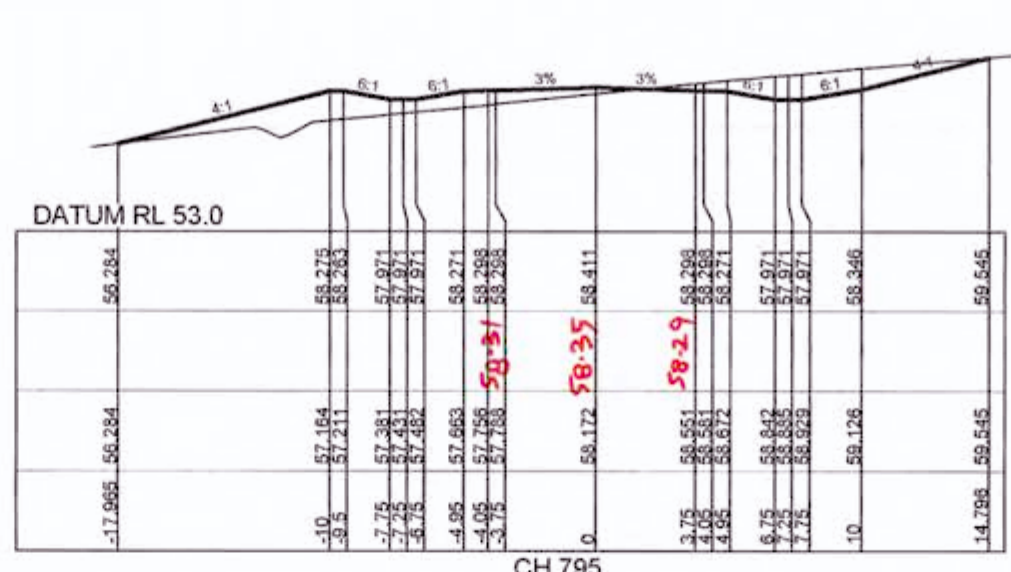
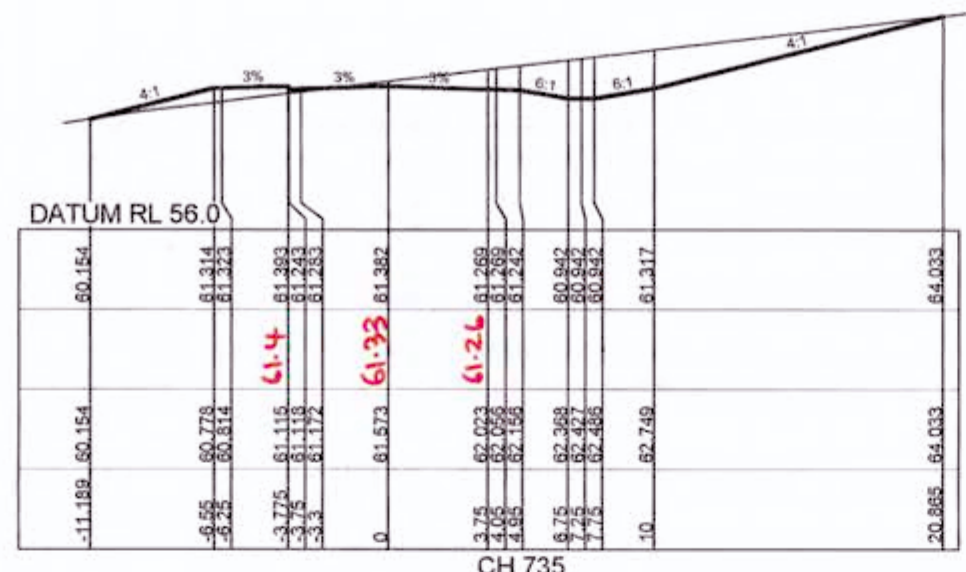
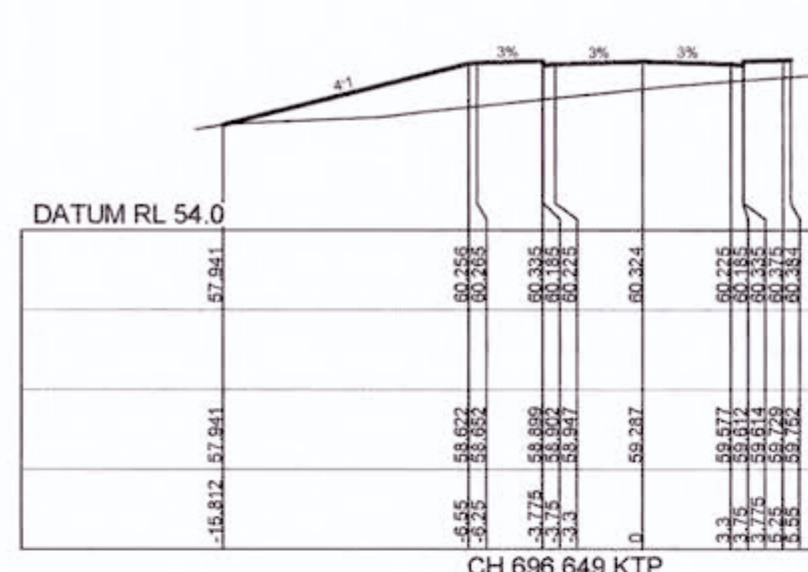
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 6
 PLAN No: 110185BEL/CC26
 FILE No: 110185BELCC26
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:05:59 PM File Name: \110185 - Redbank North Richmond Residential Precincts01 - Description\CD\CC\BELMONT\110185BELCC26.dwg

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. JPB0595
 These plans/specifications form part of the certificate issued 31 July 2017



DESIGN SURFACE LEVEL 53.947
 WORKS AS EXECUTED SHOWN IN RED
 EXISTING SURFACE LEVEL [Signature]
 OFFSET [Signature]
VINCE MORGAN SURVEYORS PTY LTD
 DATE 9/2/18 REF: 16800/12
 REGISTERED LAND SURVEYOR

REVISIONS

• ROAD BEL01 CROSS SECTIONS AMENDED



ROAD BEL01

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwvp@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

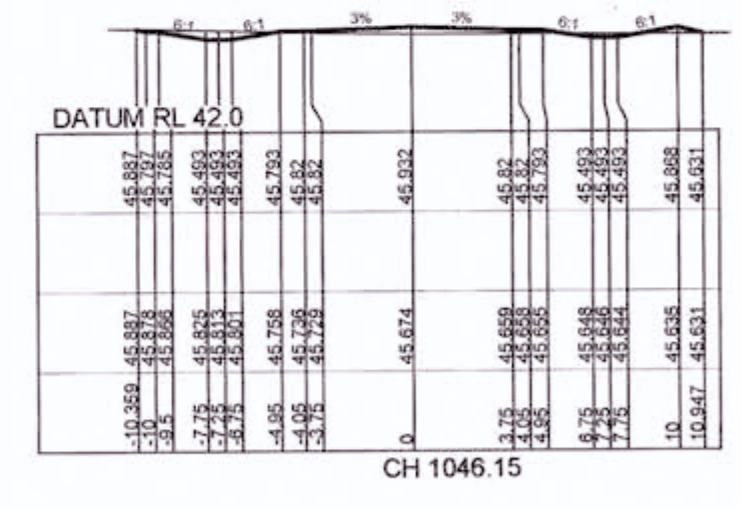
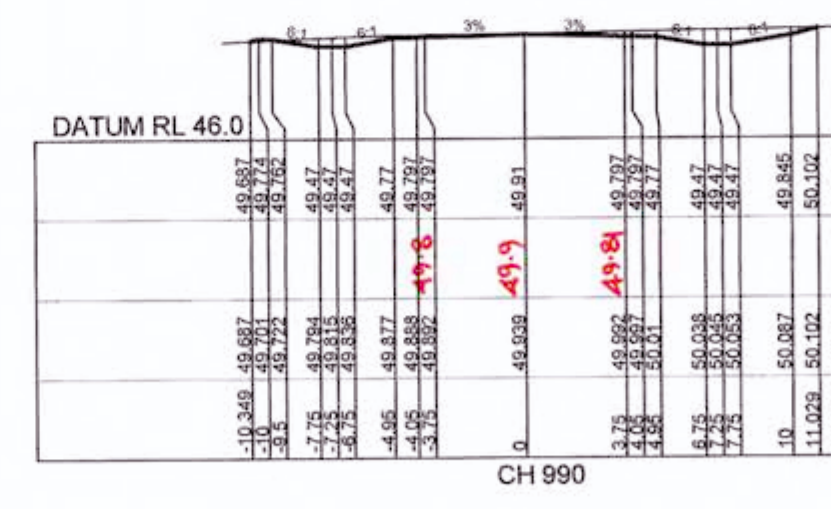
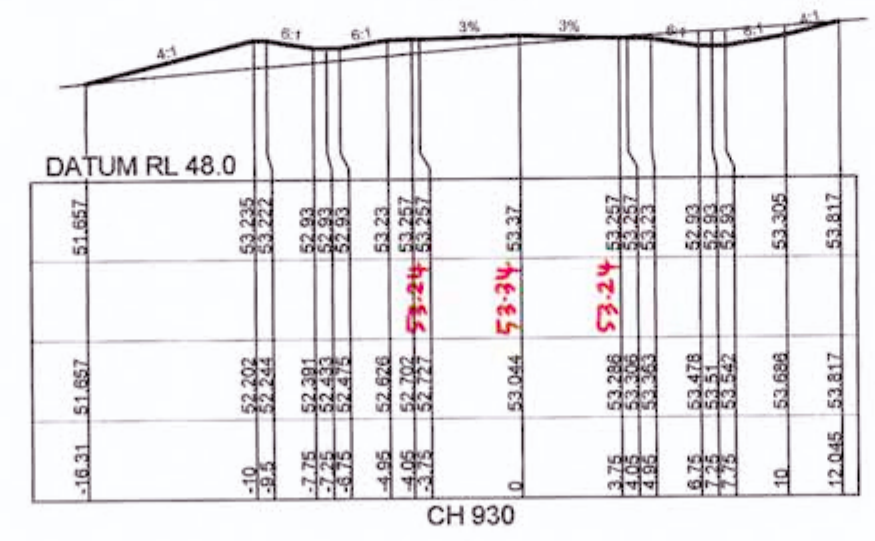
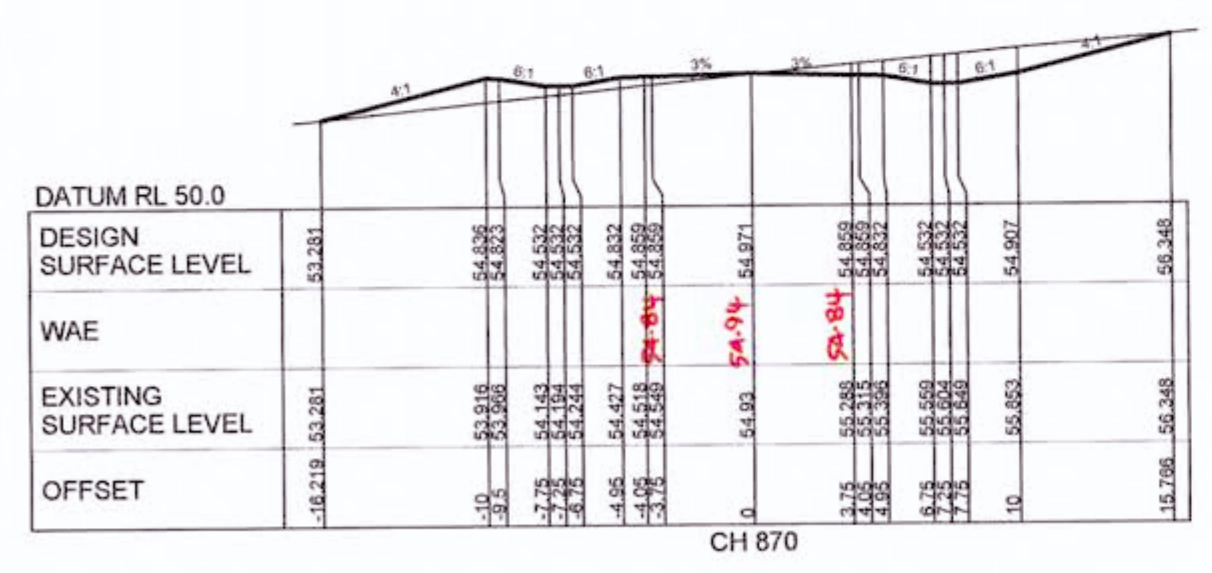
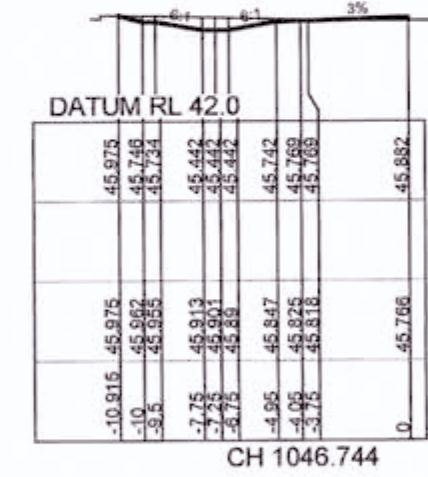
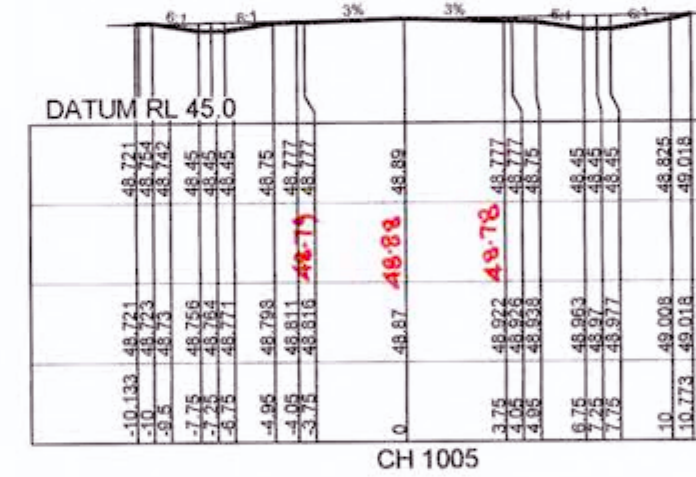
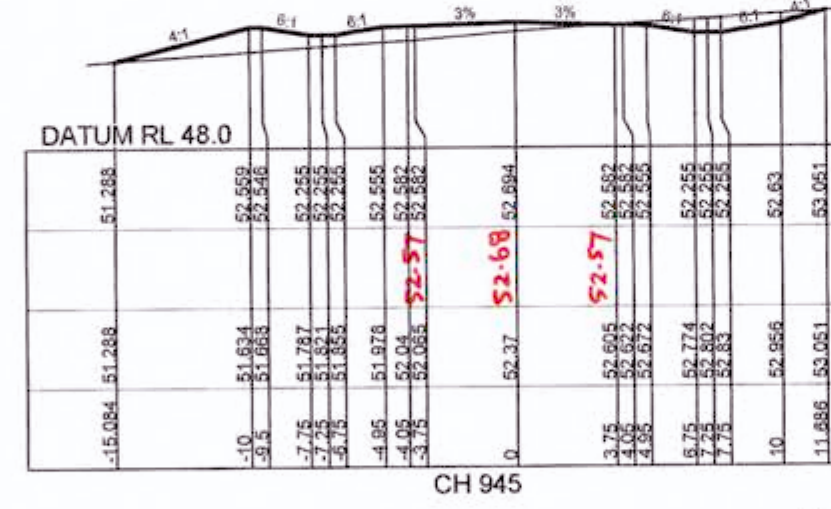
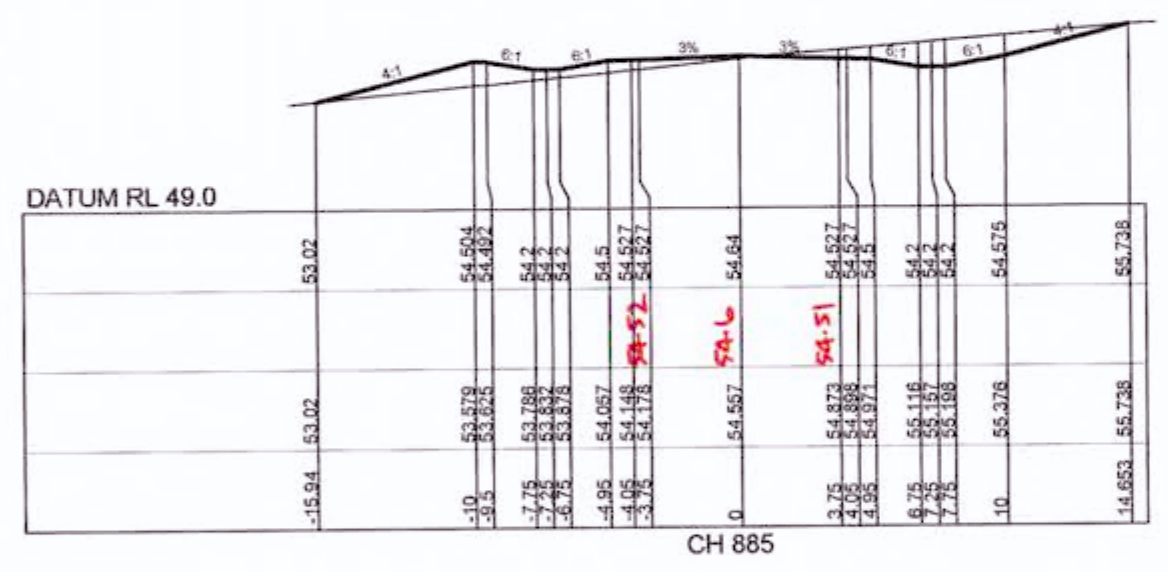
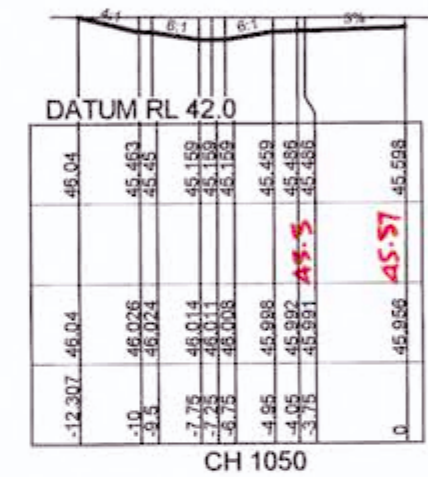
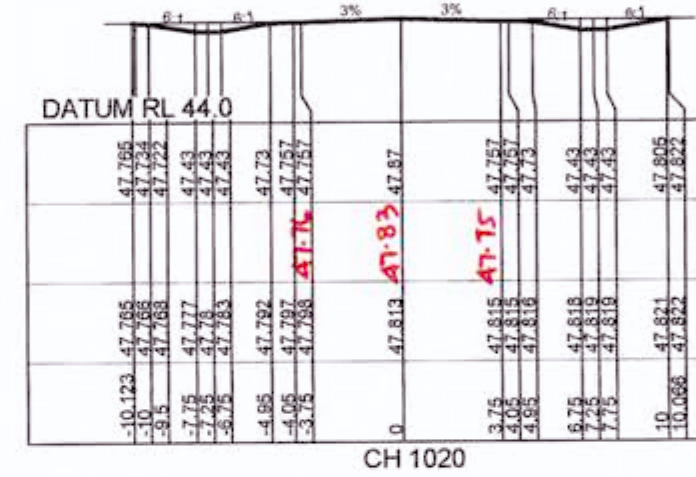
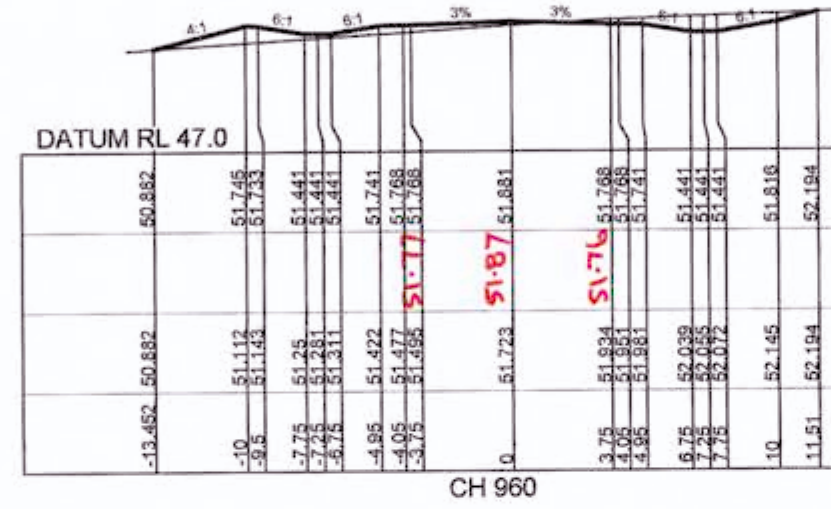
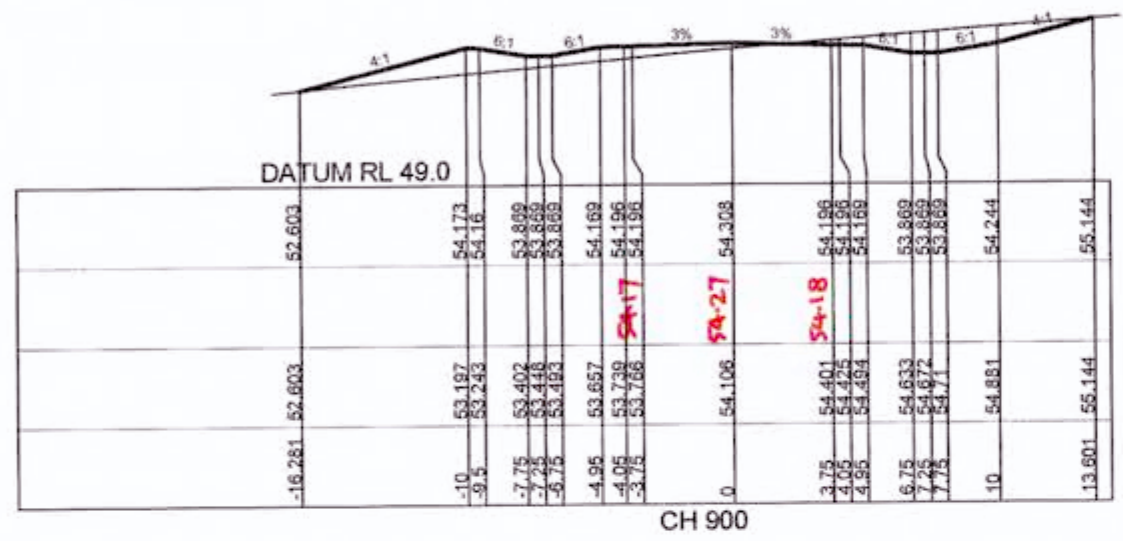
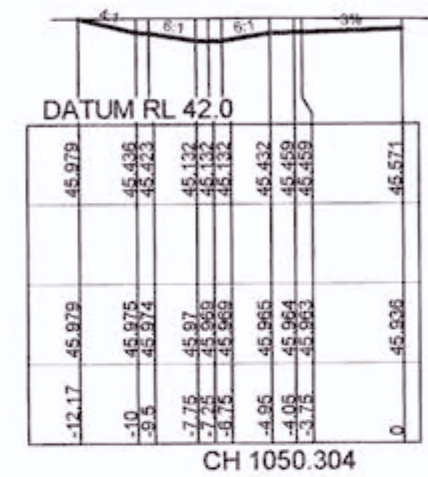
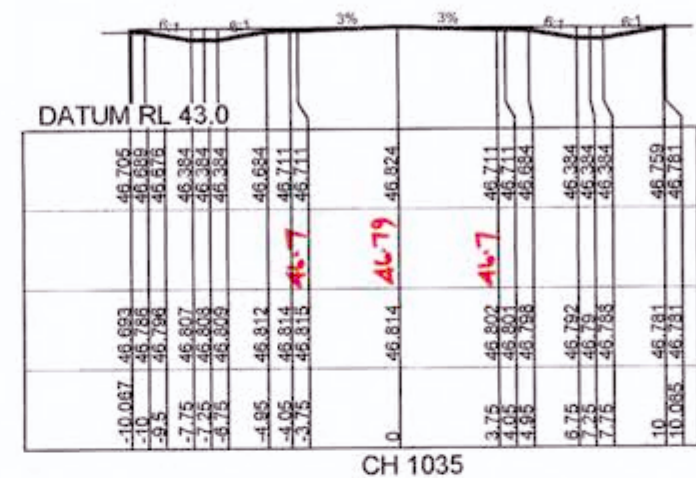
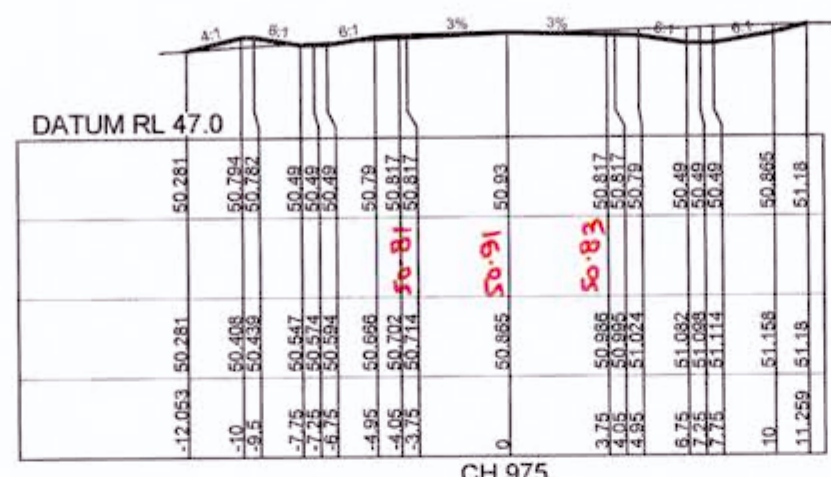
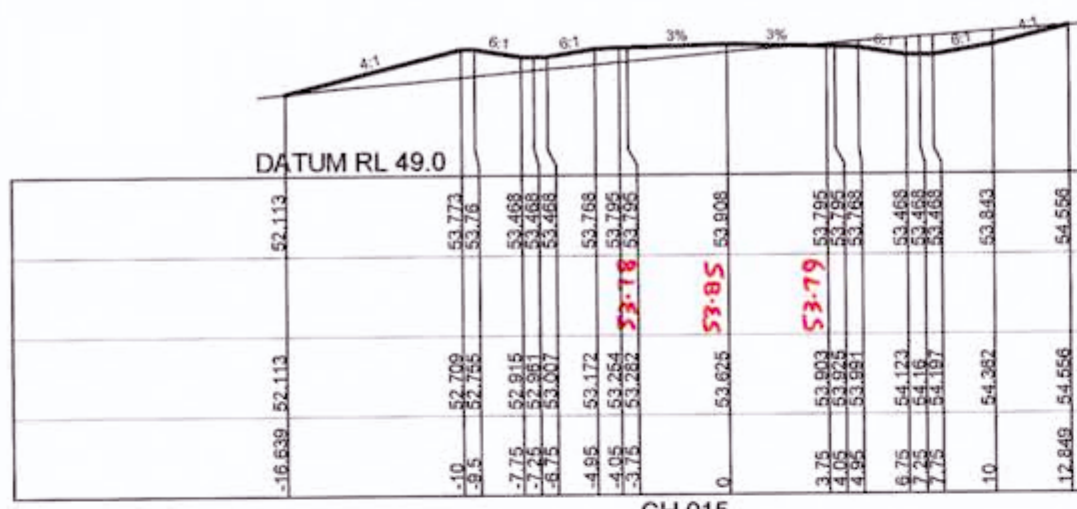


ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 7

PLAN No: 110185BEL/CC27 E
 FILE No: 110185BELCC27
 SHEET SIZE: A1 ORIGINAL

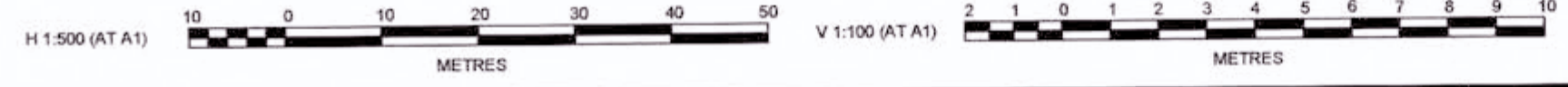
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ROAD BEL01

REVISION E
ROAD BEL01 CROSS SECTIONS AMENDED



WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer *John* JBP0595
Accreditation No. JBP0595
These plans/specifications form part of the certificate issued 31 July 2017

DES	DRN	CKD	APR	DATE
MP	MG	RO	MS	18/07/17
MP	MG	RO	RO	27/09/16
MP	MG	RO	RO	29/07/16
MP	MG	MS	RO	13/07/16
MP	MG	RO	RO	21/06/16
A				

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: **REDBANK**
AZIMUTH: MGA
DATUM: AHD
ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
ROAD CROSS SECTIONS SHEET 8
PLAN No: 110185BEL/CC28 **E**
FILE No: 110185BELCC28
SHEET SIZE: A1 ORIGINAL

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *[Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

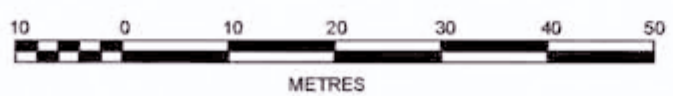
DATUM RL 83.0

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88.247		88.297	-0.05
87.919		87.969	-0.05
87.591		87.641	-0.05
87.263		87.313	-0.05
86.935		86.985	-0.05
86.607		86.657	-0.05
86.279		86.329	-0.05
85.951		85.981	-0.03
85.623		85.653	-0.03
85.295		85.325	-0.03
84.967		84.997	-0.03
84.639		84.669	-0.03
84.311		84.341	-0.03
83.983		84.013	-0.03
83.655		83.685	-0.03
83.327		83.357	-0.03
83.000		83.030	-0.03
82.672		82.702	-0.03
82.344		82.374	-0.03
82.016		82.046	-0.03
81.688		81.718	-0.03
81.360		81.390	-0.03
81.032		81.062	-0.03
80.704		80.734	-0.03
80.376		80.406	-0.03
80.048		80.078	-0.03
79.720		79.750	-0.03
79.392		79.422	-0.03
79.064		79.094	-0.03
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78.080		78.110	-0.03
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74.800		74.830	-0.03
74.472		74.502	-0.03
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CH 17.289

ROAD BEL02

H 1:500 (AT A1)



V 1:100 (AT A1)



REVISION E
 ROAD BEL02 CROSS SECTIONS AMENDED

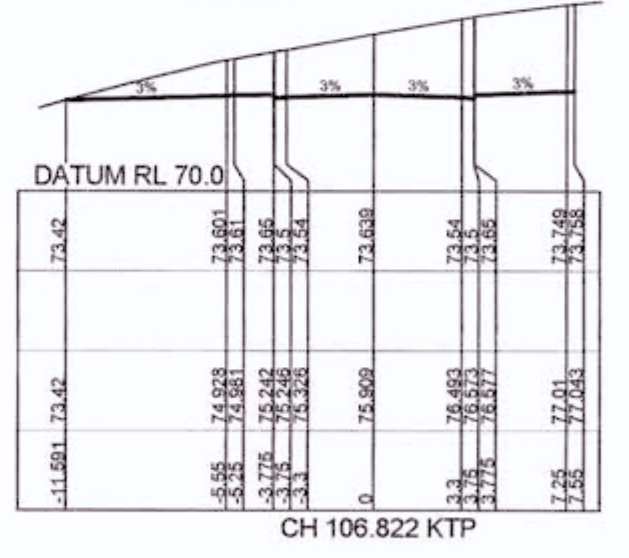
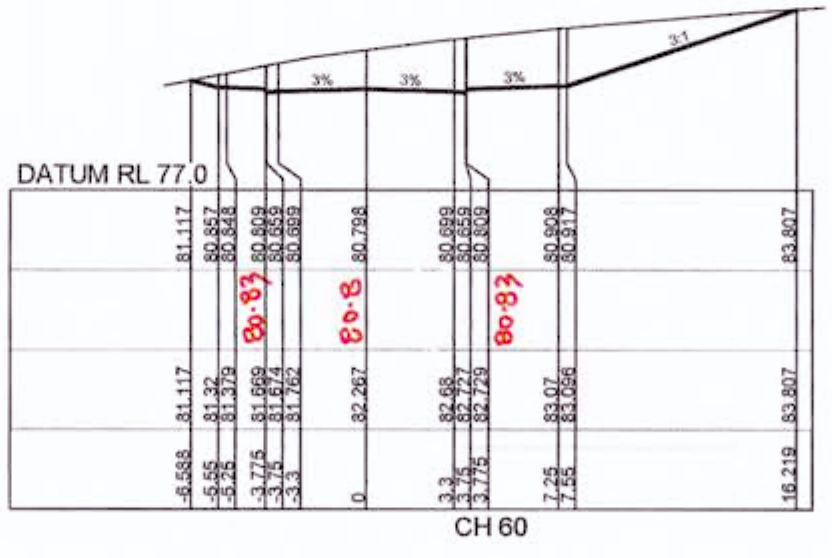
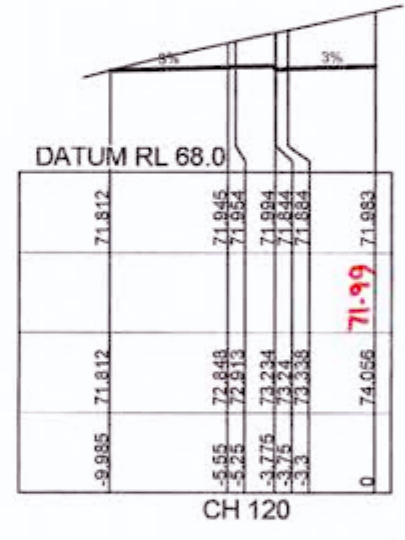
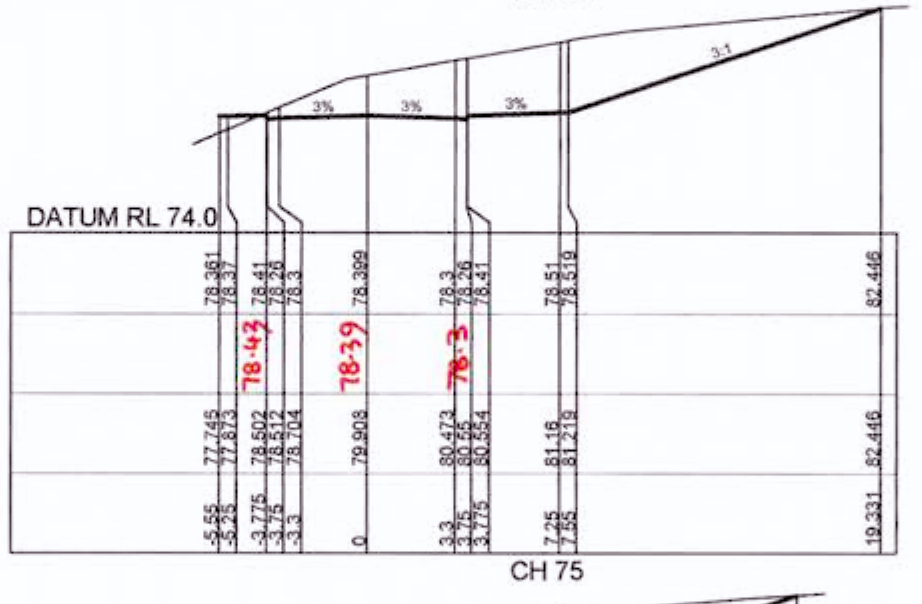
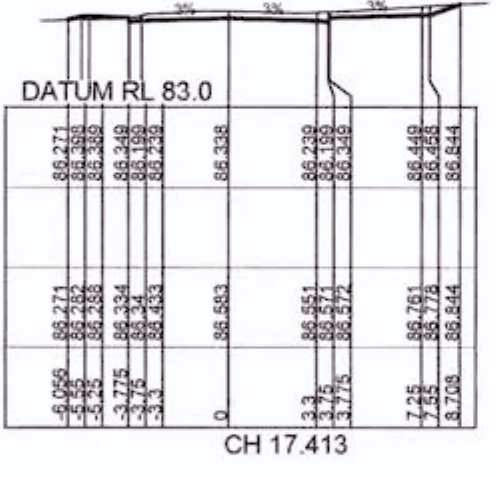
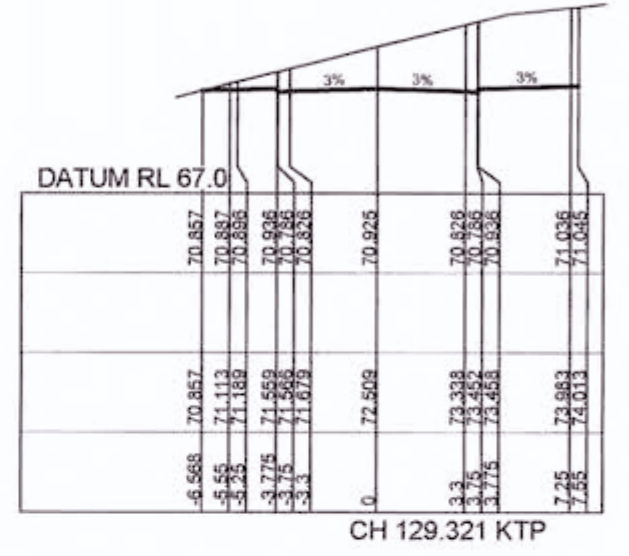
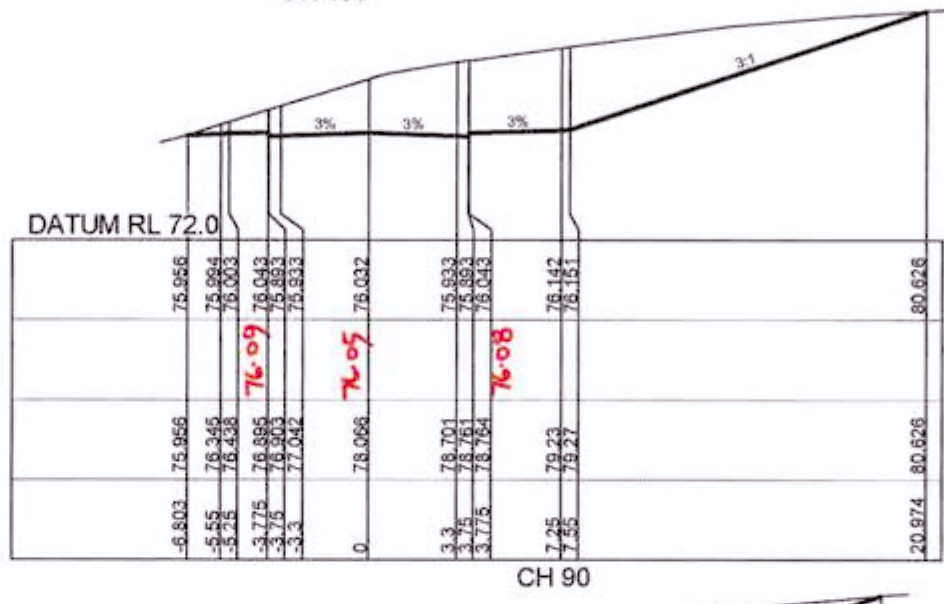
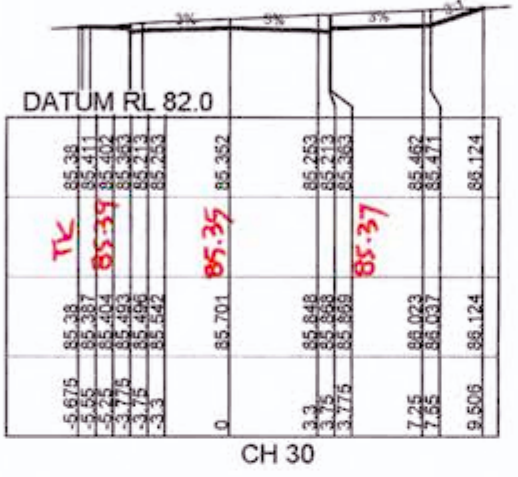
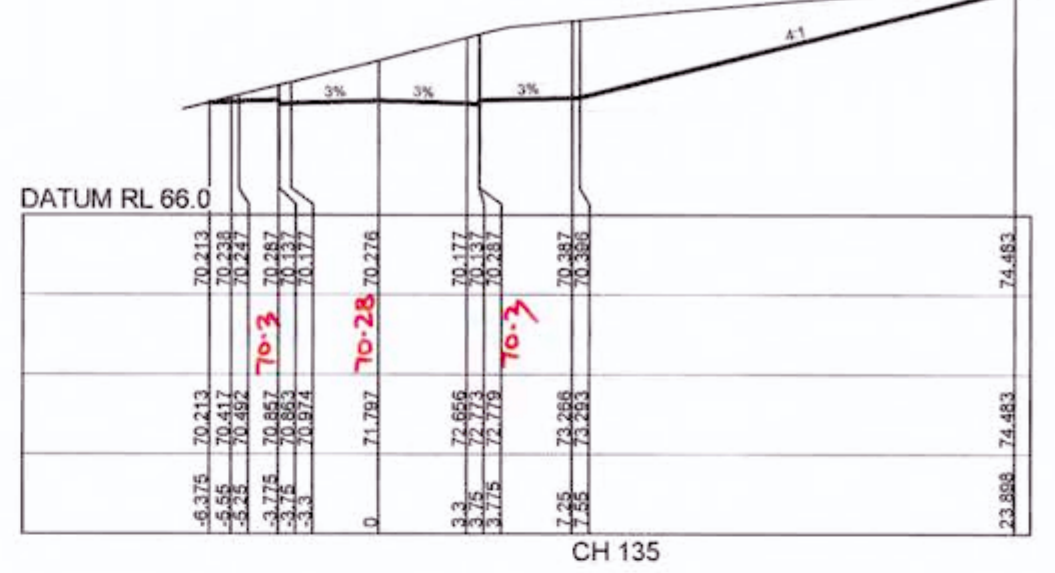
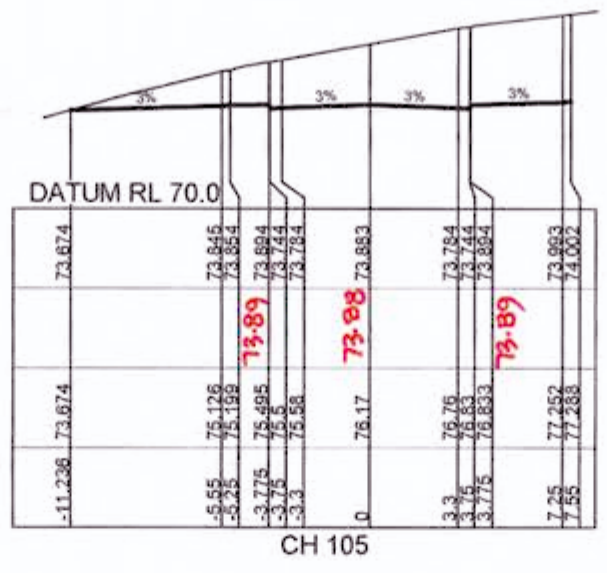
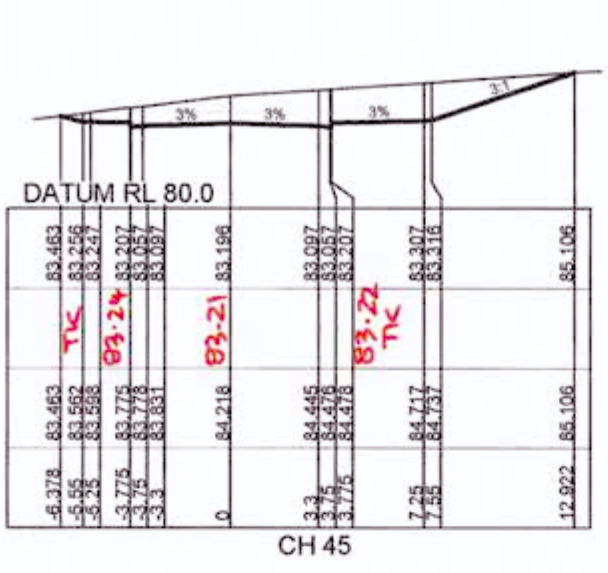
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PEIRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

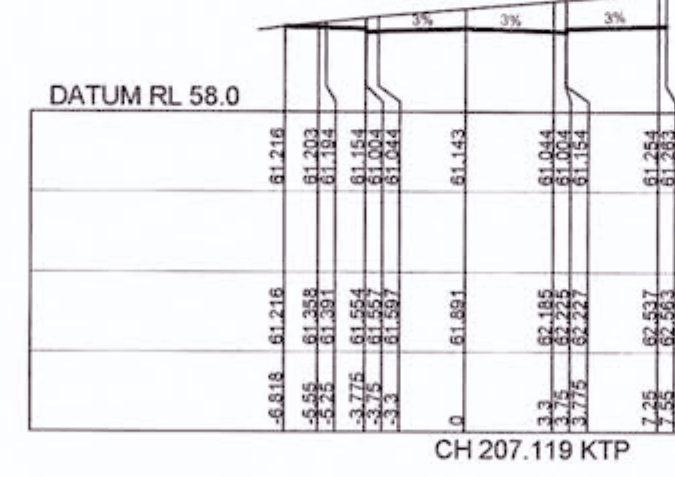
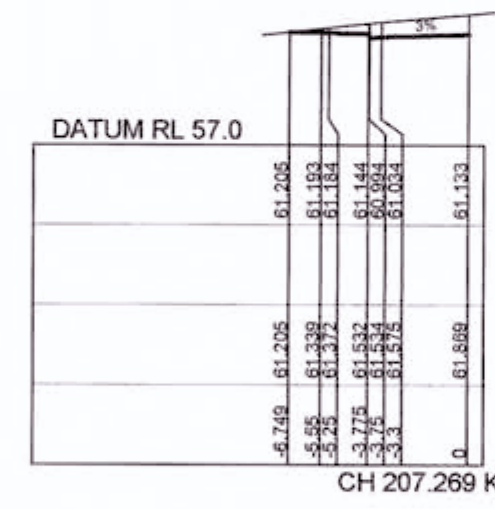
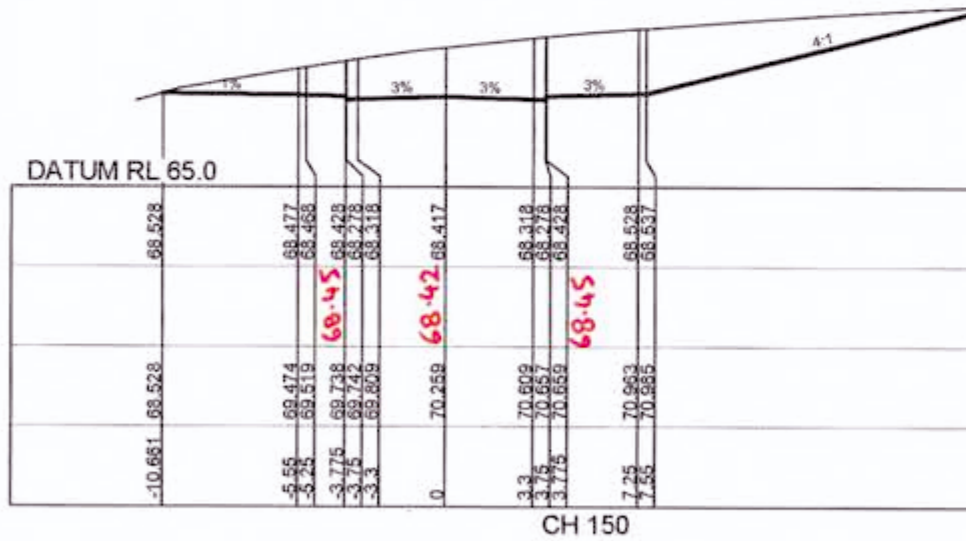
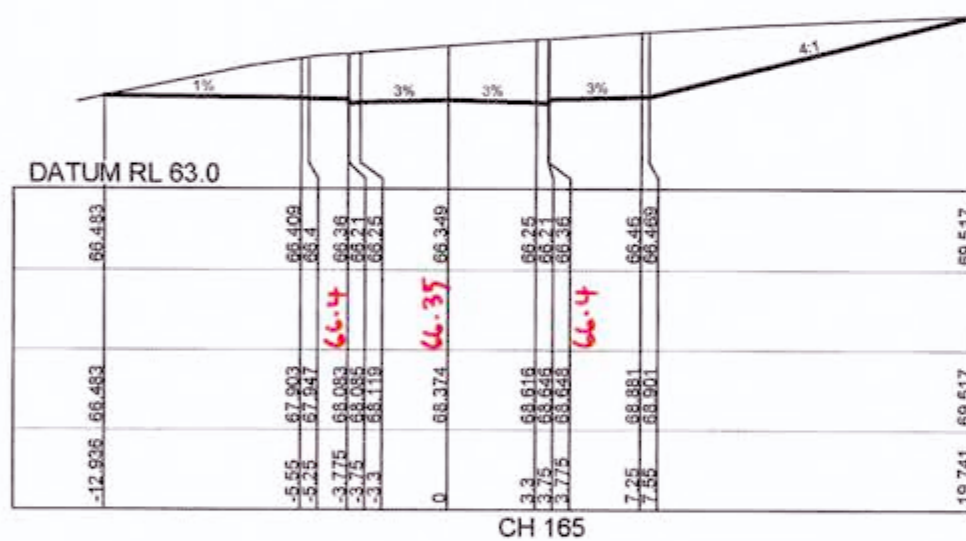
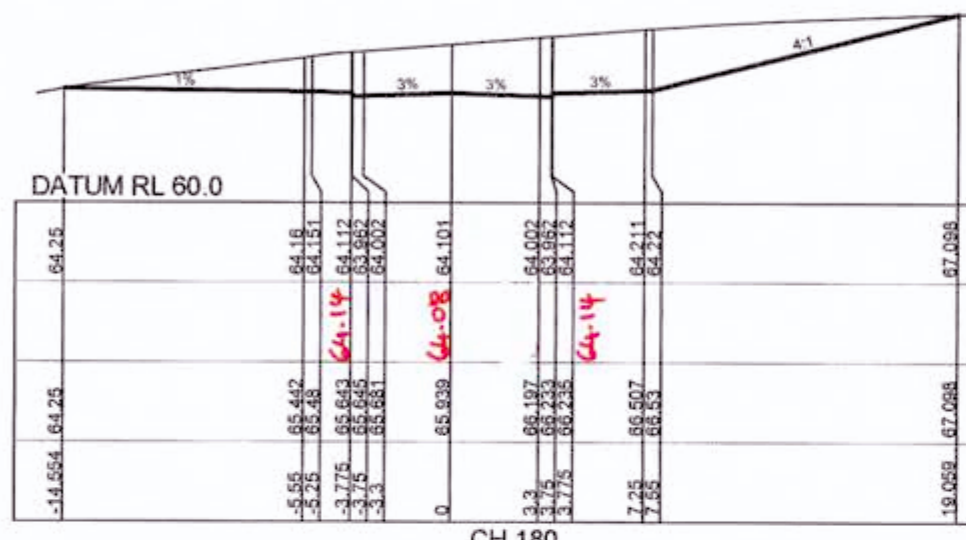
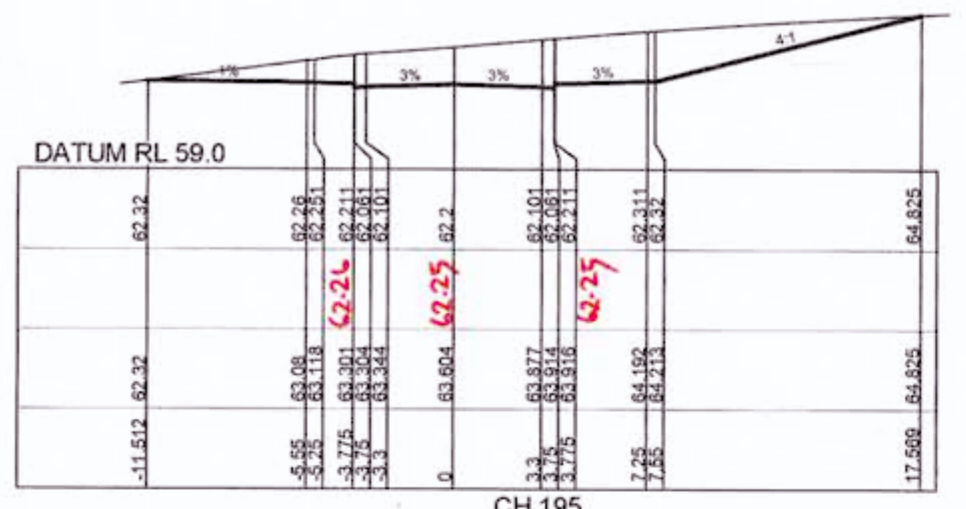
REDBANK, NORTH RICHMOND
 BELMONT
 ROAD CROSS SECTIONS
 SHEET 9

PLAN No: 110185BEL/CC29 [E]
 FILE No: 110185BELCC29
 SHEET SIZE: A1 ORIGINAL

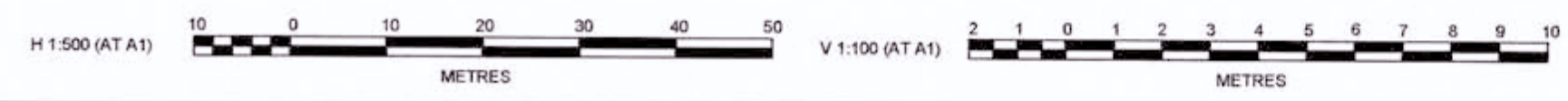
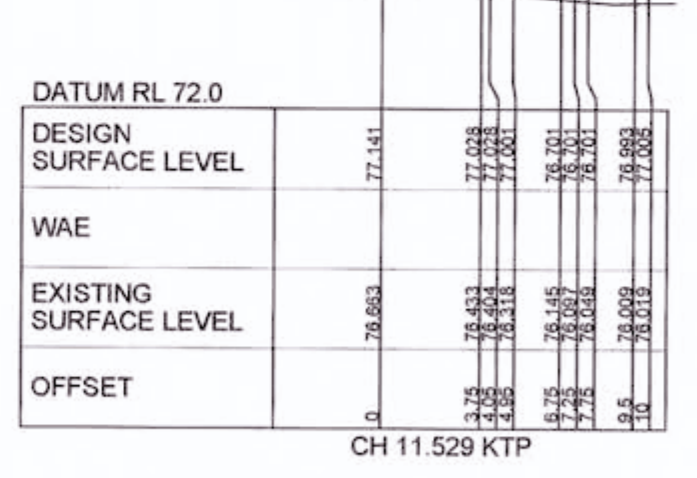
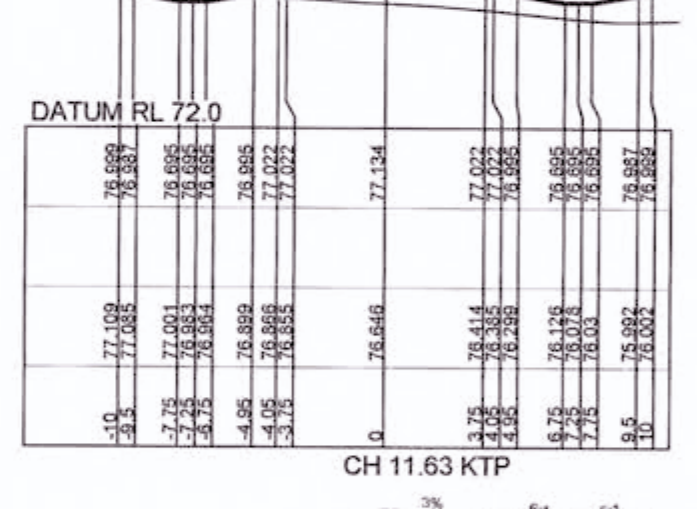
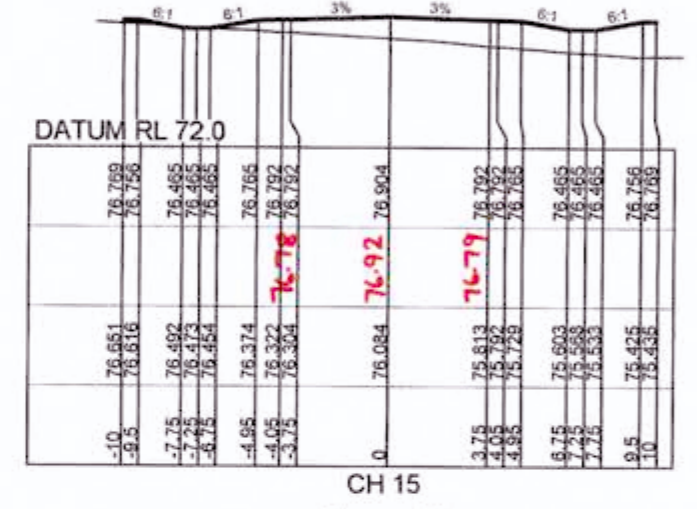
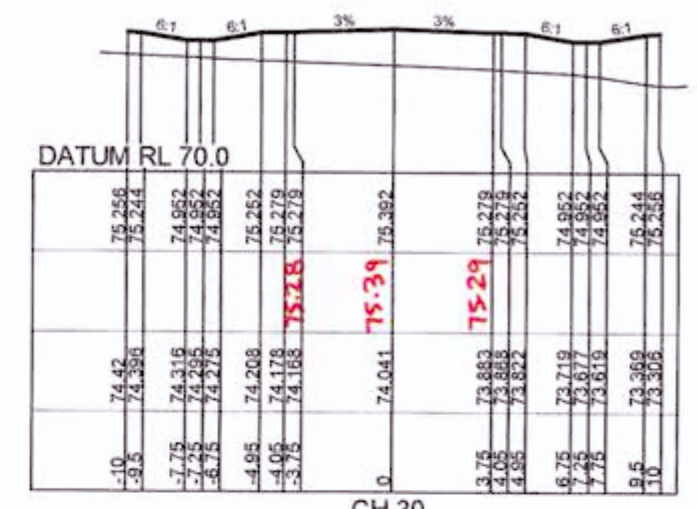


CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]* BPB0565
 Accreditation No.
 These plans/specifications form part of the certificate issued 31 July 2017

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature] BPB0565
 Accreditation No. BPB0565
 These plans/specifications form part of the certificate
 issued 31 July 2017



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



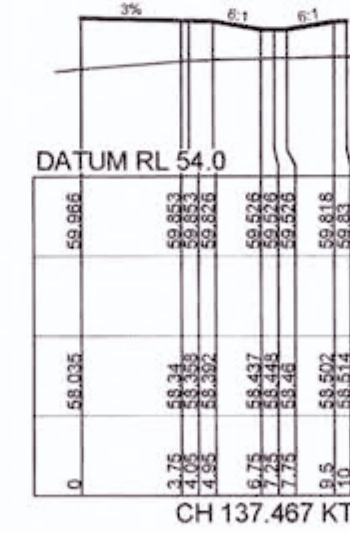
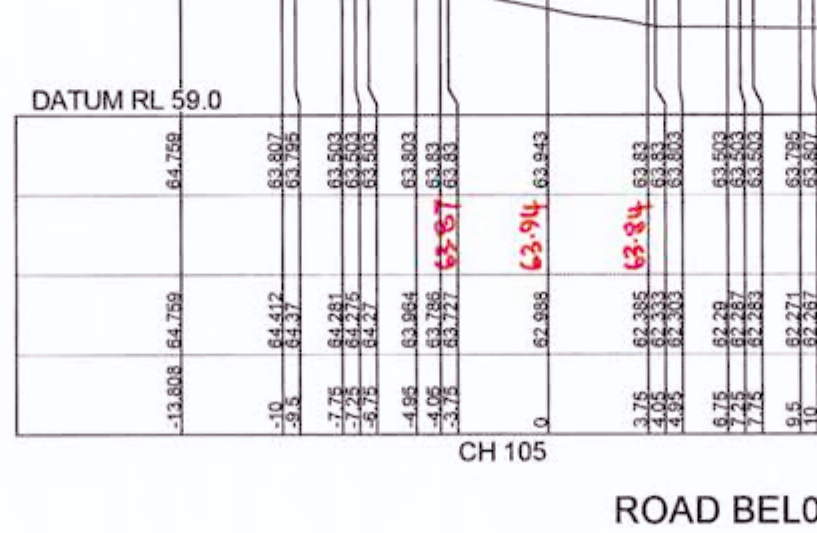
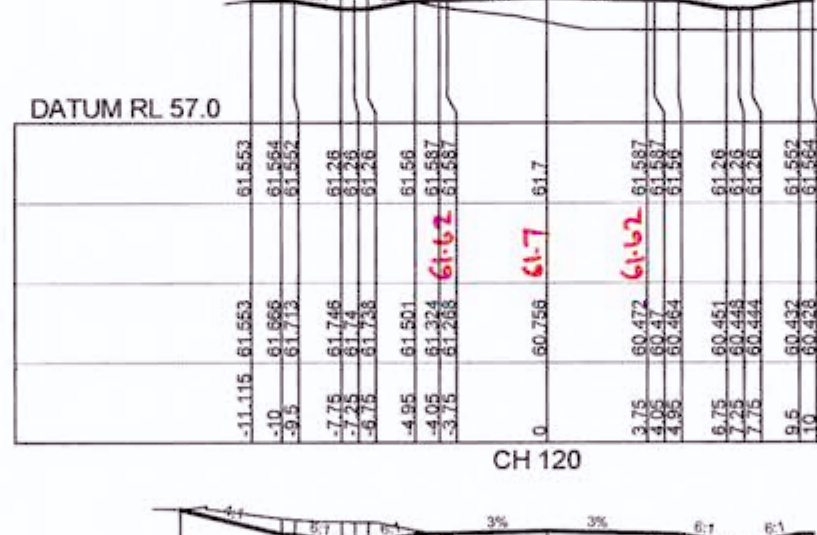
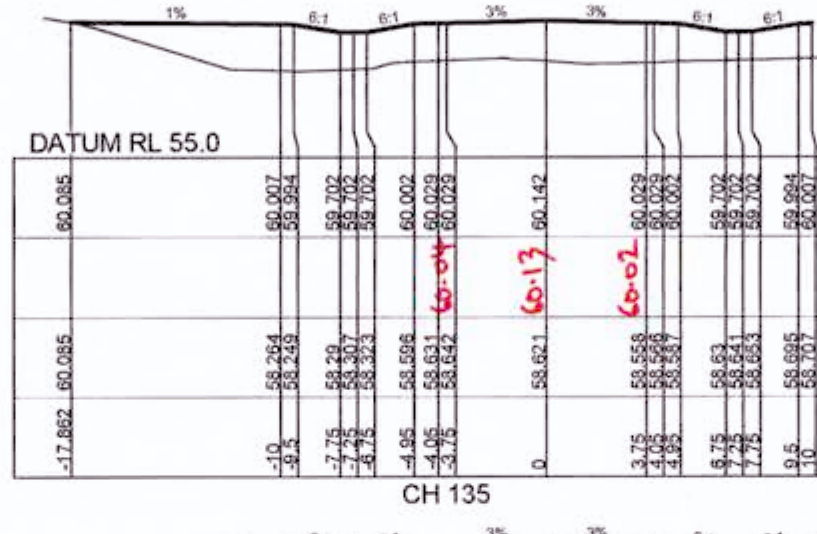
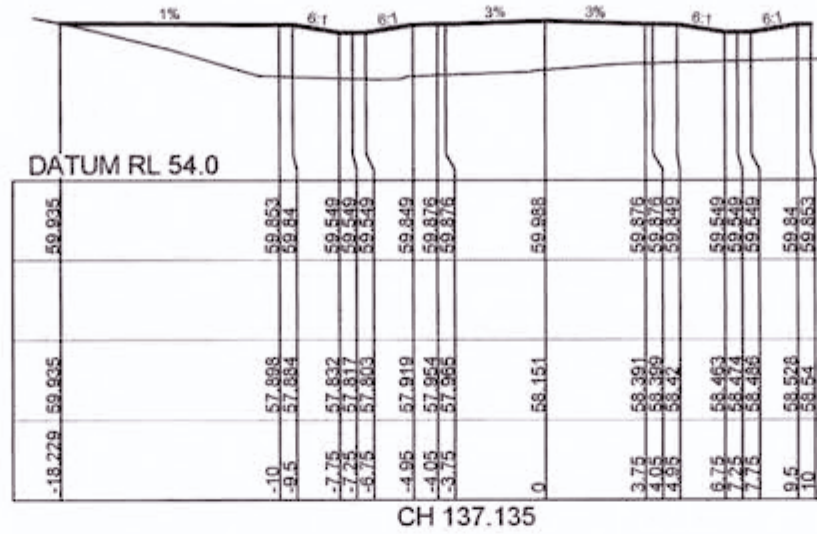
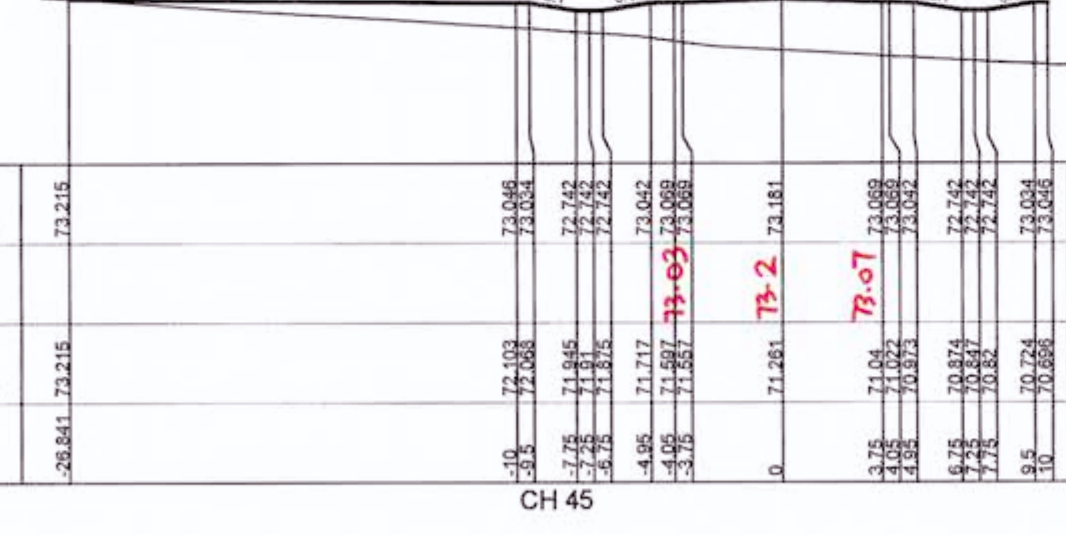
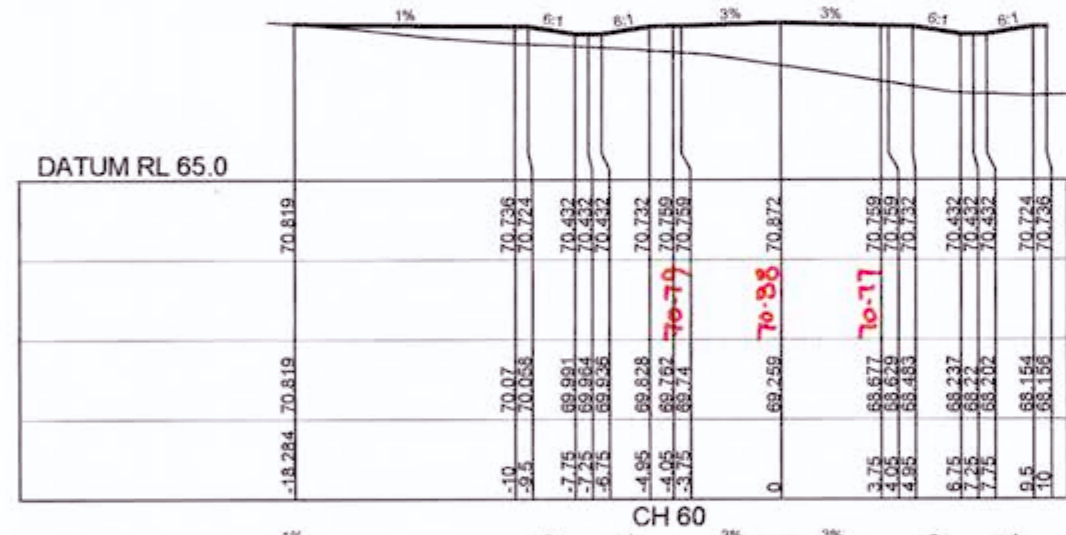
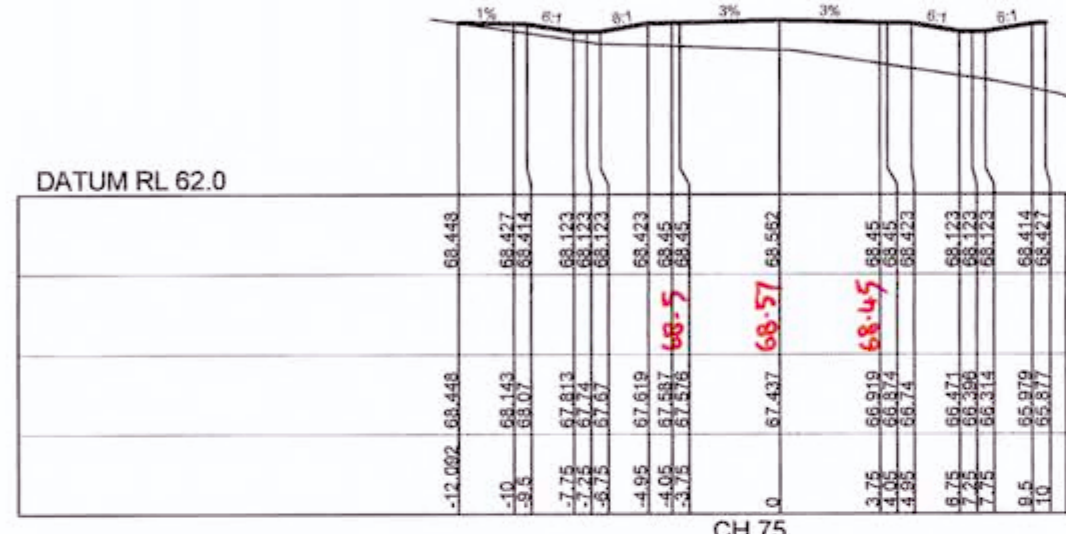
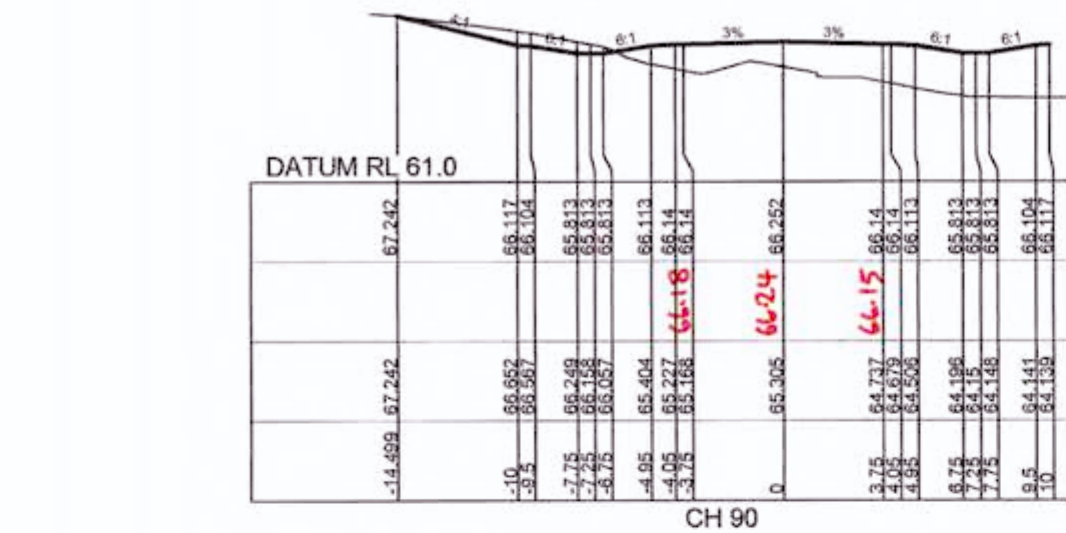
REV	DESCRIPTION	DATE	BY	CHKD	APR
F	ISSUE FOR CONSTRUCTION APPROVAL	18/07/17	MP	MG	RO
E	SECTION AMENDED	13/02/17	MP	NA	MS
D	CERTIFIER COMMENTS	27/09/16	MP	MG	RO
C	ISSUED FOR CONSTRUCTION APPROVAL	29/07/16	MP	MG	RO
B	CLIENT COMMENTS	13/07/16	MP	MG	MS
A	ADVANCED COPY	21/06/16	MP	MG	RO

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 10
 PLAN No: 110185BEL/CC30 F
 FILE No: 110185BELCC30
 SHEET SIZE: A1 ORIGINAL

Printed: 18 July 2017 5:07:36 PM File Name: J110185 - Redbank North Richmond Residential Precincts01 - Description:CD:CC:BELMONT\110185BELCC30.dwg



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P. Warwick*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 6800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *James By* BPB0565
 Accreditation No. BPB0565
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION F
 ROAD BEL03 CROSS SECTIONS AMENDED



DES	DRN	CKD	APR	DATE
F			MS	18/07/17
E			MS	13/02/17
D			RO	27/09/16
C			RO	29/07/16
B			RO	13/07/16
A			RO	21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpp@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

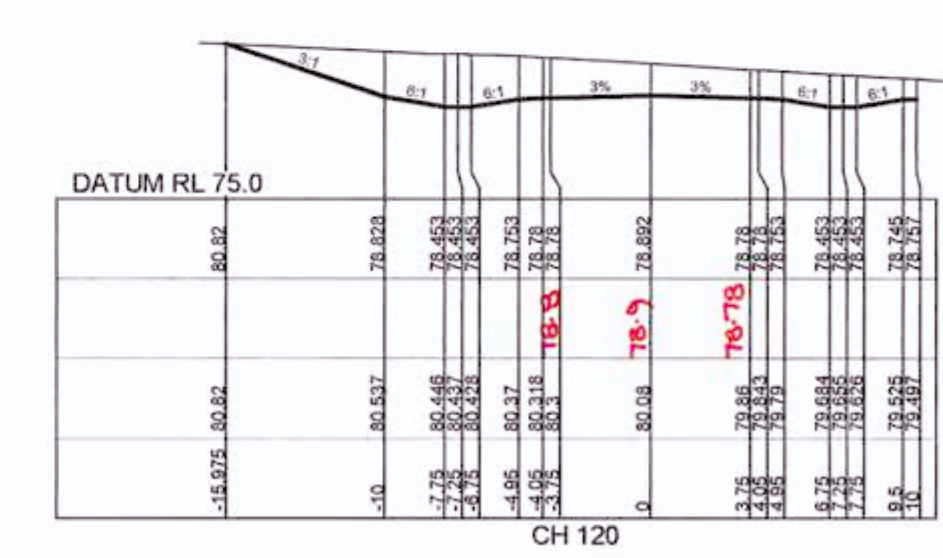
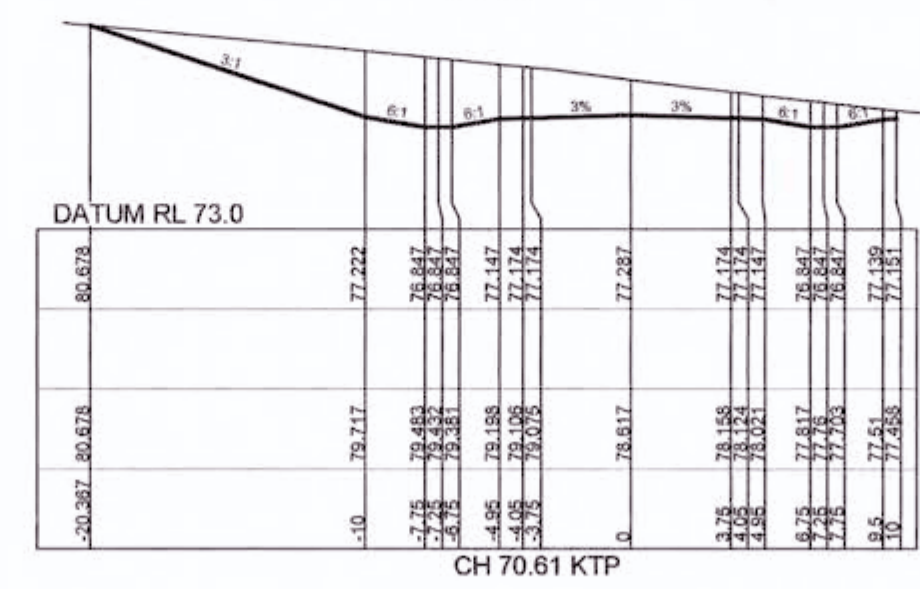
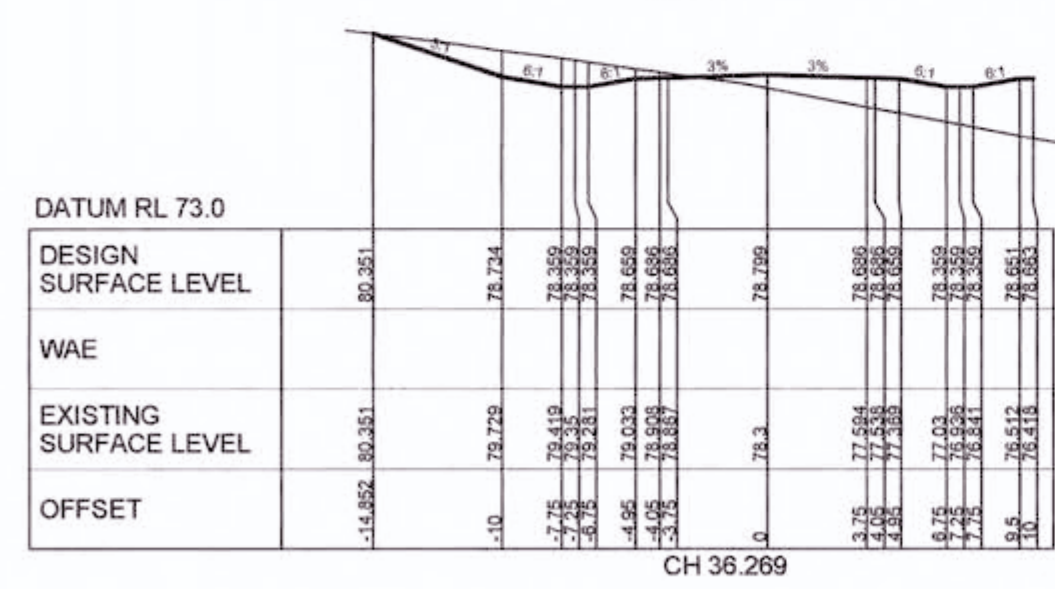
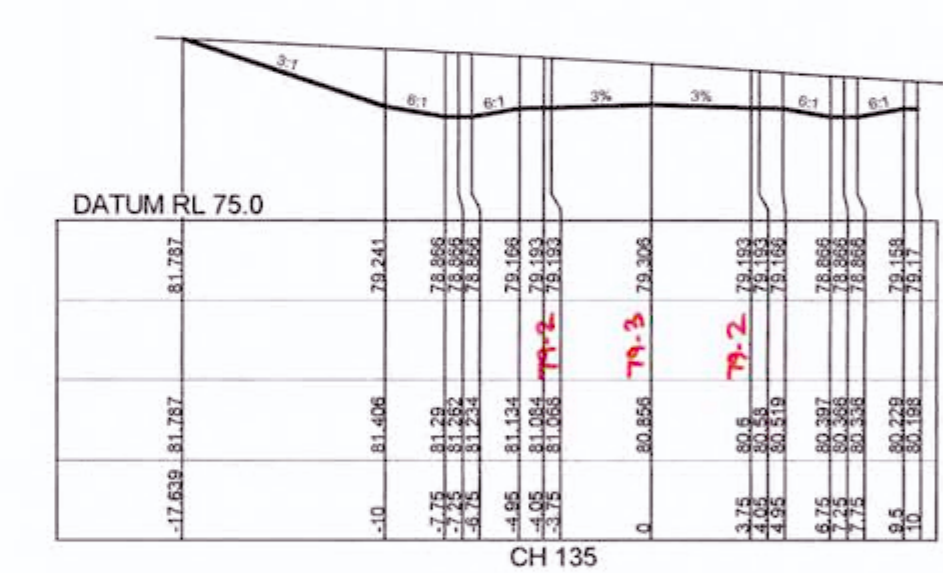
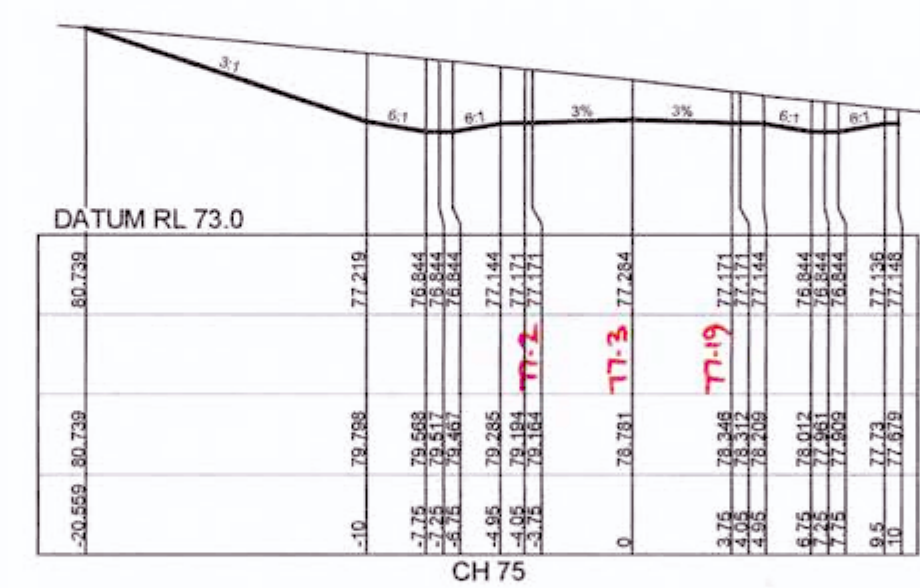
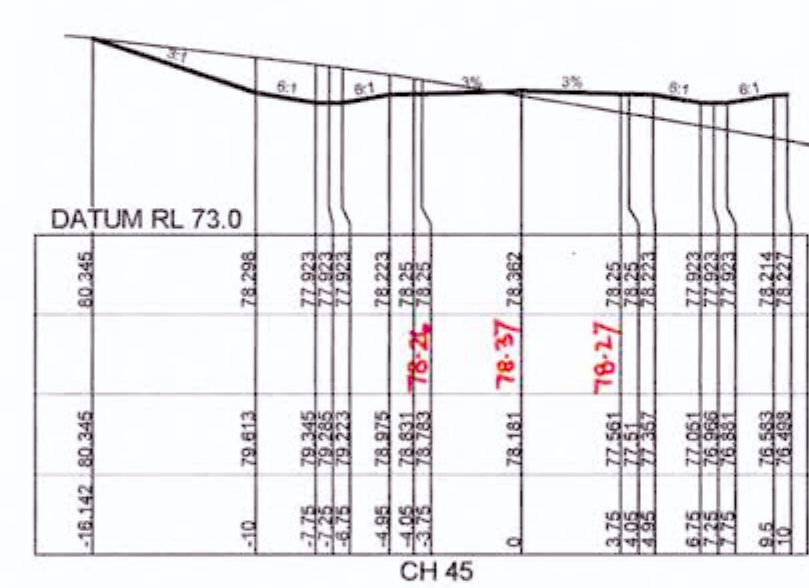
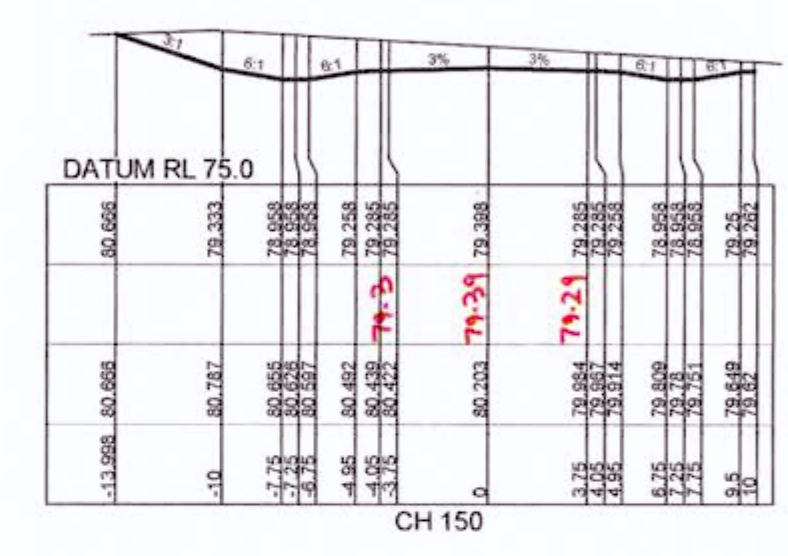
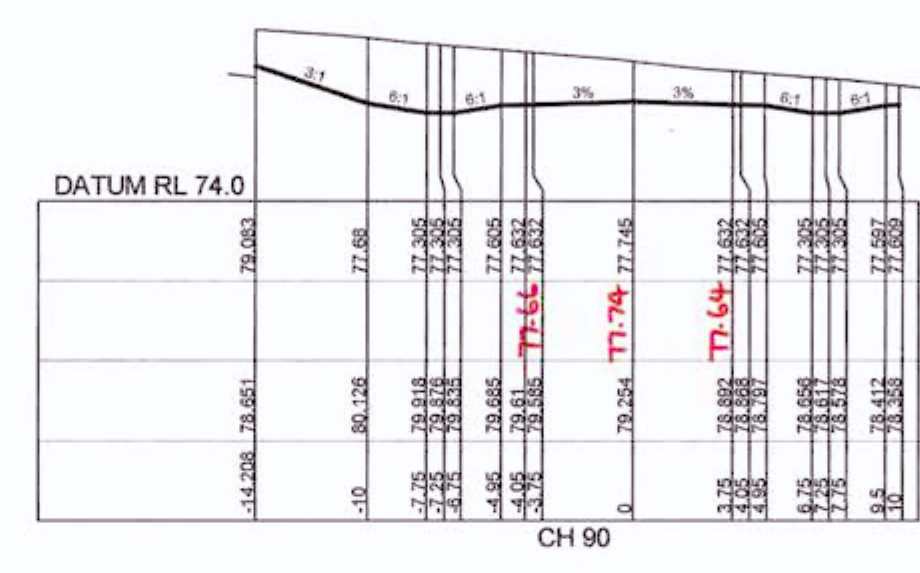
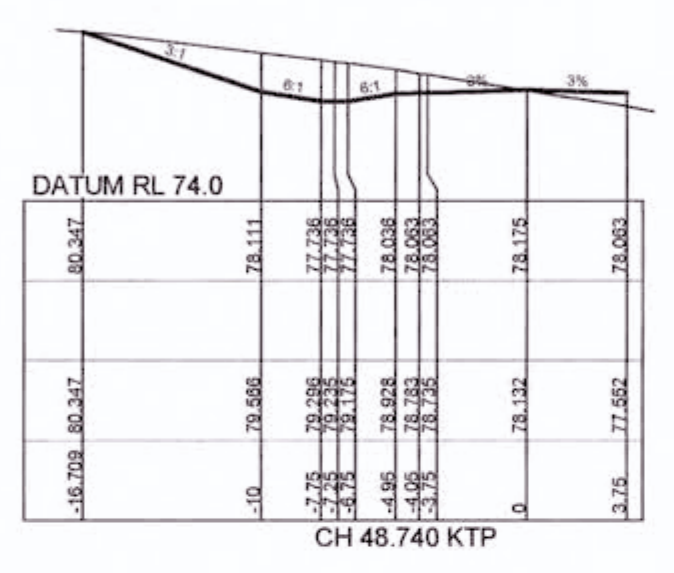
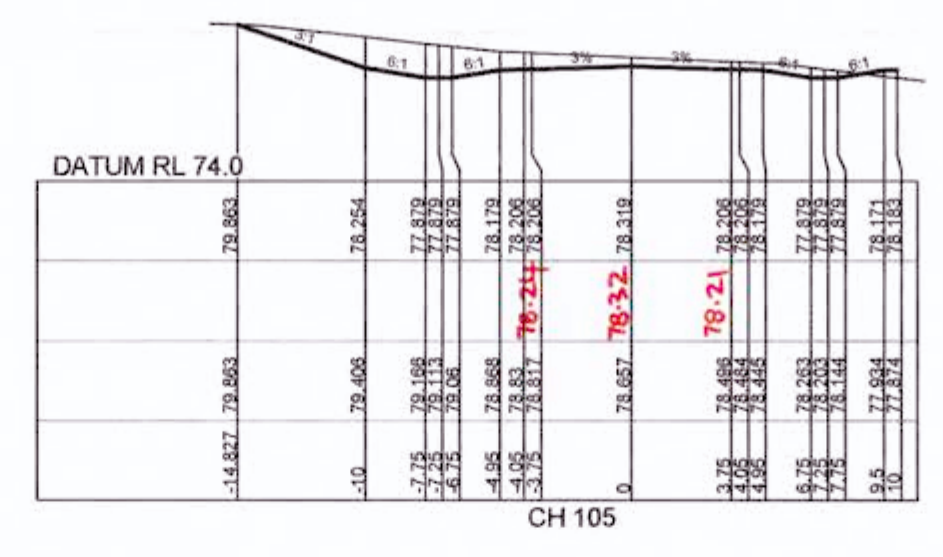
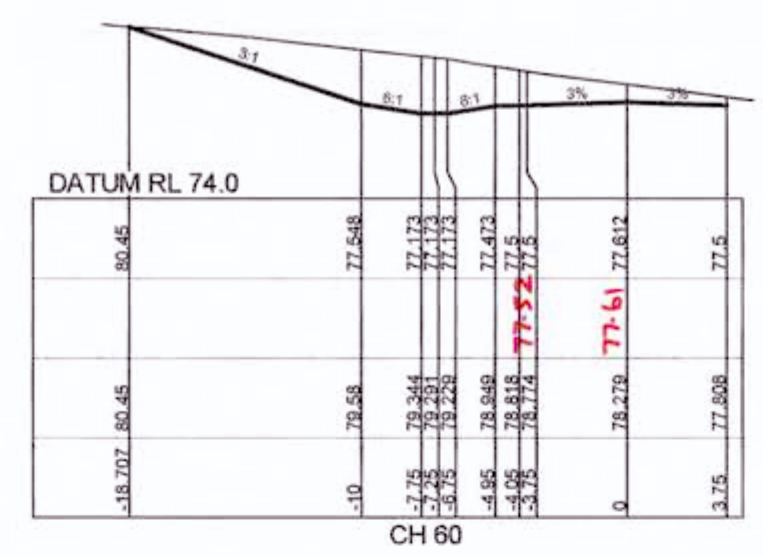
ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 11
 PLAN No: 110185BEL/CC31 F
 FILE No: 110185BELCC31
 SHEET SIZE: A1 ORIGINAL

CONSTRUCTION CERTIFICATE

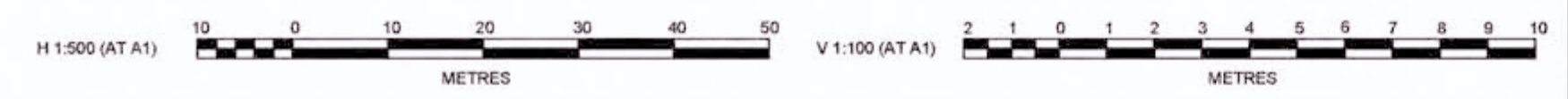
Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Joey By*
 Accreditation No. JBPB0565

These plans/specifications form part of the certificate issued 31 July 2017

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16309/12



ROAD BEL04



REVISION F
 ROAD BEL04 CROSS SECTIONS AMENDED

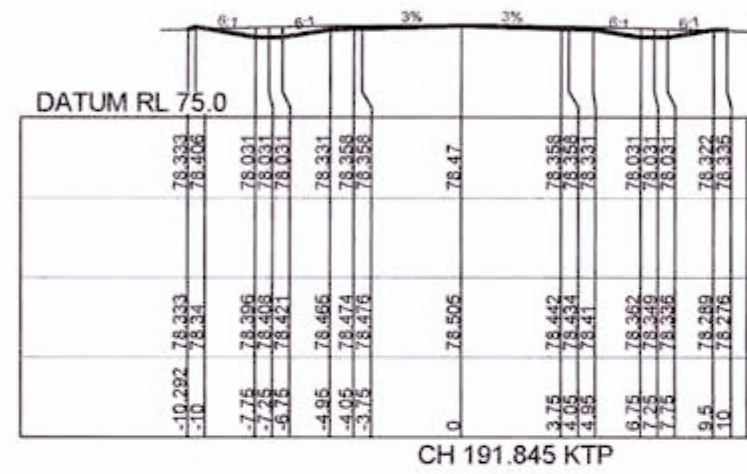
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E	SECTION AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MS	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/05/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
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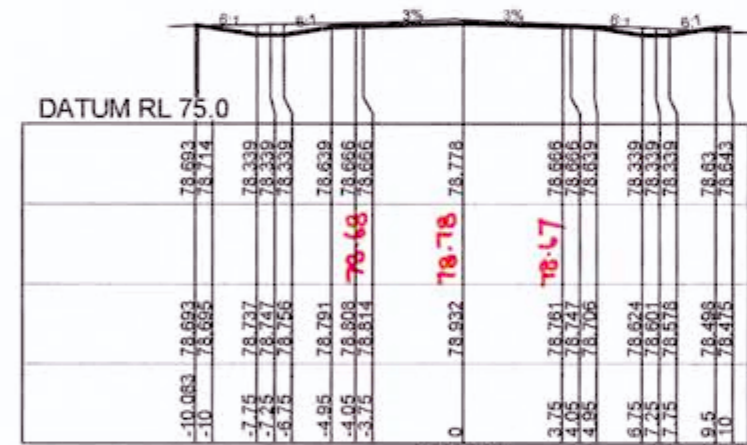
CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 12
 PLAN No: 110185BEL/CC32 F
 FILE No: 110185BELCC32
 SHEET SIZE: A1 ORIGINAL

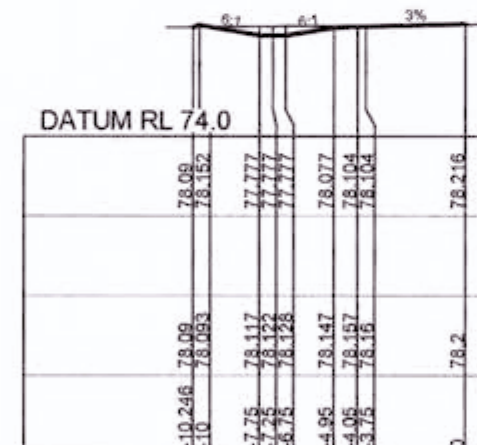
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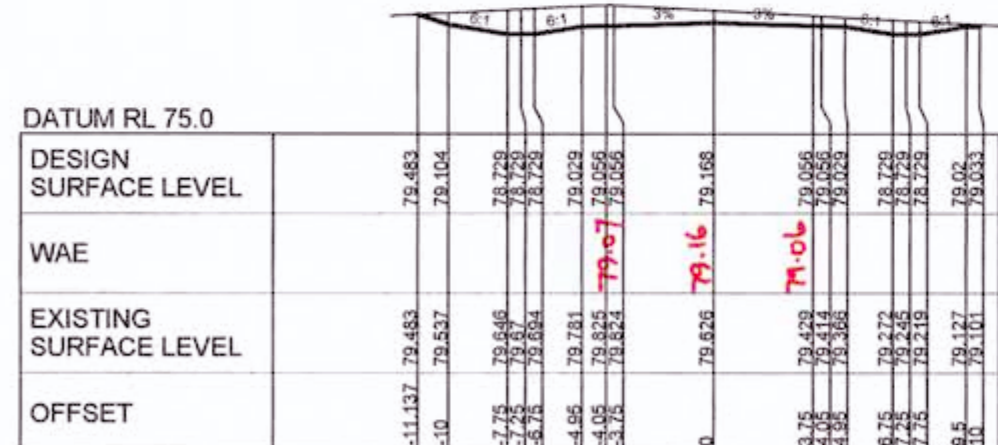
CH 191.845 KTP



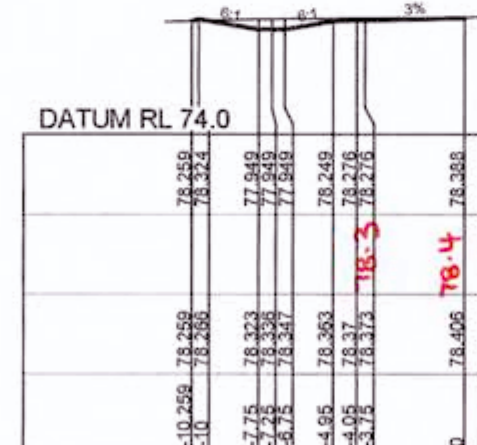
CH 180



CH 201.613 KTP



CH 165

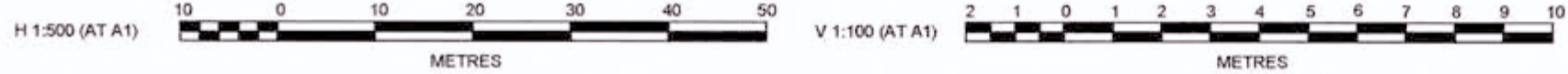


CH 195

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Greg*
 Accreditation No. BP0565
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION F
 ROAD BEL04 CROSS SECTIONS AMENDED



REV	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	SECTION AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	MS	21/05/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
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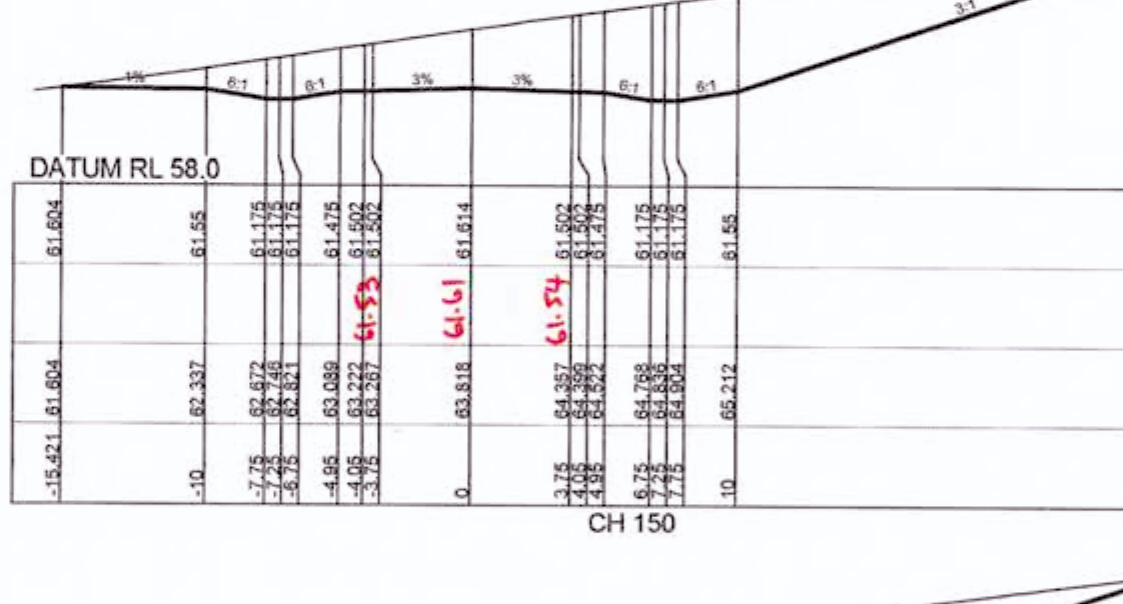
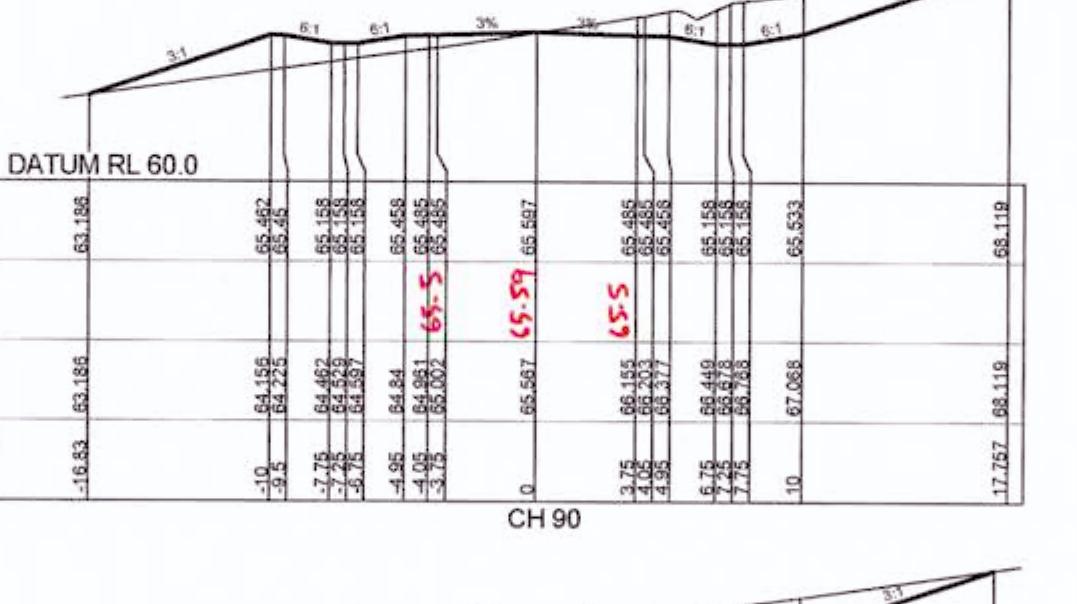
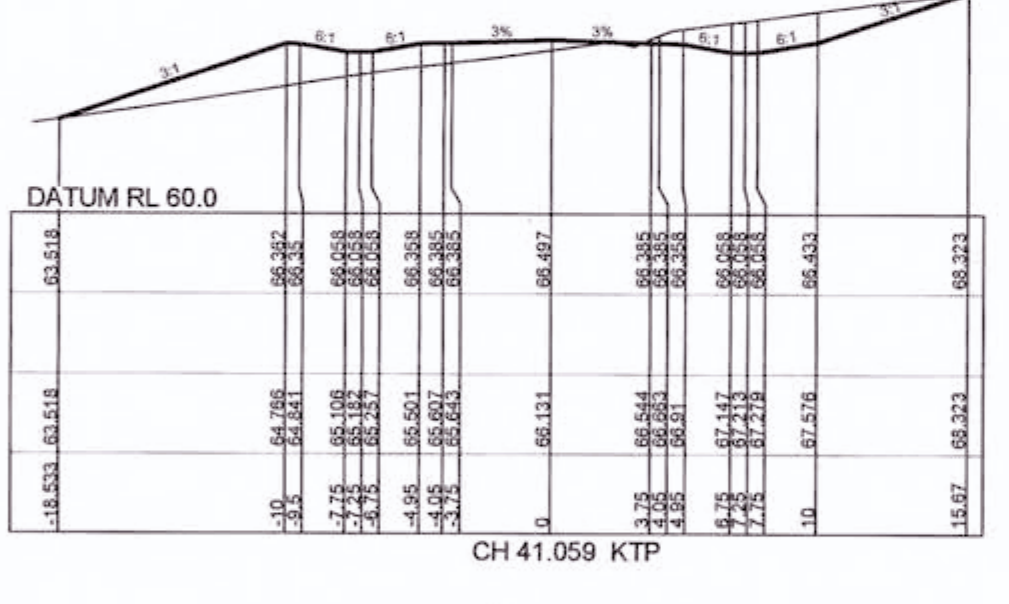
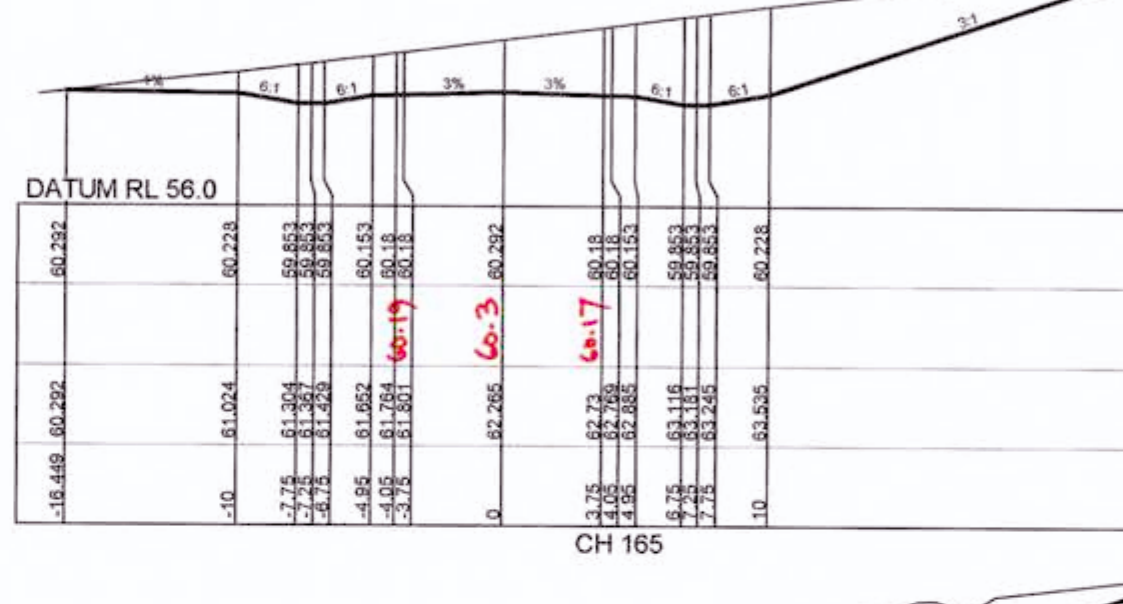
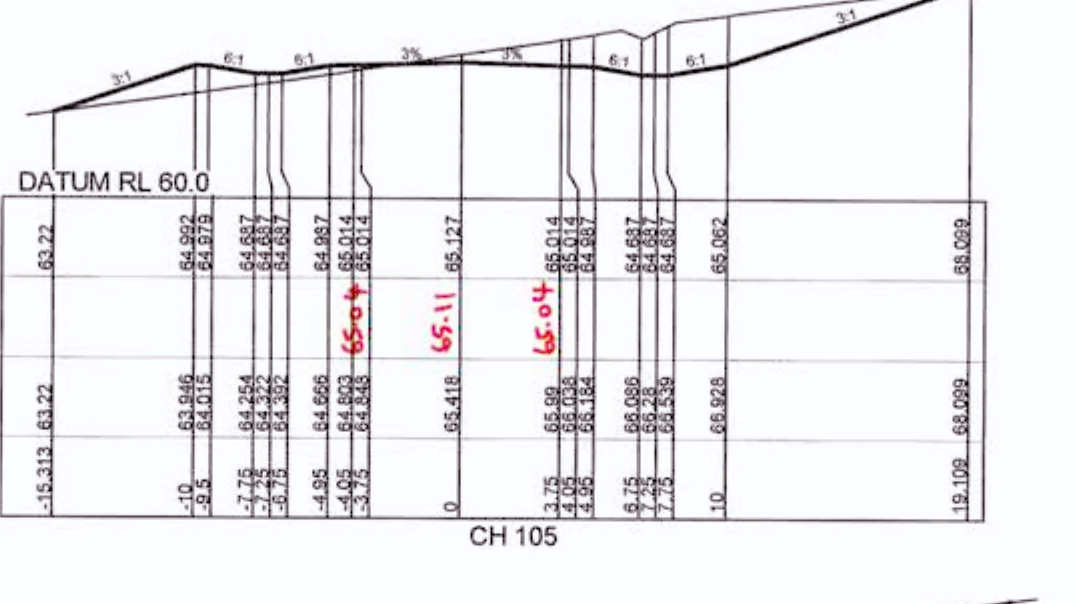
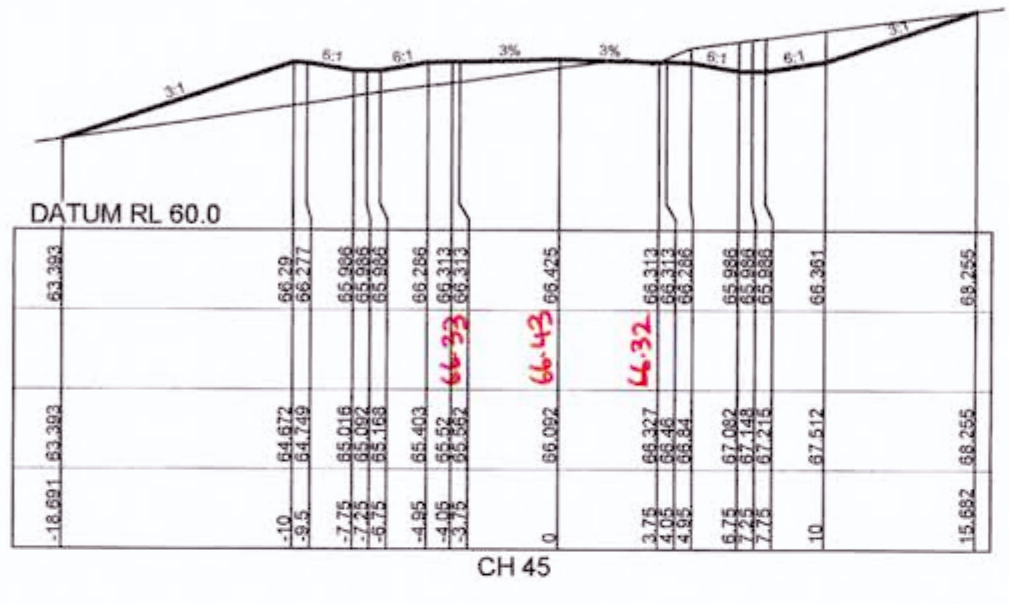
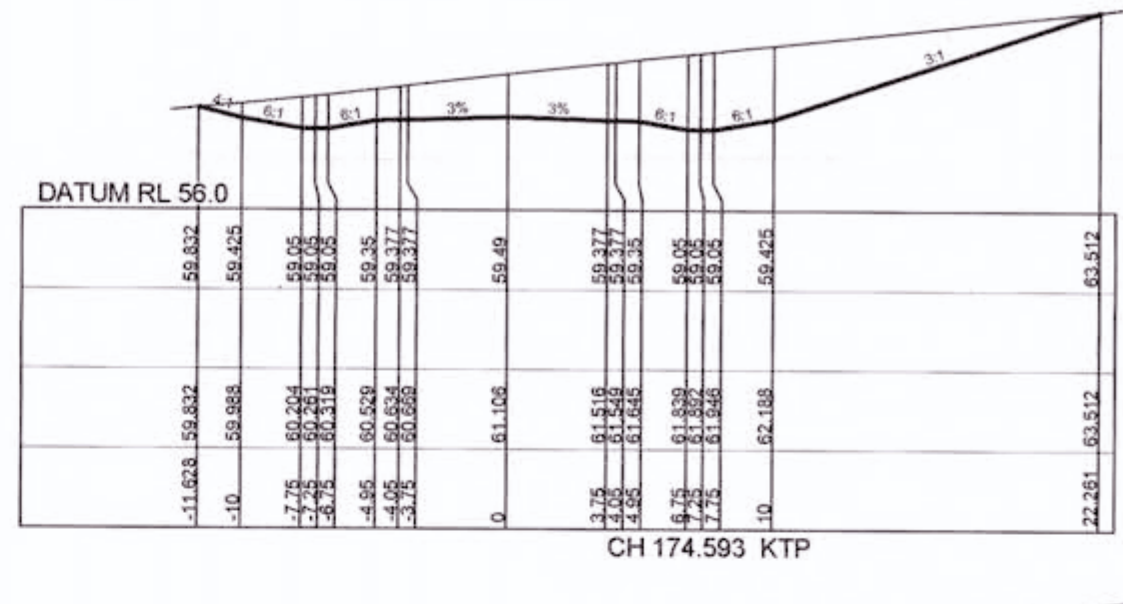
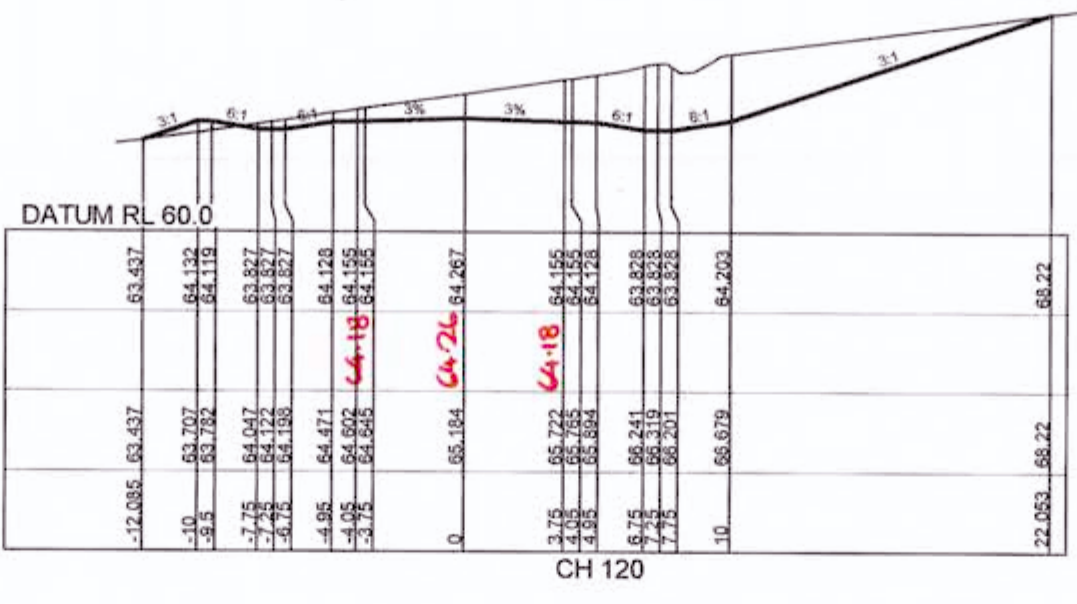
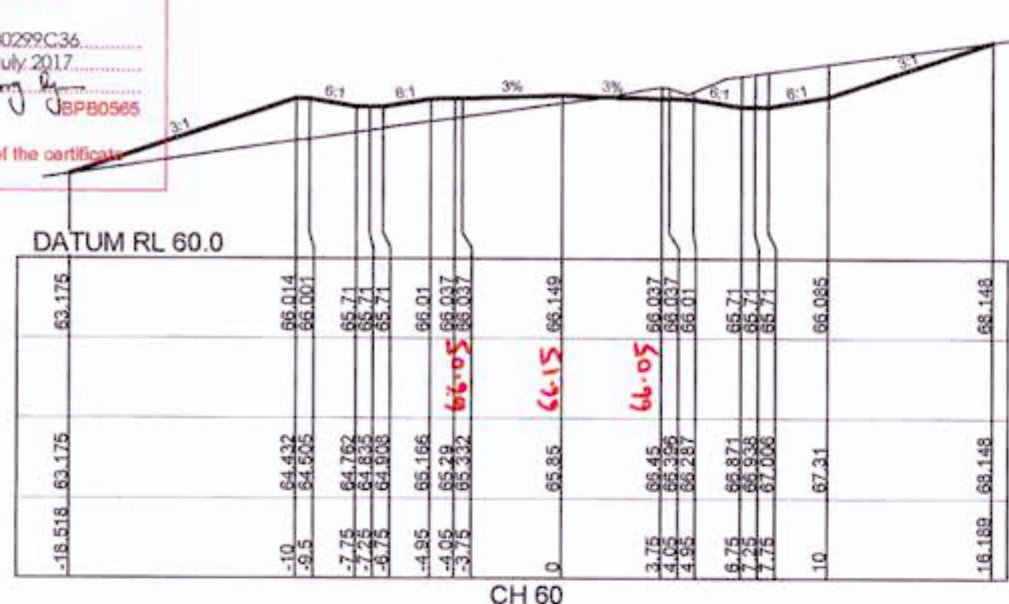
CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 13
 PLAN No: 110185BEL/CC33 **F**
 FILE No: 110185BELCC33
 SHEET SIZE: A1 ORIGINAL

CONSTRUCTION CERTIFICATE

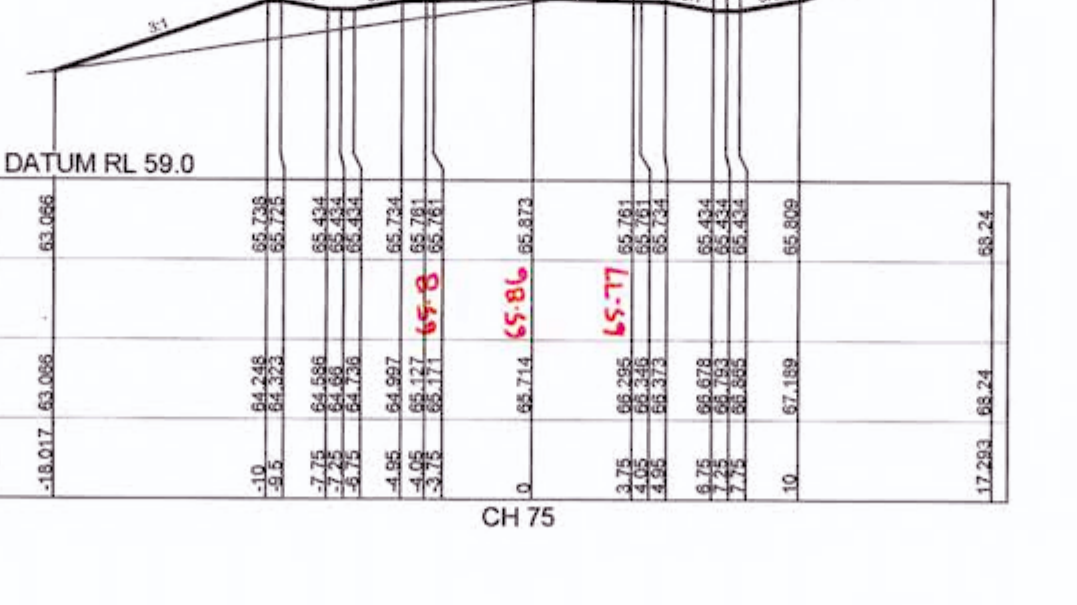
Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. 13PB0965

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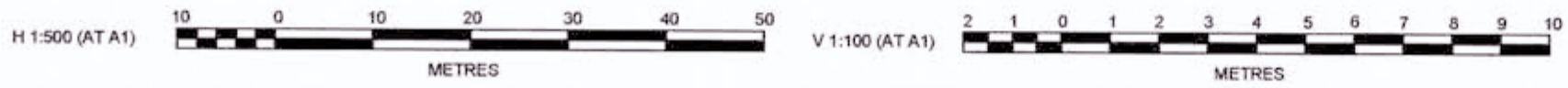


DATUM RL 60.0	
DESIGN SURFACE LEVEL	63.682
WAE	66.506
EXISTING SURFACE LEVEL	63.682
OFFSET	66.641

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



REVISION E
 ROAD BEL05 CROSS SECTIONS AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	MS	RO	23/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16

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 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

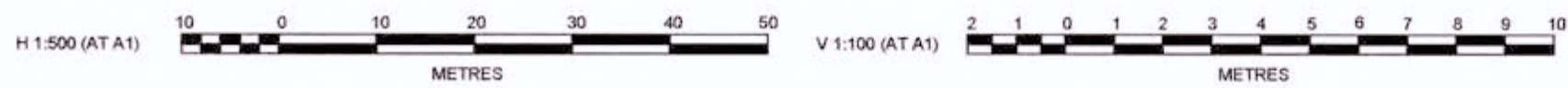
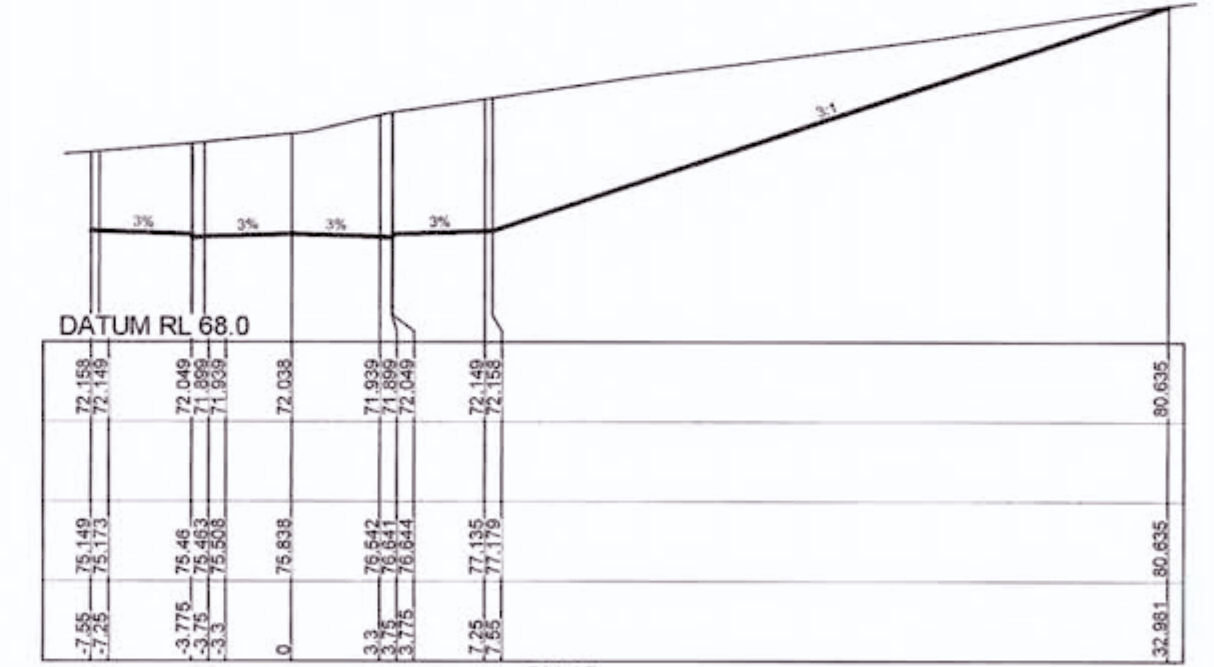
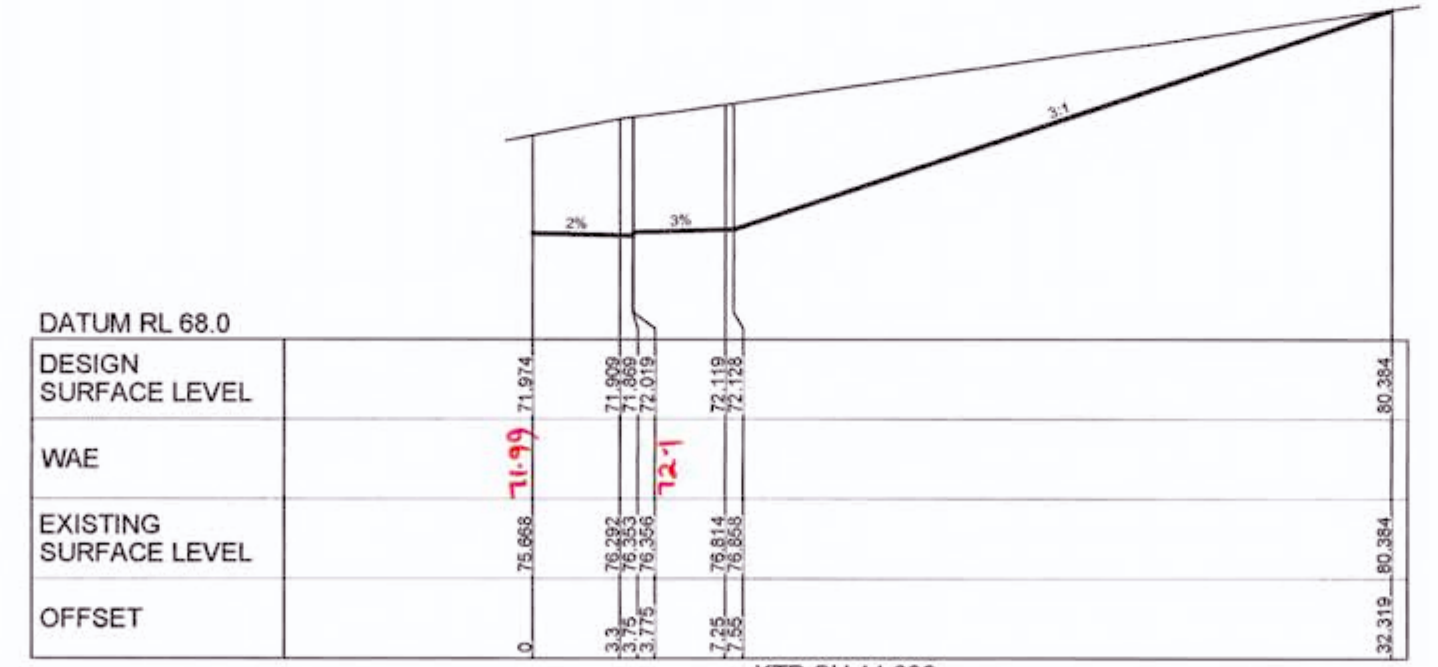
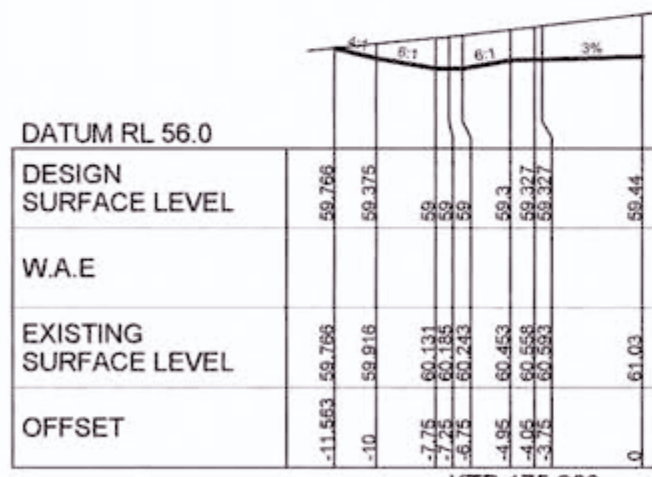
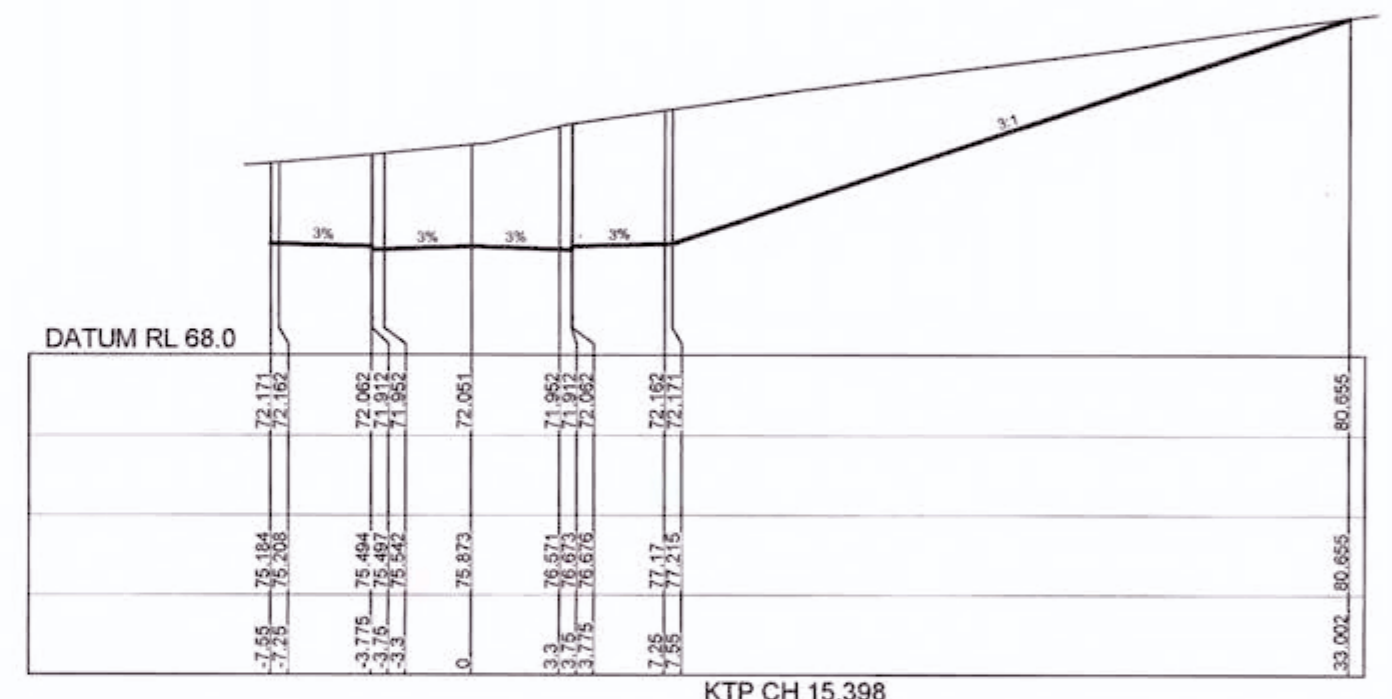
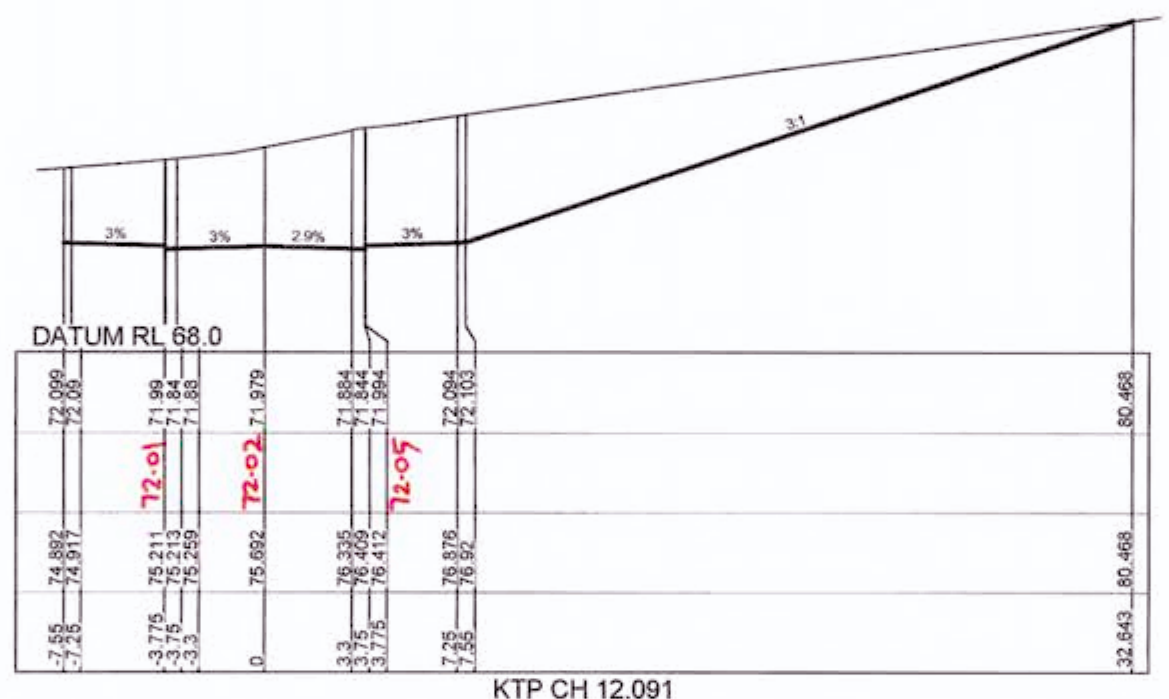
CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 14
 PLAN No: 110185BEL/CC34 E
 FILE No: 110185BELCC34
 SHEET SIZE: A1 ORIGINAL

Plotted: 19 July 2017 5:12:00 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC-BELMONT\110185BELCC34.dwg

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C34
 Date of Issue 31 July 2017
 Issuing Officer *Jerry Prince*
 Accreditation No. BPP0565
 These plans/specifications form part of the certificate issued 31 July 2017

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



Picked: 18 July 2017 5:12:23 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\BELMONT\110185BELCC35.dwg

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D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO		21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

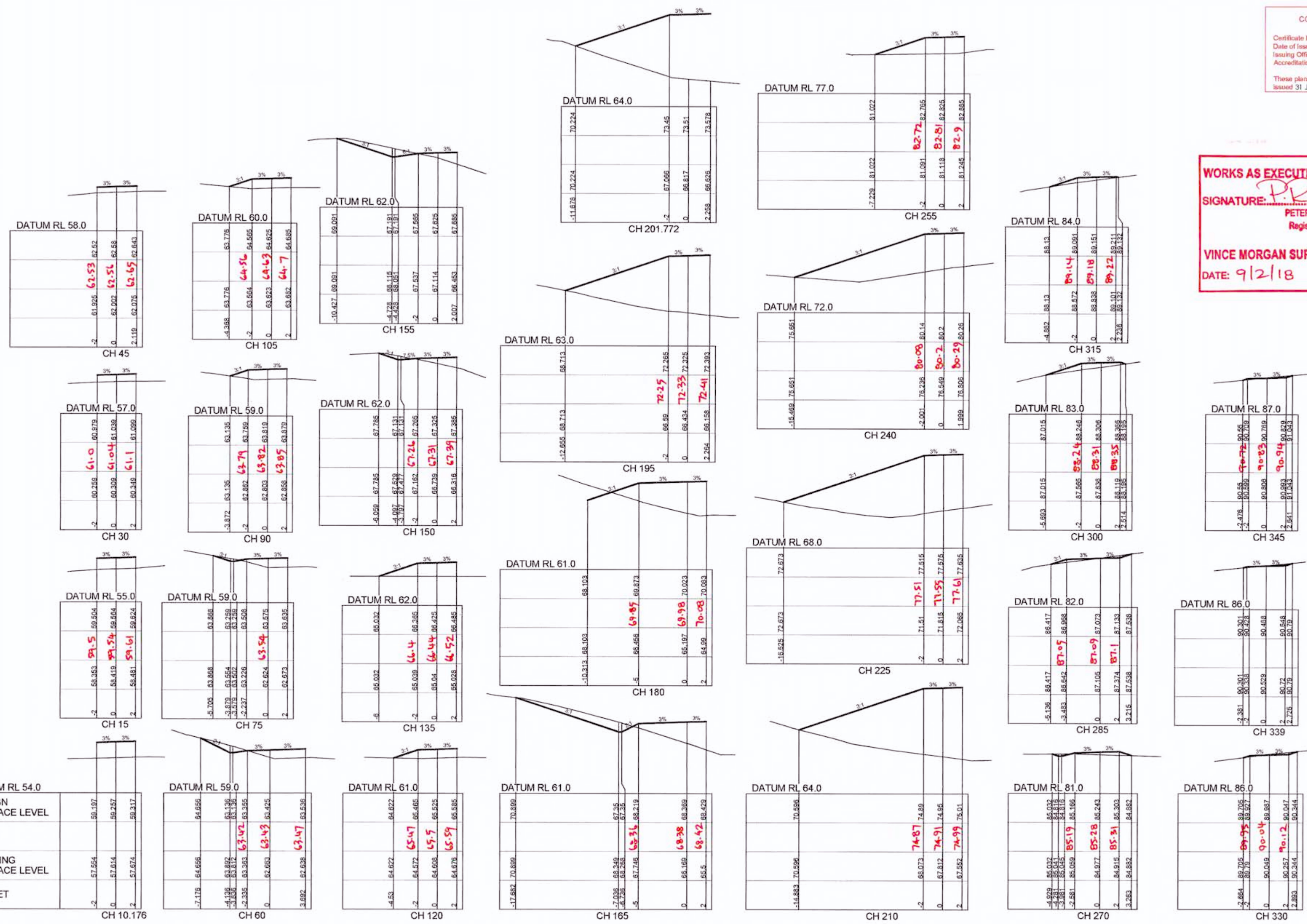
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:
 THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

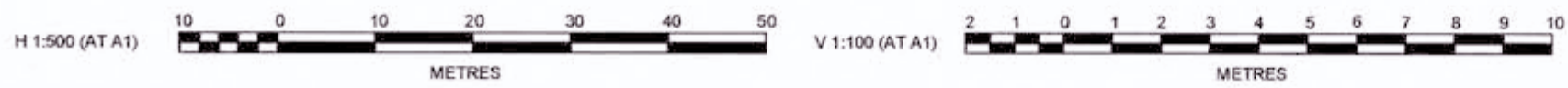
ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 15
 PLAN No: 110185BEL/CC35 **E**
 FILE No: 110185BELCC35
 SHEET SIZE: A1 ORIGINAL

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C35
 Date of Issue 31 July 2017
 Issuing Officer *Joey B*
 Accreditation No. 13PB0565
 These plans/specifications form part of the certificate issued 31 July 2017

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *PR*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



REVISION E
 FIRE TRAIL 1 CROSS SECTIONS
 AMENDED



NO	DESCRIPTION	MP	MG	RO	MS	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL					18/07/17
D	CERTIFIER COMMENTS					27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL					29/07/16
B	CLIENT COMMENTS					13/07/16
A	ADVANCED COPY					21/09/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jw@jwprince.com.au

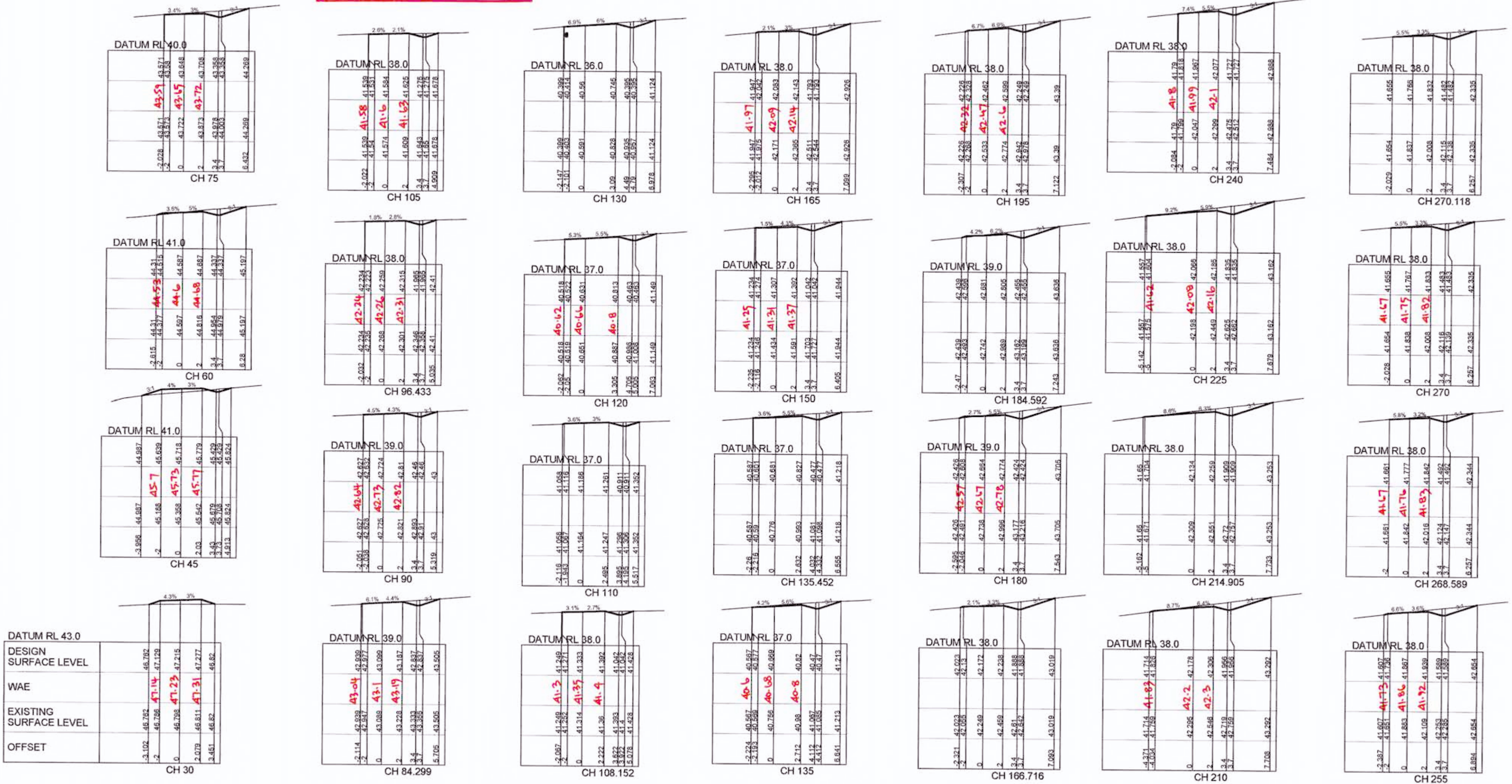
CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 16
 PLAN No: 110185BEL/CC36 E
 FILE No: 110185BEL/CC36
 SHEET SIZE: A1 ORIGINAL

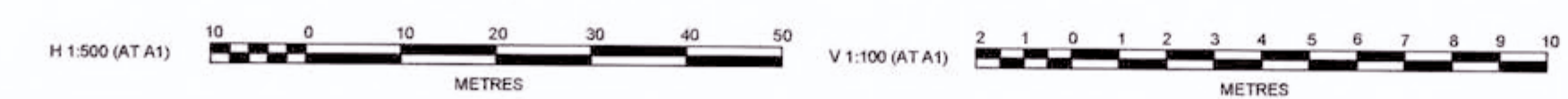
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WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *[Handwritten Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Handwritten Signature]*
 Accreditation No. PSPB0565
 These plans/specifications form part of the certificate
 issued 31 July 2017



REVISION F
 FIRE TRAIL 2 CROSS SECTIONS
 AMENDED



DES	DRN	CKD	APR	DATE
MP	MG	RO	MS	18/07/17
MP	NA	MS	MS	13/02/17
MP	MG	RO	RO	27/09/16
MP	MG	RO	RO	29/07/16
MP	MG	MS	MS	13/07/16
MP	MG	RO	RO	21/02/16

F	E	O	C	B	A
ISSUE FOR CONSTRUCTION APPROVAL	SECTION AMENDED	CERTIFIER COMMENTS	ISSUED FOR CONSTRUCTION APPROVAL	CLIENT COMMENTS	ADVANCED COPY

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: REDBANK

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ORIGIN: AZIMUTH: MGA DATUM: AHD

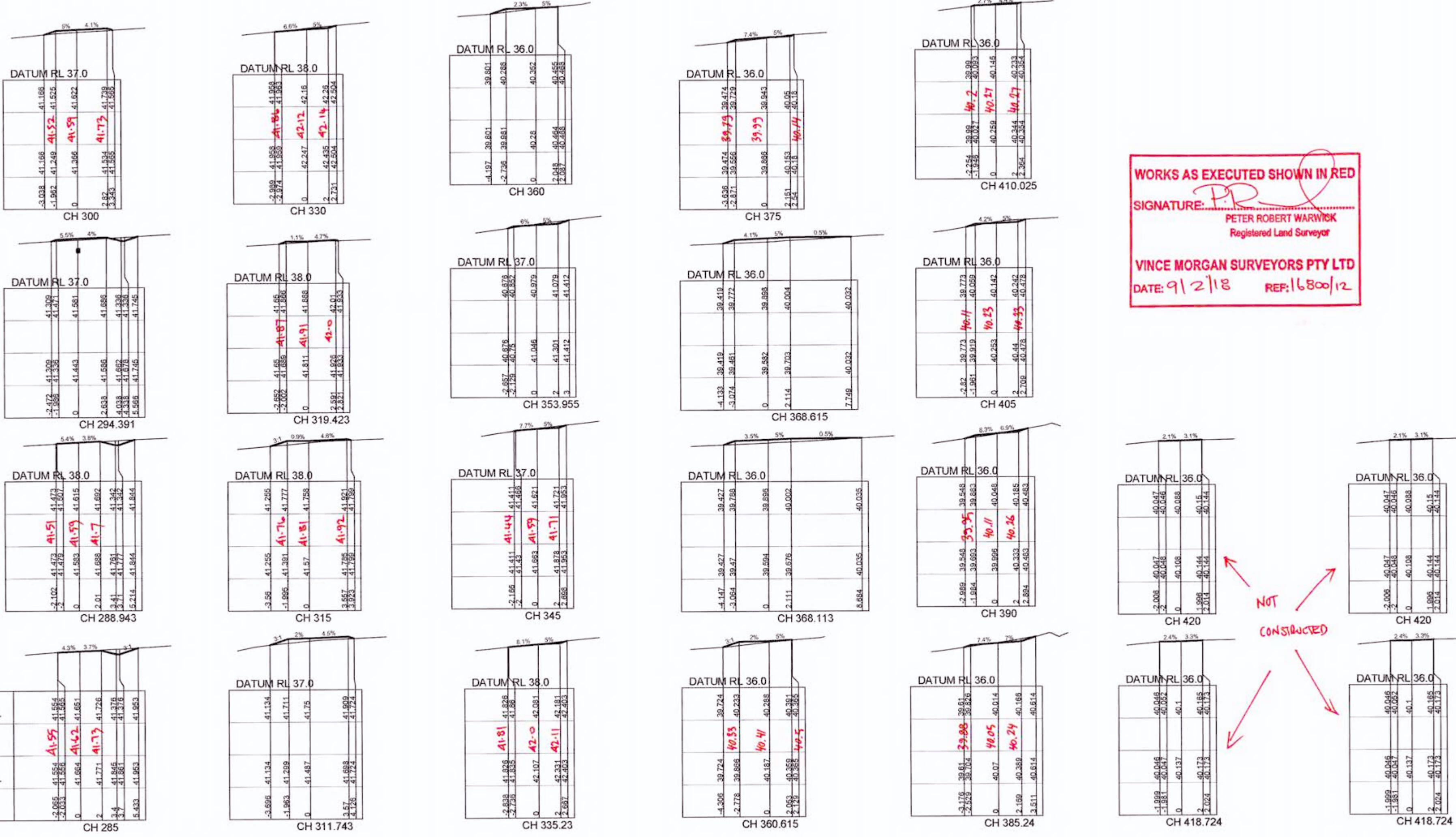
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 17

PLAN No: 110185BEL/CC37 **F**
 FILE No: 110185BELCC37
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:13:11 PM File Name: \\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC-BELMONT\110185BELCC37.dwg

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C38
 Date of Issue 31 July 2017
 Issuing Officer [Signature] JEP60565
 Accreditation No. JEP60565
 These plans/specifications form part of the certificate
 Issued 31 July 2017



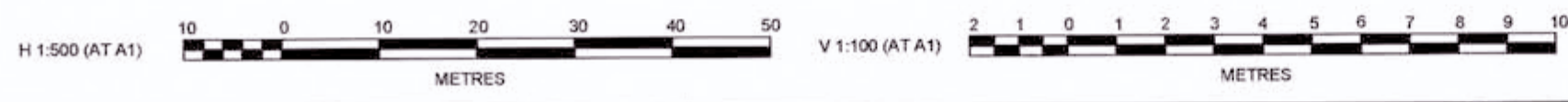
WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature] PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

NOT
 CONSTRUCTED

DATUM RL 38.0	DESIGN SURFACE LEVEL	WAE	EXISTING SURFACE LEVEL	OFFSET
-3.038	41.554	41.55	41.554	0
-1.952	41.554	41.62	41.554	0
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2	41.771	41.73	41.771	0
3	41.860	41.73	41.860	0
5.433	41.953	41.953	41.953	0

FIRE TRAIL 2

REVISION F
 FIRE TRAIL 2 CROSS SECTIONS AMENDED



NO	DESCRIPTION	MP	MG	RO	MS	DATE
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E	SECTION AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jw@jwprince.com.au

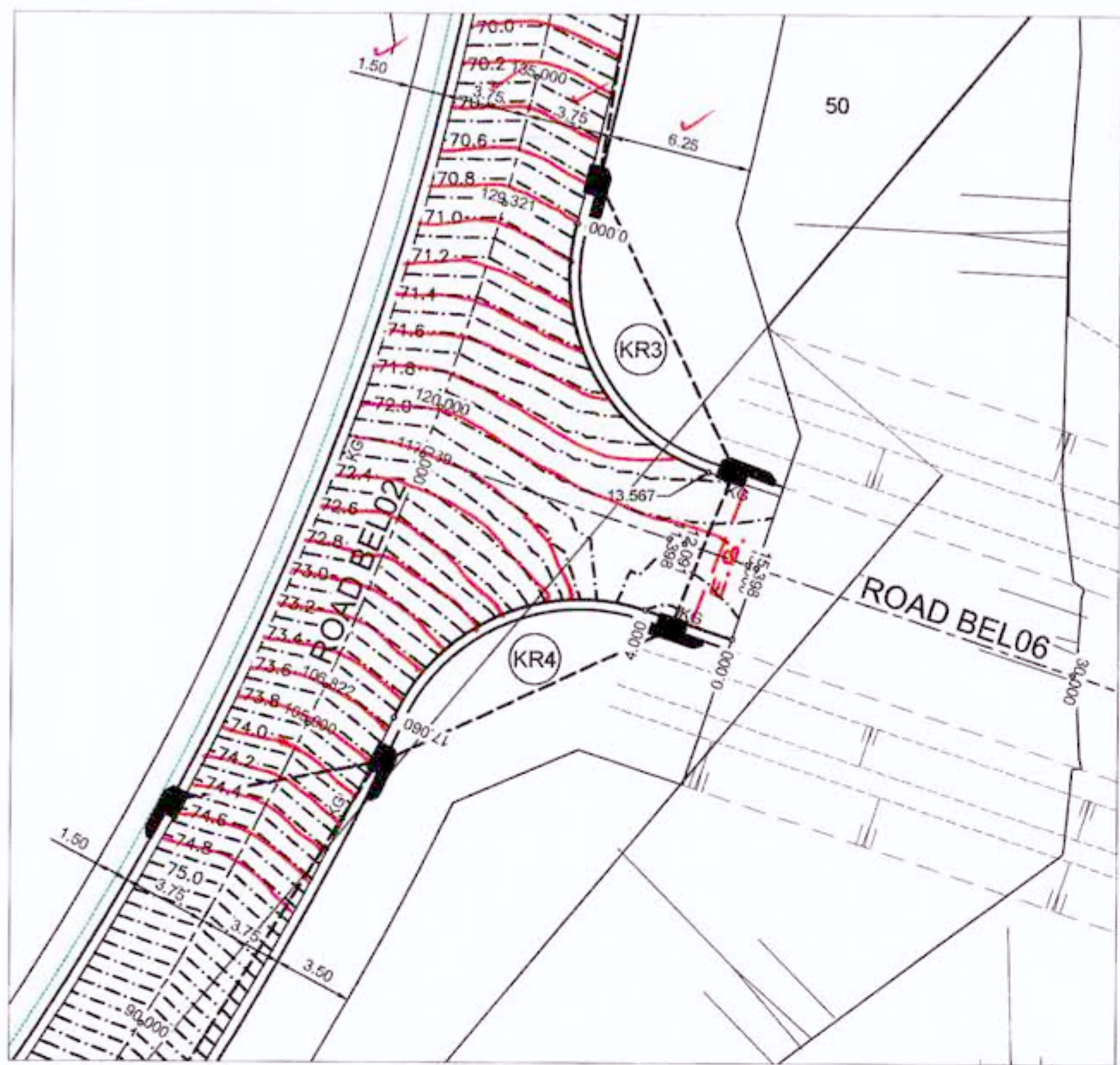
CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 ROAD CROSS SECTIONS SHEET 18

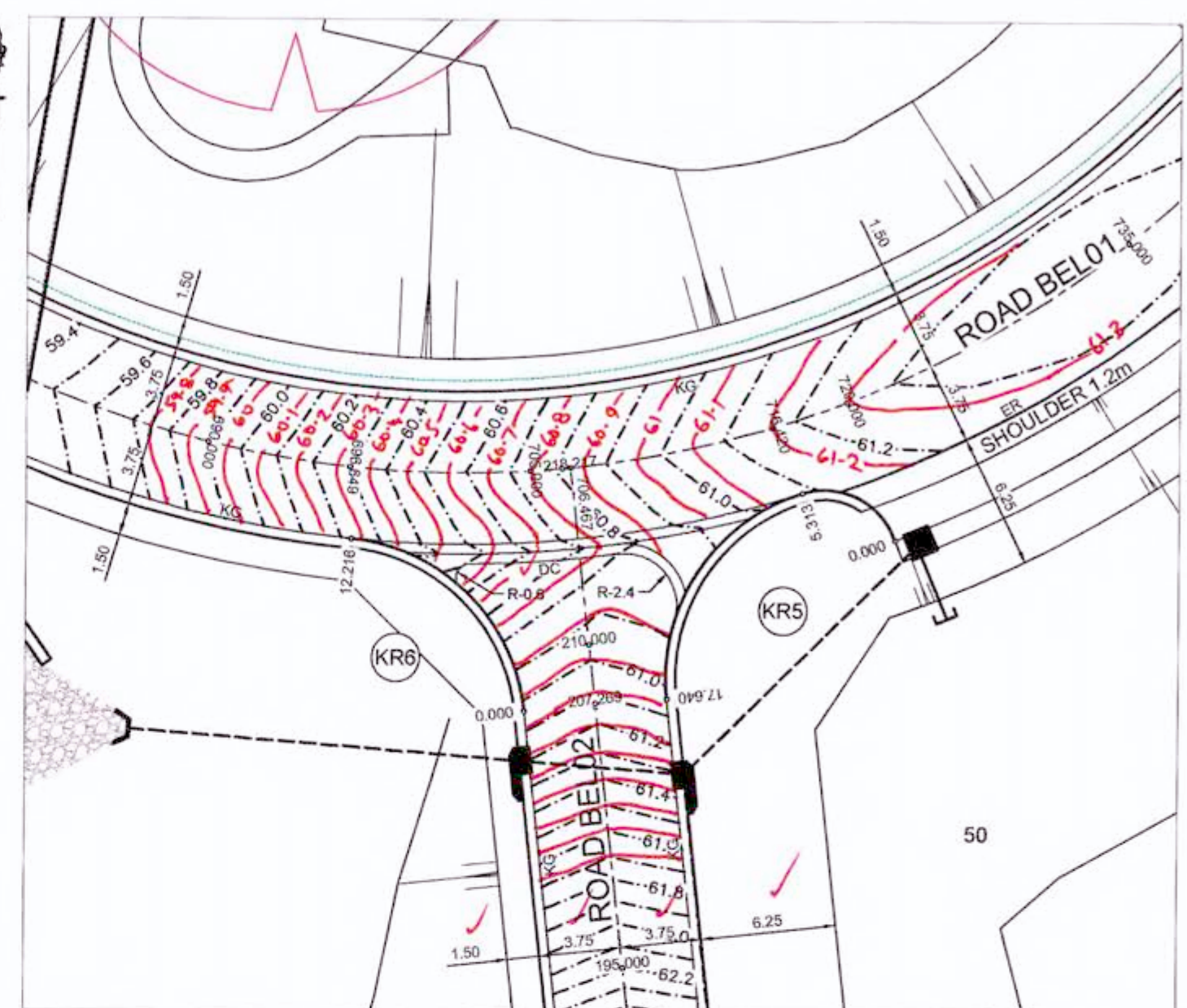
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FILE No. 110185BELCC38	
SHEET SIZE: A1 ORIGINAL	

Plotted: 18 July 2017 5:13:35 PM File Name: J1110185 - Redbank North Richmond Residential Precincts01 - Description/CD/CC/BELMONT/110185BELCC38.dwg

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

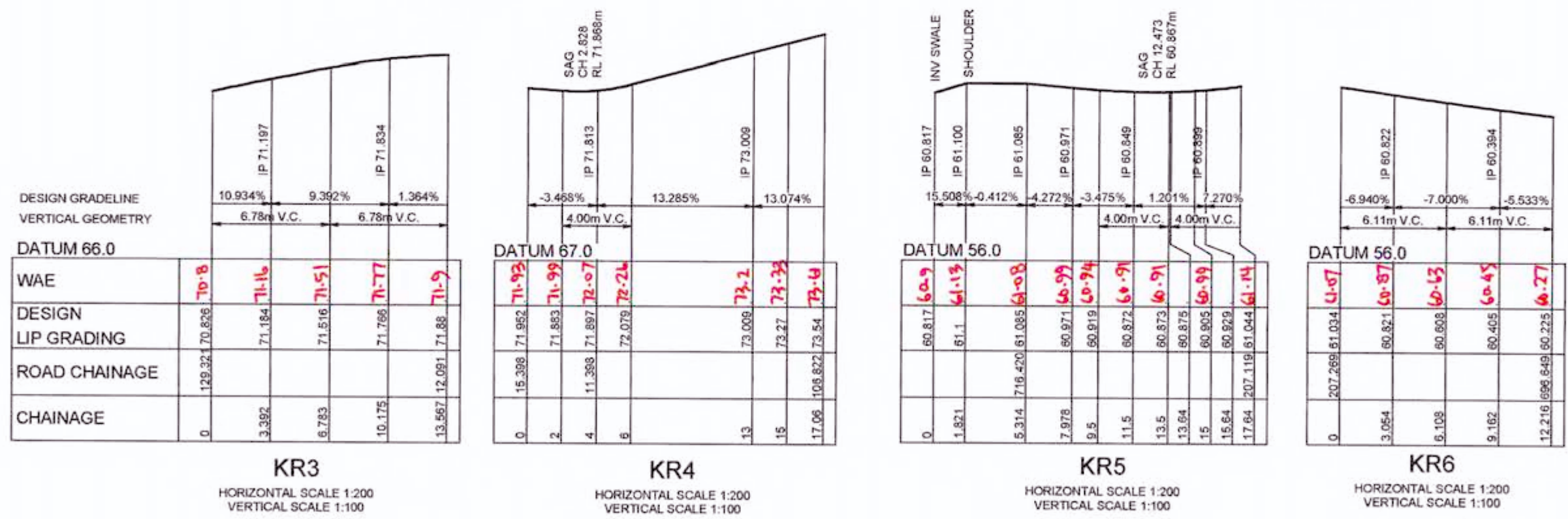


KR No.3 & 4
 SCALE 1:200



KR No.5 & 6
 SCALE 1:200

NOTES:
 • SETOUT TO LIP OF KERB.



KR3						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH	D.ANGLE
0.00	285549.71	6282023.42	195°17'31.94"			
6.78	285547.48	6282015.25		-8.95	13.57	86°50'58.56"
13.57	285555.52	6282012.57	108°26'33.38"			

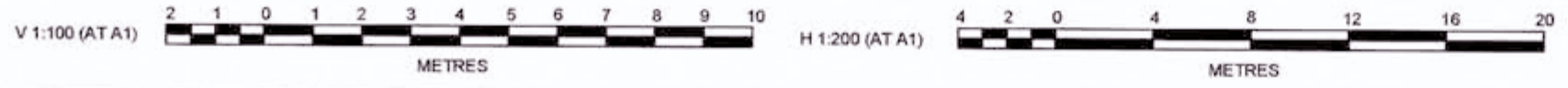
KR4						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH	D.ANGLE
0.00	285556.56	6282005.26	288°26'33.39"			
4.00	285552.77	6282006.53		-8.95	13.06	83°36'35.75"
10.53	285545.18	6282009.06				
17.06	285541.62	6282001.80	204°49'57.73"			

KR5						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH	D.ANGLE
0.00	285561.32	6282109.20	340°49'03.15"			
2.66	285560.22	6282112.36		-3.45	5.31	88°14'35.95"
5.31	285557.03	6282111.36				
11.48	285550.00	6282109.15		-8.95	12.33	78°54'34.27"
17.64	285550.81	6282101.83	173°39'54.15"			

KR6						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH	D.ANGLE
0.00	285544.24	6282101.25	353°39'54.15"			
6.11	285543.43	6282108.48		-8.95	12.22	78°12'19.78"
12.22	285536.19	6282109.18	275°27'34.38"			

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *Jerry*
 Accreditation No: 20130299C36
 These plans/specifications form part of the certificate issued 31 July 2017.

REVISION E
 • KERB RETURNS 3, 4, 5 & 6 PROFILES AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
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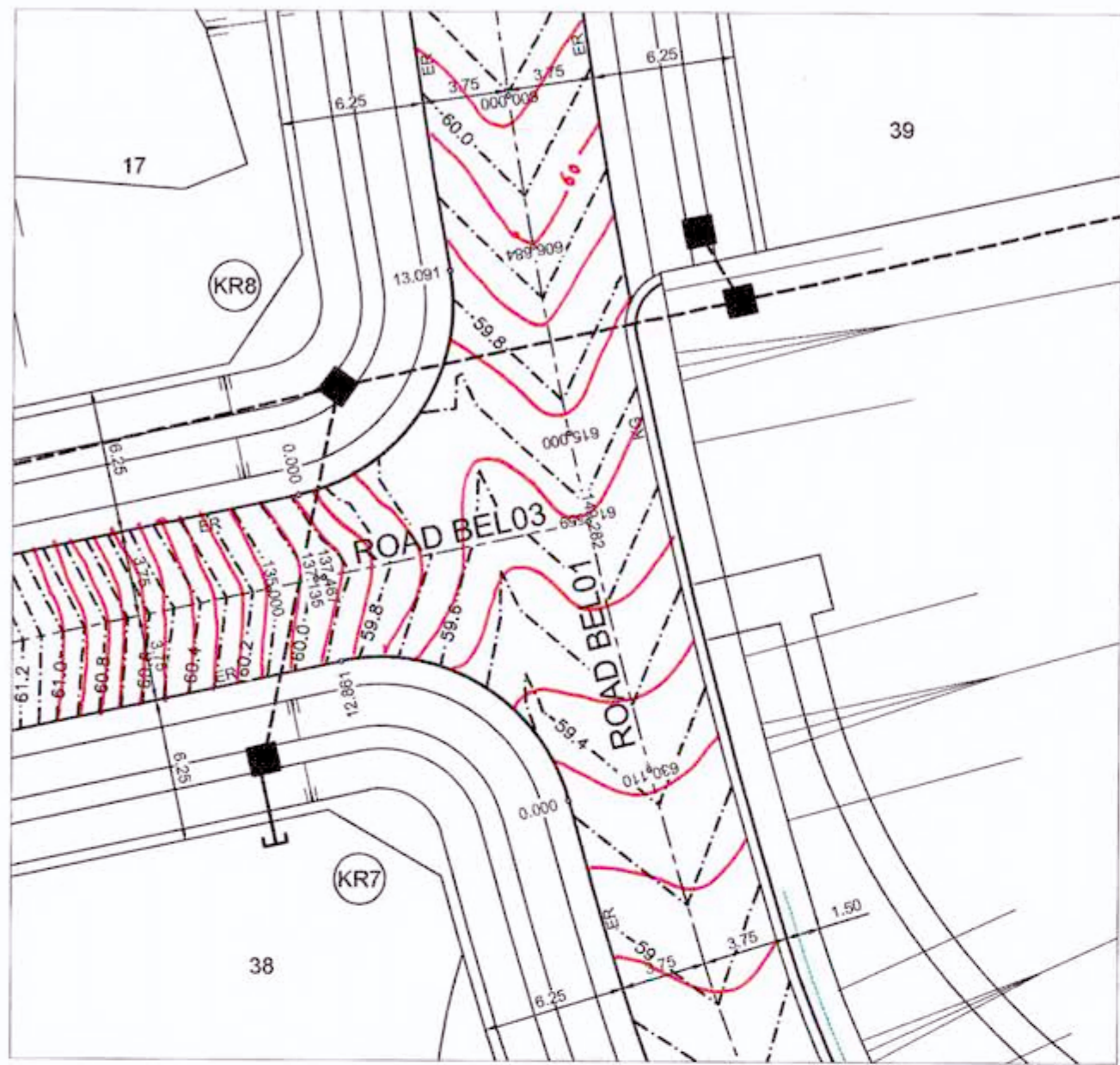
CLIENT:

 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:
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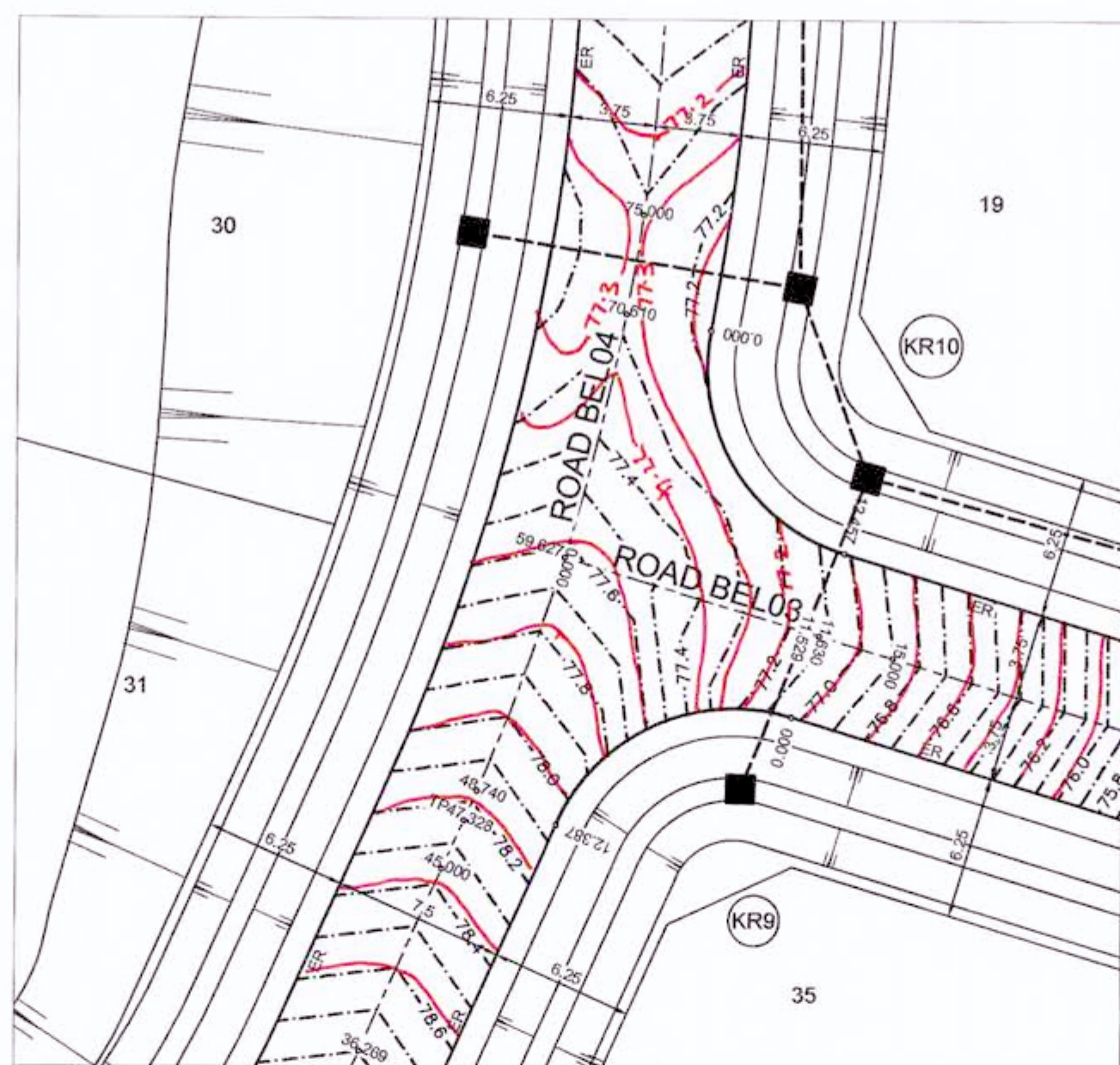
ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 KERB RETURN PLAN & SECTIONS SHEET 1

PLAN No:	110185BEL/CC55	E
FILE No:	110185BELCC55	
SHEET SIZE:	A1 ORIGINAL	

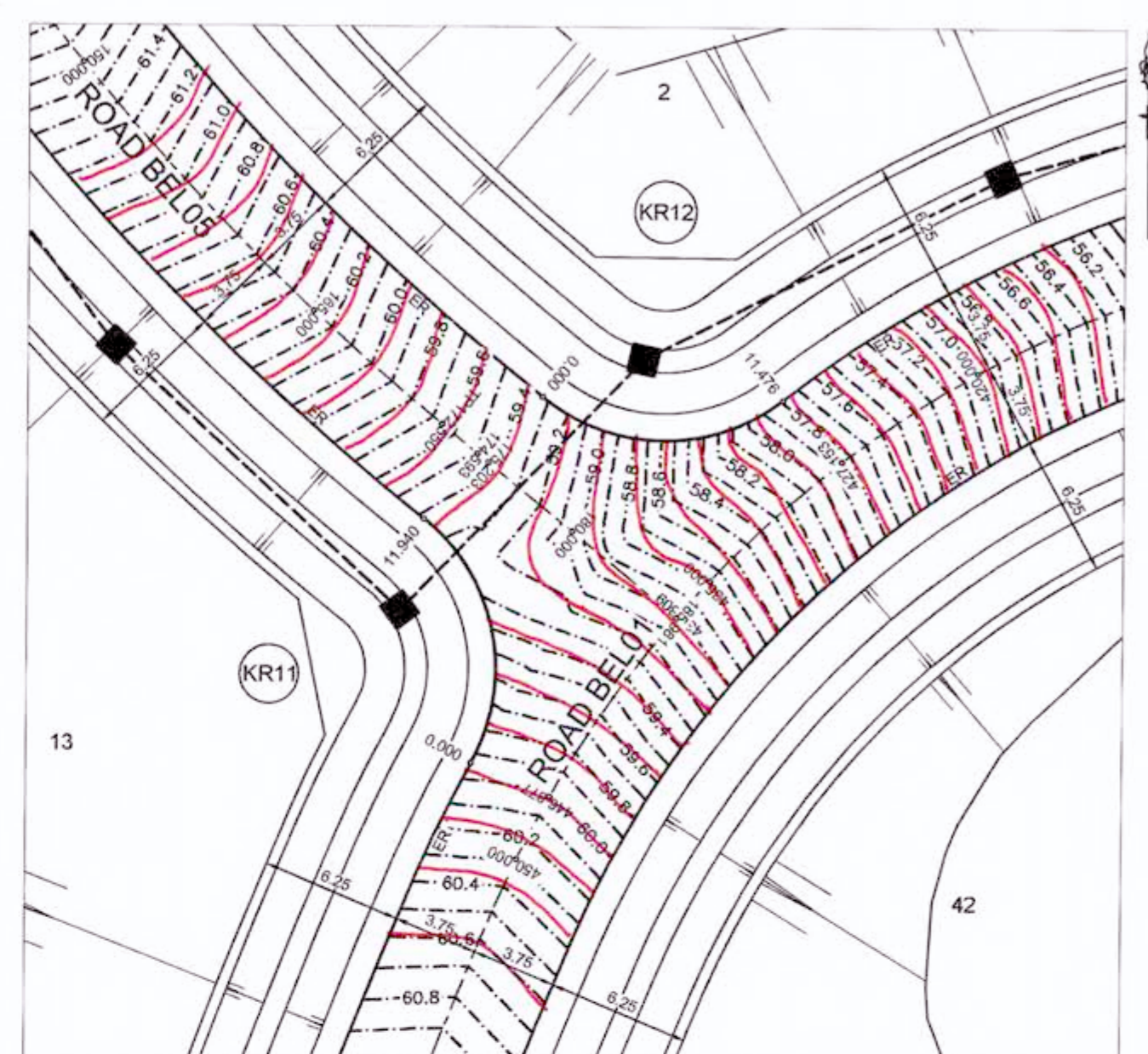
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KR No. 7 & 8
SCALE 1:200



KR No. 9 & 10
SCALE 1:200



KR No. 11 & 12
SCALE 1:200

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. 5250565
 These plans/specifications form part of the certificate issued 31 July 2017

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

NOTES:
 • SETOUT TO EDGE RESTRAINT FACE WITH PAVEMENT.

DESIGN GRADELINE
 VERTICAL GEOMETRY
 DATUM 55.0

IP 59.384	IP 59.836
2.169%	3.928%
6.43m V.C.	6.43m V.C.
6.745%	
WAE	
DESIGN	
LIP GRADING	
ROAD CHAINAGE	
CHAINAGE	

KR7
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285487.96	6282154.12	344°33'16.71"			
6.43	285485.82	6282161.85		-8.5	12.86	88°41'24.21"
12.86	285477.98	6282160.17	257°51'52.50"			

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285476.08	6282167.43	77°51'52.50"			
6.55	285484.14	6282169.16		-8.5	13.09	88°14'31.67"
13.09	285482.65	6282177.27	349°37'20.63"			

SAG
 CH 5.23
 RL 59.687m

IP 59.640	IP 59.758
-7.203%	1.811%
6.55m V.C.	6.55m V.C.
2.169%	
WAE	
DESIGN	
LIP GRADING	
ROAD CHAINAGE	
CHAINAGE	

KR8
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

IP 77.221	IP 77.913
6.216%	11.182%
6.19m V.C.	6.19m V.C.
4.819%	
WAE	
DESIGN	
LIP GRADING	
ROAD CHAINAGE	
CHAINAGE	

KR9
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285352.70	6282159.08	266°52'19.18"			
6.19	285345.44	6282161.26		-8.5	12.39	83°29'52.72"
12.39	285342.43	6282154.30	203°22'26.45"			

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285349.09	6282175.94	190°50'36.30"			
6.23	285347.65	6282168.43		-8.5	12.46	83°58'17.12"
12.46	285354.97	6282166.21	106°52'19.18"			

CREST
 CH 6.69
 RL 77.237m

IP 77.174	IP 77.263
1.000%	-6.831%
6.00m V.C.	
WAE	
DESIGN	
LIP GRADING	
ROAD CHAINAGE	
CHAINAGE	

KR10
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

SAG
 CH 9.158
 RL 59.283m

IP 59.694	IP 59.132
-8.008%	-9.409%
5.97m V.C.	5.97m V.C.
8.210%	
WAE	
DESIGN	
LIP GRADING	
ROAD CHAINAGE	
CHAINAGE	

KR11
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285502.17	6282335.92	28°52'56.48"			
5.97	285505.64	6282342.22		-8.5	11.94	80°29'07.86"
11.94	285500.01	6282346.69	308°23'48.62"			

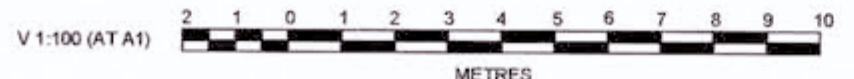
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285505.22	6282352.10	129°18'03.35"			
5.74	285510.49	6282347.79		-8.5	11.48	77°21'18.91"
11.48	285515.84	6282351.98	51°56'44.45"			

SAG
 CH 9.158
 RL 59.283m

IP 59.093	IP 58.100
-8.177%	-17.296%
5.74m V.C.	5.74m V.C.
-10.856%	
WAE	
DESIGN	
LIP GRADING	
ROAD CHAINAGE	
CHAINAGE	

KR12
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

REVISION F
 • KERB RETURNS 7, 8, 9, 10, 11 & 12 PROFILES AMENDED



REV	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	DRAINAGE LAYOUT AND KERB SECTION AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16

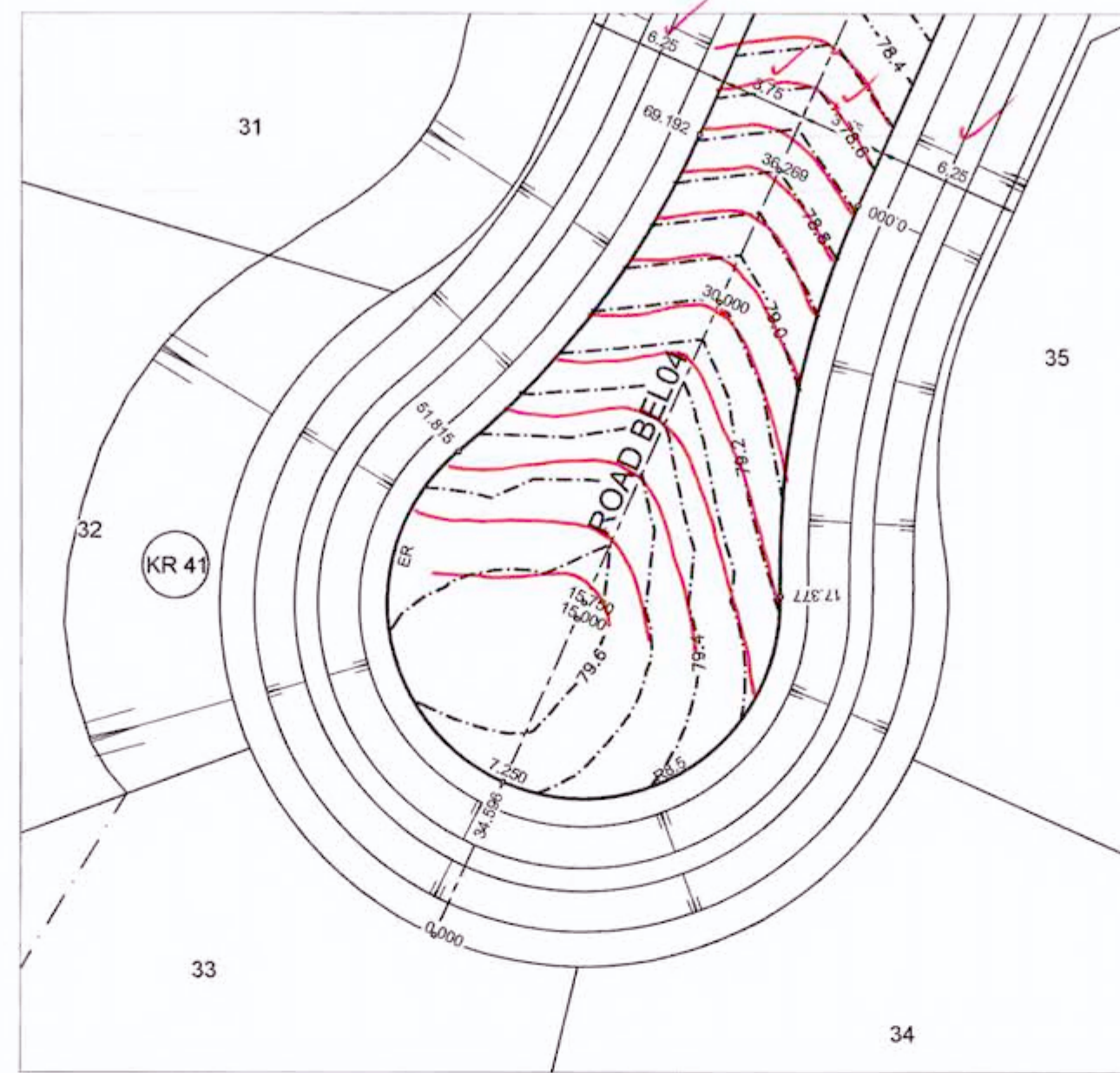
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT:

 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:
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ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 KERB RETURN PLAN & SECTIONS SHEET 2
 PLAN No: 110185BEL/CC56 F
 FILE No: 110185BELCC56
 SHEET SIZE: A1 ORIGINAL

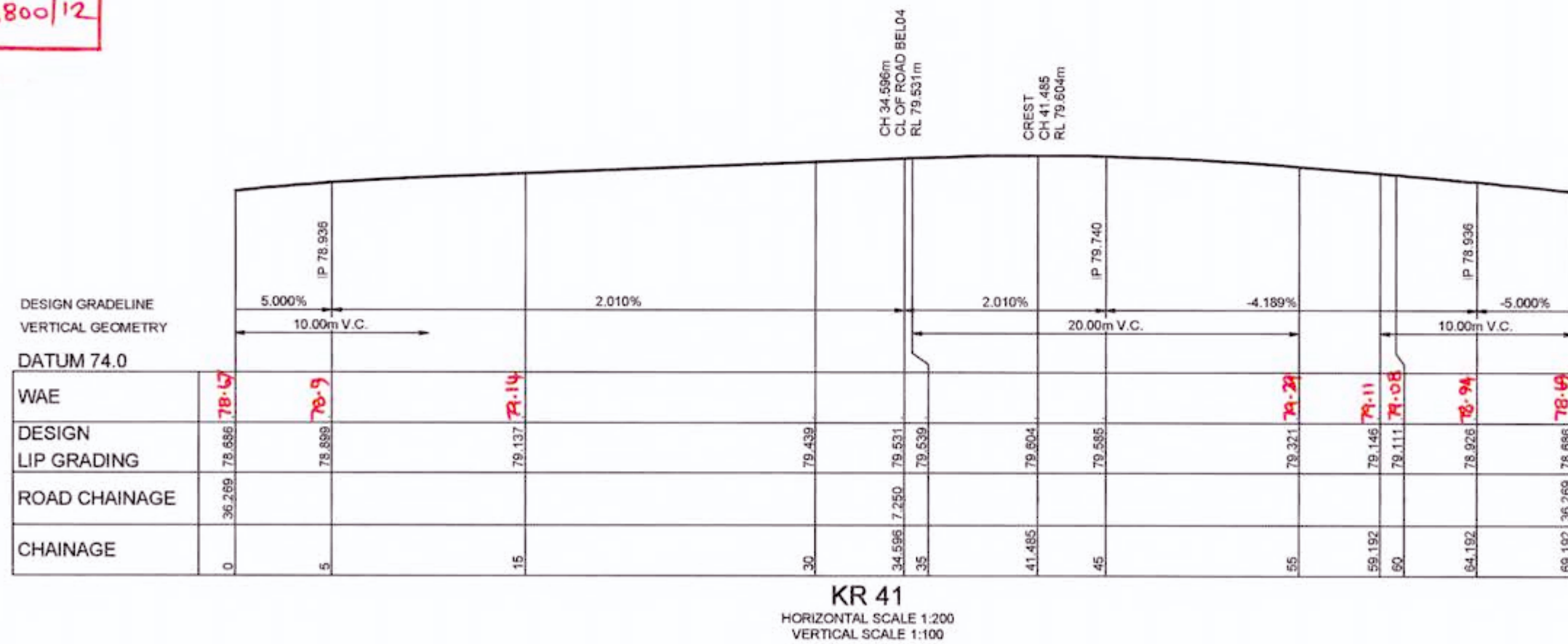
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KR No. 41
SCALE 1:200

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

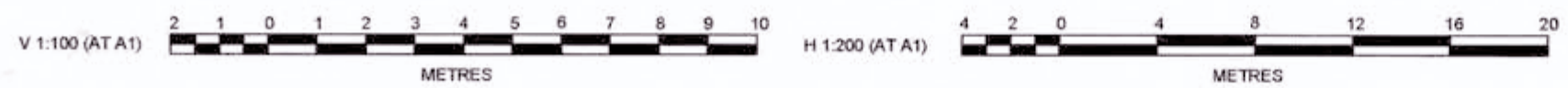
NOTES:
 • SETOUT TO EDGE RESTRAINT
 FACE WITH PAVEMENT.



KR 41						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285337.31	6282142.87	204°10'58.08"			
8.69	285333.68	6282134.90		-38.19	17.38	26°04'04.31"
17.38	285333.97	6282125.97				
25.99	285334.42	6282112.35		8.5	17.22	116°04'04.31"
34.60	285322.00	6282117.93	294°10'58.17"			
43.21	285309.57	6282123.51		8.5	17.22	116°04'04.31"
51.82	285320.04	6282132.22				
60.50	285326.84	6282137.88		-38.19	17.38	26°04'04.31"
69.19	285330.46	6282145.94	24°10'58.27"			

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. 18SPB0505
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION F
 • KERB RETURN 41 PROFILE AMENDED



REV	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	KERB RETURN 41 UPDATED	MP	MG	RO	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO		21/08/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

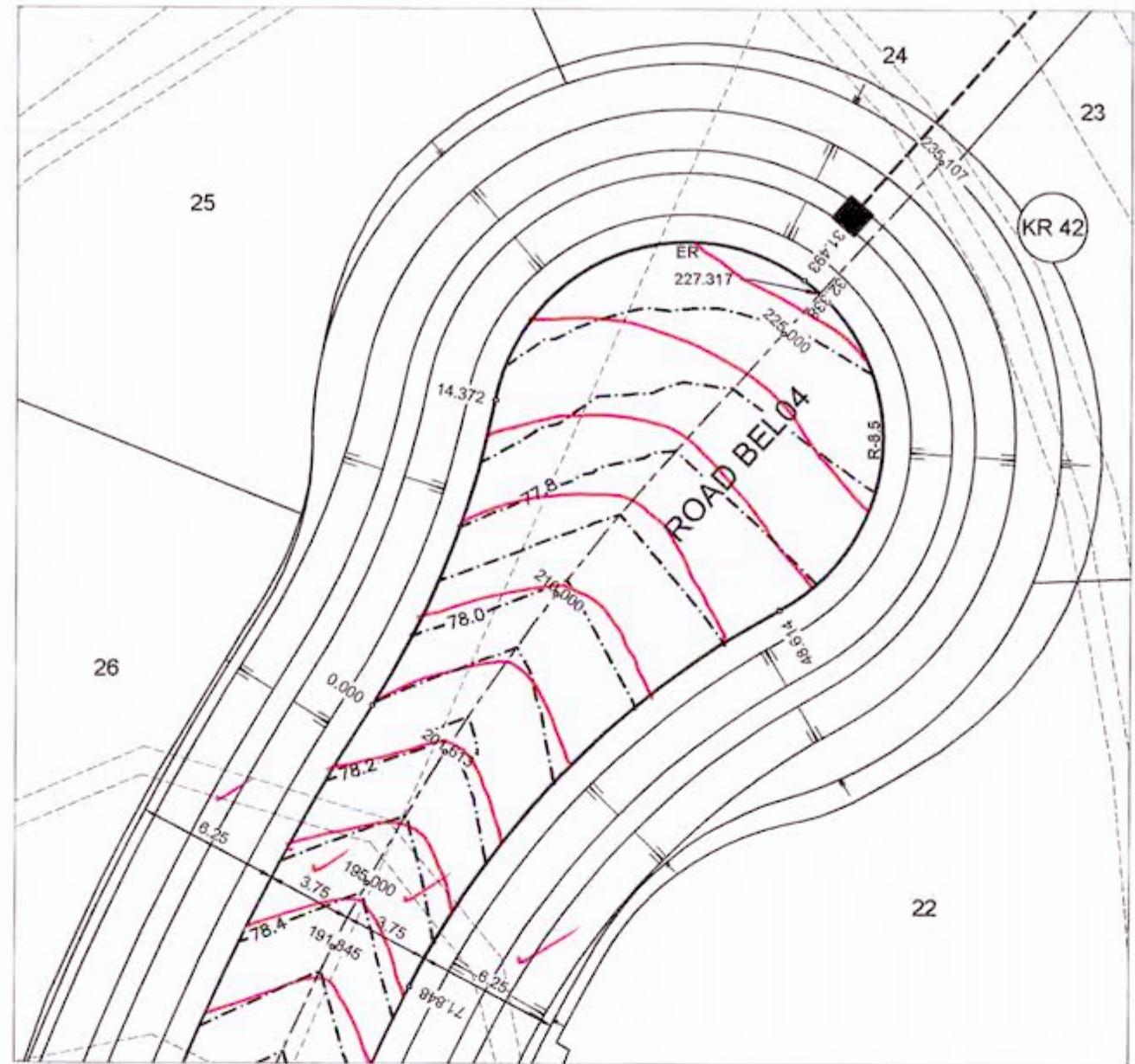
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 KERB RETURN PLAN & SECTIONS SHEET 3

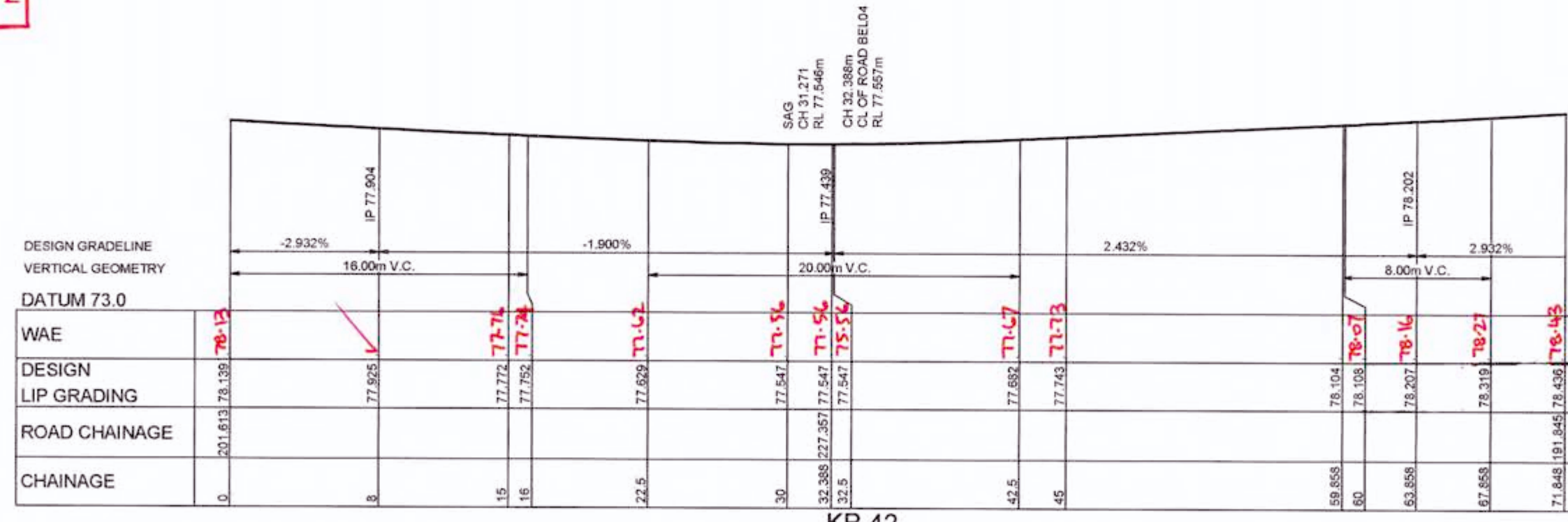
PLAN No: 110185BEL/CC57 **F**
 FILE No: 110185BELCC57
 SHEET SIZE: A1 ORIGINAL



KR No.42
SCALE 1:200

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *[Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

NOTES:
 • SETOUT TO EDGE RESTRAINT
 FACE WITH PAVEMENT.



DESIGN GRADELINE
VERTICAL GEOMETRY
DATUM 73.0
WAE
DESIGN
LIP GRADING
ROAD CHAINAGE
CHAINAGE

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285352.10	6282305.85	32°30'46.89"			
7.19	285356.00	6282311.98		-38.19	14.37	21°33'34.63"
14.37	285357.39	6282319.12	10°57'12.05"			
22.93	285359.94	6282332.33		8.5	17.12	115°24'29.40"
31.49	285370.77	6282324.35	126°21'41.45"			
40.05	285381.60	6282316.38		8.5	17.12	115°24'29.40"
48.61	285369.75	6282310.02	241°46'10.85"			
60.23	285359.19	6282304.35		-38.19	23.23	34°51'11.93"
71.85	285353.78	6282293.66	206°54'58.92"			

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. 8890505
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION E
 • KERB RETURN 42 PROFILE AMENDED

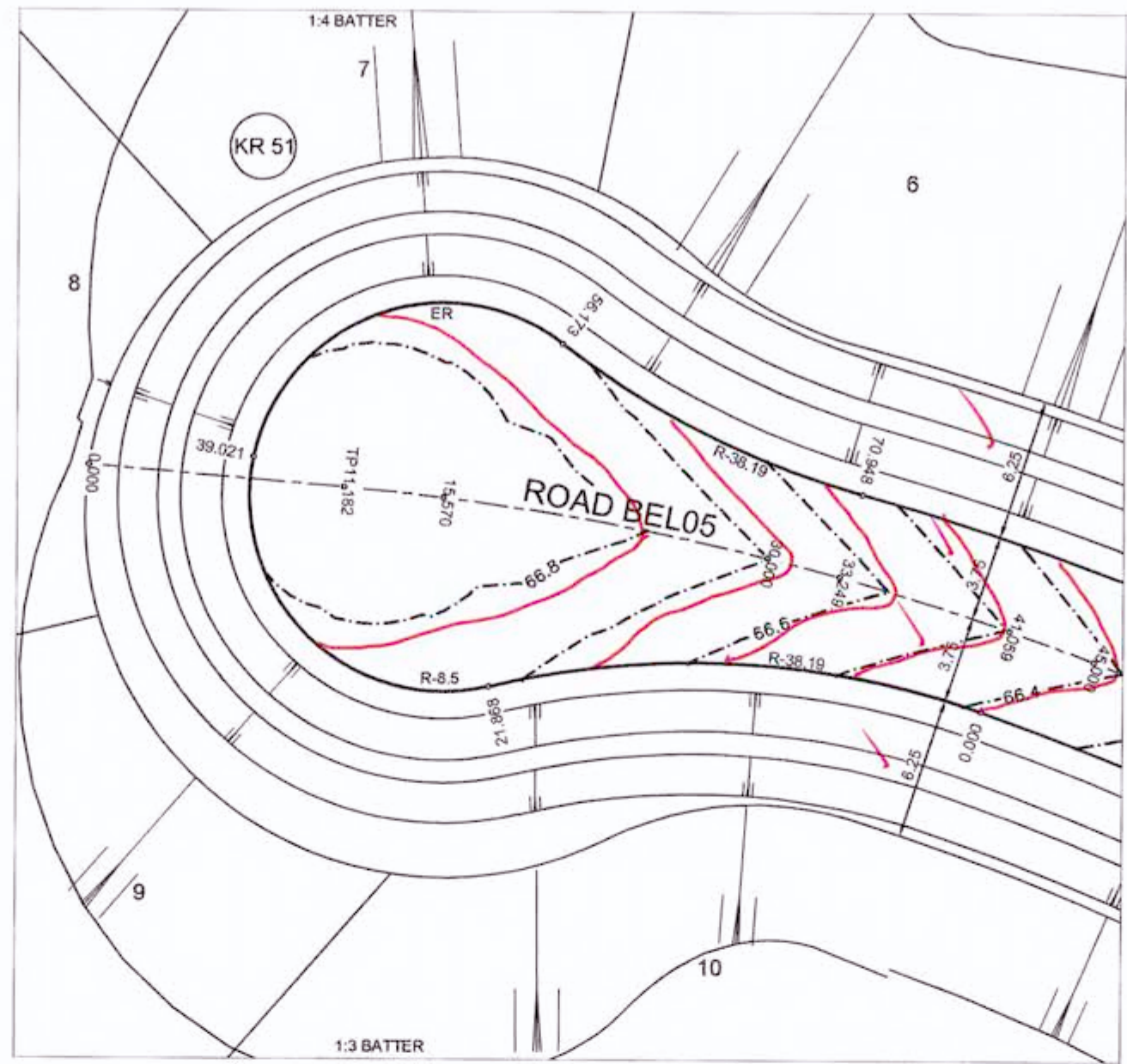


	MP	MG	RO	MS	18/07/17
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	17/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16
	DES	DRN	CKD	APR	DATE

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
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CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

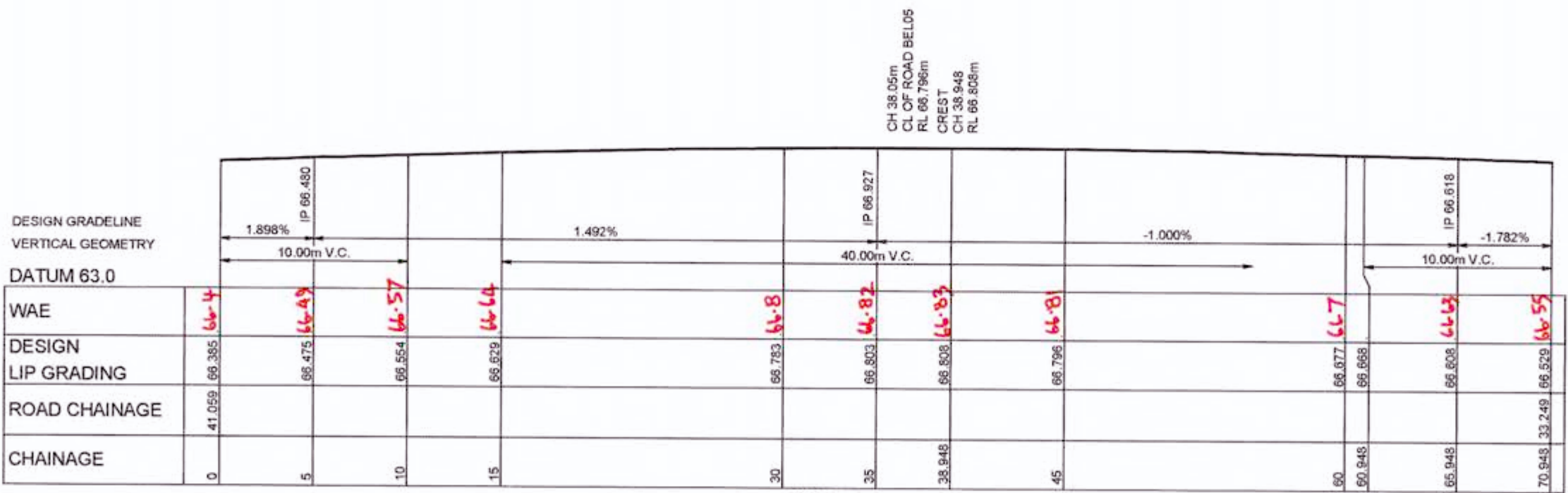
ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 KERB RETURN PLAN & SECTIONS SHEET 4
 PLAN No: 110185BEL/CC58 E
 FILE No: 110185BELCC58
 SHEET SIZE: A1 ORIGINAL



KR No.51
SCALE 1:200

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P. Warwick*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

NOTES:
 • SETOUT TO EDGE RESTRAINT FACE WITH PAVEMENT.



KR 51
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

KR 51						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285406.08	6282435.97	289°05'04.87"			
10.93	285395.46	6282439.64		-38.19	21.87	32°48'17.44"
21.87	285384.54	6282436.98	256°16'47.42"			
30.44	285371.42	6282433.77		8.5	17.15	115°37'11.19"
39.02	285374.20	6282446.99	11°53'58.62"			
47.60	285376.99	6282460.20		8.5	17.15	115°37'11.19"
56.17	285387.70	6282451.98	127°31'09.81"			
63.56	285393.63	6282447.42		-38.19	14.77	22°09'48.93"
70.95	285400.84	6282445.44	105°21'20.88"			



CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *[Signature]*
 Accreditation No: 13PE0505
 These plans/specifications form part of the certificate issued 31 July 2017.

Plotted: 18 July 2017 5:47:36 PM File Name: J110185 - Redbank North Richmond Residential Precincts01 - Description:DC:BELMONT:110185BELCC59.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16

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CLIENT:

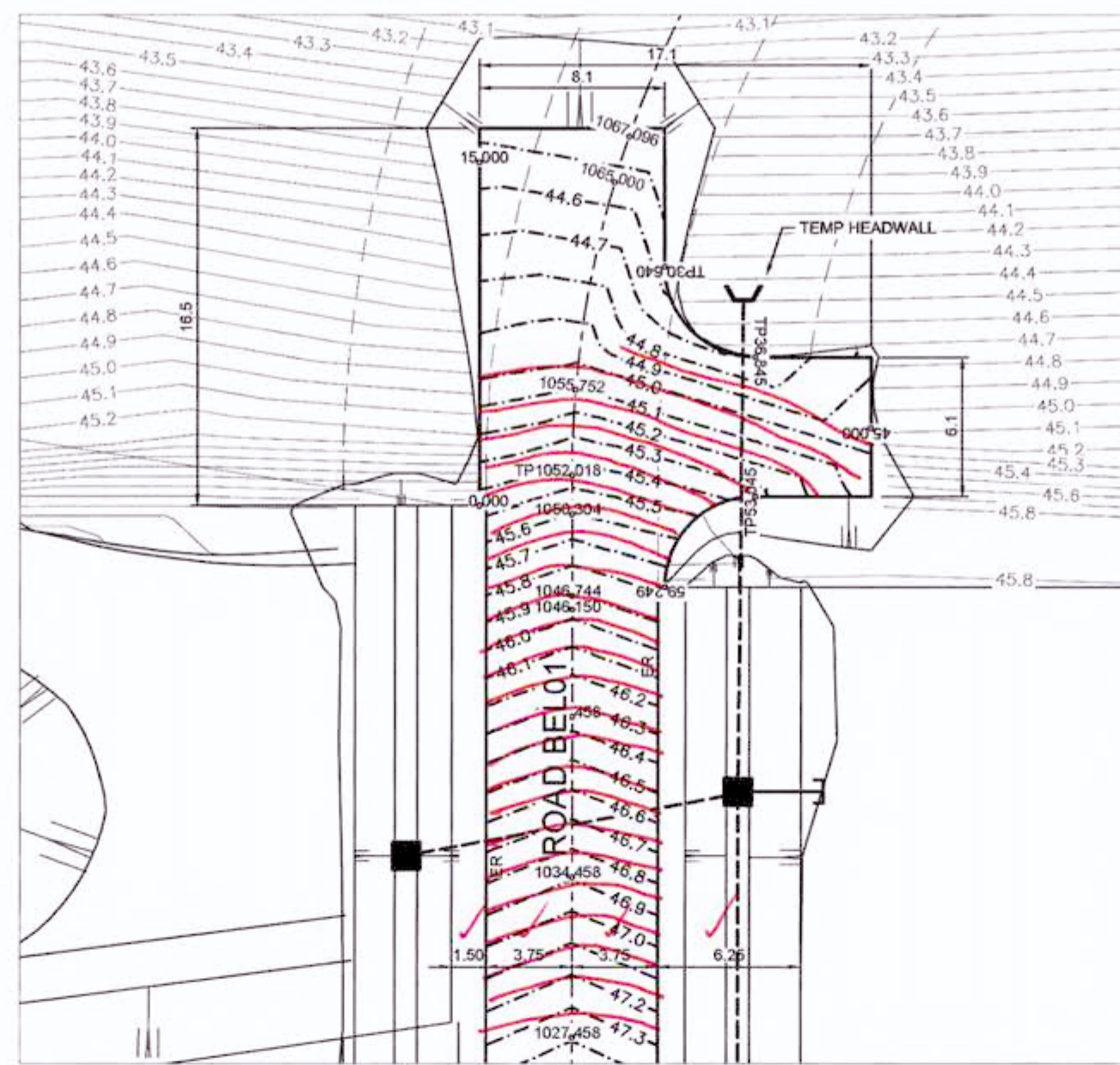
 DATUM: AHD
 ORIGIN:
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 KERB RETURN PLAN & SECTIONS SHEET 5

PLAN No: 110185BEL/CC59 **E**
 FILE No: 110185BELCC59
 SHEET SIZE: A1 ORIGINAL

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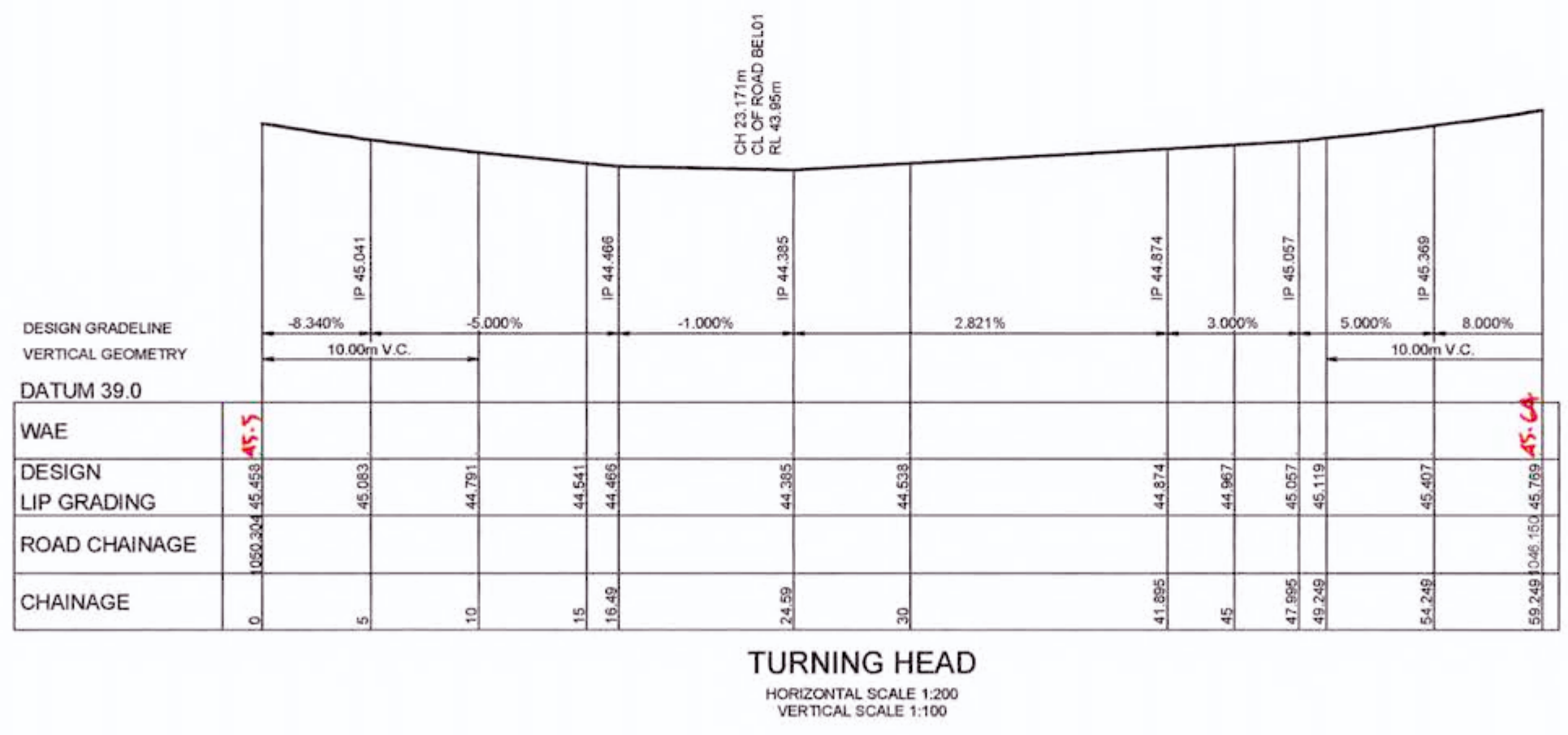
TURNING HEAD
SCALE 1:200

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *PP*
PETER ROBERT WARWICK
Registered Land Surveyor

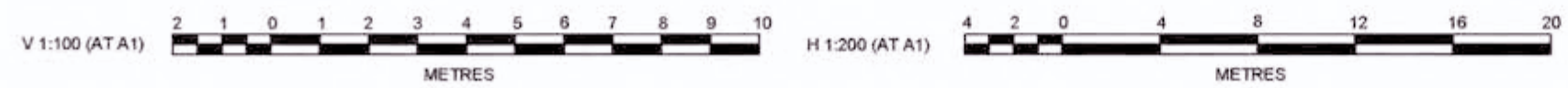
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

NOTES:
• SETOUT TO EDGE RESTRAINT
FACE WITH PAVEMENT.



TURNING HEAD
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD SPIRAL	A LENGTH	D ANGLE
0.00	285772.09	6282367.11	39°53'15.04"			
16.49	285782.67	6282379.77				
24.59	285788.88	6282374.57				
30.64	285785.00	6282369.93	219°53'15.04"			
33.74	285782.47	6282366.90				
36.84	285785.50	6282364.37	129°53'13.00"			
41.89	285789.37	6282361.13				
47.99	285785.46	6282356.45				
53.04	285781.59	6282359.69	309°53'13.00"			
56.15	285778.56	6282362.22				
59.25	285776.02	6282359.19	219°53'13.00"			



CONSTRUCTION CERTIFICATE

Certificate No: 20130299C36
Date of Issue: 31 July 2017
Issuing Officer: *[Signature]*
Accreditation No: 16800/12

These plans/specifications form part of the certificate issued 31 July 2017

AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/05/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.twprince.com.au E jw@jwprince.com.au

CLIENT: REDBANK

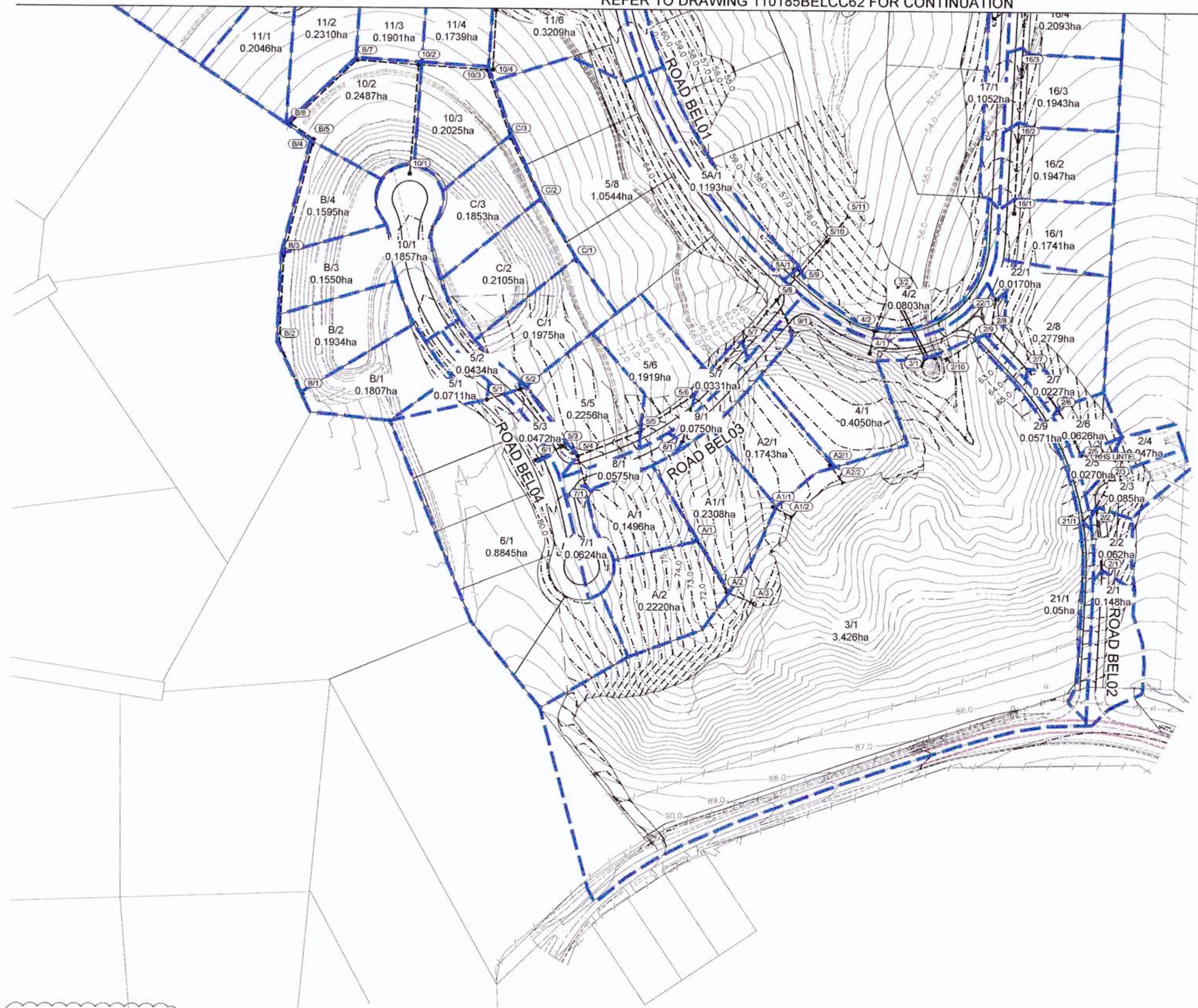
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
KERB RETURN PLAN & SECTIONS SHEET 6

PLAN No: 110185BEL/CC60 **E**
FILE No: 110185BELCC60
SHEET SIZE: A1 ORIGINAL

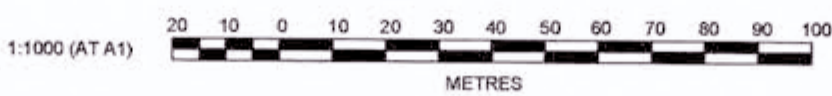
REFER TO DRAWING 110185BELCC62 FOR CONTINUATION



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *[Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]* 1389095
 Accreditation No. 1389095
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION E
 • FIRE TRAIL 1 ALIGNMENT AMENDED
 • DESIGN SURFACE & BATTER INTERFACE AMENDED



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AMENDMENT	DES	DRN	CKD	APR	DATE
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D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
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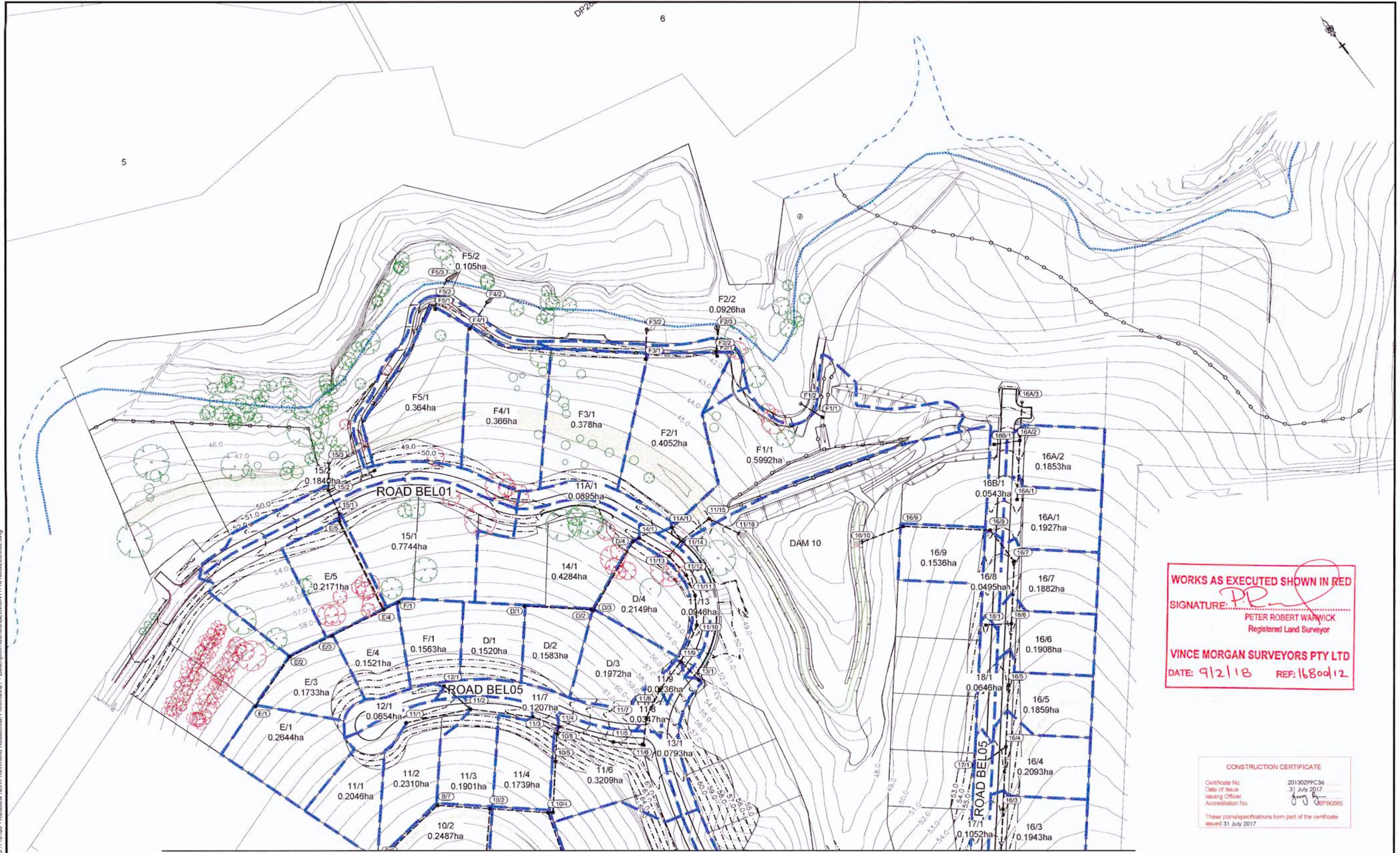
CLIENT: **REDBANK**

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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 CATCHMENT PLAN SHEET 1

PLAN No: 110185BEL/CC61 **E**
 FILE No: 110185BELCC61
 SHEET SIZE: A1 ORIGINAL

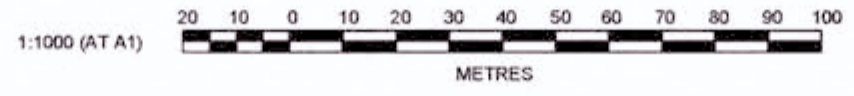


WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *PR*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 1680d12

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *[Signature]*
 Accreditation No: 1680066
 These plans/specifications form part of the certificate issued 31 July 2017

REFER TO DRAWING 110185BELCC61 FOR CONTINUATION

REVISION E
 • FIRE TRAIL 2 ALIGNMENT AMENDED
 • DESIGN SURFACE & BATTER INTERFACE AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
F	MP	MG	RO	MS	18/07/17
E	MP	NA	MS	MS	13/02/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RC	13/07/16
A	MP	MG	RO	RO	21/06/16

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
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CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT CATCHMENT PLAN SHEET 2
 PLAN No: 110185BEL/CC62 [F]
 FILE No: 110185BELCC62
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:51:11 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC62.dwg

CONSTRUCTION CERTIFICATE

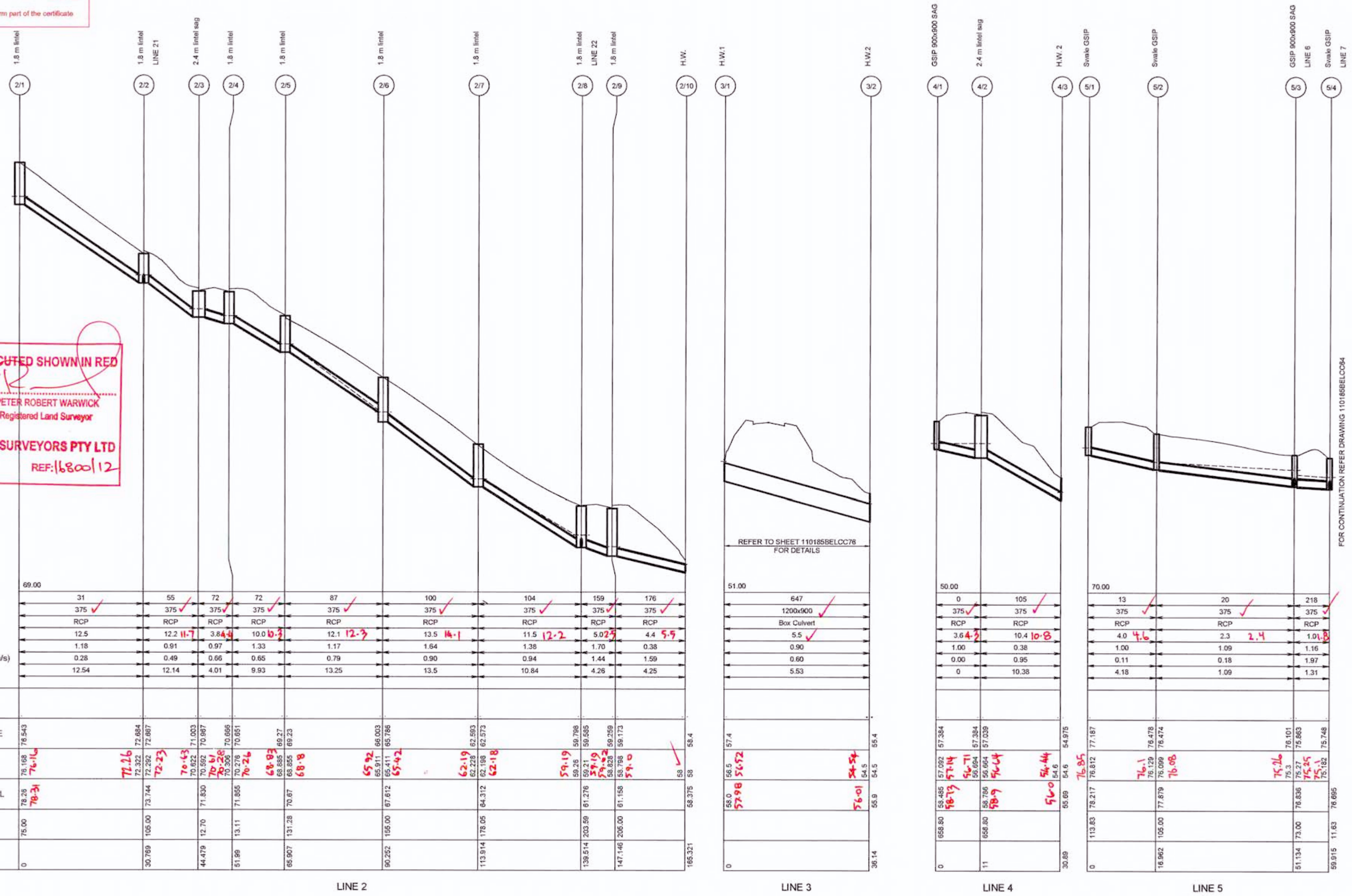
Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. JBPB0565

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WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *[Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor

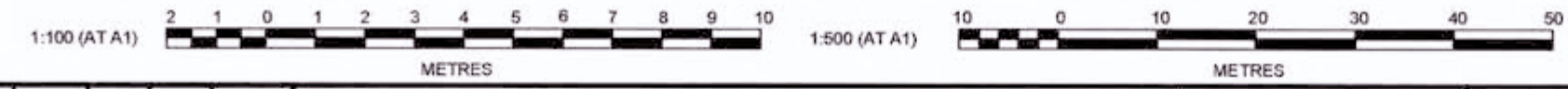
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



DATUM (m)	69.00									
PEAK FLOW (L/s)	31	55	72	72	87	100	104	159	176	
PIPE SIZE (mm)	375	375	375	375	375	375	375	375	375	
PIPE CLASS	RCP	RCP	RCP	RCP	RCP	RCP	RCP	RCP	RCP	
PIPE GRADE (%)	12.5	12.2	11.7	3.84	10.0	12.3	13.5	14.1	11.5	5.02
PIPE COVER MINIMUM	1.18	0.91	0.97	1.33	1.17	1.64	1.38	1.70	0.38	4.4
FULL PIPE VELOCITY (m/s)	0.28	0.49	0.66	0.65	0.79	0.90	0.94	1.44	1.59	5.9
HGL GRADE (%)	12.54	12.14	4.01	9.93	13.25	13.5	10.84	4.26	4.25	

WAE																													
HYDRAULIC GRADE LINE	76.543	72.884	72.867	71.003	70.967	70.665	70.651	68.885	69.37	68.855	68.23	65.92	65.911	65.411	65.786	62.19	62.228	62.593	59.25	59.796	59.21	59.595	58.828	59.259	58.798	59.173	58.375	58	58.4
INVERT LEVEL	76.16	72.26	72.23	70.63	70.592	70.306	70.276	68.83	68.885	68.855	68.26	65.92	65.911	65.42	62.19	62.18	62.18	59.19	59.25	59.796	59.21	59.595	58.828	59.259	58.798	59.173	58.375	58	58.4
DESIGN SURFACE LEVEL	78.25	73.744	73.744	71.830	71.830	71.855	70.276	70.87	70.87	70.87	70.87	64.312	64.312	64.312	64.312	64.312	64.312	61.276	61.276	61.276	61.276	61.276	61.158	61.158	61.158	61.158	61.158	61.158	61.158
ROAD CHAINAGE	75.00	105.00	12.70	13.11	13.11	13.11	13.11	131.28	131.28	131.28	131.28	150.00	150.00	150.00	175.05	175.05	175.05	203.59	203.59	203.59	203.59	203.59	205.00	205.00	205.00	205.00	205.00	205.00	205.00
PIPE CHAINAGE	0	30.789	44.479	51.99	65.907	90.262	113.914	138.514	147.146	165.321	185.321	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00	205.00

REVISION E
 ALL DRAINAGE LONGITUDINAL SECTIONS AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16

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CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 DRAINAGE LONGITUDINAL SECTIONS SHEET 1
 PLAN No: 110185BEL/CC63 E
 FILE No: 110185BELCC63
 SHEET SIZE: A1 ORIGINAL

Printed: 18 July 2017 5:19:28 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\BELMONT\110185BELCC63.dwg

FOR CONTINUATION REFER DRAWING 110185BELCC64

Project: 18 July 2017 5:19:48 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CC\BELMONT\110185BELCC64.dwg

FOR CONTINUATION REFER DRAWING 110185BELCC63

FOR CONTINUATION REFER DRAWING 110185BELCC65

CONSTRUCTION CERTIFICATE

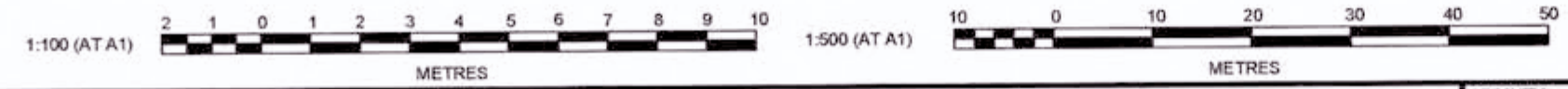
Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. BPPB0505

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WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

LINE	5	5A	6	7	8	9	10
DATUM (m)	65.00						
PEAK FLOW (L/s)	228	311	326	561	583	582	
PIPE SIZE (mm)	375	375	450	450	450	525	
PIPE CLASS	RCP	RCP	RCP	RCP	RCP	RCP	
PIPE GRADE (%)	14.3	14.2	16.3	10.4	14.9	5.0	
PIPE COVER MINIMUM	1.09	1.28	1.11	1.03	0.89	0.52	
FULL PIPE VELOCITY (m/s)	2.06	2.82	2.05	3.53	3.67	2.69	
HGL GRADE (%)	13.67	13.32	16.29	7.45	3.74	16.09	5
WAE							
HYDRAULIC GRADE LINE	75.182	75.748	75.527	71.084	70.839	66.65	66.339
INVERT LEVEL	75.1	70.48	70.484	70.484	70.44	65.93	65.94
DESIGN SURFACE LEVEL	76.65	74.73	72.742	70.44	67.6	67.583	65.94
ROAD CHAINAGE	11.83	46.00					
PIPE CHAINAGE	59.915	113.88	158.154	184.287	202.248	221.348	234.184

REVISION F
 ALL DRAINAGE LONGITUDINAL SECTIONS AMENDED



NO	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	LINE 5, 6 & 7 AMENDED	MP	MG	RO	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	MS	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	MS	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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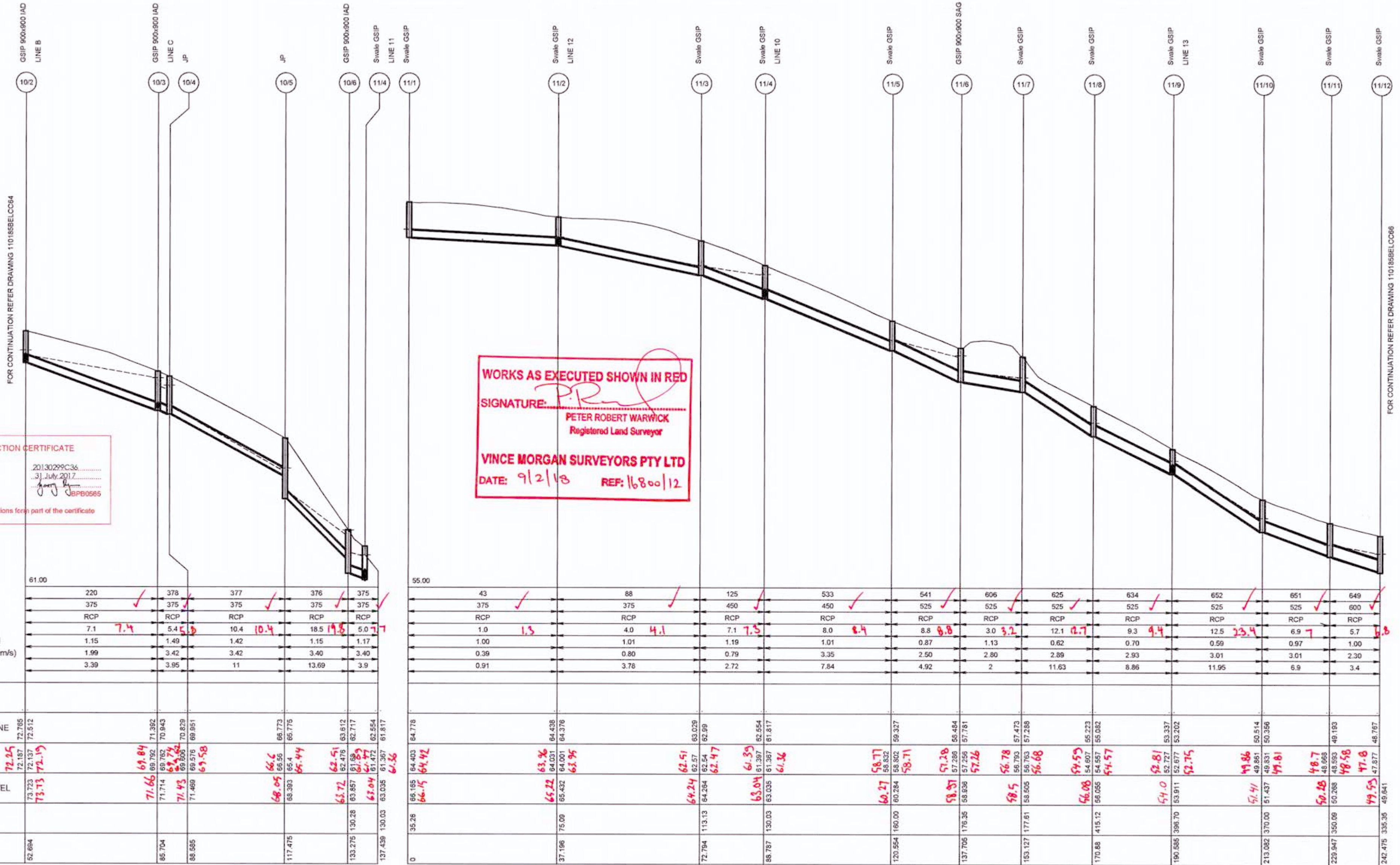
CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
 BELMONT
 DRAINAGE LONGITUDINAL SECTIONS
 SHEET 2

PLAN No: 110185BEL/CC64 F
 FILE No: 110185BELCC64
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:20:09 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC65.dwg

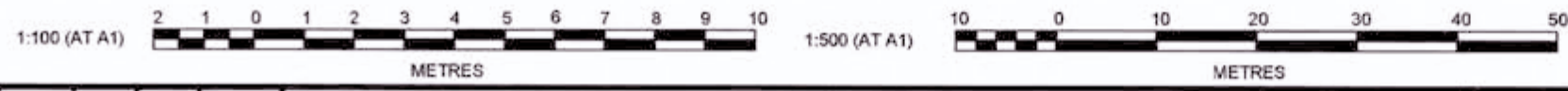


CONSTRUCTION CERTIFICATE
 Certificate No. 20130295C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. BPP0665
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 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

PARAMETER	LINE 10 (10/2-10/6)	LINE 10 (10/6-10/11)	LINE 11 (11/2-11/11)
DATUM (m)	61.00	61.00	55.00
PEAK FLOW (L/s)	220	378	43
PIPE SIZE (mm)	375	375	375
PIPE CLASS	RCP	RCP	RCP
PIPE GRADE (%)	7.4	5.4	1.0
PIPE COVER MINIMUM	1.15	1.49	1.00
FULL PIPE VELOCITY (m/s)	1.99	3.42	0.39
HGL GRADE (%)	3.39	3.95	0.91
WAE			
HYDRAULIC GRADE LINE	72.765	72.512	64.778
INVERT LEVEL	72.25	72.137	64.403
DESIGN SURFACE LEVEL	73.23	73.13	66.15
ROAD CHAINAGE			
PIPE CHAINAGE	62.684	137.439	37.196

REVISION E
 ALL DRAINAGE LONGITUDINAL SECTIONS AMENDED



REVISION	DESCRIPTION	DES	DRN	CKD	APR	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO		21/06/16

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AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

CLIENT: **REDBANK**
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ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
 DRAINAGE LONGITUDINAL SECTIONS SHEET 3
 PLAN No: 110185BEL/CC65 E
 FILE No: 110185BELCC65
 SHEET SIZE: A1 ORIGINAL

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. BPPB0605

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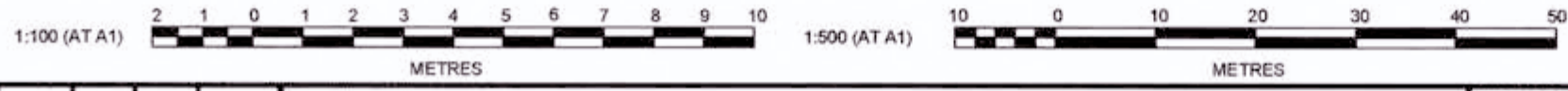
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 PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE: 7/2/18 REF: 16200/12

FOR CONTINUATION REFER DRAWING 110185BELCC06

LINE	11	11A	12	13	14	15	15A	16
DATUM (m)	42.00	42.00	59.00	47.00	43.00	42.00	43.00	51.00
PEAK FLOW (L/s)	648	895	908	904	15	12	17	103
PIPE SIZE (mm)	675	675	750	750	375	375	375	375
PIPE CLASS	RCP	RCP	RCP	RCP	RCP	RCP	RCP	RCP
PIPE GRADE (%)	2.2	2.4	2.0	1.0	4.0	1.0	2.0	6.9
PIPE COVER MINIMUM	1.06	1.19	0.54	0.75	1.02	0.45	1.03	1.11
FULL PIPE VELOCITY (m/s)	1.81	2.50	2.05	2.05	2.26	2.49	0.15	0.33
HGL GRADE (%)	0.51	1.94	0.57	1	0.01	1.24	1.43	6.93
WAE								
HYDRAULIC GRADE LINE	47.50	46.5	47.25					
INVERT LEVEL	47.87	47.802	47.87	47.87	47.87	47.87	47.87	47.87
DESIGN SURFACE LEVEL	49.53	49.33	49.44	49.15	47.13	46.44	46.51	46.62
ROAD CHAINAGE	242.475	335.35	49.641	49.641	49.641	49.641	49.641	49.641
PIPE CHAINAGE	242.475	335.35	49.641	49.641	49.641	49.641	49.641	49.641

REVISION E
 ALL DRAINAGE LONGITUDINAL SECTIONS AMENDED



AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	13/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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CLIENT: REDBANK

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REDBANK, NORTH RICHMOND BELMONT
 DRAINAGE LONGITUDINAL SECTIONS SHEET 4

PLAN No: 110185BEL/CC66 E
 FILE No: 110185BELCC66
 SHEET SIZE: A1 ORIGINAL

Plot: 16 July 2017 5:20:50 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC67.dwg

Swale GSIP LINE 17 PROVIDE 2550 RCP STUB FOR FUTURE CONNECTION

Swale GSIP PROVIDE 2550 RCP STUB FOR FUTURE CONNECTION

Swale GSIP LINE 18 PROVIDE 2550 RCP STUB FOR FUTURE CONNECTION

Swale GSIP PROVIDE 2550 RCP STUB FOR FUTURE CONNECTION

Swale GSIP

GSIP 900x900 IAD PROVIDE 2550 RCP STUB FOR FUTURE CONNECTION

H.W.

Swale GSIP

Swale GSIP LINE 16B

H.W.

Swale GSIP

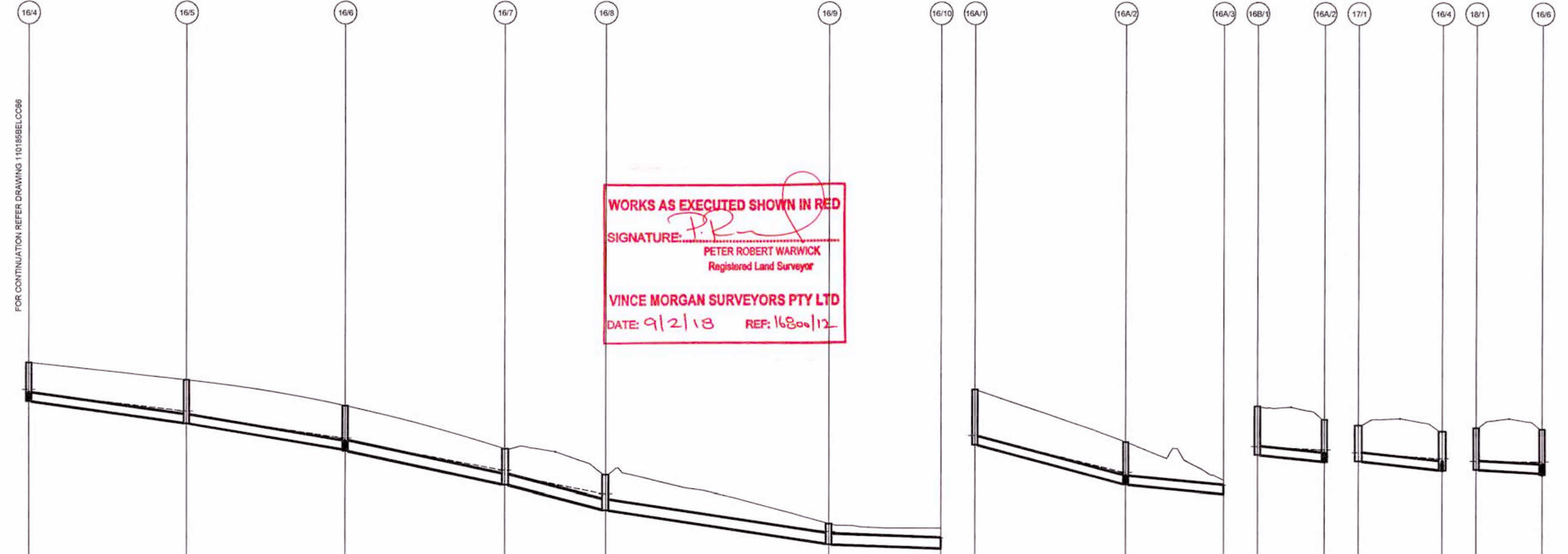
Swale GSIP LINE 16A

Swale GSIP

Swale GSIP LINE 16

Swale GSIP

Swale GSIP LINE 16



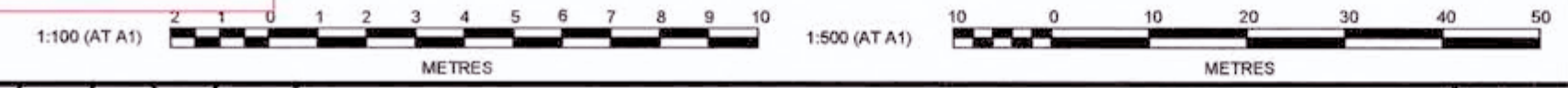
WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

	16/4	16/5	16/6	16/7	16/8	16/9	16/10	16A/1	16A/2	16A/3	16B/1	16A/2	17/1	16/4	18/1	16/6
DATUM (m)	45.00									40.00			39.00			48.00
PEAK FLOW (L/s)	159	196	247	284	294	321			41	93	14	18	15			
PIPE SIZE (mm)	375	375	450	450	450	450			375	375	375	375	375	375	375	
PIPE CLASS	RCP	RCP	RCP	RCP	RCP	RCP			RCP	RCP	RCP	RCP	RCP	RCP	RCP	
PIPE GRADE (%)	2.7	2.6	3.2	4.1	4.8	5.1			5.1	1.9	1.9	2.0	1.9	2.0	1.0	
PIPE COVER MINIMUM	1.29	1.50	1.10	1.06	0.42	0.45			1.48	0.38	1.45	1.17	1.44	1.17	1.44	
FULL PIPE VELOCITY (m/s)	1.44	1.77	1.55	1.78	1.85	2.02			0.37	0.85	0.12	0.16	0.13	0.16	0.13	
HGL GRADE (%)	2.3	2.9	3.68	3.8	2.8	0.71			4.72	1.86	0.95	1.41	0.19	1.41	0.19	

	16/4	16/5	16/6	16/7	16/8	16/9	16/10	16A/1	16A/2	16A/3	16B/1	16A/2	17/1	16/4	18/1	16/6
WAE																
HYDRAULIC GRADE LINE	53.451	53.31	52.905	51.32	51.201	49.905	48.867	47.229	47.125	46.5	46.5	46.416	44.843	44.843	44.679	44.679
INVERT LEVEL	52.914	52.905	52.91	52.02	51.989	51.935	50.82	50.849	49.705	48.703	47.229	47.125	46.72	46.703	46.7	46.54
DESIGN SURFACE LEVEL	54.653	54.666	54.666	53.88	53.883	53.883	52.749	52.749	50.82	50.849	49.705	48.705	47.45	47.577	46.7	46.54
ROAD CHAINAGE	104.864	864.81														
PIPE CHAINAGE	139.693	899.36														

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. BPP0565
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION E
 ALL DRAINAGE LONGITUDINAL SECTIONS AMENDED



J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: REDBANK

AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

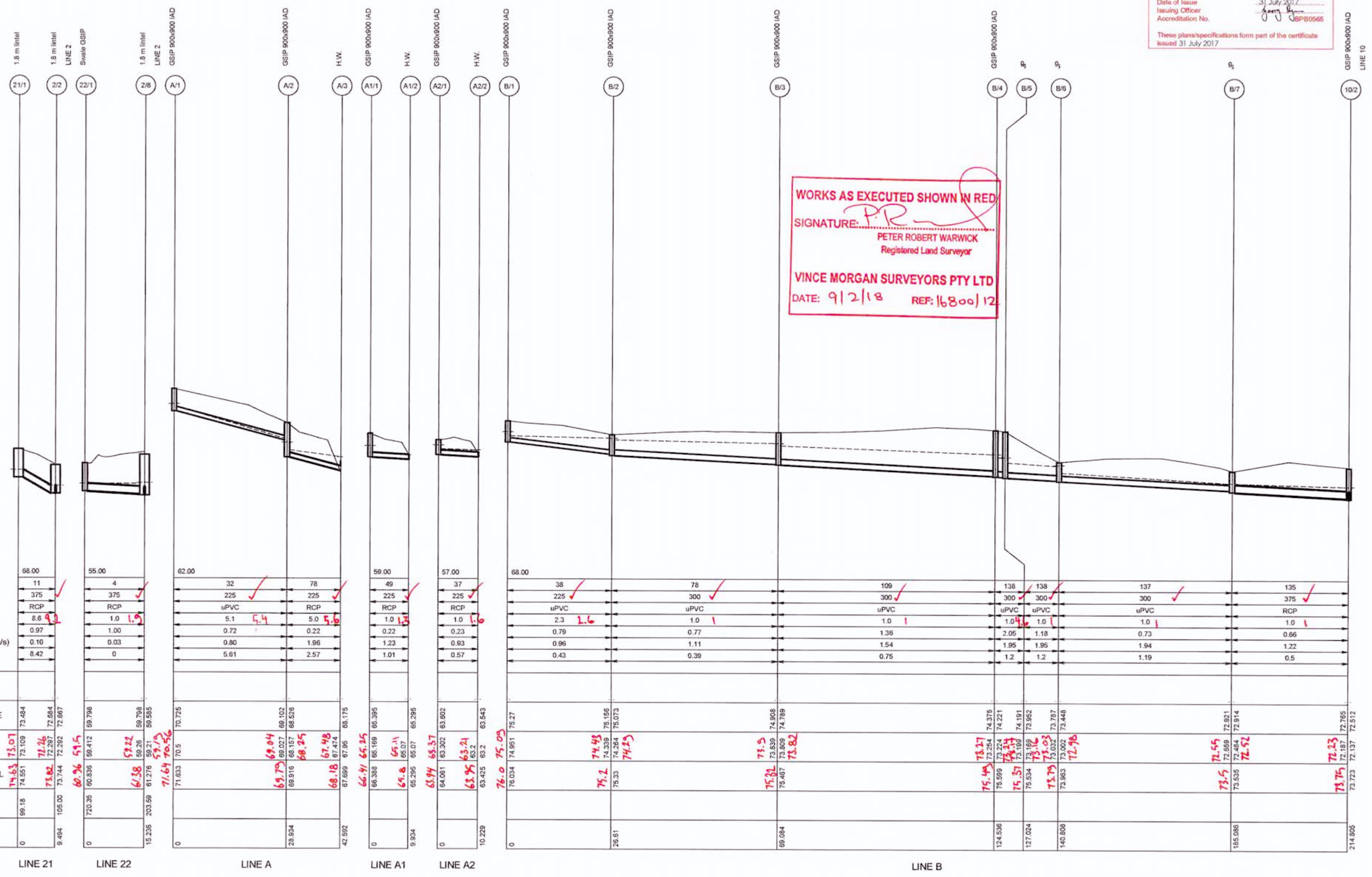
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 DRAINAGE LONGITUDINAL SECTIONS
 SHEET 5

PLAN No: 110185BEL/CC67 E
 FILE No: 110185BELCC67
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
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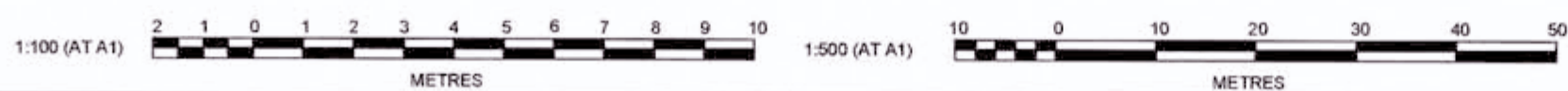


WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: [Signature]
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

DATUM (m)	68.00
PEAK FLOW (L/s)	11
PIPE SIZE (mm)	375
PIPE CLASS	RCP
PIPE GRADE (%)	8.6
PIPE COVER MINIMUM	0.97
FULL PIPE VELOCITY (m/s)	0.10
HGL GRADE (%)	8.42

WAE	HYDRAULIC GRADE LINE	INVERT LEVEL	DESIGN SURFACE LEVEL	ROAD CHAINAGE	PIPE CHAINAGE
LINE 21	73.484	73.07	74.55	99.18	0
LINE 22	59.798	59.22	61.38	720.35	0
LINE A	70.725	69.04	69.79	71.633	0
LINE A1	65.395	65.11	65.8	66.41	0
LINE A2	63.602	63.21	63.95	65.94	0
LINE B	74.789	73.82	75.02	76.034	0
LINE B	74.221	73.27	75.44	76.034	124.536
LINE B	74.191	73.952	75.57	76.599	127.024
LINE B	73.787	73.03	73.79	75.534	140.808
LINE B	72.446	72.76	73.55	75.963	185.086

REVISION E
 ALL DRAINAGE LONGITUDINAL SECTIONS AMENDED



J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwprince@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 DRAINAGE LONGITUDINAL SECTIONS SHEET 6

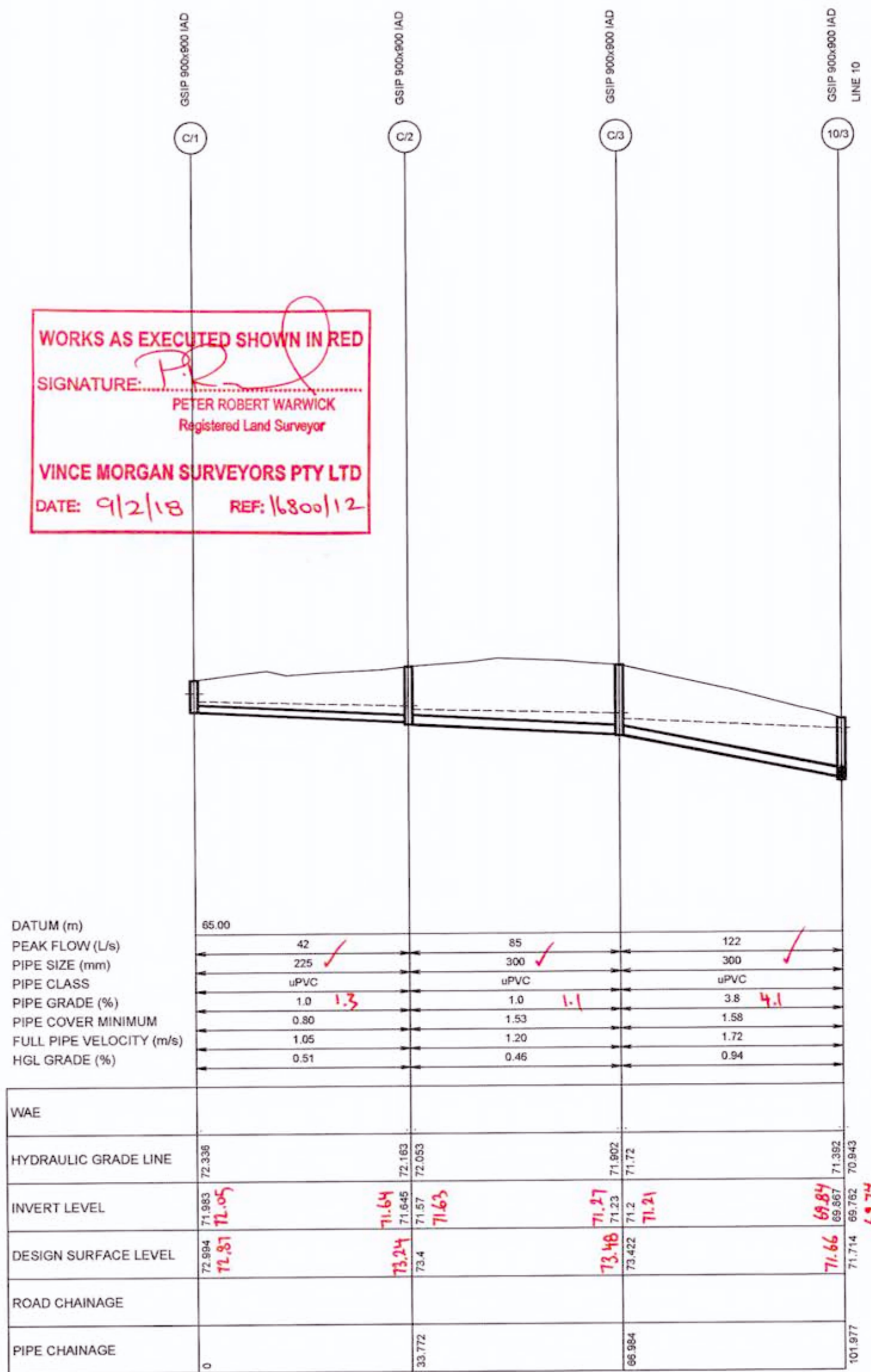
PLAN No:	110185BEL/CC68 E
FILE No:	110185BELCC68
SHEET SIZE:	A1 ORIGINAL

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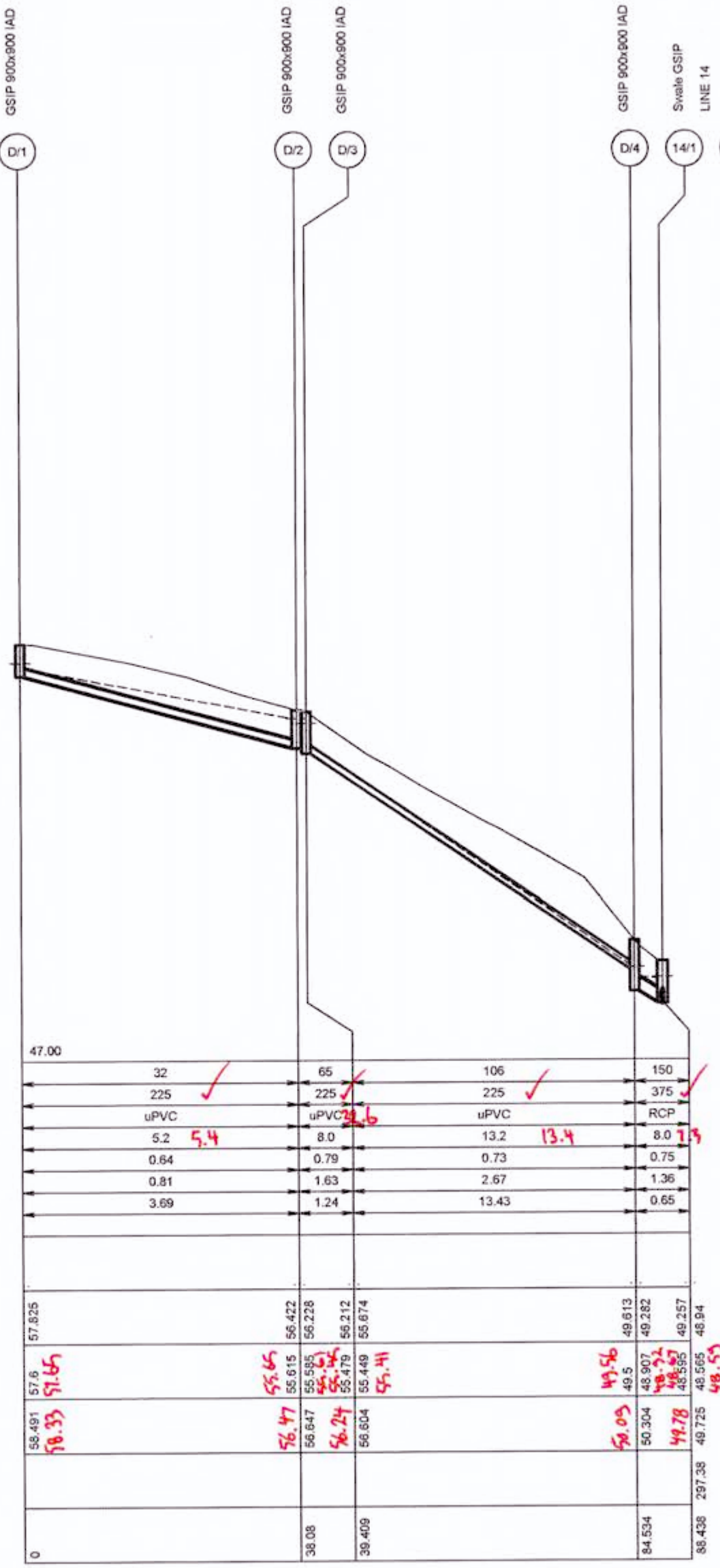
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WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

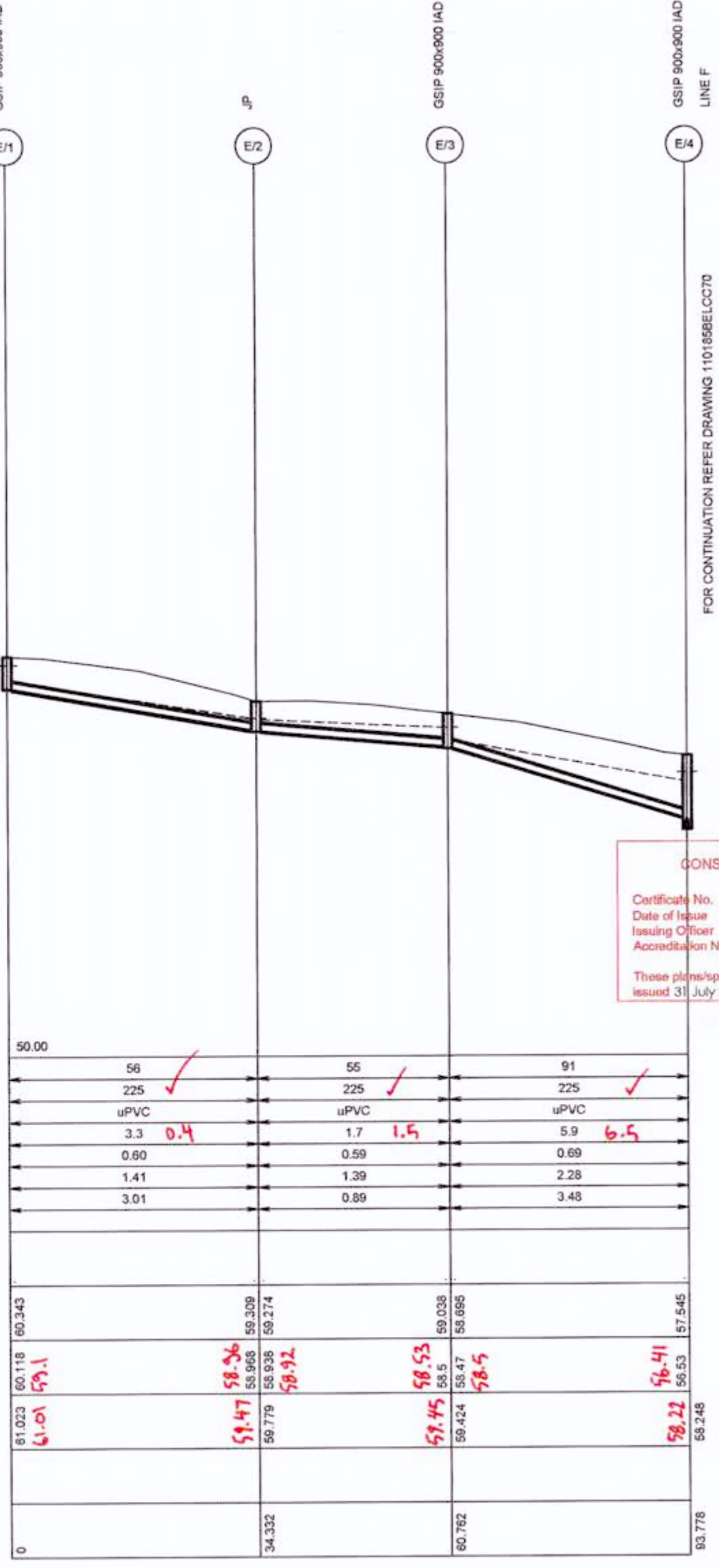
CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Joey Spence*
 Accreditation No. SPB0585
 These plans/specifications form part of the certificate issued 31 July 2017



LINE C

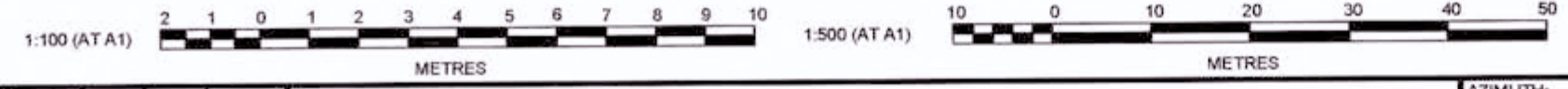


LINE D



LINE E

REVISION E
 ALL DRAINAGE LONGITUDINAL SECTIONS AMENDED



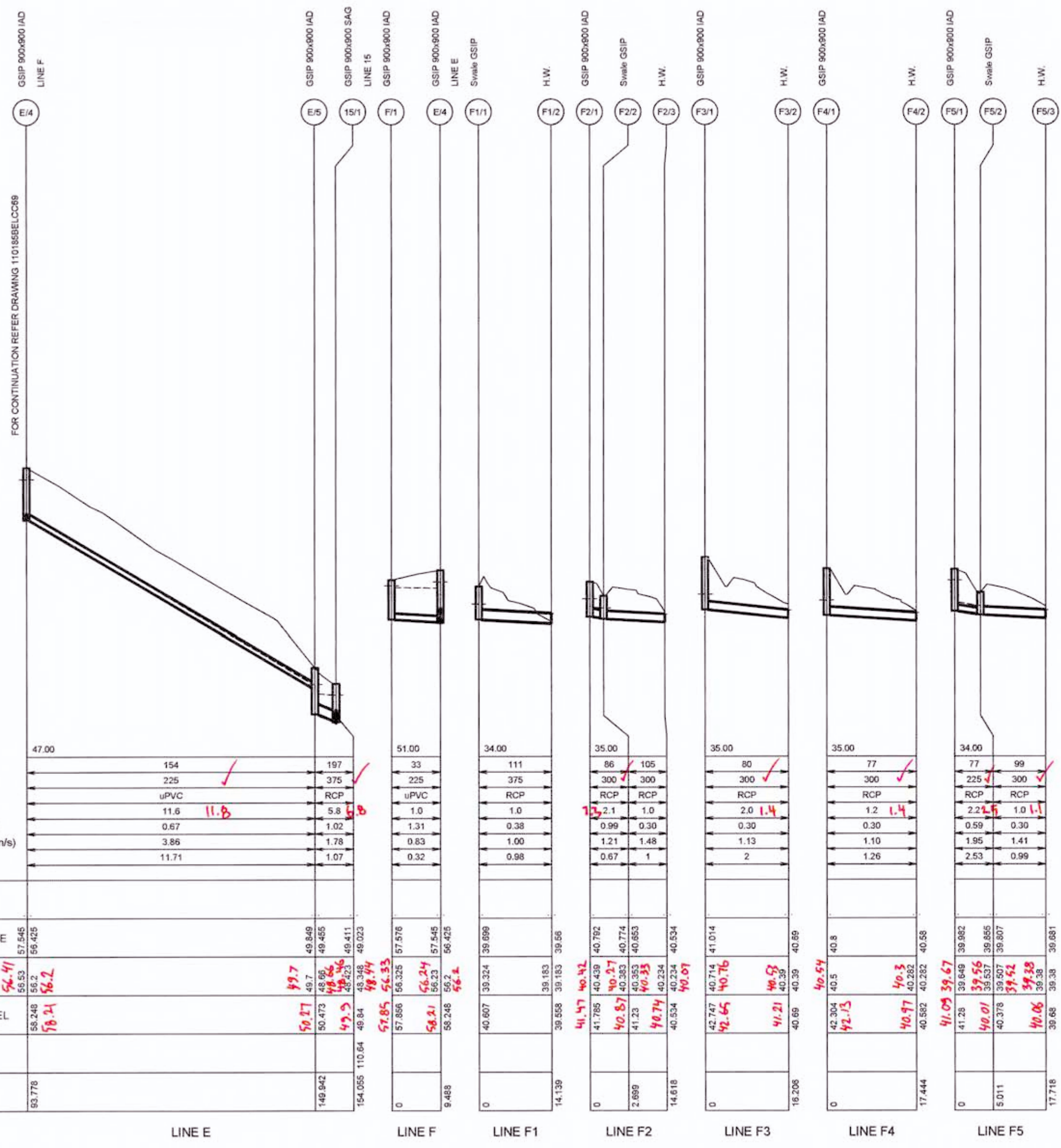
REV	DESCRIPTION	MP	MG	RO	MS	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	26/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CHKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 DRAINAGE LONGITUDINAL SECTIONS SHEET 7
 PLAN No: 110185BEL/CC69 E
 FILE No: 110185BELCC69
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:21:51 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CCBELMONT\110185BELCC70.dwg

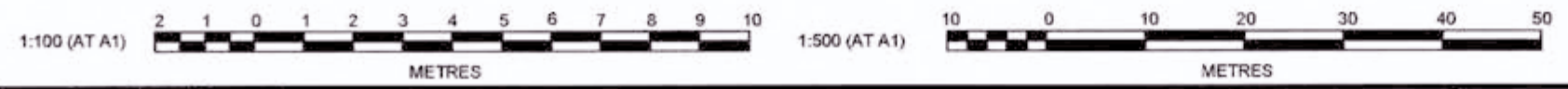


Parameter	Line E	Line F	Line F1	Line F2	Line F3	Line F4	Line F5
DATUM (m)	47.00	51.00	34.00	35.00	35.00	35.00	34.00
PEAK FLOW (L/s)	154	197	111	86 / 105	80	77	77 / 99
PIPE SIZE (mm)	225	225	375	300 / 300	300	300	225 / 300
PIPE CLASS	uPVC	RCP	RCP	RCP / RCP	RCP	RCP	RCP / RCP
PIPE GRADE (%)	11.6	5.8	1.0	2.1 / 1.0	2.0	1.2	2.2 / 1.0
PIPE COVER MINIMUM	0.67	1.02	1.31	0.99 / 0.30	0.30	0.30	0.59 / 0.30
FULL PIPE VELOCITY (m/s)	3.85	1.78	0.83	1.21 / 1.48	1.13	1.10	1.95 / 1.41
HGL GRADE (%)	11.71	1.07	0.32	0.67 / 1	2	1.26	2.53 / 0.99
WAE							
HYDRAULIC GRADE LINE	57.545	49.849	39.099	40.792	41.014	40.5	39.982
INVERT LEVEL	56.53	49.7	39.324	40.92	40.714	40.5	39.649
DESIGN SURFACE LEVEL	58.248	50.27	40.607	41.785	42.747	43.304	41.28
ROAD CHAINAGE	93.778	149.942	14.139	2.089	14.618	17.444	5.011
PIPE CHAINAGE		154.055	0	0	0	0	0

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARYWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Angie By...*
 Accreditation No. BPB0565
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION F
 • ALL DRAINAGE LONGITUDINAL SECTIONS AMENDED



REV	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	LINE F1, F2, F3, F4 AND F5 AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/08/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 DRAINAGE LONGITUDINAL SECTIONS
 SHEET 8

PLAN No: 110185BEL/CC70 F
FILE No: 110185BELCC70
SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:22:17 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC71.dwg

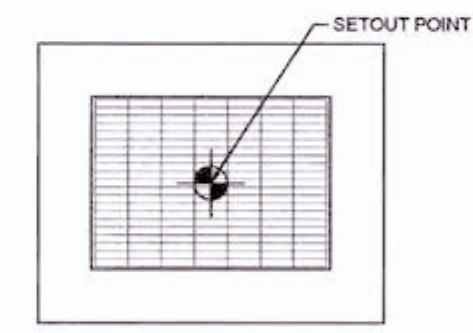
PIT SCHEDULE

PIT NAME	PIT TYPE	PIT EASTING (m)	PIT NORTHING (m)	PIT DEPTH (m)	COMMENTS
(-)	(-)	(m)	(m)	(m)	
2/1	1.8 m lintel	285525.137	6281973.809	2.092	
2/2	1.8 m lintel	285541.426	6281999.913	1.452	
2/3	2.4 m lintel sag	285563.859	6282005.89	1.238	
2/4	1.8 m lintel	285566.625	6282012.673	1.579	
2/5	1.8 m lintel	285560.665	6282025.249	1.816	
2/6	1.8 m lintel	285554.654	6282049.266	2.201	
2/7	1.8 m lintel	285564.454	6282072.926	2.115	
2/8	1.8 m lintel	285551.649	6282098.372	2.066	
2/9	1.8 m lintel	285544.039	6282098.948	2.36	
2/10	H.W.	285525.919	6282100.366	0.375	
3/1	H.W.	285518.746	6282105.948	0.9	
3/2	H.W.	285524.908	6282141.559	1.4	
4/1	GSIP 900x900 SAG	285498.208	6282124.71	1.394	
4/2	2.4 m lintel sag	285506.544	6282131.887	2.122	
4/3	H.W.	285523.295	6282142.812	1.09	
5/1	Swale GSIP	285337.217	6282217.768	1.405	
5/2	Swale GSIP	285353.161	6282211.978	1.78	
5/3	GSIP 900x900 SAG	285352.978	6282177.807	1.566	
5/4	Swale GSIP	285355.985	6282169.556	1.543	
5/5	Swale GSIP	285387.311	6282160.876	2.278	
5/6	Swale GSIP	285418.729	6282159.526	1.618	
5/7	Swale GSIP	285452.413	6282165.922	1.864	
5/8	GSIP 900x900 SAG	285477.789	6282172.166	1.805	
5/9	JP	285495.337	6282175.994	3.002	900X 900 CONCRETE COVER
5/10	JP	285513.96	6282180.238	4.144	900X 900 CONCRETE COVER
5/11	H.W.	285526.475	6282183.089	0.525	
5A/1	Swale GSIP	285493.519	6282179.009	2.269	
6/1	GSIP 900x900 SAG	285338.676	6282180.193	1.391	
7/1	Swale GSIP	285350.498	6282155.918	1.518	
8/1	Swale GSIP	285400.501	6282144.787	1.625	
9/1	Swale GSIP	285474.629	6282155.867	1.355	
10/1	GSIP 900x900 SAG	285372.846	6282327.172	1.012	
10/2	GSIP 900x900 IAD	285407.81	6282366.594	1.587	
10/3	GSIP 900x900 IAD	285432.681	6282344.89	1.951	
10/4	JP	285435.026	6282343.216	1.892	900X 900 CONCRETE COVER
10/5	JP	285453.632	6282366.318	2.993	900 X 900 CONCRETE COVER
10/6	GSIP 900x900 IAD	285463.807	6282377.405	2.177	
11/1	Swale GSIP	285399.668	6282434.031	1.761	
11/2	Swale GSIP	285433.276	6282418.092	1.431	
11/3	Swale GSIP	285458.704	6282393.178	1.725	
11/4	Swale GSIP	285467.29	6282379.686	1.868	
11/5	Swale GSIP	285486.362	6282354.282	1.482	
11/6	GSIP 900x900 SAG	285498.977	6282342.662	1.68	
11/7	Swale GSIP	285509.688	6282353.759	1.742	
11/8	Swale GSIP	285525.495	6282361.838	1.498	
11/9	Swale GSIP	285544.45	6282367.229	1.235	
11/10	Swale GSIP	285564.126	6282378.136	1.606	
11/11	Swale GSIP	285573.537	6282392.13	1.675	
11/12	Swale GSIP	285576.523	6282404.297	1.839	
11/13	GSIP 900x900 SAG	285575.329	6282418.766	1.895	
11/14	2.4 m lintel sag	285585.971	6282421.55	2.537	
11/15	JP	285606.22	6282421.954	1.348	900 X 900 CONCRETE COVER
11/16	H.W.	285613.948	6282405.65	0.75	
11A/1	Swale GSIP	285586.426	6282430.884	1.248	
12/1	Swale GSIP	285429.45	6282437.577	1.417	
13/1	Swale GSIP	285546.185	6282352.752	1.174	
14/1	Swale GSIP	285568.06	6282437.221	1.16	
15/1	GSIP 900x900 SAG	285441.305	6282551.123	1.493	
15/2	GSIP 900x900 SAG	285444.364	6282565.301	1.67	
15/3	H.W.	285453.896	6282577.076	0.45	
15A/1	Swale GSIP	285471.969	6282558.257	1.446	
16/1	Swale GSIP	285594.376	6282136.849	1.473	
16/2	Swale GSIP	285616.784	6282163.661	1.64	
16/3	Swale GSIP	285638.997	6282190.24	1.627	
16/4	Swale GSIP	285661.616	6282217.304	1.718	
16/5	Swale GSIP	285683.958	6282244.037	1.924	
16/6	Swale GSIP	285706.391	6282270.879	1.997	
16/7	Swale GSIP	285728.998	6282297.929	1.584	
16/8	Swale GSIP	285728.739	6282320.23	1.55	
16/9	GSIP 900x900 IAD	285690.948	6282351.813	0.904	
16/10	H.W.	285667.195	6282358.763	0.45	
16A/1	Swale GSIP	285751.342	6282324.665	2.448	
16A/2	Swale GSIP	285772.701	6282350.222	1.869	
16A/3	H.W.	285786.721	6282366.634	0.375	TEMPORARY HW
16B/1	Swale GSIP	285759.822	6282357.423	2.149	
17/1	Swale GSIP	285643.109	6282217.771	1.577	
18/1	Swale GSIP	285694.314	6282279.039	1.839	
21/1	1.8 m lintel	285532.107	6281998.102	1.442	
22/1	Swale GSIP	285562.456	6282109.11	1.424	
A/1	GSIP 900x900 IAD	285377.466	6282102.755	1.133	

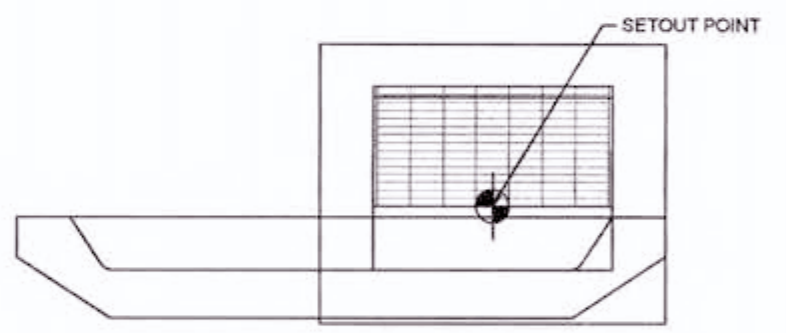
PIT SCHEDULE

A/2	GSIP 900x900 IAD	285374.3	6282073.995	1.759	
A/3	H.W.	285381.185	6282062.187	-0.251	
A1/1	GSIP 900x900 IAD	285416.564	6282093.43	1.218	
A1/2	H.W.	285420.716	6282084.405	0.225	
A2/1	GSIP 900x900 IAD	285450.644	6282092.942	0.759	
A2/2	H.W.	285450.589	6282082.713	0.225	
B/1	GSIP 900x900 IAD	285268.005	6282273.278	1.083	
B/2	GSIP 900x900 IAD	285273.455	6282299.324	1.067	
B/3	GSIP 900x900 IAD	285300.564	6282332.022	1.658	
B/4	GSIP 900x900 IAD	285343.894	6282366.626	2.374	
B/5	JP	285345.842	6282368.173	2.365	900 X 900 CONCRETE COVER
B/6	JP	285341.427	6282381.231	0.981	900 X 900 CONCRETE COVER
B/7	JP	285385.429	6282386.15	1.051	900 X 900 CONCRETE COVER
C/1	GSIP 900x900 IAD	285411.935	6282245.392	1.011	
C/2	GSIP 900x900 IAD	285415.706	6282278.952	1.83	
C/3	GSIP 900x900 IAD	285422.033	6282311.556	2.222	
D/1	GSIP 900x900 IAD	285492.968	6282446.001	0.891	
D/2	GSIP 900x900 IAD	285521.955	6282421.306	1.062	
D/3	GSIP 900x900 IAD	285522.647	6282420.172	1.155	
D/4	GSIP 900x900 IAD	285564.196	6282437.777	1.397	
E/1	GSIP 900x900 IAD	285337.379	6282493.095	0.905	
E/2	JP	285370.032	6282503.7	0.841	900 X 900 CONCRETE COVER
E/3	GSIP 900x900 IAD	285395.997	6282498.763	0.954	
E/4	GSIP 900x900 IAD	285428.432	6282492.595	2.048	
E/5	GSIP 900x900 IAD	285438.924	6282547.77	1.813	
F/1	GSIP 900x900 IAD	285437.752	6282490.823	1.531	
F1/1	Swale GSIP	285691.937	6282428.488	1.283	
F1/2	H.W.	285686.857	6282441.684	0.375	
F2/1	GSIP 900x900 IAD	285665.422	6282492.204	1.346	
F2/2	Swale GSIP	285666.582	6282494.642	0.986	
F2/3	H.W.	285674.402	6282503.636	0.3	
F3/1	GSIP 900x900 IAD	285632.106	6282515.354	2.033	
F3/2	H.W.	285642.4	6282527.87	0.3	
F4/1	GSIP 900x900 IAD	285663.505	6282589.335	1.804	
F4/2	H.W.	285579.937	6282595.192	0.3	
F5/1	GSIP 900x900 IAD	285554.64	6282610.07	1.631	
F5/2	Swale GSIP	285558.105	6282613.69	0.913	
F5/3	H.W.	285569.575	6282619.158	0.3	

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

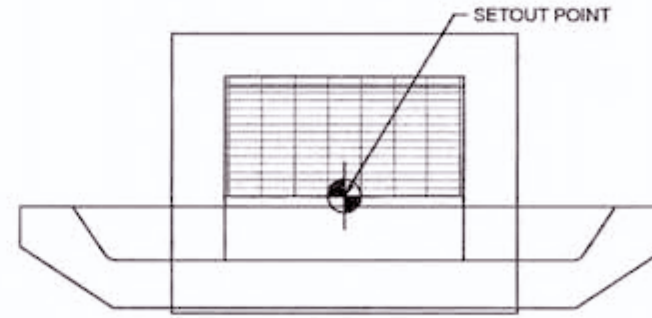


GRATED SURFACE INLET PIT (GSIP)
SCALE 1:20

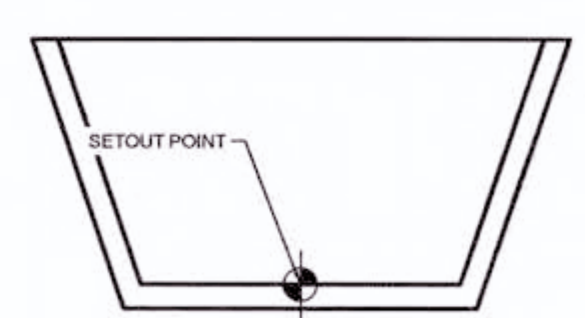


SETOUT DETAIL KERB INLET PIT (LINTEL)
SCALE 1:20

- #### NOTES
- FOR PITS DEEPER THAN 0.9m UP TO 1.8m REFER TO STRUCTURAL CERTIFICATE BY IN-HOUSE CONSULTING ENGINEERS
 - FOR PITS DEEPER THAN 1.8m UP TO 3.0m TO BE REINFORCED CONCRETE AS PER HAWKESBURY CITY COUNCIL CIVIL WORKS SPECIFICATION SD35
 - ALL GSIP AND SWALE GSIP TO BE LETTER BOX TYPE A, AS PER HAWKESBURY CITY COUNCIL STANDARD SD31
 - JUNCTION PITS (JP) TO BE AS PER HAWKESBURY CITY COUNCIL STANDARD SD32



SETOUT DETAIL KERB INLET PIT (SAG)
SCALE 1:20



SETOUT DETAIL HEADWALL
SCALE 1:20

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. BPB0565
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION F
 PIT SCHEDULE AMENDED

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	PIT SCHEDULE AMENDED	MP	MG	RO	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	MS	27/08/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	MS	21/05/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpp@jwprince.com.au

CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND
 BELMONT
 PIT SCHEDULE & PIT SETOUT
 PLAN No: 110185BEL/CC71 F
 FILE No: 110185BELCC71
 SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS

Main data table with columns for PIT NAME, PIT TYPE, CATCHMENT AREA, IMPERVIOUS PERCENTAGE, RUNOFF C, IMPERVIOUS TIME Tc, IMPERVIOUS INTENSITY I, PEROVIOUS TIME Tc, PEROVIOUS INTENSITY I, FULL AREA CATCHMENT FLOW Qc, FULL AREA INTENSITY I, FULL AREA CATCHMENT FLOW Qc, PARTIAL AREA TIME Tc, PARTIAL AREA INTENSITY I, PARTIAL AREA CATCHMENT FLOW Qc, TOTAL CATCHMENT FLOW Qc, DIRECT FLOW Qd, APPROACH FLOW Qa, FLOODED DEPTH d, FLOODED WIDTH w, FLOODED (vx)d, ROAD GRADE (%), ROAD XFALL (%), CHOKE FACTOR (-), INLET FLOW Qg, BYPASS FLOW Qh, PIT (-), COMMENTS.

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: PETER ROBERT WARWICK
Registered Land Surveyor 49

VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer J. Morgan
Accreditation No. JSPB0565

REVISION E
DRAINAGE CALCULATIONS AMENDED

Logbook table with columns: E, D, C, B, A and rows for ISSUED FOR CONSTRUCTION APPROVAL, CERTIFIER COMMENTS, ISSUED FOR CONSTRUCTION APPROVAL, CLIENT COMMENTS, ADVANCED COPY. Includes dates and initials.

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

REDBANK logo and text: CLIENT: REDBANK, NORTH RICHMOND BELMONT. THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
HYDROLOGIC CALCULATIONS SHEET 1
PLAN No: 110185BEL/CC72 E
FILE No: 110185BELCC72
SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS

PIT NAME (-)	PIT TYPE (-)	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	FLOODED DEPTH d (m)	FLOODED WIDTH w (m)	FLOODED (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS
A1/2	H.W.																										
A2/1	GSIP 900x900 IAD	0.174	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	32	5	130.8	37	37	0	37								37	0	
A2/2	H.W.																										
B/1	GSIP 900x900 IAD	0.181	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	33	5	130.8	38	38	0	38								38	0	
B/2	GSIP 900x900 IAD	0.193	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	36	5	130.8	41	41	0	41								41	0	
B/3	GSIP 900x900 IAD	0.155	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	29	5	130.8	33	33	0	33								33	0	
B/4	GSIP 900x900 IAD	0.159	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	29	5	130.8	34	34	0	34								34	0	
B/5	JP	0	0							0	0	0	0	0	0	0	0								0	0	900 X 900 CONCRETE COVER
B/6	JP	0	0							0	0	0	0	0	0	0	0								0	0	900 X 900 CONCRETE COVER
B/7	JP	0	0							0	0	0	0	0	0	0	0								0	0	900 X 900 CONCRETE COVER
C/1	GSIP 900x900 IAD	0.198	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	36	5	130.8	42	42	0	42								42	0	
C/2	GSIP 900x900 IAD	0.21	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	39	5	130.8	45	45	0	45								45	0	
C/3	GSIP 900x900 IAD	0.185	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	34	5	130.8	39	39	0	39								39	0	
D/1	GSIP 900x900 IAD	0.152	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	28	5	130.8	32	32	0	32								32	0	
D/2	GSIP 900x900 IAD	0.158	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	29	5	130.8	33	33	0	33								33	0	
D/3	GSIP 900x900 IAD	0.197	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	36	5	130.8	42	42	0	42								42	0	
D/4	GSIP 900x900 IAD	0.215	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	40	5	130.8	45	45	0	45								45	0	
E/1	GSIP 900x900 IAD	0.264	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	49	5	130.8	56	56	0	56								56	0	
E/2	JP	0	0							0	0	0	0	0	0	0	0								0	0	900 X 900 CONCRETE COVER
E/3	GSIP 900x900 IAD	0.173	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	32	5	130.8	37	37	0	37								37	0	
E/4	GSIP 900x900 IAD	0.152	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	28	5	130.8	32	32	0	32								32	0	
E/5	GSIP 900x900 IAD	0.217	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	40	5	130.8	46	46	0	46								46	0	
F/1	GSIP 900x900 IAD	0.156	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	29	5	130.8	33	33	0	33								33	0	
F1/1	Swale GSIP	0.599	5	0.7	5	130.8	11.38188	94.8	11.38188	94.8	111	5	130.8	71	111	0	111								111	0	
F1/2	H.W.																										
F2/1	GSIP 900x900 IAD	0.405	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	75	5	130.8	86	86	0	86								86	0	
F2/2	Swale GSIP	0.093	65	0.7	5	130.8	11.38188	94.8	11.38188	94.8	17	5	130.8	19	19	0	19								19	0	
F2/3	H.W.																										
F3/1	GSIP 900x900 IAD	0.378	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	70	5	130.8	80	80	0	80								80	0	
F3/2	H.W.																										
F4/1	GSIP 900x900 IAD	0.368	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	67	5	130.8	77	77	0	77								77	0	
F4/2	H.W.																										
F5/1	GSIP 900x900 IAD	0.366	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	67	5	130.8	77	77	0	77								77	0	
F5/2	Swale GSIP	0.105	70	0.7	5	130.8	11.38188	94.8	11.38188	94.8	19	5	130.8	22	22	0	22								22	0	
F5/3	H.W.																										

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *[Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. 16BP0565
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION E
 DRAINAGE CALCULATIONS AMENDED

E	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/05/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpl@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 HYDROLOGIC CALCULATIONS SHEET 2
 PLAN No: 110185BEL/CC73 E
 FILE No: 110185BELCC73
 SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

Table with multiple columns: PIPE NAME, PIPE TYPE, DIAMETER, LENGTH, SLOPE, AREA A1, TIME Tc, INTENSITY, SUM CA, FLOW Qc, PART-AREA, PART-AREA, PART-AREA, PART-AREA, DIRECT PIPE FLOW Qp, PEAK FLOW Qat, NET BYPASS FLOW Qb, PIPE FLOW Q, FLOW CAP Qcap, Q/CAP, VELOCITY, NORM. DEPTH, CRIT. DEPTH, U/S PIT, PIPE U/S IL, PIPE D/S IL, PIPE D/S DROP, U/S PIT Ku, U/S PIT Kw, PIPE VHEAD, PIT LOSS (Ku Vhead), WSE LOSS (Kw Vhead), PIPE LOSS, U/S PIT HGL, U/S PIPE HGL, D/S PIPE HGL, HGL GRADE, MIN. COVER, U/S FREEBOARD, COMMENTS.

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: [Signature]
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer [Signature] BP0565
Accreditation No. BP0565
These plans/specifications form part of the certificate issued 31 July 2017

REVISION E
DRAINAGE CALCULATIONS AMENDED

Table with columns: E, D, C, B, A (revision codes), ISSUE FOR CONSTRUCTION APPROVAL, CERTIFIER COMMENTS, CLIENT COMMENTS, ADVANCED COPY, AMENDMENT, DES, DRN, CKD, APR, DATE.

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
AZIMUTH: MGA
DATUM: AHD
ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
HYDRAULIC CALCULATIONS SHEET 1
PLAN No: 110185BEL/CC74E
FILE No: 110185BELCC74
SHEET SIZE: A1 ORIGINAL

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DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

Table with columns: PIPE NAME, PIPE TYPE, DIAMETER, LENGTH, SLOPE, AREA A1, TIME Tc, INTENSITY I, SUM CA, FLOW Qc, PART-AREA, INTENSITY I, SUM CA, FLOW Qc, DIRECT PIPE FLOW Qp, PEAK FLOW Qp, NET BYPASS FLOW Qb, PIPE FLOW Q, Q/Ccap, FULL PIPE VELOCITY, NORM. DEPTH VELOCITY, CRIT. DEPTH VELOCITY, U/S PIT, PIPE U/S IL, PIPE U/S D/S, D/S DROP, U/S PIT Ku, U/S PIT Kw, PIPE VHEAD, PIT LOSS (Ku.Vhead), WSE LOSS (Kw.Vhead), TOTAL PIPE LOSS, U/S PIT HGL, U/S PIPED'S PIPE HGL, U/S PIPE HGL, HGL GRADE, MIN. COVER, U/S FREEBOARD, COMMENTS.

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: [Signature]
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 1680012

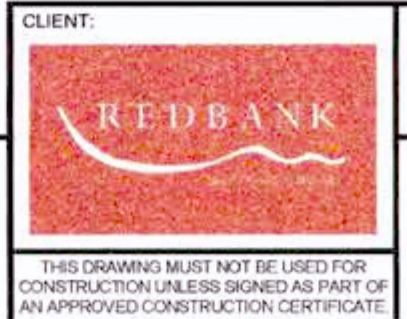
CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer [Signature]
Accreditation No. JSPB0505
These plans/specifications form part of the certificate issued 31 July 2017

REVISION E
DRAINAGE CALCULATIONS AMENDED

Table with columns: ISSUE FOR CONSTRUCTION APPROVAL, CERTIFIER COMMENTS, ISSUED FOR CONSTRUCTION APPROVAL, CLIENT COMMENTS, ADVANCED COPY, AMENDMENT, DES, DRN, CKD, APR, DATE.

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

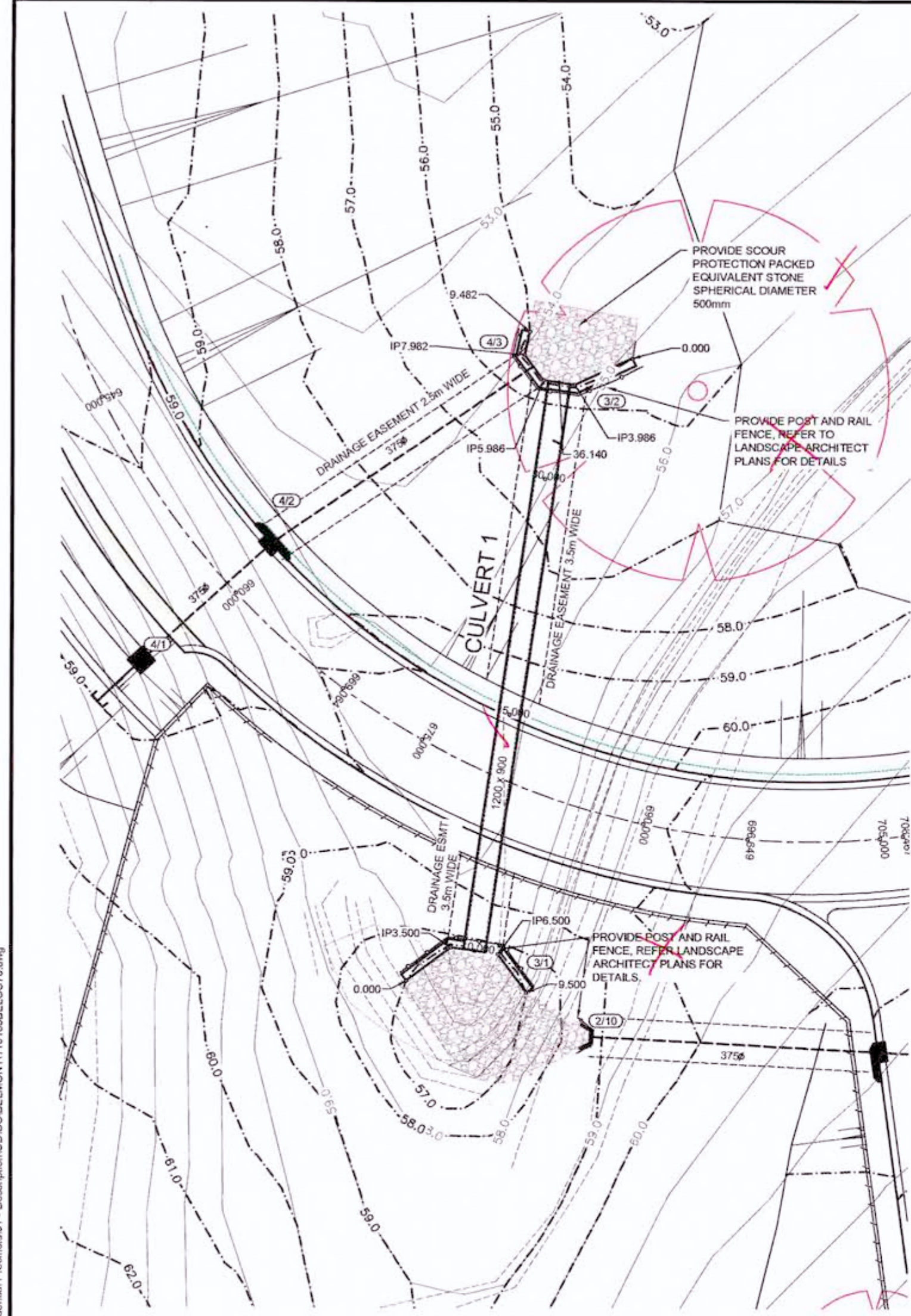
AZIMUTH: MGA
DATUM: AHD
ORIGIN:



ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
HYDRAULIC CALCULATIONS SHEET 2
PLAN No: 110185BEL/CC75 E
FILE No: 110185BELCC75
SHEET SIZE: A1 ORIGINAL

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Project: 16 July 2017 5:41:19 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC76.dwg



PLAN
SCALE 1:200

REFER TO STRUCTURAL DESIGN & CERTIFICATION BY INHOUSE CONSULTING ENGINEERS, REFERENCE 16112

REVISION F
 • CULVERT 1 ALIGNMENT, SECTIONS & SETOUT TABLES AMENDED



REV	DESCRIPTION	MP	MG	RO	MS	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	ADDITIONAL SCOUR PROTECTION ADDED	MP	MG	RO	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	MS	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	MS	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

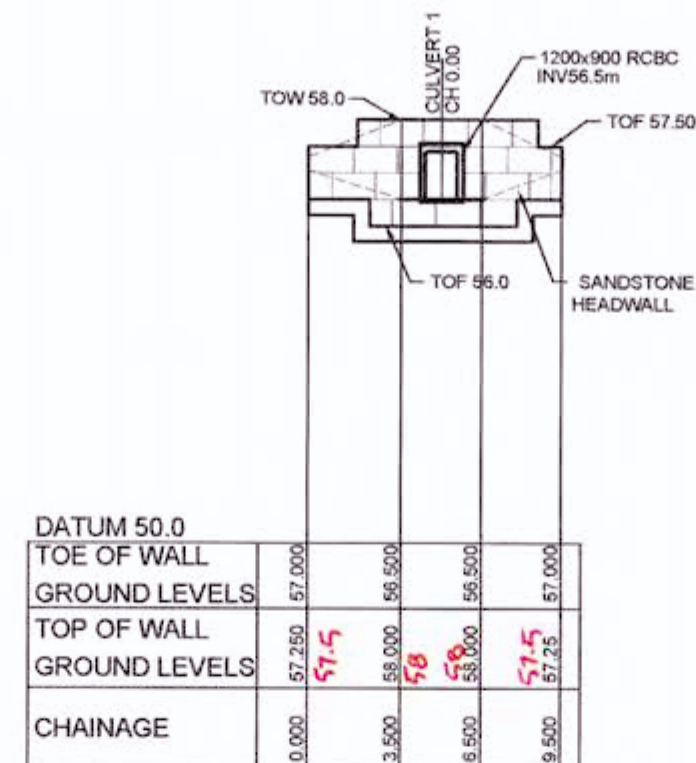
CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

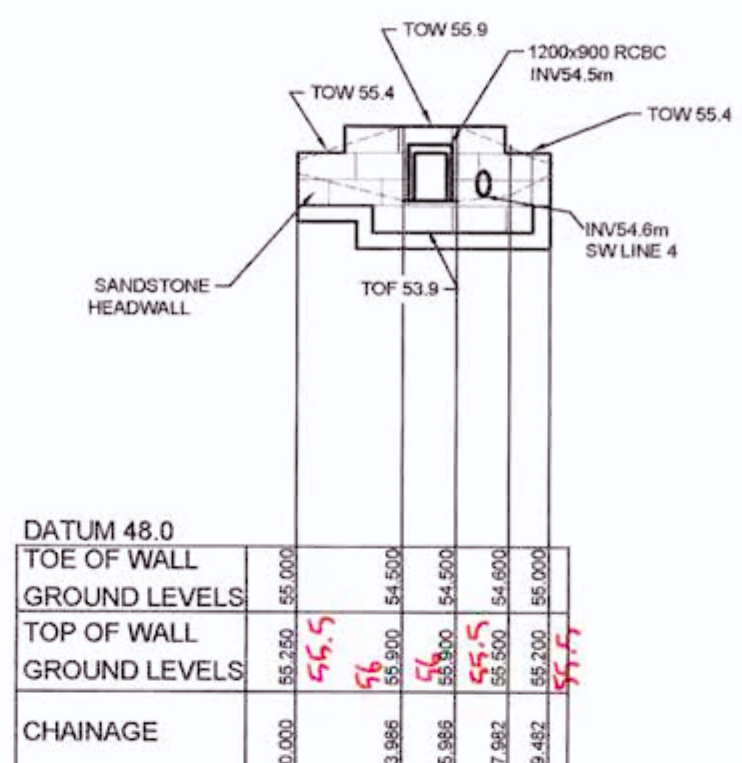
REDBANK, NORTH RICHMOND BELMONT
 CULVERT 1 PLAN, SECTION, HEADWALL 1 & RETAINING WALL 1 PROFILE

PLAN No: 110185BEL/CC76 **F**
 FILE No: 110185BEL/CC76
 SHEET SIZE: A1 ORIGINAL

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: [Signature]
 Accreditation No: 380505
 These plans/specifications form part of the certificate issued 31 July 2017



LONGITUDINAL SECTION HW1
 HORIZONTAL SCALE 1:200
 VERTICAL SCALE 1:100



LONGITUDINAL SECTION HW2
 HORIZONTAL SCALE 1:200
 VERTICAL SCALE 1:100

HW1 BOT

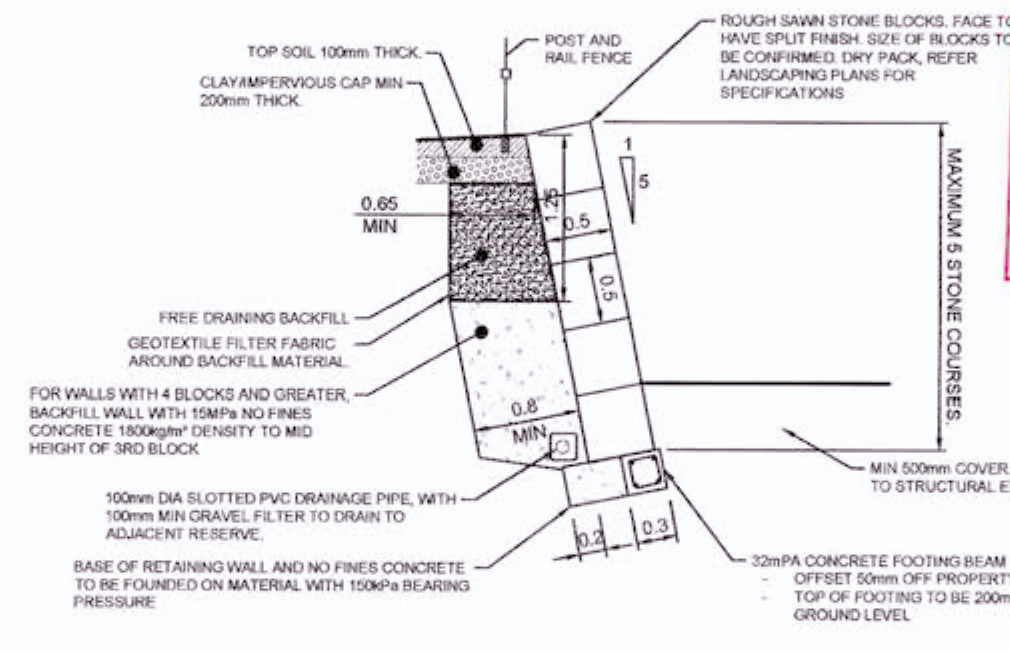
CHAINAGE	EASTING	NORTHING	BEARING
0	285514.41	6282104.19	54°48'59.60"
3.5	285517.27	6282106.2	
6.5	285520.22	6282105.69	
9.5	285521.95	6282103.24	144°48'59.60"

HW2 BOT

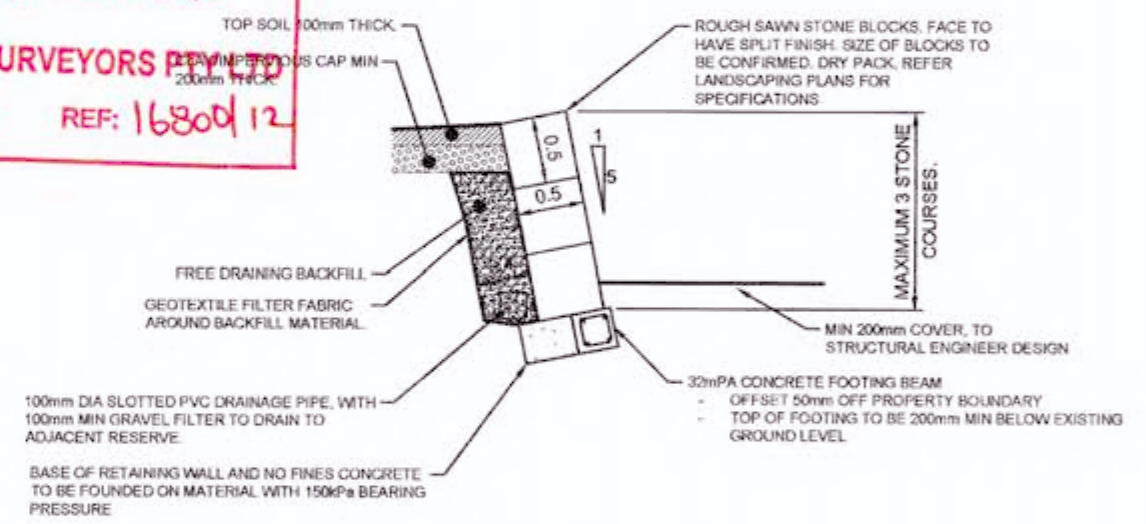
CHAINAGE	EASTING	NORTHING	BEARING
0	285529.55	6282142.96	246°46'14.26"
3.99	285525.89	6282141.39	
5.99	285523.92	6282141.73	
7.98	285522.77	6282143.36	
9.48	285523.13	6282144.81	14°00'32.37"

Culvert 1

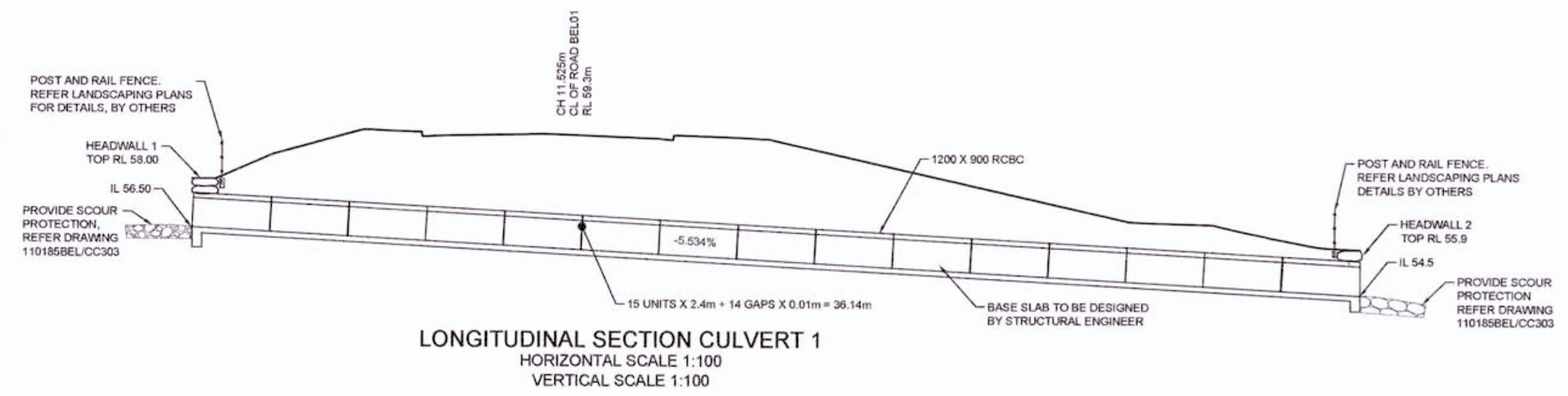
CHAINAGE	EASTING	NORTHING	BEARING
0	285518.75	6282105.95	9°48'59.60"
36.14	285524.91	6282141.56	9°48'59.60"



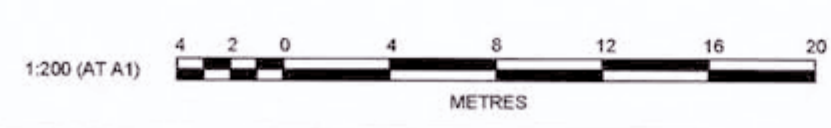
HEADWALL DETAIL
 4 AND 5 BLOCK ARRANGEMENT (2.5m MAX HEIGHT)
 N.T.S.



HEADWALL DETAIL
 3 (AND LESS) BLOCK ARRANGEMENT (1.5m MAX HEIGHT)
 N.T.S.

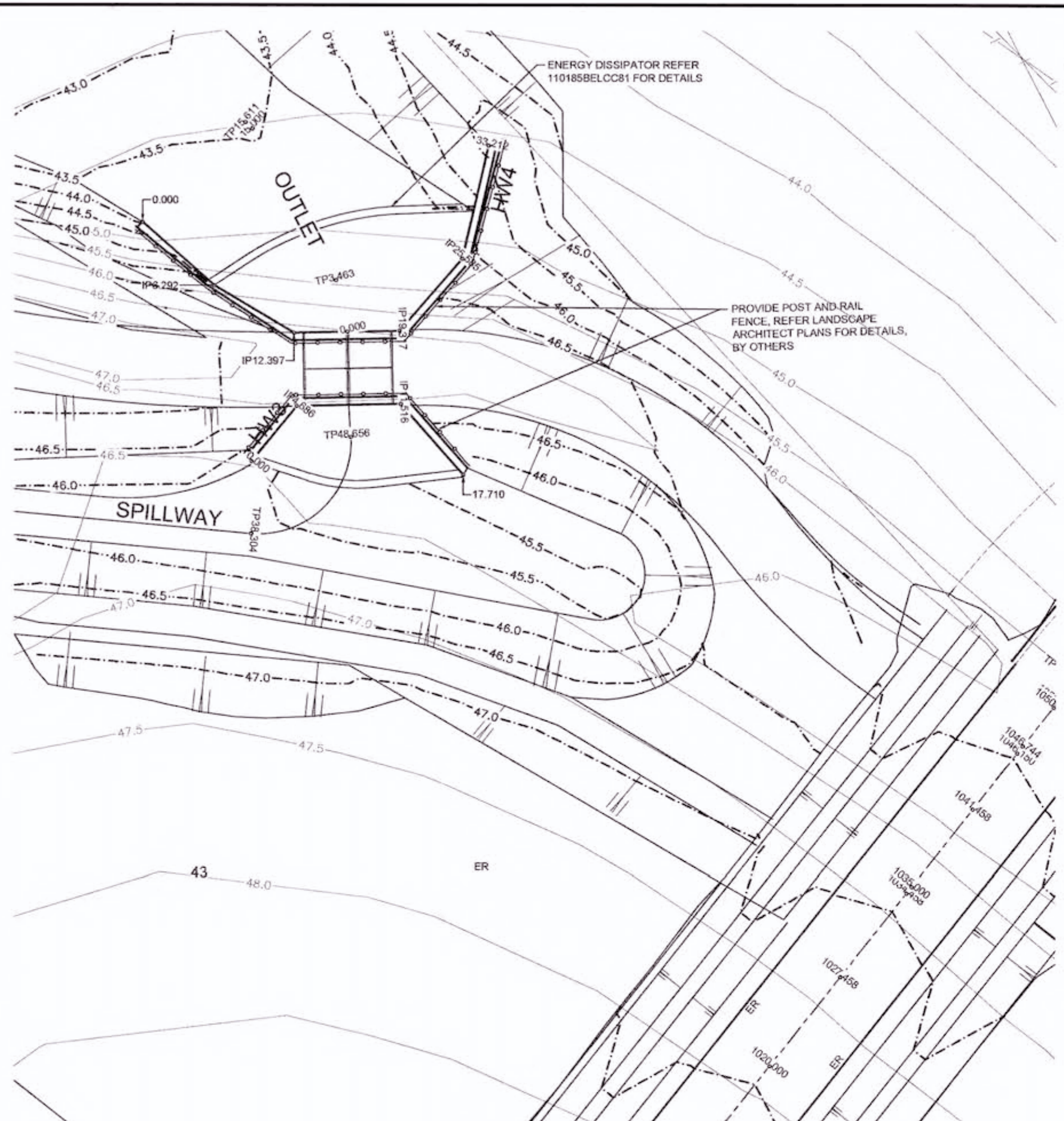


LONGITUDINAL SECTION CULVERT 1
 HORIZONTAL SCALE 1:100
 VERTICAL SCALE 1:100



CLIENT: REDBANK
 THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 CULVERT 1 PLAN, SECTION, HEADWALL 1 & RETAINING WALL 1 PROFILE
 PLAN No: 110185BEL/CC76 **F**
 FILE No: 110185BEL/CC76
 SHEET SIZE: A1 ORIGINAL



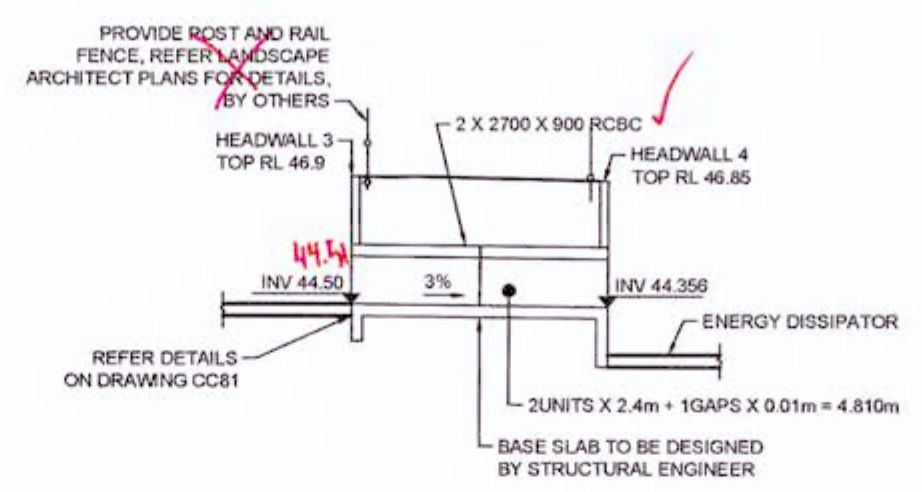
PLAN
SCALE 1:200

Culvert 2			
CHAINAGE	EASTING	NORTHING	BEARING
0.00	285728.944	6282385.027	358°54'49"
4.81	285728.975	6282389.836	358°54'49"

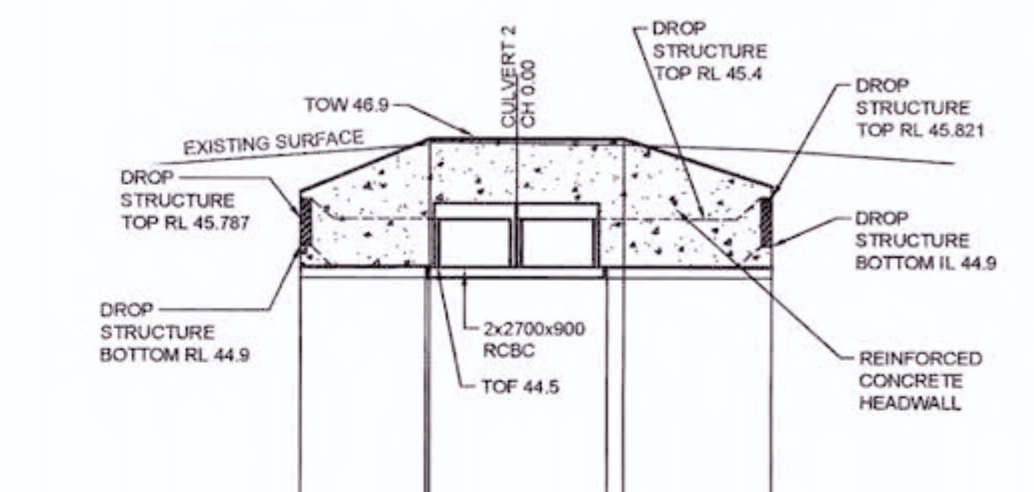
HW3 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0.00	285722.47	6282381.51	40°48'36.84"
4.69	285725.53	6282385.05	
11.52	285732.36	6282385.00	
17.71	285736.34	6282380.25	140°02'46.28"

HW4 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0.00	285715.70	6282397.40	133°02'03.47"
6.29	285720.30	6282393.11	
12.40	285725.48	6282389.86	
19.32	285732.39	6282389.81	
25.59	285736.64	6282394.43	
33.21	285738.56	6282401.81	14°35'13.79"

REFER TO STRUCTURAL DESIGN & CERTIFICATION BY INHOUSE CONSULTING ENGINEERS, REFERENCE 16112

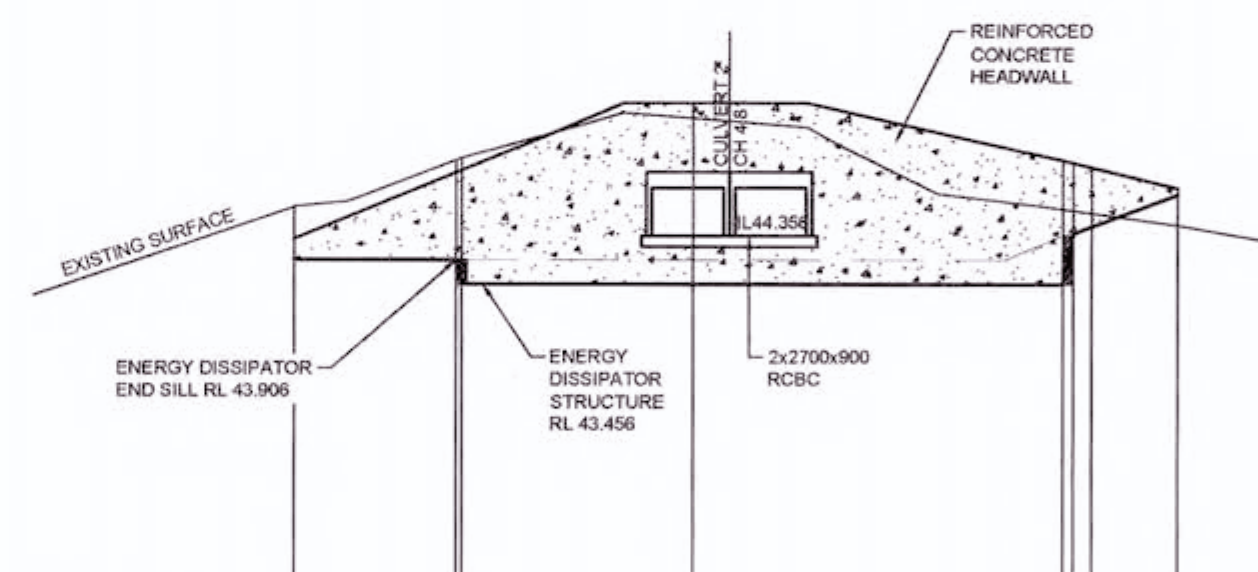


LONGITUDINAL SECTION CULVERT 2
HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:100



DATUM 38.0				
TOE OF WALL	44.500	44.500	44.500	44.500
GROUND LEVELS	44.500	44.500	44.500	44.500
TOP OF WALL	44.9	45.92	45.900	46.5
GROUND LEVELS	44.9	45.92	45.900	46.5
EXISTING SURFACE	46.610	46.792	46.831	46.787
CHAINAGE	0.000	4.886	8.842	11.616

LONGITUDINAL SECTION HW 3
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



DATUM 37.0				
TOE OF WALL	43.906	43.906	43.456	43.456
GROUND LEVELS	43.906	43.906	43.456	43.456
TOP OF WALL	44.320	44.61	44.856	44.7
GROUND LEVELS	44.320	44.61	44.856	44.7
EXISTING SURFACE	44.908	45.787	45.825	45.859
CHAINAGE	0.000	6.092	8.292	15.000

LONGITUDINAL SECTION HW 4
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
Certificate No: 20130299C36
Date of Issue: 31 July 2017
Issuing Officer: *Henry*
Accreditation No: JSPB0565
These plans/specifications form part of the certificate issued 31 July 2017

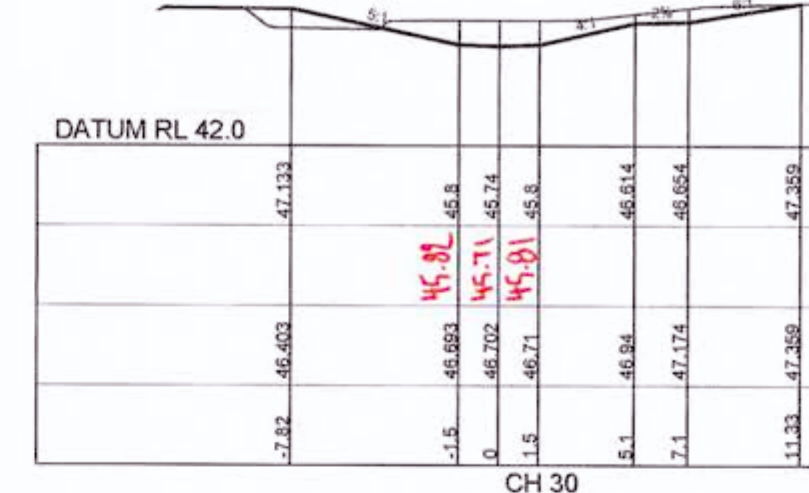
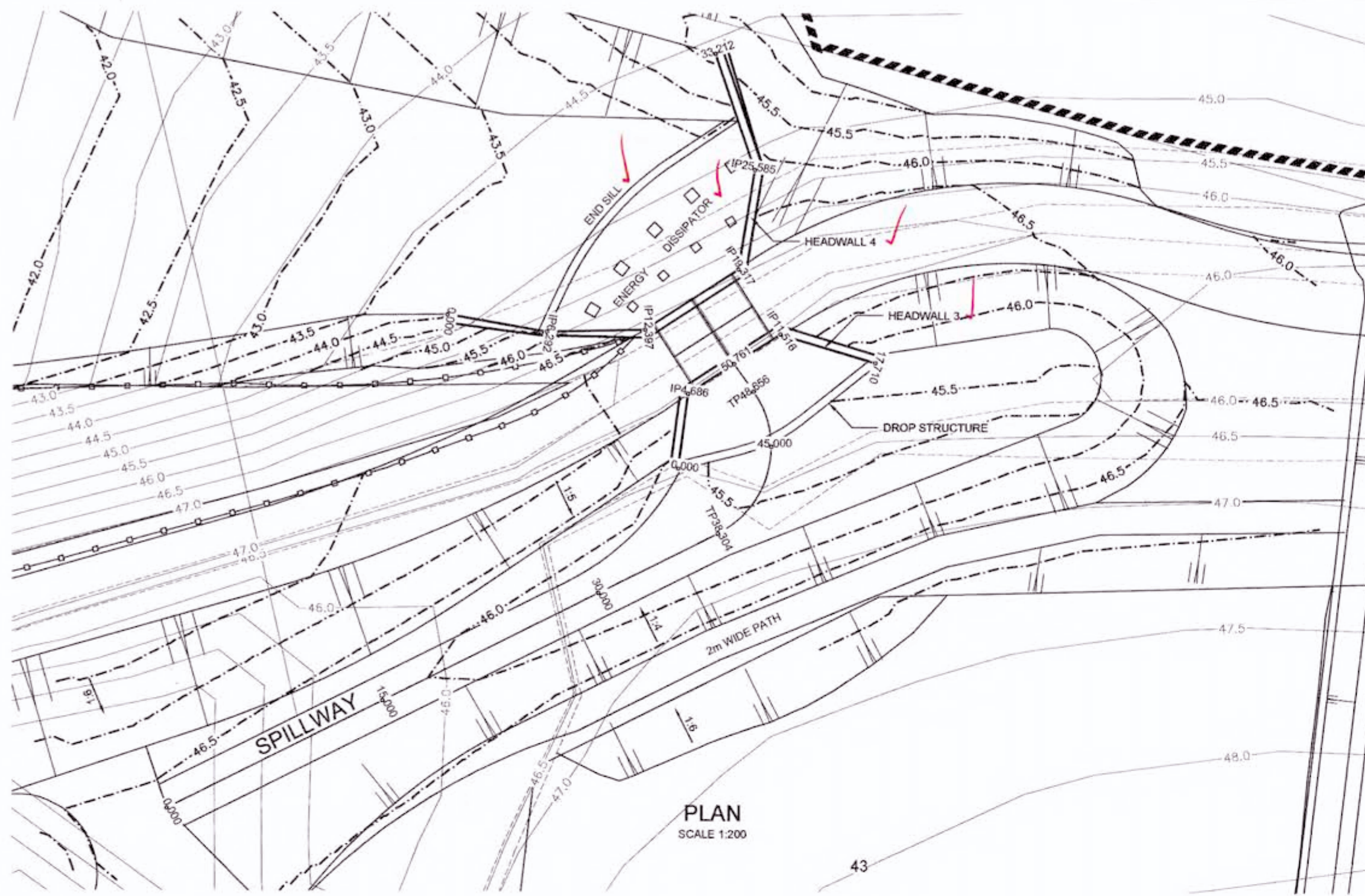
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AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16

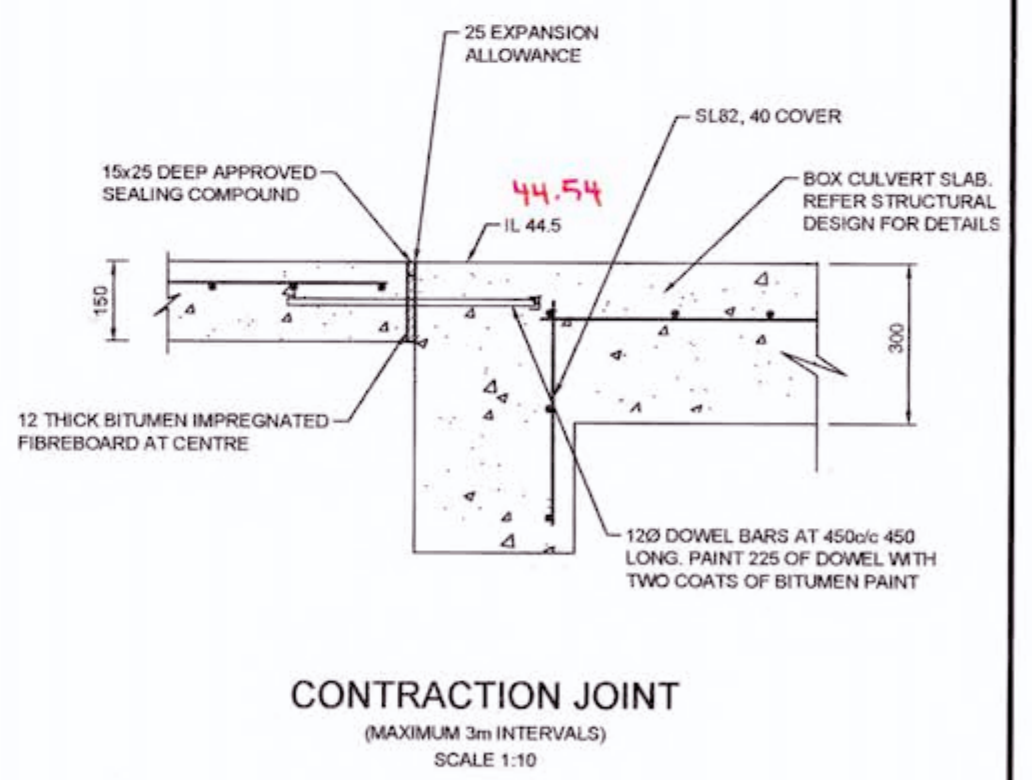
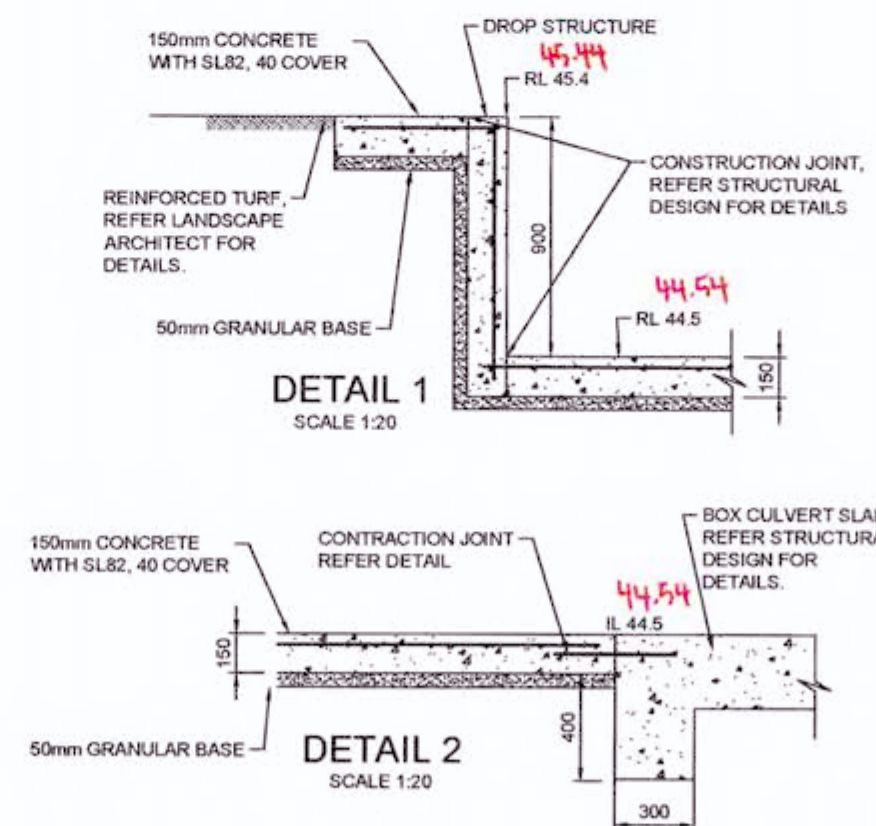
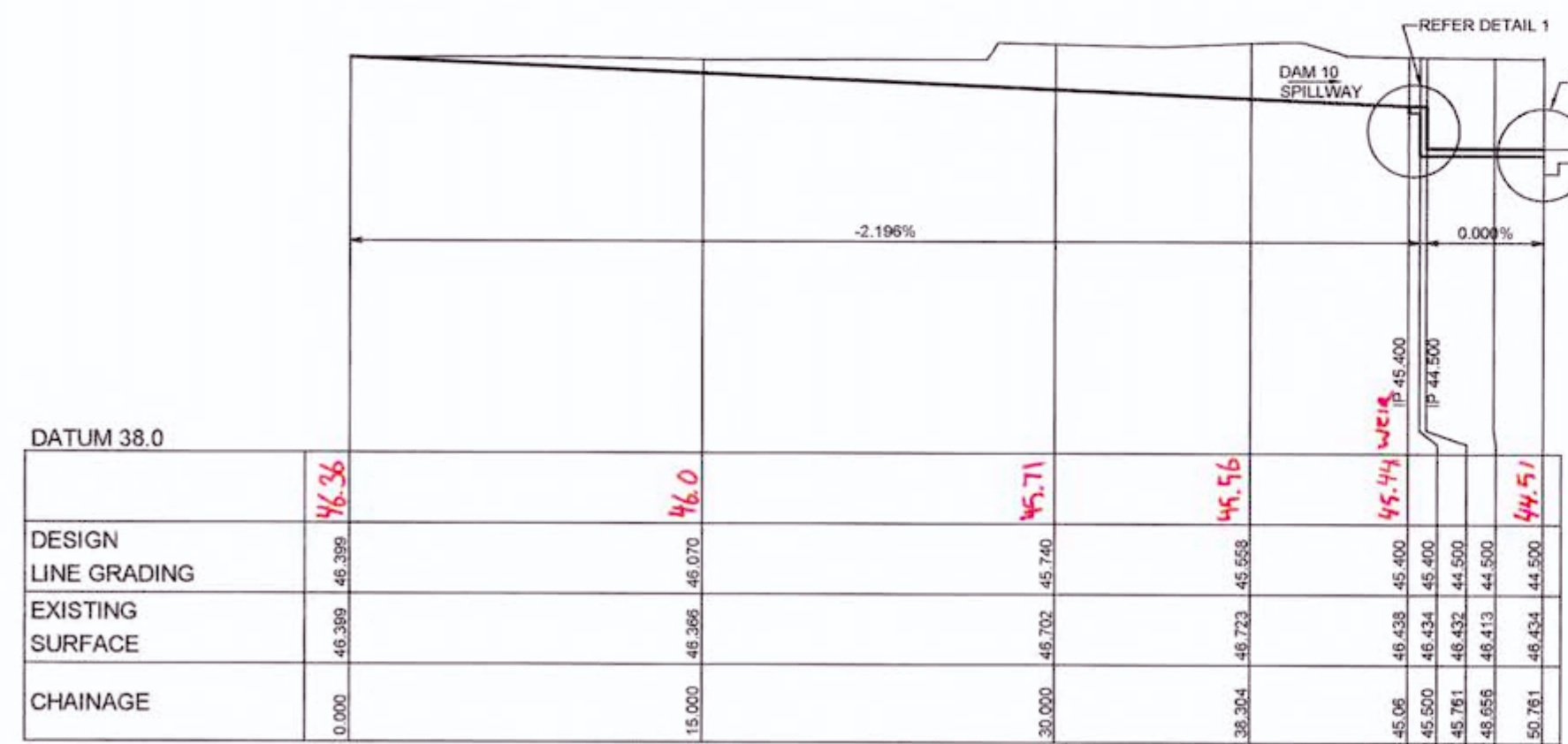
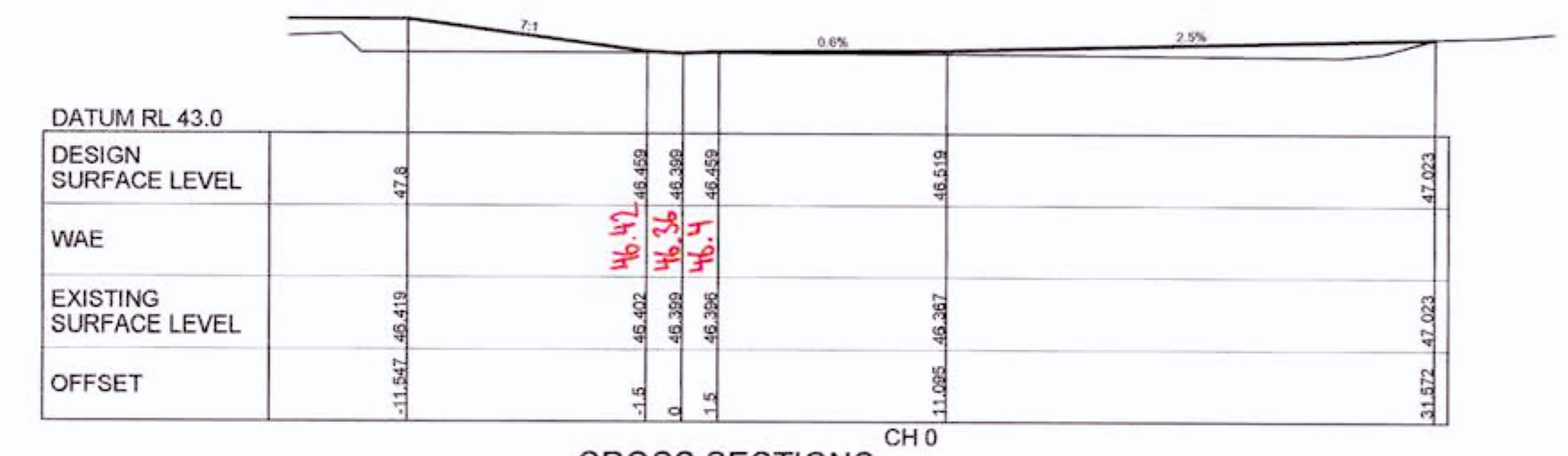
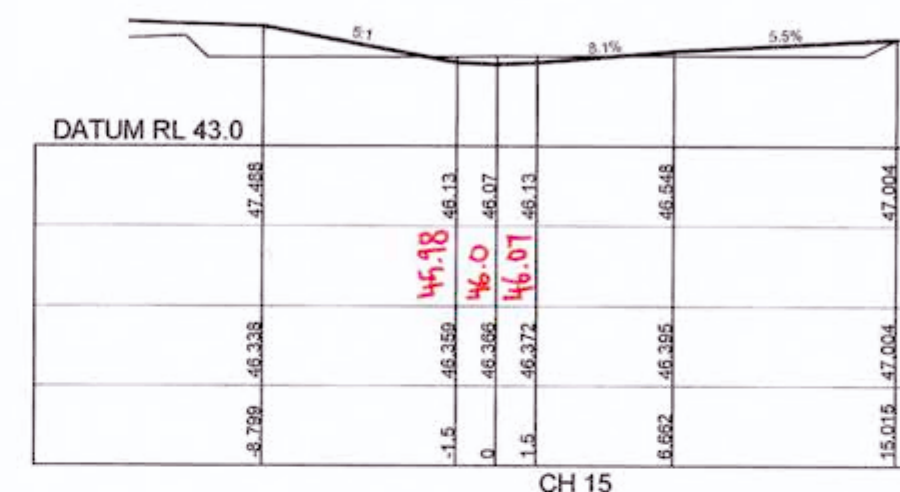
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
AZIMUTH: MGA
DATUM: AHD
ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

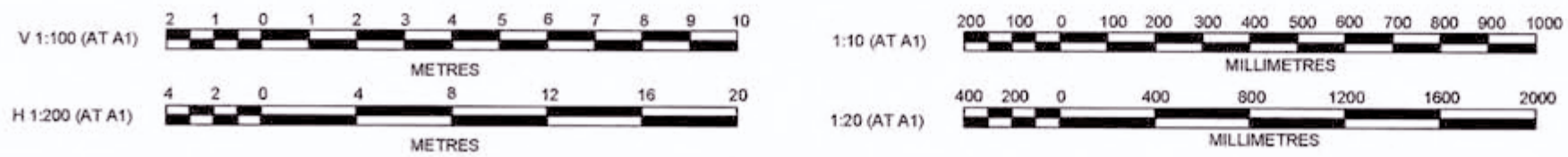
ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
CULVERT 2 PLAN, SECTION & HEADWALL 3 & 4 PROFILES
PLAN No: 110185BEL/CC77
FILE No: 110185BELCC77
SHEET SIZE: A1 ORIGINAL



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *PR*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. 130300505
 These plans/specifications form part of the certificate issued 31 July 2017



CLIENT:
REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
 BELMONT

SPILLWAY PLAN, SECTION
 & DETAILS

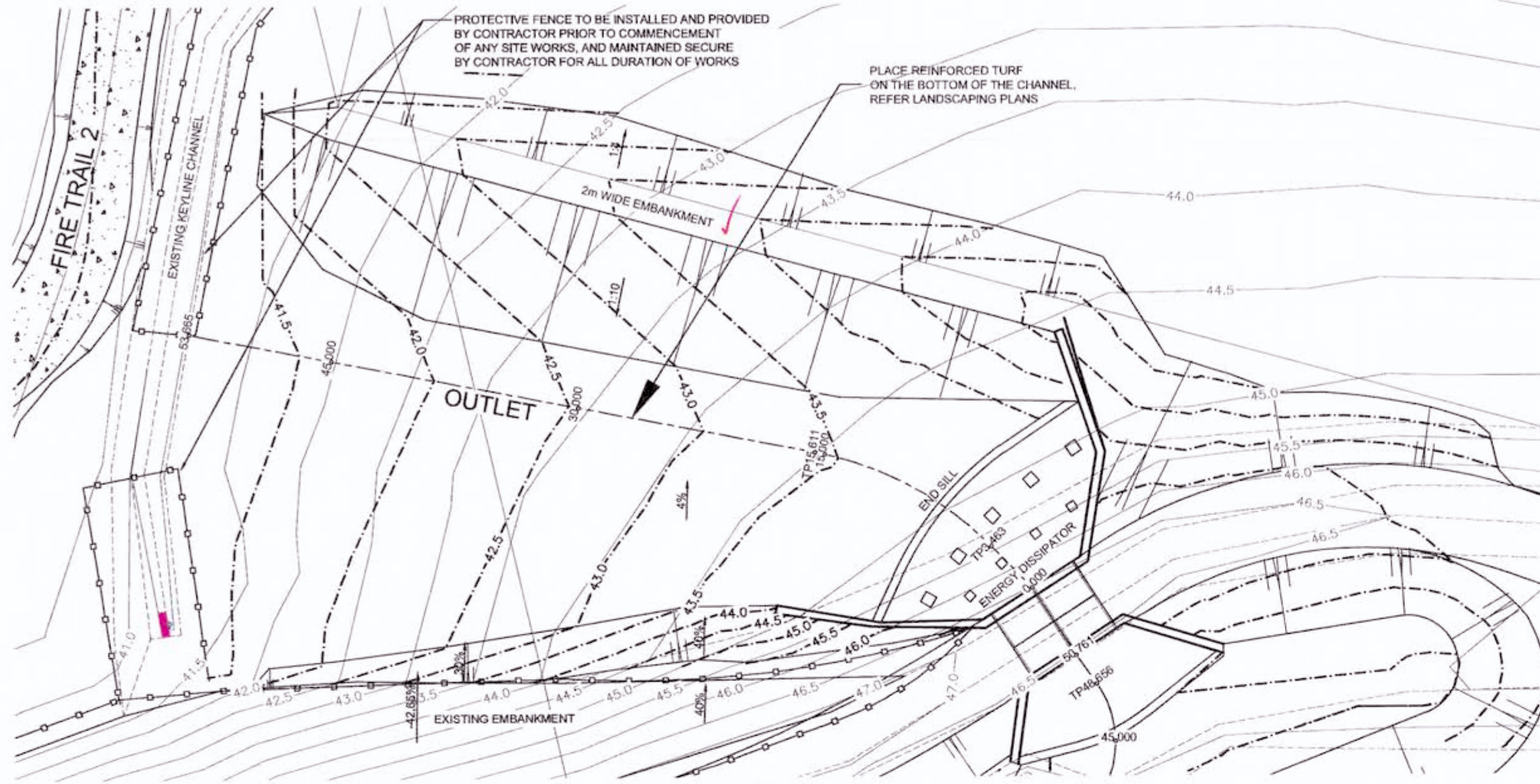
PLAN No: 110185BEL/CC78 **E**
 FILE No: 110185BELCC78
 SHEET SIZE: A1 ORIGINAL

Printed: 18 July 2017 5:54:57 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC78.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/05/16

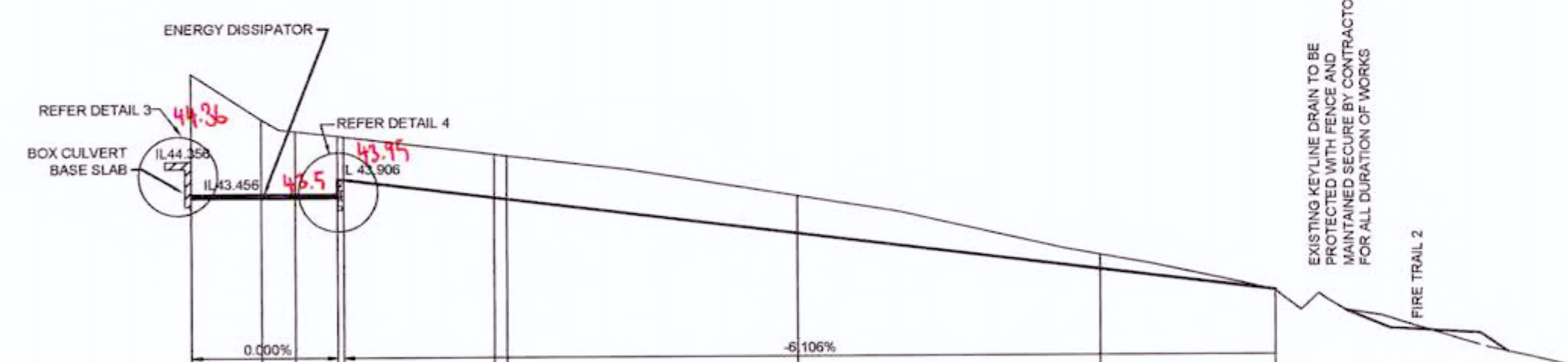
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

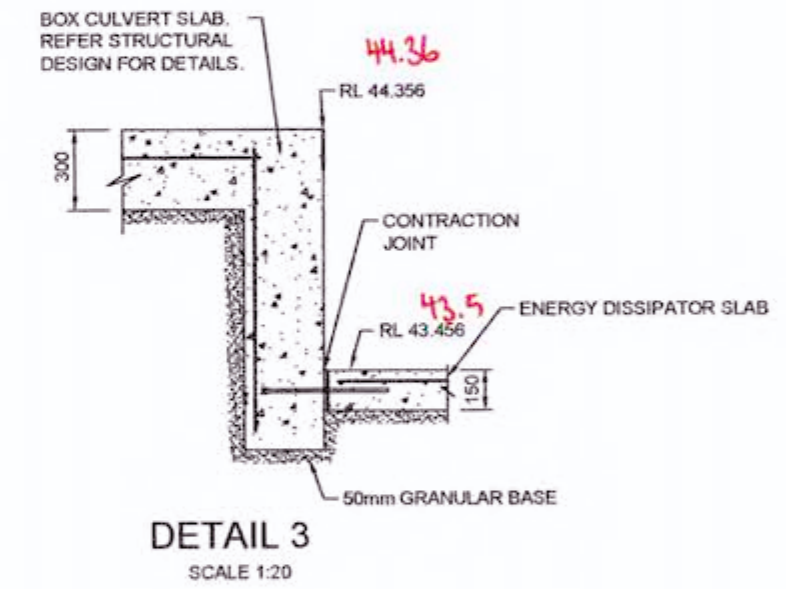


PLAN
SCALE 1:200

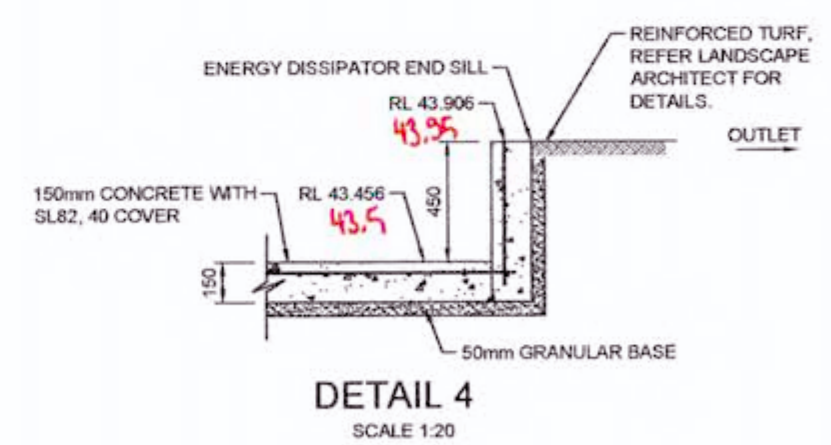
WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



LONGITUDINAL SECTION OUTLET
 HORIZONTAL SCALE 1:200
 VERTICAL SCALE 1:100



DETAIL 3
SCALE 1:20



DETAIL 4
SCALE 1:20

CHAINAGE	0.000	3.463	5.147	7.231	7.544	15.000	19.611	30.000	45.000	53.665
DESIGN LINE GRADING	44.356	43.456	43.456	43.456	43.456	43.451	43.413	42.835	41.619	41.090
EXISTING SURFACE	46.525	45.406	43.456	43.456	43.906	44.520	44.483	43.451	41.977	41.077

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Jerry Prince*
 Accreditation No. SPB0565
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CLIENT:

 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

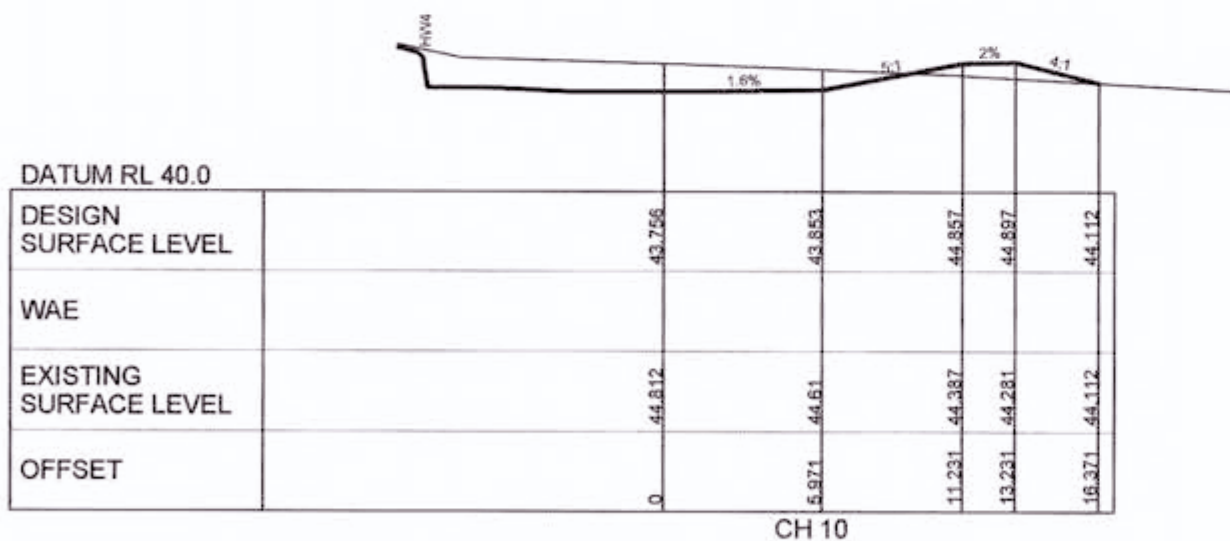
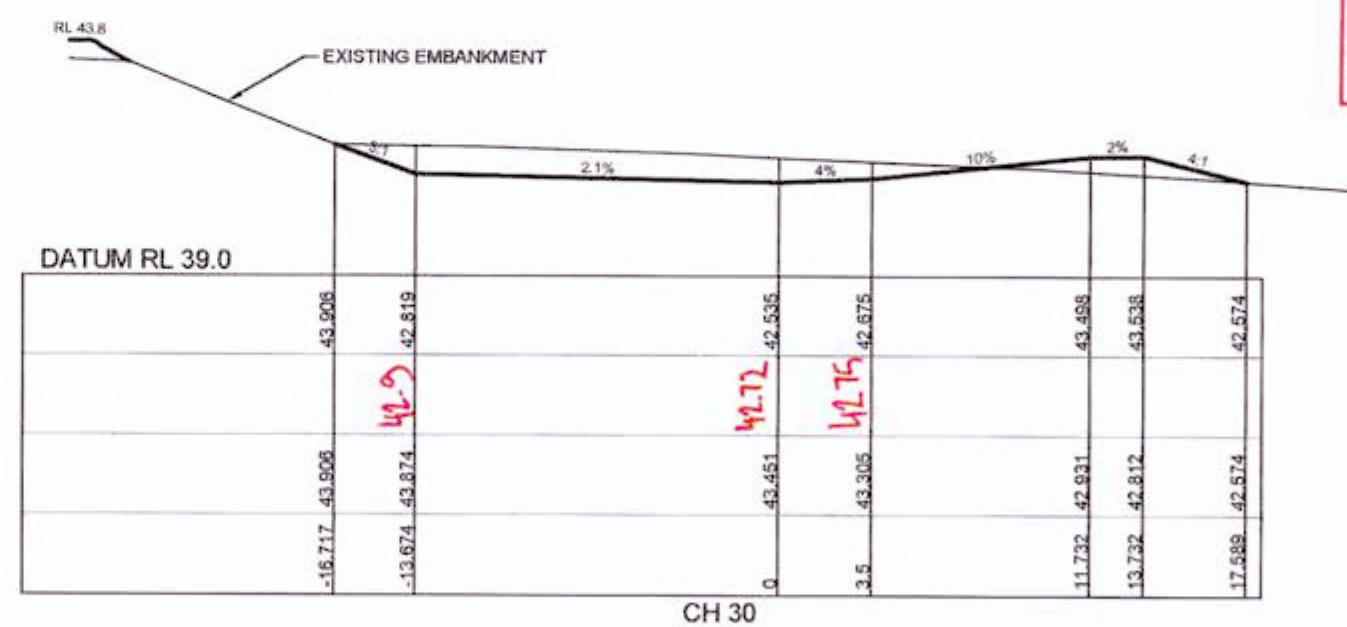
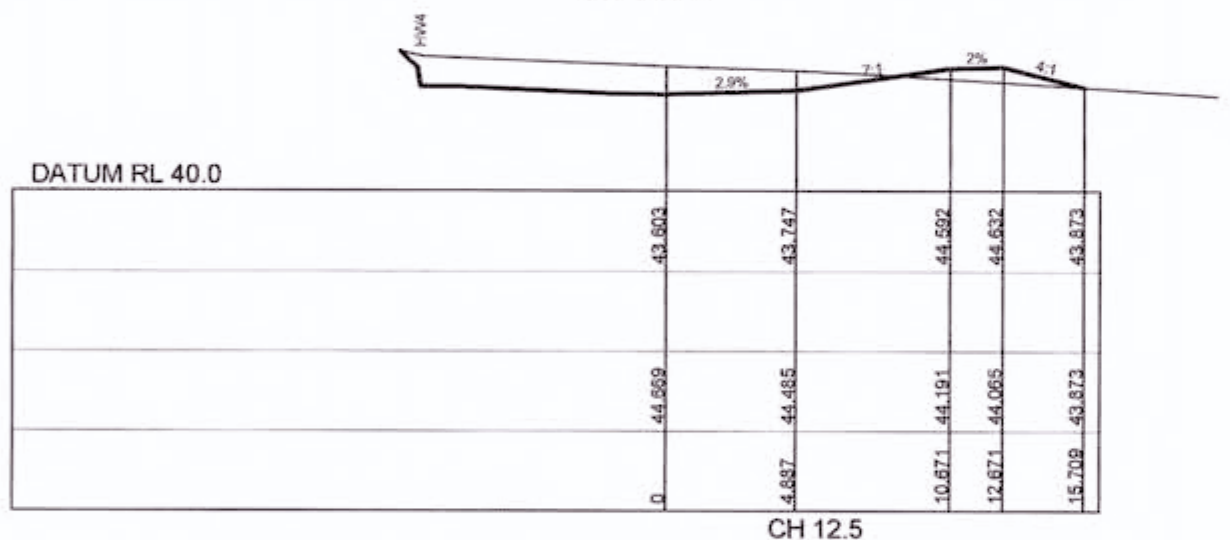
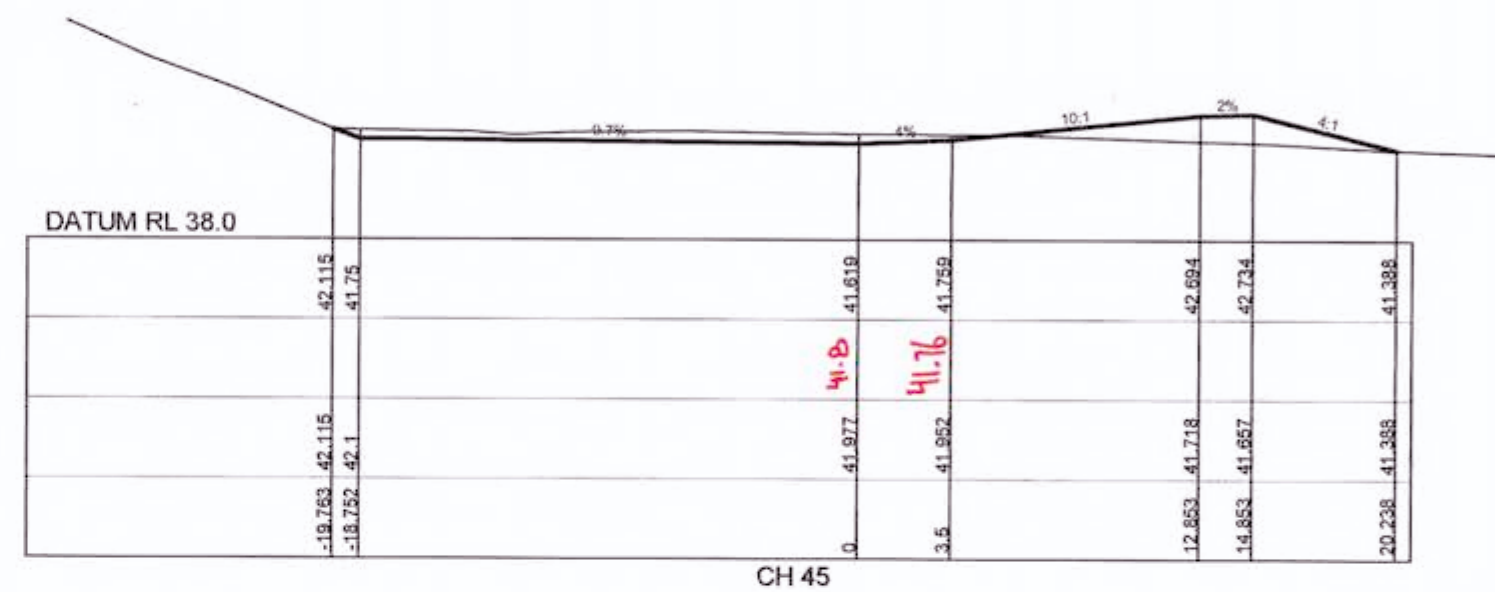
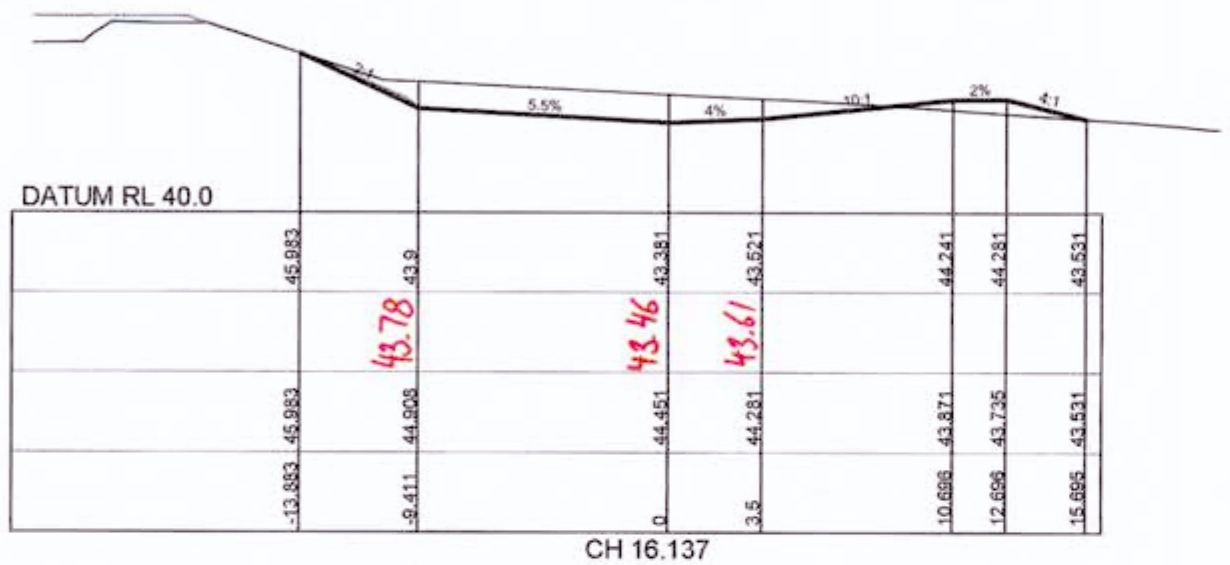
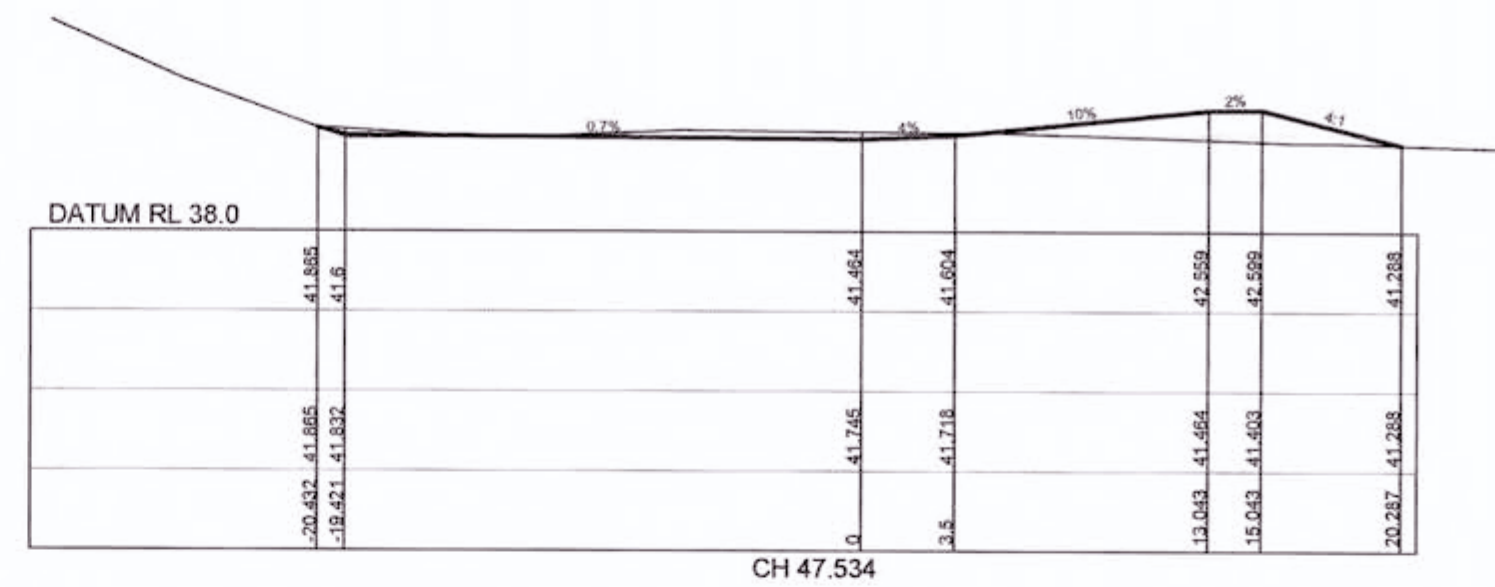
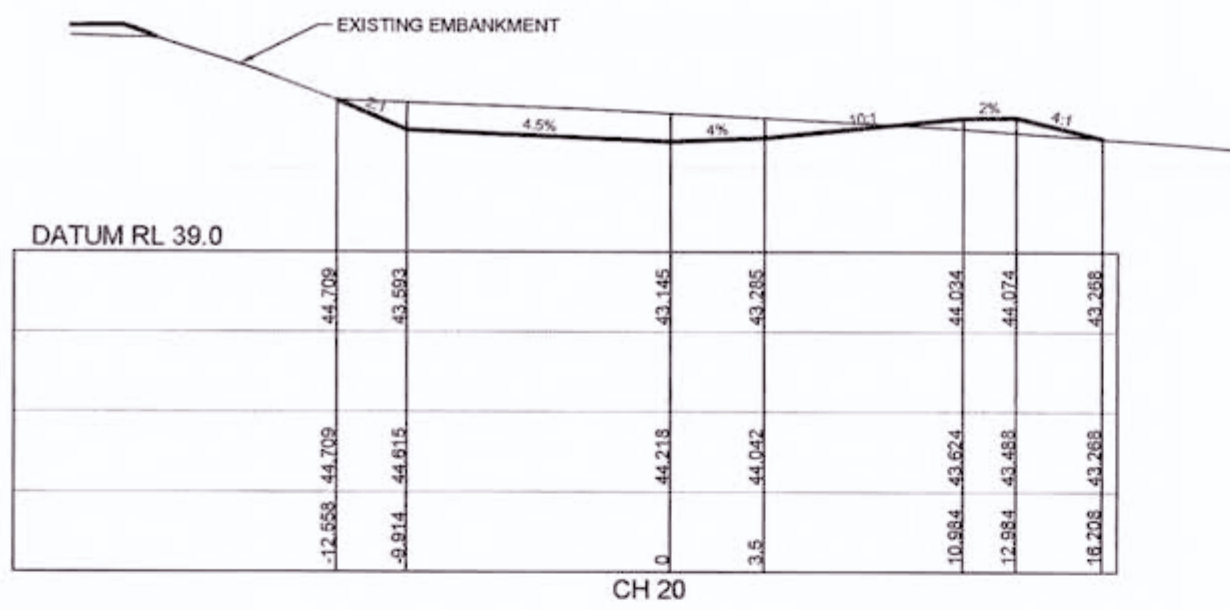
ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 OUTLET PLAN, LONGITUDINAL SECTION & DETAILS
 PLAN No: 110185BEL/CC79 E
 FILE No: 110185BELCC79
 SHEET SIZE: A1 ORIGINAL

Posted: 18 July 2017 5:55:17 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC\BELMONT\110185BELCC79.dwg

NO.	DESCRIPTION	DES	DRN	CKD	APR	DATE
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D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
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WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. JBPB0565
 These plans/specifications form part of the certificate issued 31 July 2017



AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	09/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/08/16

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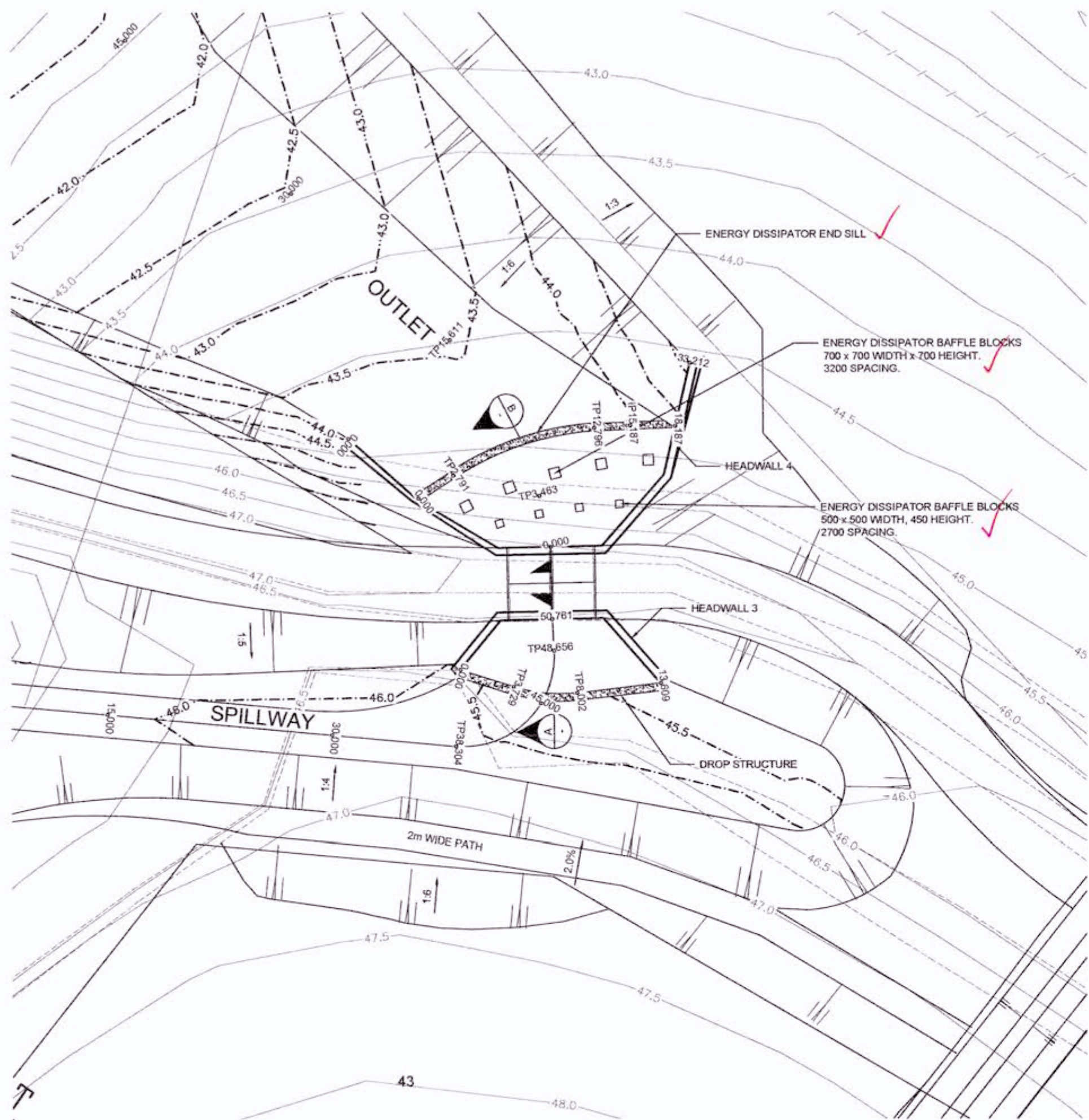
CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 OUTLET CONTROL CROSS SECTIONS

PLAN No: 110185BEL/CC80 **E**
 FILE No: 110185BELCC80
 SHEET SIZE: A1 ORIGINAL

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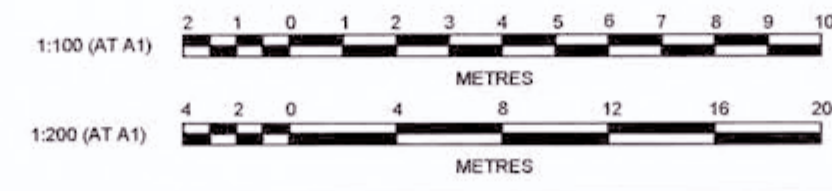


PLAN
SCALE 1:200

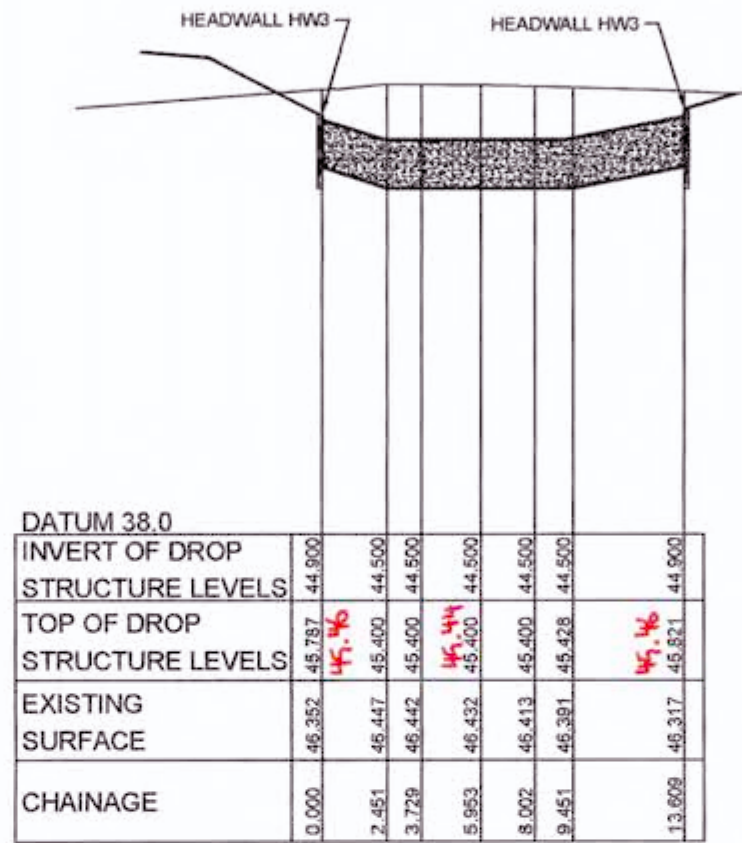
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH	D ANGLE
0.00	285722.75	6282381.83	109°19'19.87"			
3.73	285726.27	6282380.90	109°19'19.87"			
4.84	285727.32	6282380.23		-10	2.22	12°44'23.74"
5.95	285728.43	6282380.10	96°34'56.13"			
6.98	285729.45	6282379.99		-10	2.05	11°44'19.74"
8.00	285730.48	6282380.08	84°50'36.39"			
13.61	285736.06	6282380.58	84°50'36.39"			

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH	D ANGLE
0.00	285720.25	6282393.30	58°23'06.81"			
2.79	285722.62	6282394.76	58°23'06.81"			
7.79	285726.98	6282397.44		19.69	10.01	29°06'49.35"
12.80	285732.09	6282397.67				
15.19	285734.47	6282397.77				
18.19	285737.47	6282397.85	92°21'53.71"			

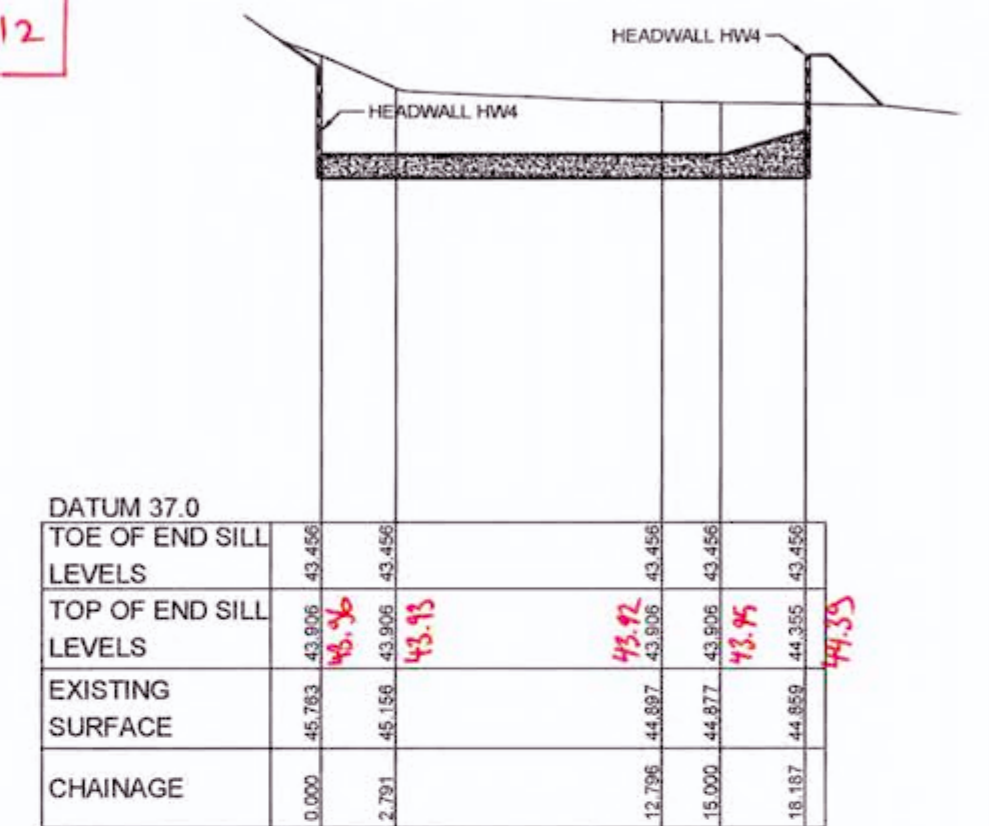
REFER TO STRUCTURAL DESIGN & CERTIFICATION BY INHOUSE CONSULTING ENGINEERS, REFERENCE 16112



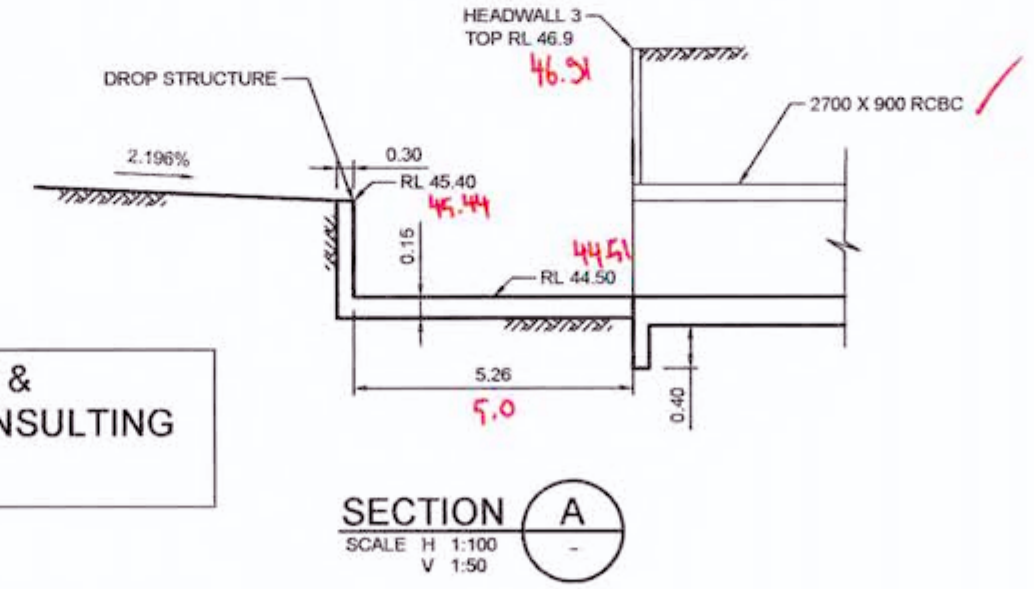
WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P. R. Warwick*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



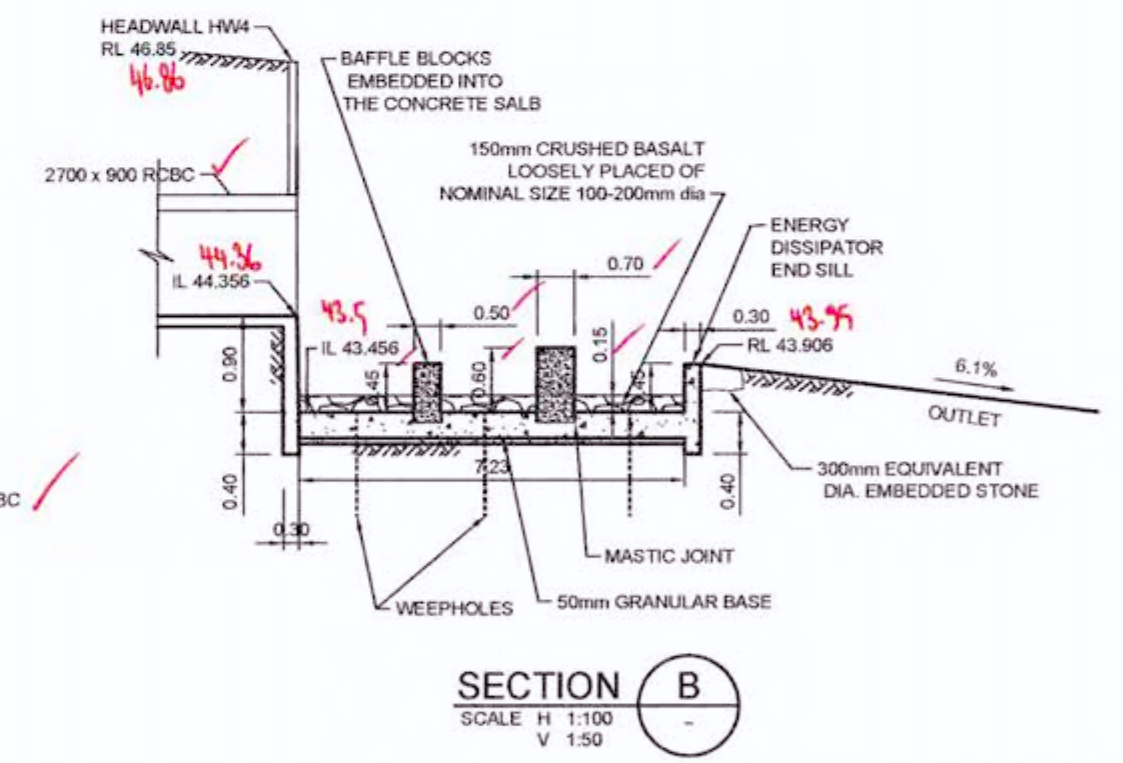
DROP STRUCTURE PROFILE
 HORIZONTAL SCALE 1:200
 VERTICAL SCALE 1:100



ENERGY DISSIPATOR END SILL PROFILE
 HORIZONTAL SCALE 1:200
 VERTICAL SCALE 1:100



SECTION A
 SCALE H 1:100
 V 1:50



SECTION B
 SCALE H 1:100
 V 1:50

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Georgy*
 Accreditation No. BFB0565
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Plotted: 18 July 2017 5:57:10 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC81.dwg

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D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

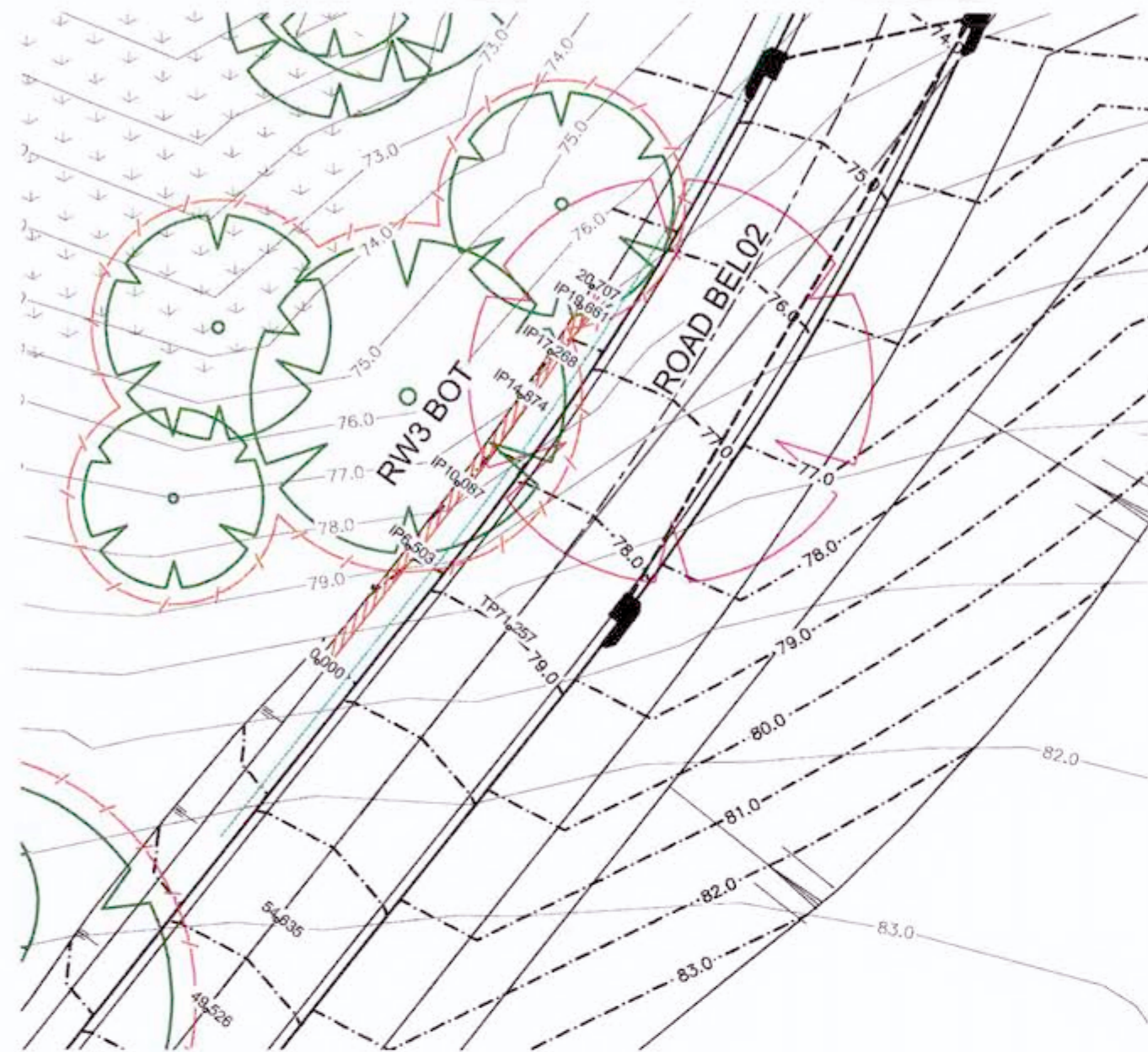
PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

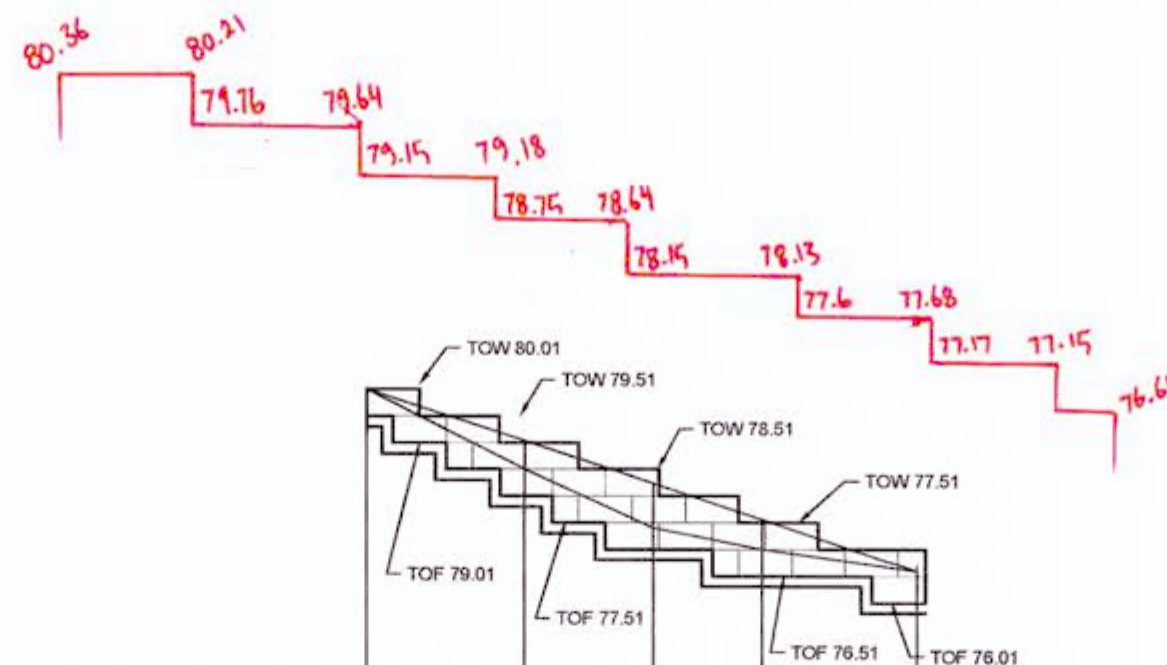
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 DROP STRUCTURE & ENERGY DISSIPATOR & DETAILS

PLAN No: 110185BEL/CC81 **E**
 FILE No: 110185BELCC81
 SHEET SIZE: A1 ORIGINAL



PLAN
SCALE 1:200



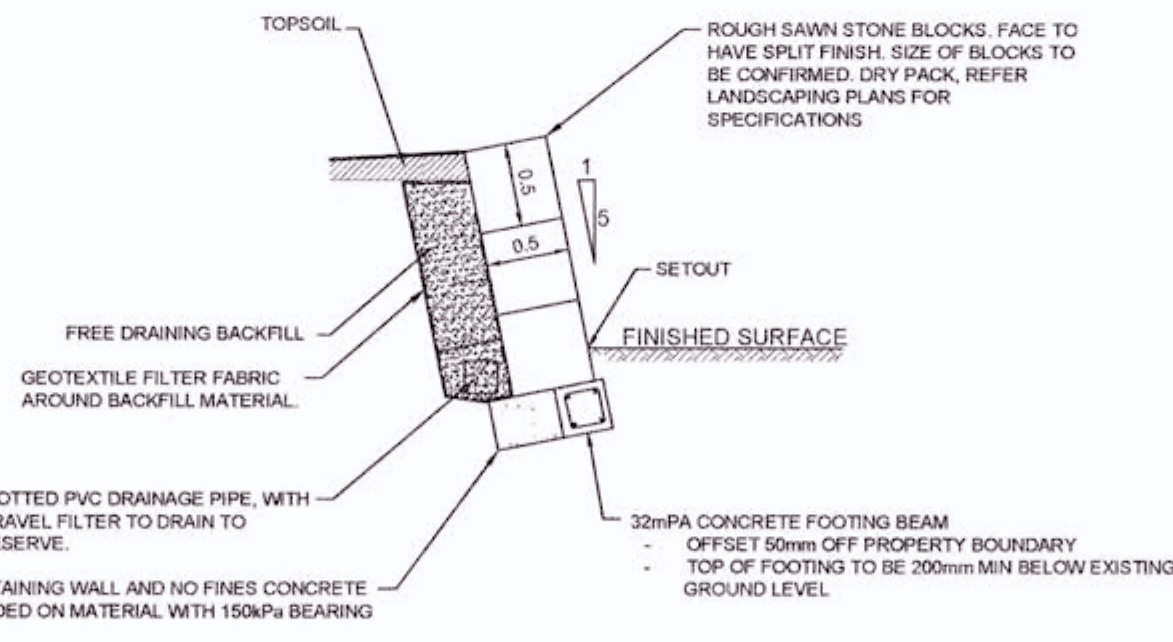
DATUM 70.0	
TOE OF WALL	80.007
GROUND LEVELS	80.36
TOP OF WALL	80.006
GROUND LEVELS	80.36
EXISTING SURFACE	80.087
CHAINAGE	0.000

LONGITUDINAL SECTION RW3 BOT
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

RW3 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0.00	285511.25	6281971.93	39°54'50.95"
6.50	285515.42	6281976.92	
10.09	285517.68	6281979.70	
14.87	285520.58	6281983.51	
17.27	285521.98	6281985.45	
19.66	285523.34	6281987.42	
20.71	285523.91	6281988.30	33°01'34.59"

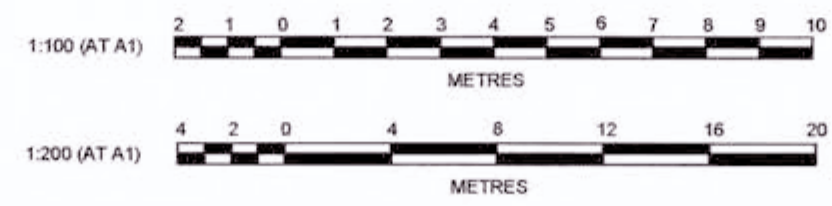
WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

REFER TO STRUCTURAL DESIGN & CERTIFICATION BY INHOUSE CONSULTING ENGINEERS, REFERENCE 16112



RETAINING WALL 3 DETAIL
3 (AND LESS) BLOCK ARRANGEMENT (1.5m MAX HEIGHT)
N.T.S

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Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer *Joey By*
Accreditation No. BP0565
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REVISION F
F1 RETAINING WALL, SECTION & SETOUT TABLE REMOVED

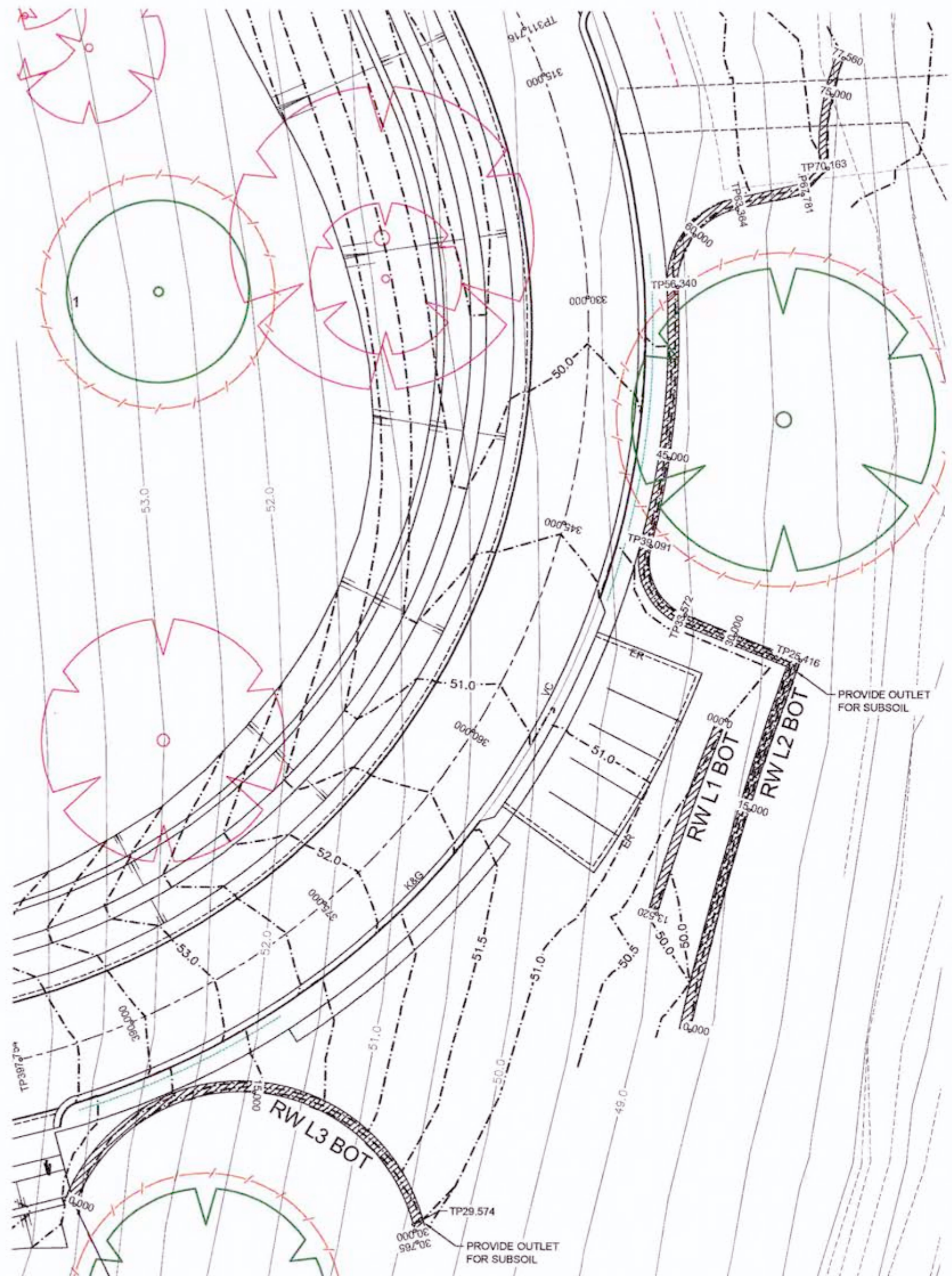
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F	MP	MG	RO	MS	18/07/17
E	MP	MG	RO	MS	13/02/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16

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CLIENT: REDBANK
AZIMUTH: MGA
DATUM: AHD
ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
RETAINING WALL 3
PLAN & SECTION
PLAN No: 110185BEL/CC82 F
FILE No: 110185BELCC82
SHEET SIZE: A1 ORIGINAL

Printed: 18 July 2017 5:57:32 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\BELMONT\110185BELCC82.dwg



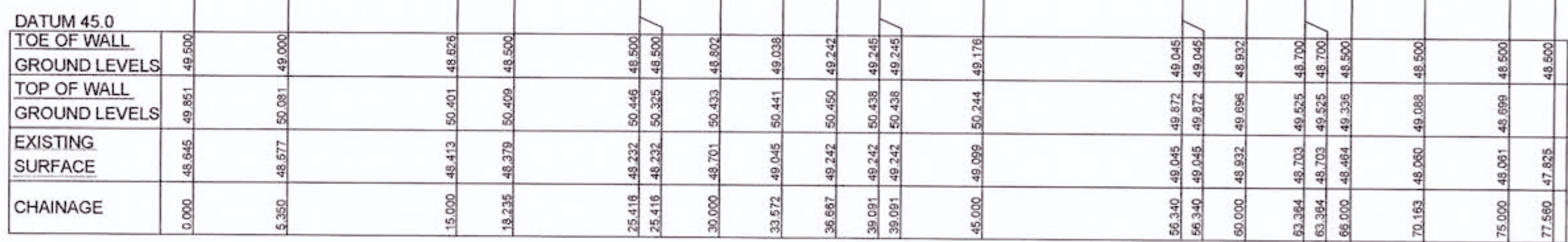
PLAN
SCALE 1:200

REFER TO STRUCTURAL DESIGN &
CERTIFICATION BY INHOUSE CONSULTING
ENGINEERS, REFERENCE 16112

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

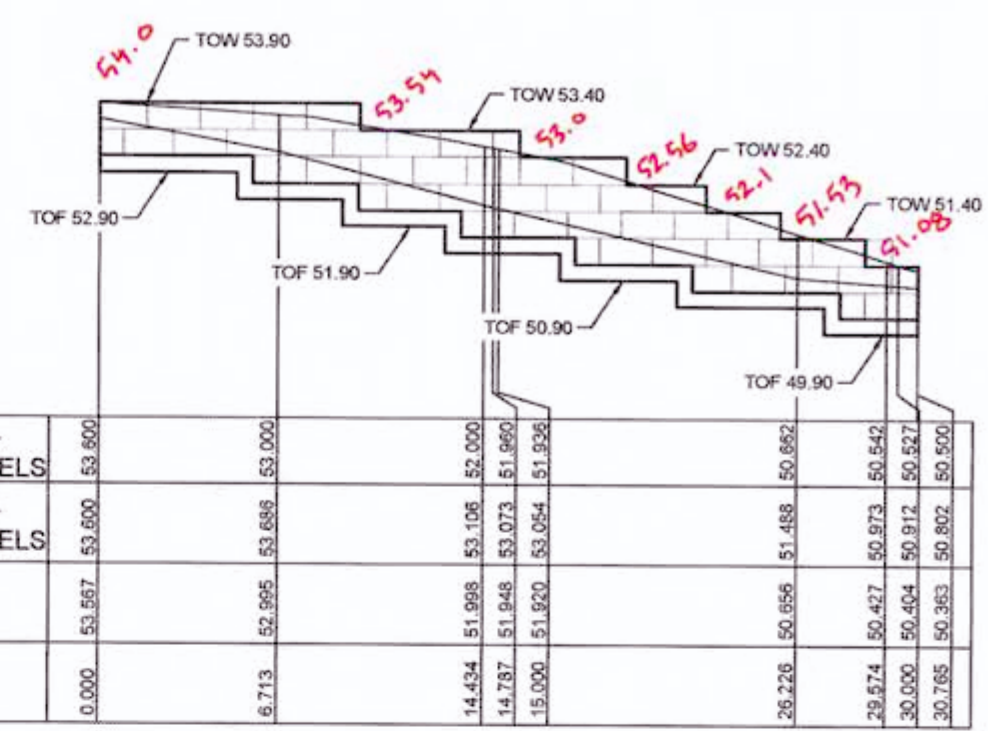


LONGITUDINAL SECTION RW L2 BOT
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

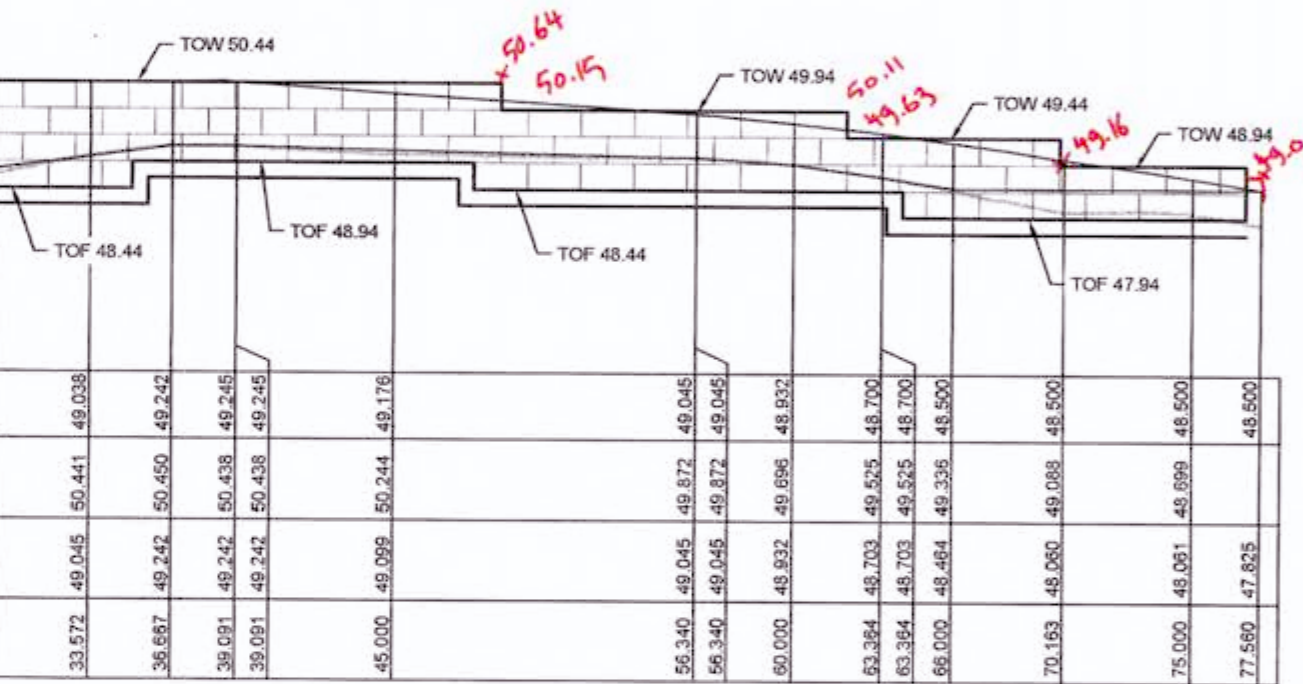
RW L1 BOT						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285592.50	6282361.33	203°19'05.51"			
6.76	285589.82	6282375.12		-170.67	13.52	4°32'20.21"
13.52	285587.94	6282368.72	198°46'45.30"			

RW L2 BOT						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285589.65	6282360.98	13°56'09.16"			
12.71	285592.72	6282373.33		185	25.42	7°52'17.73"
25.42	285597.44	6282385.15				
33.57	285599.93	6282388.31		3.8	5.52	83°12'49.22"
38.33	285596.82	6282389.62				
39.09	285587.75	6282392.86				
47.72	285590.15	6282401.22		-55.25	17.25	17°53'07.79"
56.34	285589.87	6282409.91				
59.85	285589.73	6282414.14		5	7.02	80°29'39.94"
63.36	285593.88	6282414.97	78°38'36.09"			
67.78	285598.21	6282415.84				
70.16	285599.92	6282417.51				
73.88	285599.52	6282421.27		16.2	7.4	27°52'52.98"
77.56	285601.11	6282424.73	23°20'09.18"			

RW L3 BOT						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285548.82	6282350.37	22°43'41.59"			
7.39	285552.12	6282358.24		11.8	14.79	71°48'45.24"
14.79	285560.64	6282357.57	94°32'26.83"			
22.18	285569.15	6282356.89		11.8	14.79	71°48'45.24"
29.57	285571.17	6282348.59				
30.76	285571.37	6282347.42	170°12'24.52"			



LONGITUDINAL SECTION RW L3 BOT
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW L1 BOT
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer *Joey*
Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 31 July 2017



J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: **REDBANK**

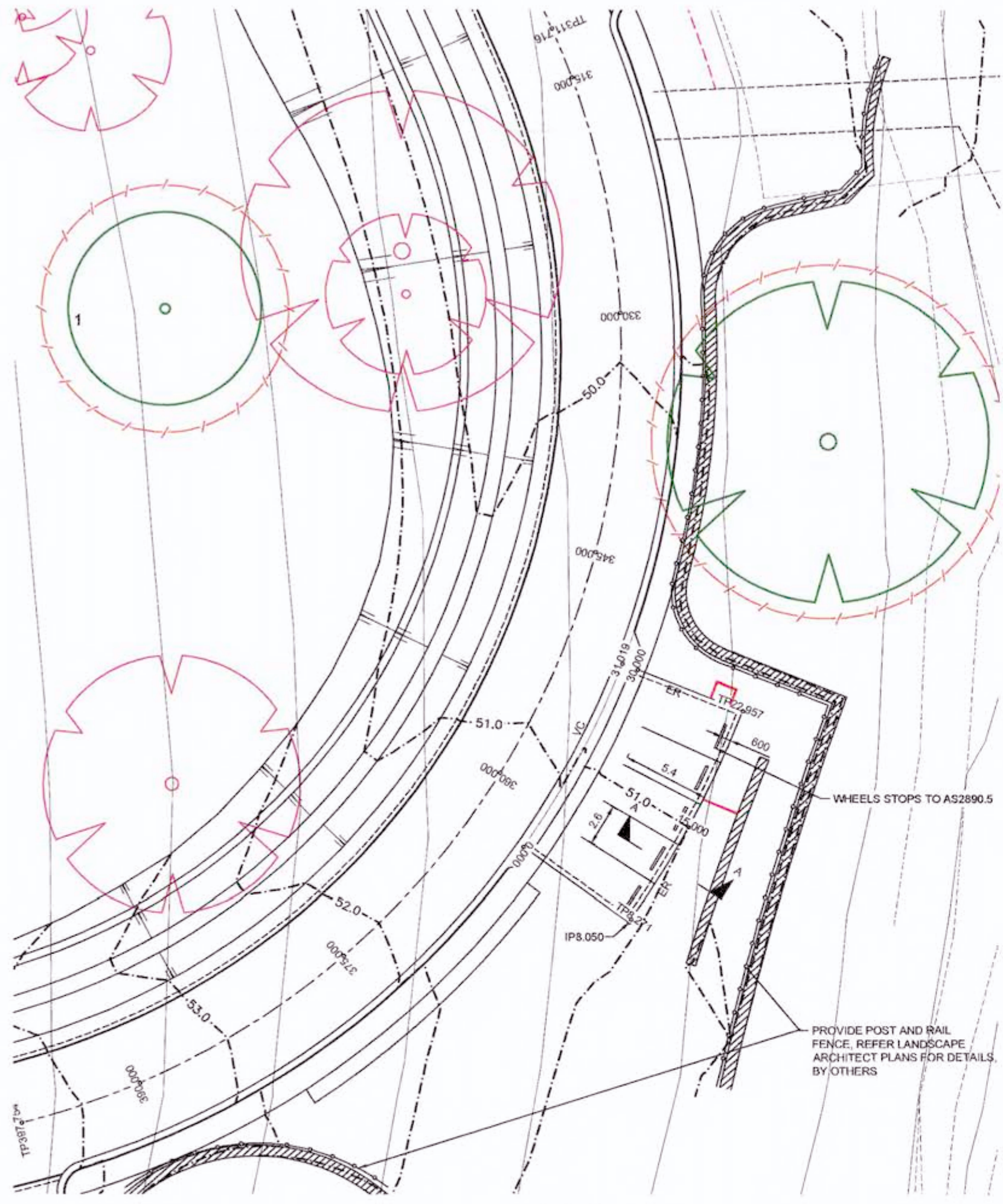
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
RETAINING WALLS L1, L2 & L3
PLAN & SECTIONS

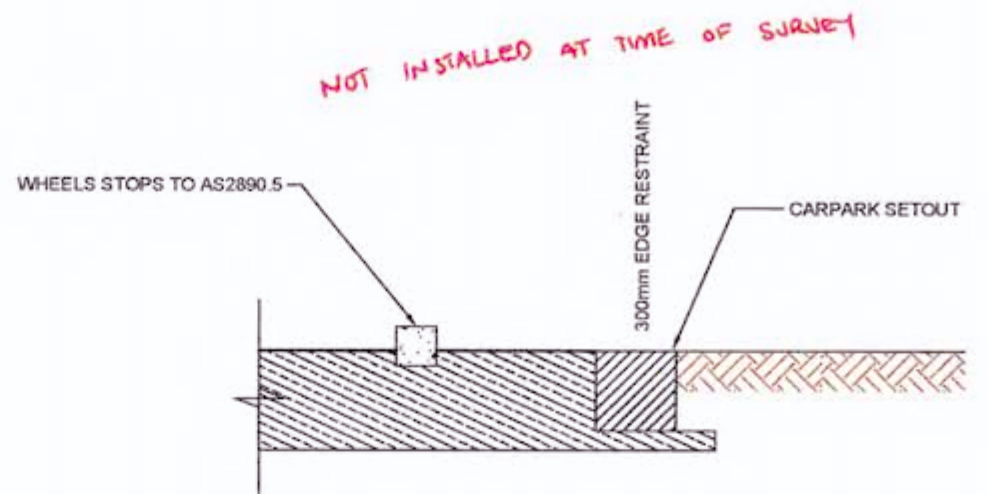
PLAN No: 110185BEL/CC83 **E**
FILE No: 110185BEL/CC83
SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO	RO	21/06/16



PLAN
SCALE 1:200

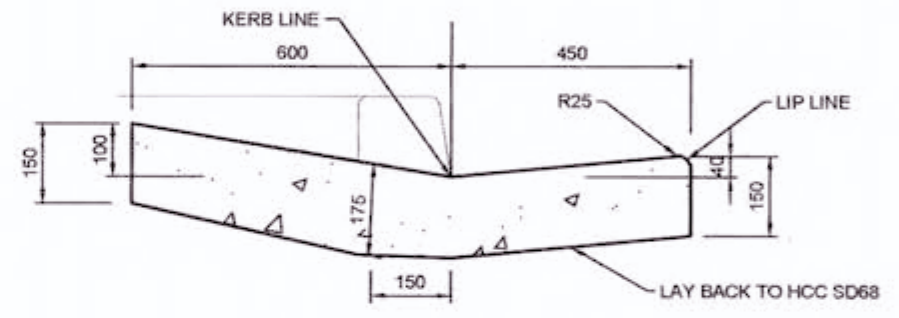
CARPARK SETOUT						
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH	D ANGLE
0.00	285577.11	6282376.33	126°45'03.49"			
8.05	285583.56	6282371.51				
8.27	285583.70	6282371.69	36°36'14.89"			
15.61	285588.10	6282377.61		-61.1	14.69	13°46'14.59"
22.96	285590.96	6282384.41	22°50'00.30"			
22.97	285590.96	6282384.43				
31.02	285583.54	6282387.55	292°48'20.78"			



SECTION A
SCALE 1:20

PAVEMENT NOTES (CARPARK)
1x10' ESA (GEOTECHNICAL REPORT REF: 12261/14-AA-R2)
1. TWO COATS HOT BITUMEN FLUSH SEAL
2. 125mm DGB 20 BASE COURSE
3. 200mm SUB-BASE COURSE

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

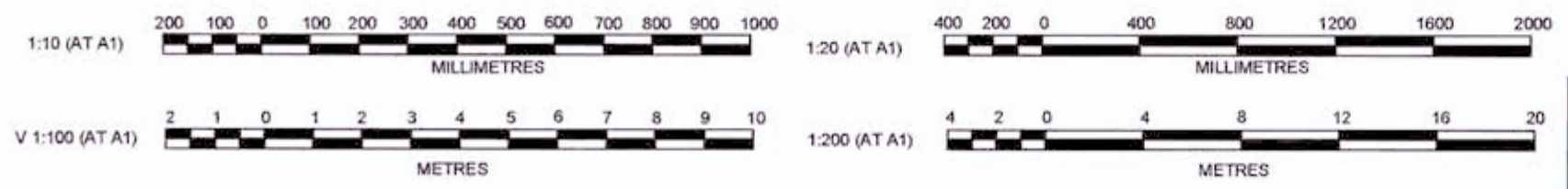


LAY BACK DETAIL
SCALE 1:20

CHAINAGE	DESIGN	EXISTING	GRADING	SURFACE
0.000	50.288	51.236	51.330	51.330
0.600	50.276	51.236	51.330	51.330
1.800	50.104	51.330	51.330	51.330
8.271	49.451	51.188	51.188	51.188
15.000	49.099	51.000	51.000	51.000
22.967	49.906	50.801	50.801	50.801
29.219	49.514	50.694	50.694	50.694
30.000	49.583	50.681	50.681	50.681
30.419	49.650	50.685	50.685	50.685
31.019	49.673	50.689	50.689	50.689

LONGITUDINAL SECTION CARPARK
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer *Joey*
Accreditation No. BPO565
These plans/specifications form part of the certificate issued 31 July 2017



Printed: 18 July 2017 6:00:37 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\BELMONT\110185BELCC84.dwg

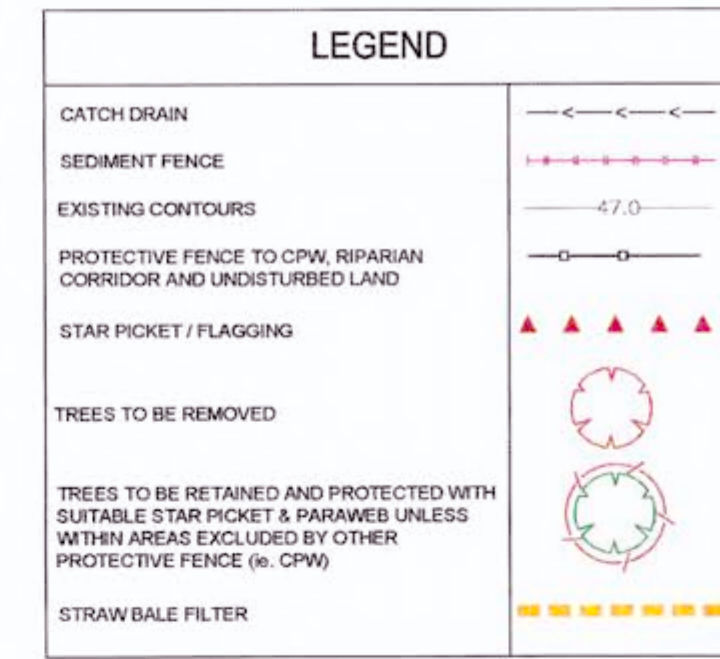
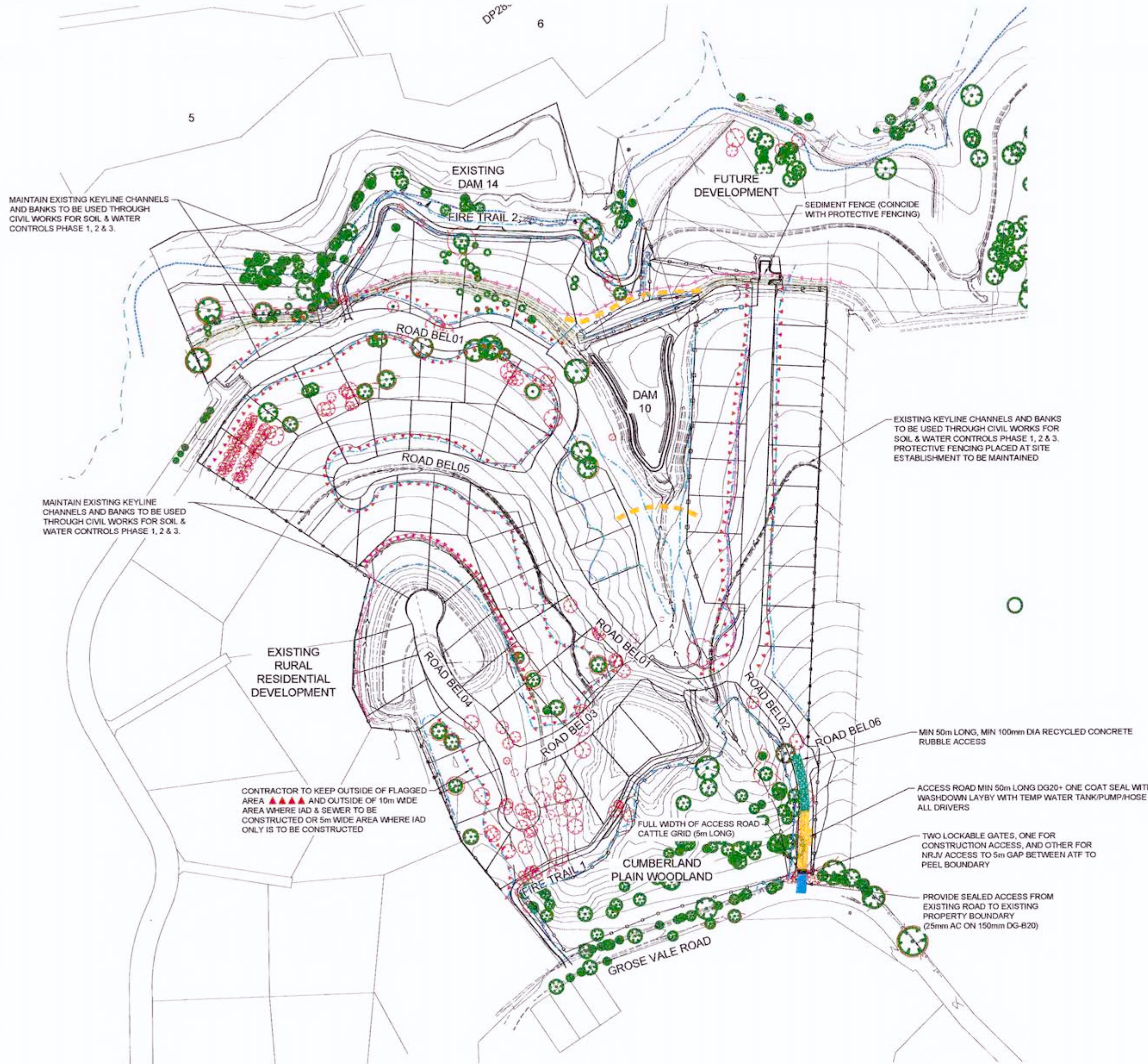
AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG	RO	MS	18/07/17
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/08/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: **REDBANK**
AZIMUTH: MGA
DATUM: AHD
ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND BELMONT
CARPARK PLAN, SECTIONS & DETAILS
PLAN No: 110185BEL/CC84
FILE No: 110185BELCC84
SHEET SIZE: A1 ORIGINAL

PHASE 1 - PRE-CIVIL WORKS COMMENCEMENT



PHASE 1 SOIL AND WATER MANAGEMENT:

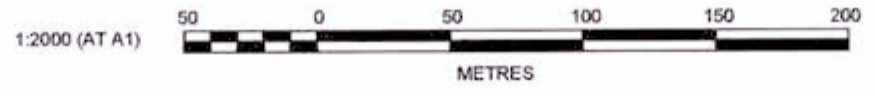
1. ENSURE ALL CATCH DRAINS ARE CONNECTED AND DRAIN TO DAM 10
2. MAINTAIN ALL PROTECTIVE FENCES AND SITE ACCESS AS INSTALLED ON PRELIMINARY PHASE

NOTE:
REFER TO LANDSCAPE ARCHITECT PLANS FOR TREE MANAGEMENT AND PROTECTION DETAILS.

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE:
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

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 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
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 Accreditation No: JSP80585
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REVISION G
 • FIRE TRAIL 1 & 2 ALIGNMENTS AMENDED



REVISION	DESCRIPTION	MP	MG	MS	MS	DATE
G	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	MS	MS	13/02/17
F	FIRE TRAIL 2 AMENDED	MP	NA	MS	MS	20/10/16
E	CLIENT COMMENTS	VG	LS	MS	RO	27/09/16
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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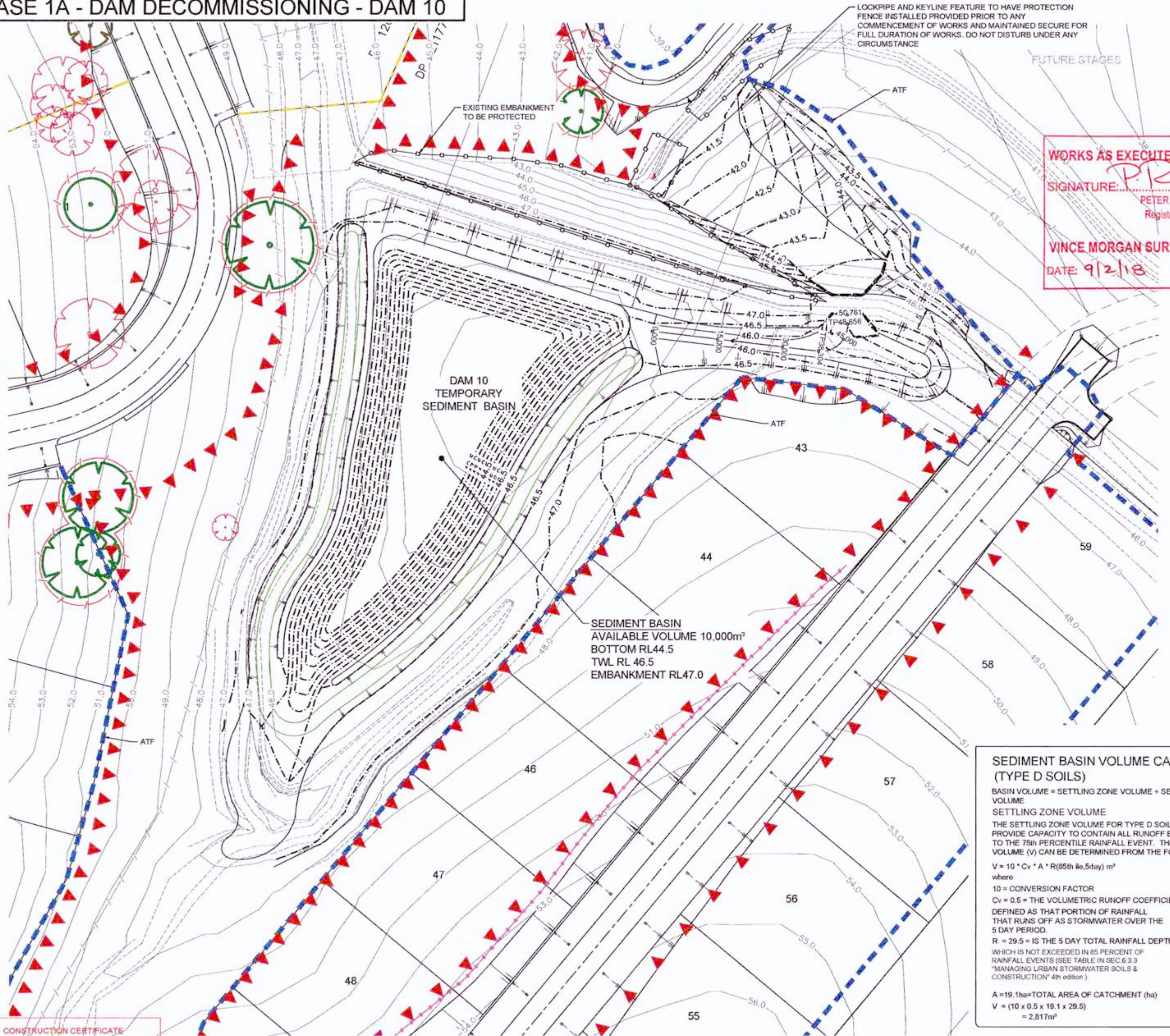
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 SOIL & WATER MANAGEMENT PLAN
 PHASE 1 - OVERALL SITE

PLAN No: 110185BEL/CC88 **G**
 FILE No: 110185BELCC88
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:32:32 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC-BELMONT\110185BELCC88.dwg

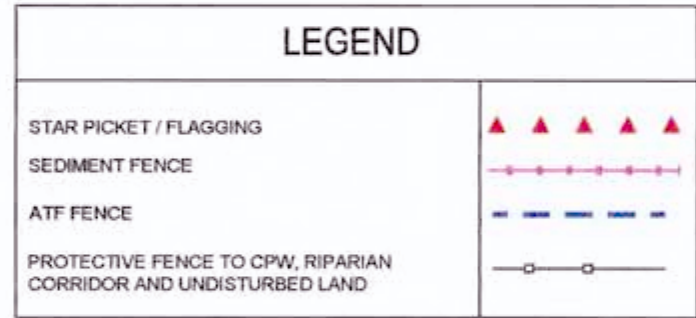
PHASE 1A - DAM DECOMMISSIONING - DAM 10



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 1680d12

DAM DECOMMISSIONING - DAM 1 PROCESS (REF DAM DECOMMISSIONING & HERITAGE IMPACT STATEMENT)

- INSTALL PUMP AND FLOATING INLET & OUTLET HOSE WITH DISCHARGE (OUTLET POINT TO BE DIRECTED ACROSS LANDFORM CONTOUR AND INTO AREA OF THICK EXISTING GRASS WITHIN 10m OF DAM 1 DOWNSTREAM FACE WITH OUTLET TO CAGE WRAPPED IN SEDIMENT FENCE)
- START ARCHIVAL RECORDING OF DAM AT THIS POINT. ALL RECORDING TO BE UNDERTAKEN WITH REFERENCE TO NSW HERITAGE OFFICE ARCHIVAL RECORDING GUIDELINE, DATED JUNE 1998. ALL SIGNIFICANT INFRASTRUCTURE (INCLUDING BUT NOT LIMITED TO VALVES, PIPES, STRUCTURES) TO BE CAREFULLY REMOVED IN AS LARGE SECTIONS AS POSSIBLE, LABELLED AND STORED IN A SECURE CONTAINER ONSITE FOR SEPARATE ASSESSMENT BY HERITAGE CONSULTANT.
- CHECK MIN DEPTH OF WATER IN DAM. IF OVER 1m TURN ON PUMP UNTIL MIN DEPTH OF 1m ACHIEVED. IF AT OR UNDER 1m MIN DEPTH CONTACT ECOLOGIST (MOLSTEN) TO BE PRESENT FOR IDENTIFYING AND RELOCATION FAUNA TO DAM 10.
- ALL SOIL AND EROSION CONTROLS TO BE CHECKED IN PLACE AND FUNCTIONAL BY CONTRACTOR / SUPERINTENDENT AND PRINCIPLE. SEE SOIL & EROSION CONTROLS - PHASE 1.
- BULK EARTHWORKS APPROVED TO START BY ECOLOGIST / HERITAGE / CONTAMINATION CONSULTANT TO REMOVE 1m OF DAM WALL.
- ARCHIVAL PHOTO RECORDING.
- BULK EARTHWORKS TO REMOVE A FURTHER 1m.
- ARCHIVAL PHOTO RECORDING.
- REPEAT (7) & (8) UNTIL LANDFORM DESIGN CONTOURS ACHIEVED. WITH AT ALL TIMES UNEXPECTED FINDS PROTOCOL TO BE COMPLIED WITH FOR EUROPEAN AND ECOLOGY.
 - PIPE / VALVE / DAM CORE FOR EXAMPLE, MATERIAL DISCOVERED.
 - STOP ALL WORK, SUPERVISOR CONTACTED, WITHIN 1 HOUR.
 - SITE SUPERVISOR TO NOTIFY CONTRACTOR SYSTEMS OFFICER AND PM, WITHIN 1 HOUR.
 - IF ECOLOGICAL SUPERINTENDENT / PRINCIPAL / CONSULTANT TO INSPECT SAME DAY AND IF NECESSARY FIND RECOVERED AND RELOCATED.
 - IF HERITAGE CONSULTANT / PRINCIPAL / CONSULTANT TO INSPECT WITH 24 HOURS AND IF NECESSARY FIND EXTRACTED, LABELLED AND STORED.
 - ALL OTHER PROTOCOLS AS PER CONTRACTOR "EMERGENCY AND INCIDENT PREPAREDNESS AND RESPONSE - ON SITE" REQUIREMENTS
- FINAL ARCHIVAL PHOTO RECORDING.
- INSPECTION BY ECOLOGIST / HERITAGE / CONTAMINATION CONSULTANT.



SEDIMENT BASIN VOLUME CALCULATIONS (TYPE D SOILS)

BASIN VOLUME = SETTLING ZONE VOLUME + SEDIMENT STORAGE ZONE VOLUME

SETTLING ZONE VOLUME

THE SETTLING ZONE VOLUME FOR TYPE D SOILS IS CALCULATED TO PROVIDE CAPACITY TO CONTAIN ALL RUNOFF EXPECTED FROM UP TO THE 75th PERCENTILE RAINFALL EVENT. THE SETTLING ZONE VOLUME (V) CAN BE DETERMINED FROM THE FOLLOWING:

$$V = 10 \cdot C_v \cdot A \cdot R(85th \text{ @ } 5day) \cdot m^3$$

where

- 10 = CONVERSION FACTOR
- $C_v = 0.5$ = THE VOLUMETRIC RUNOFF COEFFICIENT, DEFINED AS THAT PORTION OF RAINFALL THAT RUNS OFF AS STORMWATER OVER THE 5 DAY PERIOD.
- $R = 29.5$ = IS THE 5 DAY TOTAL RAINFALL DEPTH (mm) WHICH IS NOT EXCEEDED IN 85 PERCENT OF RAINFALL EVENTS (SEE TABLE IN SEC.6.3.3 "MANAGING URBAN STORMWATER SOILS & CONSTRUCTION" 4th edition)

$A = 19.1ha$ = TOTAL AREA OF CATCHMENT (ha)
 $V = (10 \times 0.5 \times 19.1 \times 29.5) = 2,817m^3$

SEDIMENT STORAGE ZONE VOLUME

THE SEDIMENT STORAGE ZONE VOLUME CAN BE CALCULATED AS BEING EQUAL TO THE AVERAGE 2 MONTH SOIL LOSS FROM THE DISTURBED AREAS OF THE CATCHMENT. THIS VOLUME (V) IS DETERMINED BY THE REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE):

$$V = 0.12 \cdot A \cdot (R \cdot K \cdot L_s \cdot P \cdot C) / 1.3 \cdot m^3$$

where

- 0.12 = A FACTOR CONVERTING ANNUAL ESTIMATED SOIL LOSS TO THE 2 MONTH SOIL LOSS
- $R = 2,500$ = RUSLE R FACTOR
- $K = 0.059$ = RUSLE K FACTOR
- L_s = RUSLE Ls FACTOR
- $P = 1.3$ = RUSLE P FACTOR
- $C = 1$ = RUSLE C FACTOR
- 1.3 = A FACTOR TO CONVERT TONNES TO CUBIC METRES BASED ON A TYPICAL DENSITY OF SATURATED SEDIMENT OF 1.3

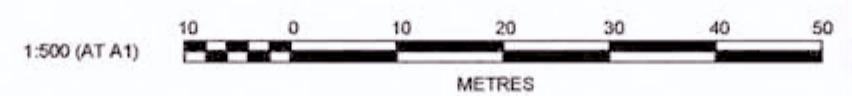
$A = 6.93$ = THE DISTURBED AREA (ha)
 $L_s = 4.06$
 $V = 0.12 \times 6.93 \times (2500 \times 0.059 \times 4.06 \times 1.3 \times 1) / 1.3 = 500m^3$

SEDIMENT BASIN VOLUME REQUIRED FOR 50% SETTLINGS ZONE = $2,817m^3 + 1,406m^3 = 4,226m^3$

CONSTRUCTION CERTIFICATE

Certificate No: 20130299C34
 Date of Issue: 31 July 2017
 Issuing Officer: *Jerry...*
 Accreditation No: 28800666

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G	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	MS	MS	13/02/17
F	CUT & FILL AMENDED	MP	NA	MS	RO	20/10/16
E	CLIENT COMMENTS	VG	LS	MS	RO	27/09/16
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK

AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

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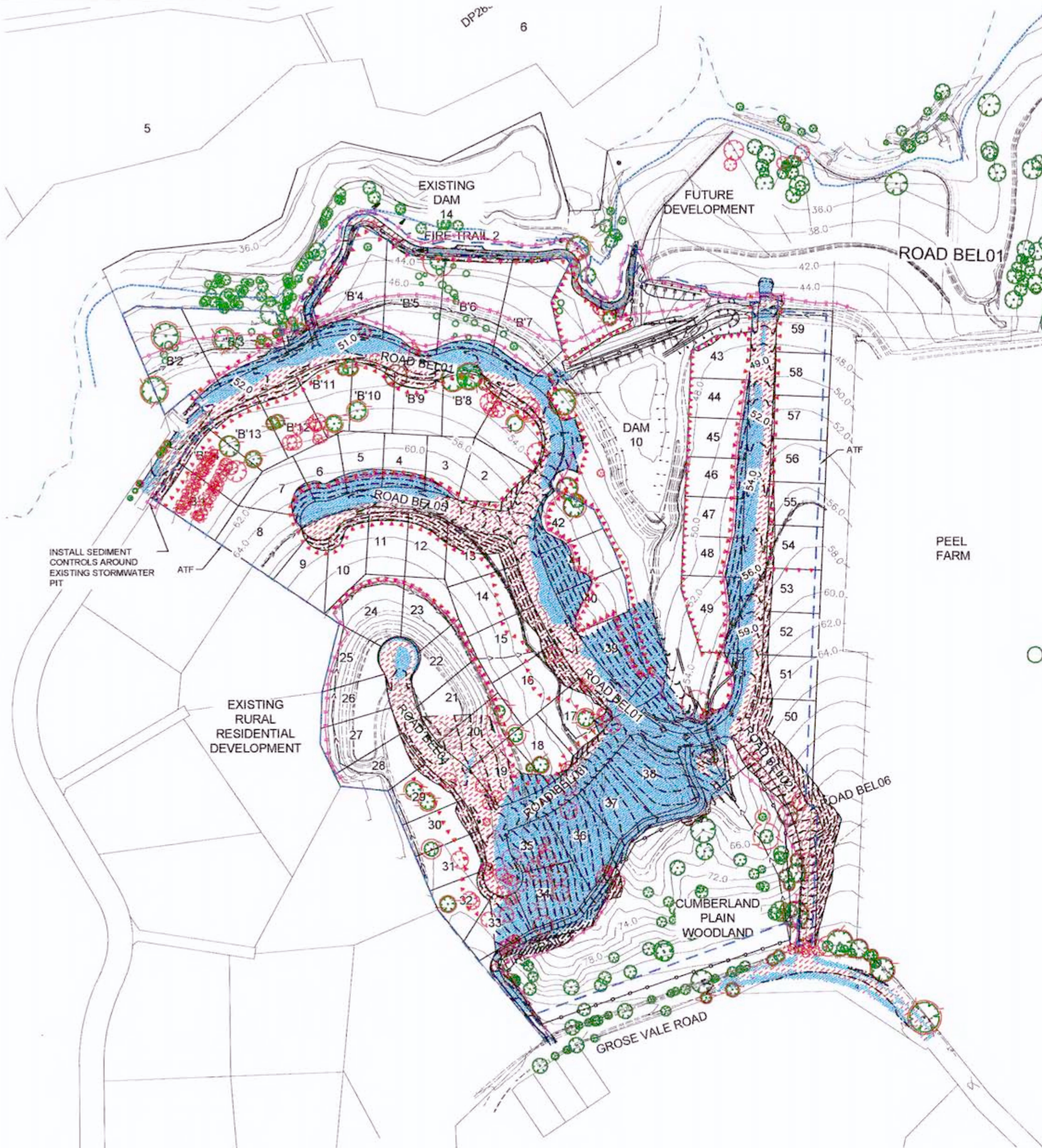
REDBANK, NORTH RICHMOND BELMONT

SOIL & WATER MANAGEMENT PLAN
 PHASE 1A - DAM 10 SEDIMENT BASIN

PLAN No: 110185BEL/CC91 **G**
 FILE No: 110185BELCC91
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July, 2017 5:35:03 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC91.dwg

PHASE 2 BULK EARTHWORKS



LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
ATF FENCE	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE REMOVED	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
SITE CUT	
SITE FILL	

PHASE 2 SOIL AND WATER MANAGEMENT:

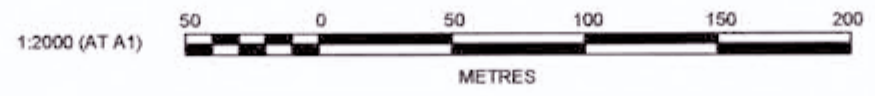
1. MAINTAIN PROTECTIVE FENCING TO CPW, RIPARIAN CORRIDOR AND LAND TO BE UNDISTURBED.
2. MAINTAIN DAM 10 SEDIMENT BASIN.
3. MAINTAIN TREE PROTECTIVE FENCING.
4. ENSURE ALL CATCH DRAINS ARE CONNECTED AND DRAIN TO DAM 10
5. MAINTAIN SEDIMENT FENCE

NOTE:
REFER TO LANDSCAPE ARCHITECT PLANS FOR TREE MANAGEMENT AND PROTECTION DETAILS.

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE:
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 1680012

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 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer
 Accreditation No. 16920565
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REVISION G
 • CUT & FILL AMENDED
 • FIRE TRAIL 1 & 2 ALIGNMENT AMENDED



REV	DESCRIPTION	MP	MG	MS	MS	DATE
G	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	MS	MS	13/02/17
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	AMENDMENT	DES	DRN	CKD	APR	DATE

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PO Box 4366 PEIRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

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CLIENT:

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REDBANK, NORTH RICHMOND BELMONT
 SOIL & WATER MANAGEMENT PLAN
 PHASE 2 BULK EARTHWORKS

PLAN No: 110185BEL/CC92 **G**
 FILE No: 110185BELCC92
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 6:01:13 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC BELMONT\110185BELCC92.dwg

PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION

LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE REMOVED	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
STRAW BALE FILTER	
FILTER ROLLS (AT KERB INLET PIT)	
SURFACE INLET SEDIMENT TRAP	

PHASE 3 SOIL AND WATER MANAGEMENT:

1. MAINTAIN PROTECTIVE FENCING TO CPW, RIPARIAN CORRIDOR AND LAND TO BE UNDISTURBED.
2. PLACE STRAW BALE FILTER TO HEADWALL INLET & OUTLETS.
3. PLACE FILTER ROLL AT KI PITS.
4. PLACE SURFACE INLET SEDIMENT TRAP AT GSIP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN

NOTE:
REFER TO LANDSCAPE ARCHITECT PLANS FOR TREE MANAGEMENT AND PROTECTION DETAILS.

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE:
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

EXISTING KEYLINE CHANNELS AND BANKS TO BE USED THROUGH CIVIL WORKS FOR SOIL & WATER CONTROLS PHASE 1, 2 & 3. REMOVE EXISTING KEYLINE CHANNEL / BANKS AND MAKE SMOOTH ONLY AT END OF WORKS. STABILISE WITH SPRAY GRASS OR SIMILAR AS SOON AS POSSIBLE AFTER THE EXISTING KEYLINE IS REMOVED

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EXISTING KEYLINE CHANNELS AND BANKS TO BE USED THROUGH CIVIL WORKS FOR SOIL & WATER CONTROLS PHASE 1, 2 & 3. REMOVE EXISTING KEYLINE CHANNEL / BANKS AND MAKE SMOOTH ONLY AT END OF WORKS, SOIL & WATER

EXISTING KEYLINE CHANNELS AND BANKS TO BE USED THROUGH CIVIL WORKS FOR SOIL & WATER CONTROLS PHASE 1, 2 & 3. REMOVE EXISTING KEYLINE CHANNEL / BANKS AND MAKE SMOOTH ONLY AT END OF WORKS, SOIL & WATER

SEDIMENT FENCE TO BE RUN ON LOW SIDE OF EXISTING KEYLINE CHANNEL WHERE POSSIBLE

REFER TO DRAWING 110185BELCC94 FOR CONTINUATION

REVISION G
 • DESIGN SURFACE & BATTER INTERFACE AMENDED
 • FIRE TRAIL 2 ALIGNMENT AMENDED



Plotted: 16 July 2017 6:01:50 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC93.dwg

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D	CERTIFIER COMMENTS	MP	MG	RO	RO	29/07/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	MS	RO	13/07/16
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	AMENDMENT	DES	DRN	CKD	APR	DATE

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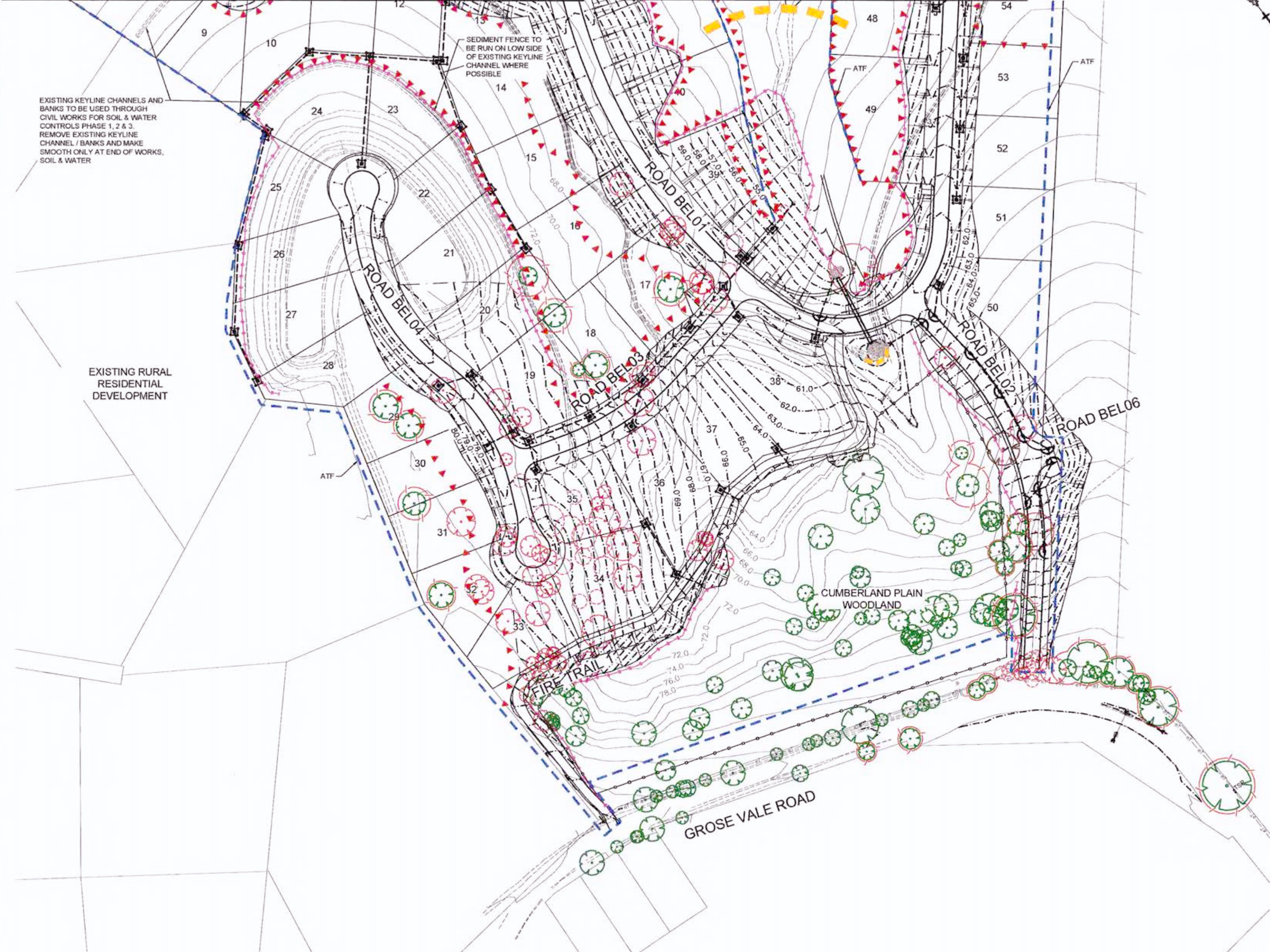
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 AZIMUTH: MGA
 DATUM: AHD
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 REDBANK, NORTH RICHMOND BELMONT
 SOIL & WATER MANAGEMENT PLAN PHASE 3
 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 1

PLAN No: 110185BEL/CC93 **G**
 FILE No: 110185BELCC93
 SHEET SIZE: A1 ORIGINAL

PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION

REFER TO DRAWING 110185BELCC93 FOR CONTINUATION



EXISTING KEYLINE CHANNELS AND BANKS TO BE USED THROUGH CIVIL WORKS FOR SOIL & WATER CONTROLS PHASE 1, 2 & 3. REMOVE EXISTING KEYLINE CHANNEL / BANKS AND MAKE SMOOTH ONLY AT END OF WORKS, SOIL & WATER

EXISTING RURAL RESIDENTIAL DEVELOPMENT

SEDIMENT FENCE TO BE RUN ON LOW SIDE OF EXISTING KEYLINE CHANNEL WHERE POSSIBLE

CUMBERLAND PLAIN WOODLAND

GROSE VALE ROAD

LEGEND

- SEDIMENT FENCE
- EXISTING CONTOURS
- DESIGN CONTOURS
- ATF FENCE
- PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND
- STAR PICKET / FLAGGING
- TREES TO BE REMOVED
- TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)
- STRAW BALE FILTER
- FILTER ROLLS (AT KERB INLET PIT)
- SURFACE INLET SEDIMENT TRAP

PHASE 3 SOIL AND WATER MANAGEMENT:

1. MAINTAIN PROTECTIVE FENCING TO CPW, RIPARIAN CORRIDOR AND LAND TO BE UNDISTURBED.
2. PLACE STRAW BALE FILTER TO HEADWALL INLET & OUTLETS.
3. PLACE FILTER ROLL AT KI PITS.
4. PLACE SURFACE INLET SEDIMENT TRAP AT GSIP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN

NOTE:
REFER TO LANDSCAPE ARCHITECT PLANS FOR TREE MANAGEMENT AND PROTECTION DETAILS.

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *[Signature]*
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

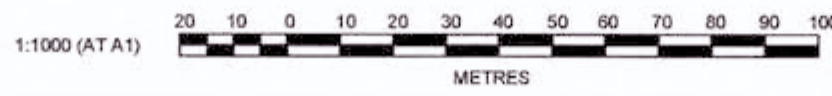
CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer [Signature]
Accreditation No. BP90565

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REVISION F

- DESIGN SURFACE & BATTER INTERFACE AMENDED
- FIRE TRAIL 1 ALIGNMENT AMENDED



REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG			
E	BATTER AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANT COPY	MP	MG	RO		21/05/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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CLIENT: **REDBANK**

AZIMUTH: MGA
DATUM: AHD
ORIGIN:

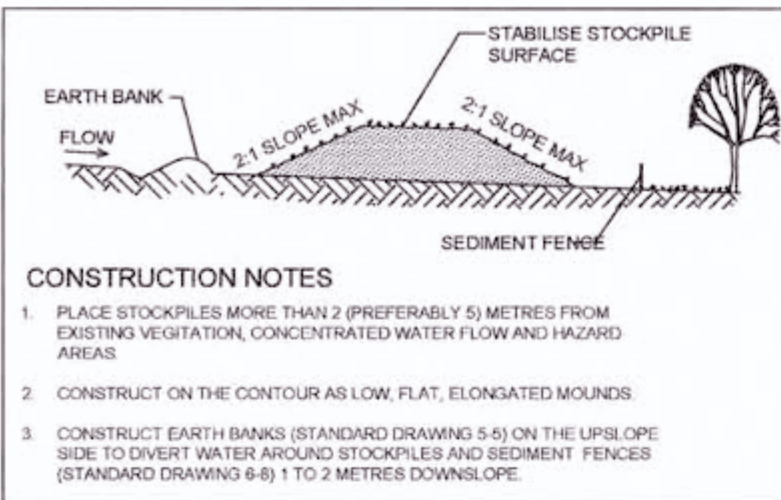
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
SOIL & WATER MANAGEMENT PLAN PHASE 3
POST STORMWATER DRAINAGE CONSTRUCTION SHEET 2

PLAN No:	110185BEL/CC94	F
FILE No:	110185BELCC94	
SHEET SIZE:	A1 ORIGINAL	

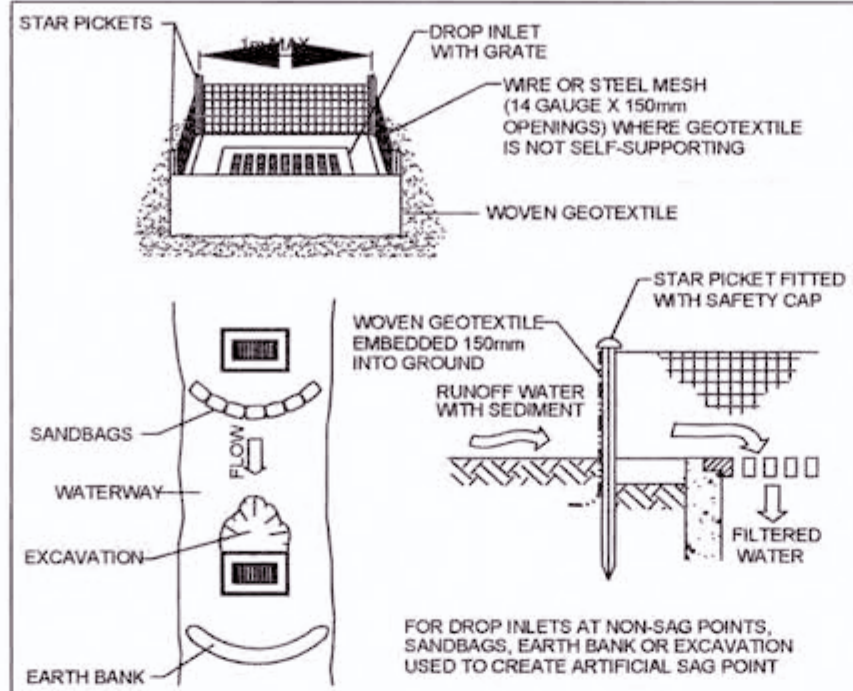
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CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW AND HAZARD AREAS
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS
3. 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

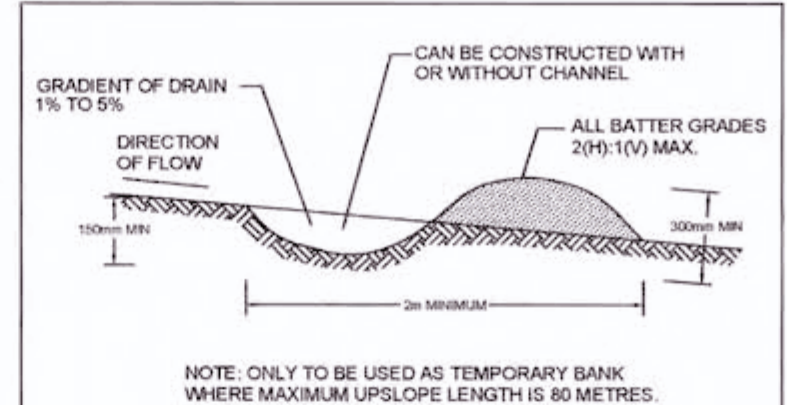
STOCKPILE SD4-1
N.T.S.



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1m CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

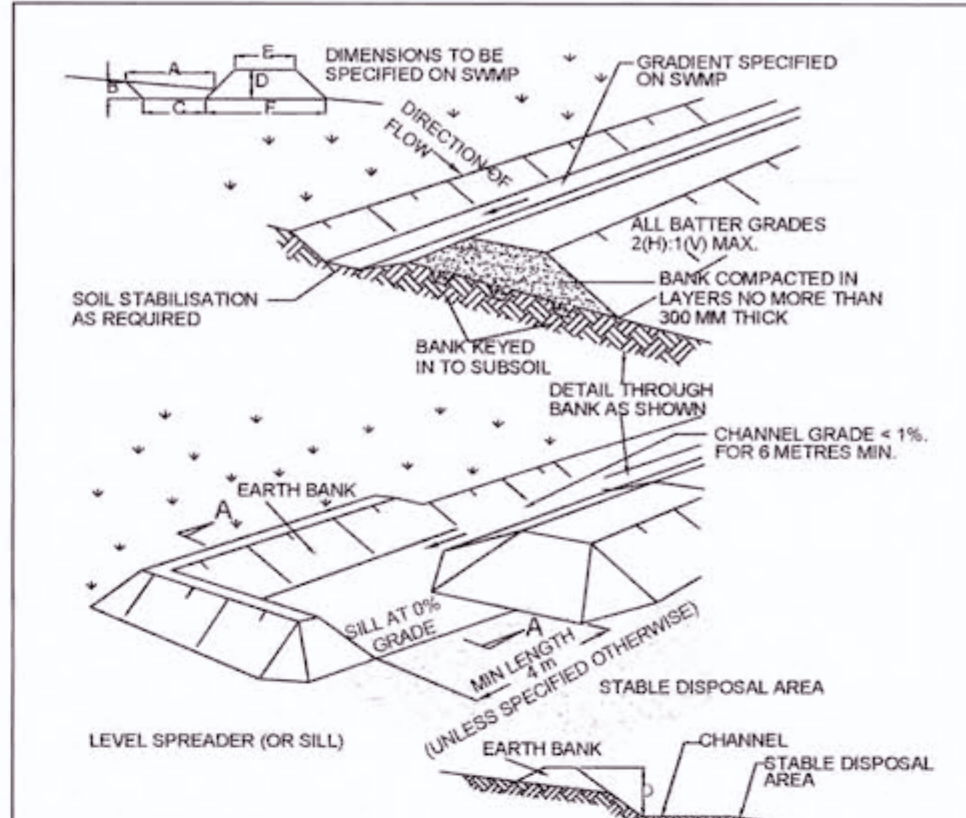
GEOTEXTILE INLET FILTER SD6-12
N.T.S.



CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 PERCENT AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION. WORKS ADJACENT TO CREEK TO BE STABILISED AS SOON AS POSSIBLE

EARTH BANK (LOW FLOW) SD5-5
N.T.S.

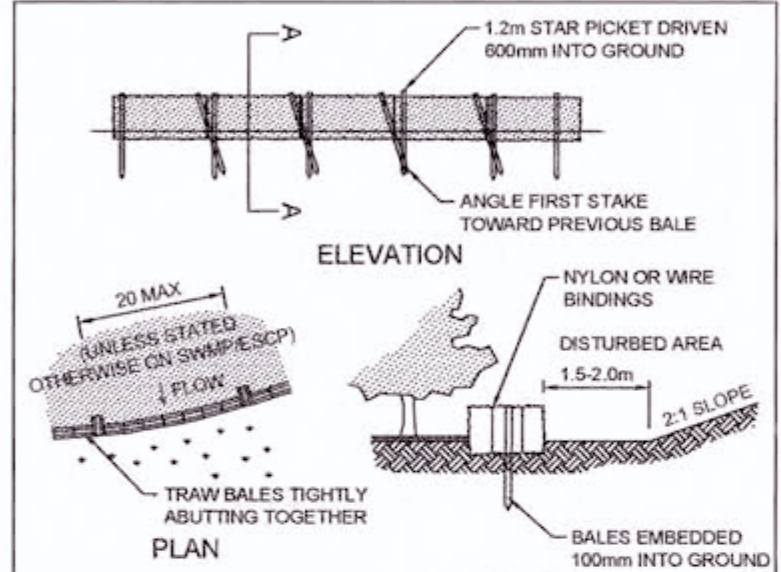


CONSTRUCTION NOTES

1. CONSTRUCT AT THE GRADIENT SPECIFIED ON THE ESCP OR SWMP, NORMALLY BETWEEN 1 AND 5 PERCENT
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V-SHAPED, AT THE DIMENSIONS SHOWN ON THE SWMP.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION FOLLOWING TABLE 9.2 IN LANDCOM (2004). WORKS ADJACENT TO CREEK TO BE STABILISED AS SOON AS POSSIBLE.
7. WHERE DISCHARGING TO ERODIBLE LANDS, ENSURE THEY OUTLET THROUGH A PROPERLY CONSTRUCTED LEVEL SPREADER.
8. CONSTRUCT THE LEVEL SPREADER AT THE GRADIENT SPECIFIED ON THE ESCP OR SWMP, NORMALLY LESS THAN 1 PERCENT OR LEVEL.
9. WHERE POSSIBLE, ENSURE THEY DISCHARGE WATERS ONTO EITHER STABILISED OR UNDISTURBED DISPOSAL SITES WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.

APPROVAL MIGHT BE REQUIRED TO DISCHARGE INTO OTHER SUBCATCHMENTS.

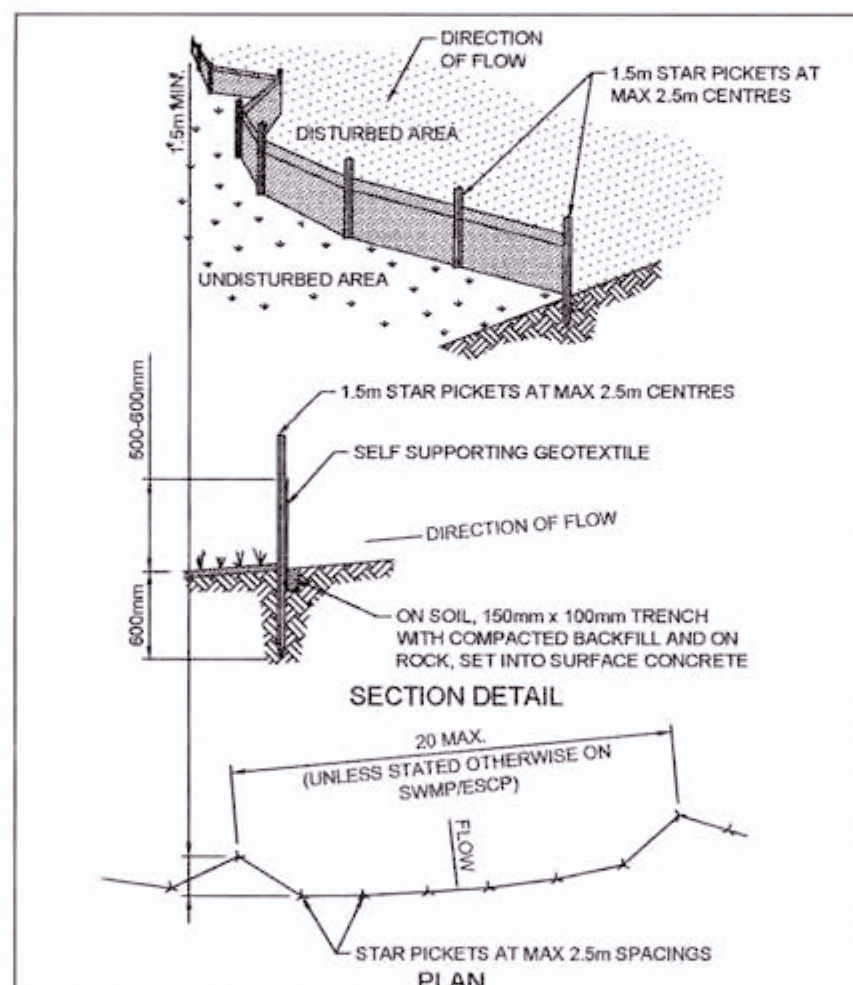
EARTH BANK (HIGH FLOW) SD5-6
N.T.S.



CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2m STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1m TO 2m DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

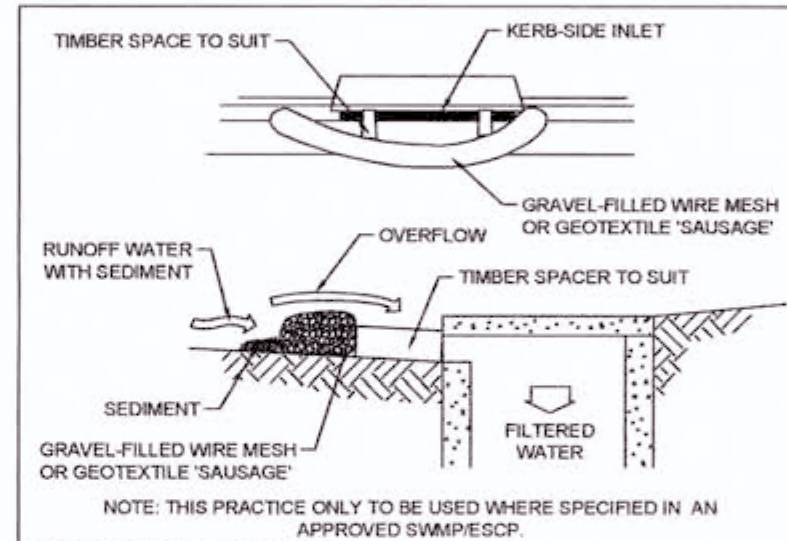
STRAW BALE FILTER SD6-7
SCALE N.T.S.



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 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
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 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE SD6-8
SCALE: N.T.S.



CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm-50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BY-PASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET FILTER SD6-11
SCALE N.T.S.

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P. R. Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE

Certificate No: 20130299C36
Date of Issue: 31 July 2017
Issuing Officer: *[Signature]*
Accreditation No: 03990595

These plans/specifications form part of the certificate issued 31 July 2017

Plotted: 18 July 2017 5:35:04 PM File Name: J1110185 - Redbank North Richmond Residential Precincts01 - Description\CD\CC\BELMONT\110185BELCC95.dwg

	MP	MG	MS	RO	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL				
E	CLIENT COMMENTS	MP	MG	MS	RO
D	CERTIFIER COMMENTS	MP	MG	MS	RO
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	MS	RO
B	CLIENT COMMENTS	MP	MG	MS	RO
A	ADVANCED COPY	MP	MG	MS	RO
	AMENDMENT	DES	DRN	CKD	APR

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpp@jwprince.com.au

CLIENT: REDBANK

AZIMUTH: MGA
DATUM: AHD
ORIGIN:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
SOIL & WATER MANAGEMENT DETAILS

PLAN No: 110185BEL/CC95 [F]
FILE No: 110185BELCC95
SHEET SIZE: A1 ORIGINAL

SOIL AND WATER MANAGEMENT NOTES

GENERAL NOTES:

- ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE "ENVIRONMENT PROTECTION AUTHORITY".
- TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.
- ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
- ALL TAIL-OUT DRAINS SHALL BE COUCH GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.
- VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.
- ROADS SHALL BE PAVED AS EARLY AS POSSIBLE AFTER FORMATION.
- DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.
- ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.
- ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM 60% FULL OF SOLID MATERIALS, INCLUDING DURING THE MAINTENANCE PERIOD.
- THE SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND COUNCIL'S WRITTEN GUIDELINES FOR THE DEVELOPMENT OF LAND.
- CONTRACTORS SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS SPECIFIED ON THE PLAN AND IN ACCORDANCE WITH THE GUIDELINES SHOWN IN "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" ("THE BLUE BOOK").
- ALL CONTRACTORS AND SUBCONTRACTORS ARE RESPONSIBLE FOR REDUCING THE SOIL EROSION AND POLLUTION OF DOWNSLOPE AREAS.
- THE SOIL EROSION HAZARD ON THE SITE IS TO BE KEPT AS LOW AS POSSIBLE AND GENERALLY IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

LAND USE	LIMITATION	COMMENTS
CONSTRUCTION AREAS	DISTURBANCE TO BE NO FURTHER THAN 5m (PREF 2m) FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON THESE PLANS	ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES - WHERE APPROPRIATE THE CONSTRUCTION AREAS ARE TO BE IDENTIFIED WITH BARRIER FENCING (DOWNSLOPE) OR SIMILAR MATERIAL.
ACCESS AREAS	LIMITED TO A MAXIMUM WIDTH OF 10m	THE SITE MANAGER SHALL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON SITE. THEY CAN VARY IN POSITION TO BEST CONSERVE THE EXISTING VEGETATION AND PROTECT DOWNSLOPE AREAS WHILE BEING CONSIDERATE OF THE NEEDS OF EFFICIENT WORKS ACTIVITIES. ALL SITE WORKERS SHALL CLEARLY RECOGNISE THEIR BOUNDARIES. WHERE APPROPRIATE THE ACCESS AREAS ARE TO BE MARKED WITH BARRIER MESH, SEDIMENT FENCING OR SIMILAR MATERIALS.
REMAINING LANDS	ENTRY PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH	THINNING OF GROWTH MAY BE REQUIRED FOR FIRE HAZARD REDUCTION.

NOTE:

WORKS WITHIN WATERWAYS AND CREEKS SHALL BE RESTRICTED AS DIRECTED - ALL LANDS WITHIN CREEKS AND WATERWAYS SHALL HAVE C-FACTORS BELOW 0.05 FROM 1st JANUARY TO 15th MAY USING MATERIALS THAT CAN CATER FOR CONCENTRATED FLOWS. REFER TO TABLE A2 FROM MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION.

- WORKS ARE TO BE UNDERTAKEN IN THE FOLLOWING SEQUENCE EACH SUBSEQUENT STAGE IS NOT TO COMMENCE UNTIL THE PREVIOUS ONE IS COMPLETE.
 - INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 6-7.
 - CONSTRUCT STABILISED SITE ACCESS AS SHOWN ON THE PLAN AND TO DETAIL (SD) 5-7.
 - CONSTRUCT LOW FLOW EARTH BANKS WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 5-3.
 - PROVIDE TEMP. ACCESS TO THE SEDIMENT BASIN(S) AND PROTECT THIS WITH SEDIMENT FENCING (SD) 6-7 OR BARRIER FENCING AND EARTH BANKS (SD) 5-2.
 - PLACE SEDIMENT FENCING (SD) 6-7 DOWNSLOPE OF LANDS TO BE DISTURBED FOR CONSTRUCTION OF THE SEDIMENT BASINS.
 - CONSTRUCT SEDIMENT BASIN(S) GENERALLY IN ACCORDANCE WITH (SD) 6-4
 - STABILISE LAND SURFACES DISTURBED BY CONSTRUCTION OF THE SEDIMENT BASIN(S) AS SOON AS FINAL LEVELS ARE ESTABLISHED
 - CLEAR THE SITE AND STRIP AND STOCKPILE THE TOPSOIL IN THE LOCATIONS SHOWN ON THE PLAN OR AS DIRECTED BY THE SITE SUPERINTENDENT TO DETAIL (SD) 4-1.
 - UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS.
 - GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 14 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
 - REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
- CLEARLY VISIBLE BARRIER FENCING SHALL BE INSTALLED WHERE DIRECTED BY THE SITE SUPERINTENDENT TO CONTROL AND PROHIBIT UNNECESSARY SITE DISTURBANCE
- EARTH BATTERS SHALL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER THAN:-
 - 2(h) - 1(v) WHERE SLOPE LENGTH IS LESS THAN 7m
 - 2.5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 7m AND 10m
 - 3(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 10m AND 12m
 - 4(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 12m AND 18m
 - 5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 18m AND 27m
 - 6(h) - 1(v) WHERE SLOPE LENGTH IS GREATER THAN 27m

SLOPE LENGTHS CAN BE SHORTENED BY USING LOW FLOW EARTH BANKS AS CATCH DRAINS ABOVE THE EARTH BATTER AREA.

- PROTECTION FROM EROSION FORCES SHALL BE UNDERTAKEN ON ALL LANDS TO MEET THE REQUIREMENTS OF TABLE 7.1 "MAXIMUM ACCEPTABLE C-FACTORS AT NOMINATED TIMES DURING WORKS" FROM "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION"

LANDS	MAXIMUM C-FACTOR	REMARKS
WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS (SECTION 5.2.3), POST CONSTRUCTION	0.0500	APPLIES AFTER 10 WORKING DAYS FROM COMPLETION OF FORMATION AND BEFORE THEY ARE ALLOWED TO CARRY ANY CONCENTRATED FLOWS. ALSO, NOTE THE REQUIREMENTS OF TABLE 5.1 (NOTE: A C-FACTOR OF 0.05 CAN BE ACHIEVED VARIOUS WAYS, INCLUDING WITH ABOUT 70% GROUND COVER. SEE APPENDIX A, ESPECIALLY FIGURE A5 AND TABLES A3 AND A4)
STOCKPILES (SECTION 4.2.2), POST CONSTRUCTION	0.1000	APPLIES AFTER 10 WORKING DAYS FROM COMPLETION OF FORMATION (NOTE: A C-FACTOR OF 0.10 IS ACHIEVED WITH ABOUT 60% GROUND COVER)
ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES DURING CONSTRUCTION	0.1500	ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES DURING CONSTRUCTION

- TEMPORARY GROUND COVER IN SHEET FLOW AREAS IS TO BE IN ACCORDANCE WITH TABLE J3-4 "PLANT SPECIES FOR GROUND COVER" FROM "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" WHERE PRACTICAL FOOT AND VEHICULAR TRAFFIC SHALL BE KEPT AWAY FROM REHABILITATED AREAS
- WHERE POSSIBLE THE CONSTRUCTION PROGRAM IS TO BE SCHEDULED SO THAT THE TIME FROM STARTING LAND DISTURBANCE ACTIVITIES TO STABILISATION IS A DURATION OF LESS THAN 6 MONTHS - THIS MEANS ACHIEVING A C-FACTOR OF LESS THAN 0.1 AND SETTING IN MOTION A PROGRAM THAT ENSURES THAT IT DROPS PERMANENTLY, (BY VEGETATION, PAVING, ARMOURING etc.) TO LESS THAN 0.05 WITHIN A FURTHER 60 DAYS. LOCAL WATER RESTRICTIONS PERMITTING, LANDS THAT HAVE BEEN NEWLY PLANTED WITH GRASS SPECIES SHALL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER HAS BEEN ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER SHALL BE APPLIED AS NECESSARY IN AREAS OF MINOR SOIL EROSION AND/OR INADEQUATE VEGETATIVE PROTECTION. NOTWITHSTANDING THIS SCHEDULE WORKS SO THAT THE DURATION FROM THE CONCLUSION OF LAND SHAPING TO THE COMPLETION OF FINAL STABILISATION IS LESS THAN 20 WORKING DAYS.

- SEDIMENT FENCES (SD) 6-7 SHALL:-
 - BE INSTALLED WHERE SHOWN ON THE PLAN AND AS DIRECTED AT THE DISCRETION OF THE SITE SUPERINTENDENT DURING THE COURSE OF CONSTRUCTION TO CONTAIN THE COARSER SEDIMENT FRACTIONS AS NEAR AS POSSIBLE TO THEIR SOURCE.
 - HAVE A CATCHMENT AREA NOT EXCEEDING 720sq.m. AND A STORAGE DEPTH OF AT LEAST 0.6m.
 - PROVIDE AN UPSLOPE RETURN OF 1m AT INTERVALS ALONG THE FENCE WHERE THE CATCHMENT AREA EXCEEDS 720sq.m. TO LIMIT THE DISCHARGE REACHING EACH SECTION TO 40litres/sec IN A MAX. 20yr To DISCHARGE.

- STOCKPILES (SD) 4-1 SHALL BE LOCATED AS SHOWN ON THE PLANS AND AT THE DISCRETION OF THE SITE SUPERINTENDENT.
- DURING WINDY WEATHER LARGE UNPROTECTED AREAS ARE TO BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. IN THE EVENT WATER IS NOT AVAILABLE IN SUFFICIENT QUANTITIES SOIL BINDERS AND/OR DUST RETARDANTS SHALL BE USED OR THE SURFACE SHALL BE LEFT IN A CLODDY STATE THAT RESISTS REMOVAL BY WIND.
- NOTWITHSTANDING NOTE 21 STOCKPILES SHALL NOT BE LOCATED WITHIN 5m OF HAZARD AREAS, INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS OR DRIVEWAYS.
- THE SEDIMENT RETENTION BASINS (SD) 6-4 SHALL:-
 - BE CONSTRUCTED WHERE SHOWN ON THE PLANS.
 - BE FLOCCULATED (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) BEFORE DISCHARGE OCCURS (UNLESS THE DESIGN STORM EVENT IS EXCEEDED)
 - HAVE ONE OR MORE PEGS PLACED ON THE FLOOR TO CLEARLY INDICATE THE LEVEL AT WHICH DESIGN CAPACITY OCCURS AND WHEN SEDIMENT SHALL BE REMOVED.

- STORED CONTENTS OF THE BASINS SHALL BE TREATED WITH GYPSUM (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) OR OTHER FLOCCULATING AGENTS WHERE THEY CONTAIN MORE THAN 50mg/litre OF SUSPENDED SOLIDS. TREATMENT SHALL BE AS FOLLOWS:-
 - LOWER SUSPENDED SOLIDS TO LESS THAN 50mg/litre WITHIN 24hrs OF FILLING
 - THE BASINS SHALL THEN BE ALLOWED TO STAND 36 TO 48hrs FOR FLOCCULATED PARTICLES TO SETTLE
 - THE BASINS SHALL THEN BE DRAINED SO THAT FULL STORAGE CAPACITY IS REGAINED WITHOUT DISCHARGING SEDIMENT FROM THE SITE.

- SEDIMENT REMOVED FROM ANY TRAPPING DEVICE SHALL BE DISPOSED IN LOCATIONS WHERE FURTHER EROSION AND CONSEQUENT POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS SHALL NOT OCCUR.
- WATER SHALL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE (ie THE CATCHMENT HAS BEEN LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN TREATED IN AN APPROVED DEVICE) NEVERTHELESS STORMWATER INLETS SHALL BE PROTECTED (SD) 6-8 & 6-9.
- TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED.
- ACCEPTABLE BINS SHALL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES SHALL BE PROVIDED AT LEAST ONCE A WEEK.

STOCKPILE NOTES:

- SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.
- IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.
- FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATE.

SEDIMENTATION CONTROL DEVICES:

- ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 450mm INTO THE GROUND AND LOCKED ON THE BALE CENTRELINE.
- SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2m CENTRES. FABRIC SHALL BE BURIED 150mm ALONG ITS LOWER EDGE.
- PROVIDE STRIP OF TURF MIN. 300mm WIDE BEHIND KERB + 1m WIDE AROUND ALL SURFACE INLET PITS

SITE INSPECTION AND MAINTENANCE:

- A SELF-AUDITING PROGRAM SHALL BE ESTABLISHED BASED ON A CHECK SHEET. A SITE INSPECTION USING THE CHECK SHEET SHALL BE MADE BY THE SITE MANAGER.
 - AT LEAST WEEKLY
 - IMMEDIATELY BEFORE SITE CLOSURE
 - IMMEDIATELY FOLLOWING RAINFALL EVENTS IN EXCESS OF 5mm IN ANY 24hr PERIOD.

THE SELF AUDIT SHALL INCLUDE:-

- RECORDING THE CONDITION OF EVERY 'BEST MANAGEMENT PRACTICE' EMPLOYED
 - RECORDING MAINTENANCE REQUIREMENTS (IF ANY) FOR EACH 'BEST MANAGEMENT PRACTICE'
 - RECORDING THE VOLUMES OF SEDIMENT REMOVED FROM SEDIMENT RETENTION SYSTEMS WHERE APPLICABLE
 - RECORDING THE SITE WHERE SEDIMENT IS DISPOSED
 - FORWARDING A SIGNED DUPLICATE OF THE COMPLETED CHECK SHEET TO THE PROJECT MANAGER/DEVELOPER FOR THEIR INFORMATION.
- IN ADDITION A SUITABLY QUALIFIED PERSON SHALL BE RESPONSIBLE FOR OVERSEEING THE INSTALLATION AND MAINTENANCE OF ALL SOIL AND WATER MANAGEMENT WORKS ON THE SITE. THE PERSON SHALL BE REQUIRED TO SPEND A MINIMUM OF:-
 - 2hrs ONSITE EACH FORTNIGHT UP UNTIL COMPLETION OF ROAD AND DRAINAGE WORKS AND/OR THE COMMISSIONING OF SEDIMENT BASIN(S)/WATER QUALITY CONTROL FACILITIES, AND DURING THE DECOMMISSIONING OF SAME AND/OR FINAL SITE STABILISATION, TO PROVIDE A SHORT MONTHLY WRITTEN REPORT.
 - ONE HOUR ONSITE EACH 2 MONTHS DURING THAT PHASE WHERE THE DEVELOPERS RESPONSIBILITIES ARE LIMITED TO MAINTENANCE OF THE SDS DEVICES AND/OR SEDIMENT BASINS (ie DURING THE STAGE WHEN BUILDING WORKS CAN BE UNDERTAKEN) TO PROVIDE A SHORT WRITTEN REPORT EACH 4 MONTHS

THE RESPONSIBLE PERSON SHALL ENSURE THAT:-

- THIS PLAN IS BEING IMPLEMENTED CORRECTLY
 - REPAIRS ARE BEING UNDERTAKEN AS REQUIRED
 - ESSENTIAL MODIFICATIONS TO THIS PLAN ARE BEING MADE IF AND WHEN NECESSARY EACH REPORT SHALL CERTIFY THAT WORKS HAVE BEEN CARRIED OUT ACCORDING TO THE APPROVED PLANS.
- WASTE BINS SHALL BE EMPLOYED AS NECESSARY, DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT
 - PROPER DRAINAGE OF THE SITE SHALL BE MAINTAINED. TO THIS END DRAINS (INCLUDING INLET AND OUTLET WORKS) SHALL BE CHECKED TO ENSURE THAT THEY ARE OPERATING AS INTENDED, ESPECIALLY THAT:-
 - NO LOW POINTS EXIST WHICH CAN OVERTOP IN A LARGE STORM EVENT.
 - AREAS OF EROSION ARE REPAIRED (ie LINED WITH SUITABLE MATERIAL) AND/OR VELOCITY OF FLOW IS REDUCED APPROPRIATELY THROUGH CONSTRUCTION OF SMALL CHECK DAMS OR INSTALLING ADDITIONAL DIVERSIONS UPSLOPE
 - BLOCKAGES ARE CLEARED (THESE MIGHT OCCUR BECAUSE OF SEDIMENT POLLUTION, SAND/SOIL/SPOIL BEING DEPOSITED IN OR TOO CLOSE TO THEM, BREACHED BY VEHICLE WHEELS etc)
 - SAND/SOIL/SPOIL MATERIALS PLACED CLOSER THAN 2m FROM HAZARD AREAS SHALL BE REMOVED SUCH HAZARD AREAS INCLUDE ANY AREAS OF HIGH VELOCITY WATER FLOWS (eg WATERWAYS AND GUTTERS) PAVED AREAS AND DRIVEWAYS.
 - RECENTLY STABILISED LANDS SHALL BE CHECKED TO ENSURE THAT THE EROSION HAZARD HAS BEEN EFFECTIVELY REDUCED. ANY REPAIRS SHALL BE INITIATED AS APPROPRIATE.
 - EXCESSIVE VEGETATIVE GROWTH SHALL BE CONTROLLED THROUGH MOWING OR SLASHING.
 - ALL SEDIMENT DETENTION SYSTEMS SHALL BE KEPT IN GOOD WORKING CONDITION. IN PARTICULAR ATTENTION SHALL BE GIVEN TO:-
 - RECENT WORKS TO ENSURE THAT THEY HAVE NOT RESULTED IN DIVERSION OF SEDIMENT LADEN WATER AWAY FROM THEM.
 - DEGRADABLE PRODUCTS TO ENSURE THAT THEY ARE REPLACED AS REQUIRED
 - SEDIMENT REMOVAL TO ENSURE THE DESIGN CAPACITY OR LESS REMAINS IN THE SETTLING ZONE.
 - ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS SHALL BE CONSTRUCTED AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS (ie MAKE ONGOING CHANGES TO THIS PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECT TO CHANGES IN CONDITIONS AT THE WORKS SITE OR ELSEWHERE IN THE CATCHMENT.
 - EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN A FUNCTIONING CONDITION UNTIL ALL EARTHWORKS ACTIVITIES ARE COMPLETED AND THE SITE STABILISED.
 - WATERS IN SEDIMENT RETENTION BASIN(S) THAT OCCUPY MORE THAN 1/4 OF THE DESIGN CAPACITY DURING THAT STAGE OF THE WORKS UP UNTIL COMMISSIONING OF THE BASIN(S) SHALL BE:-
 - TREATED WITH A FLOCCULATING AGENT (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.)
 - DISCHARGED WITHIN 5 days FROM THE CONCLUSION OF ANY STORM EVENT LARGE ENOUGH TO FILL THE BASIN TO THAT LEVEL.
 - LITTER, DEBRIS AND COARSE SEDIMENT SHALL BE REMOVED FROM THE GROSS POLLUTANT TRAPS AND TRASH RACKS AS REQUIRED.

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *PR*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *Jerry*
 Accreditation No: 16800/12
 These plans/specifications form part of the certificate issued 31 July 2017

CLIENT:

 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
 BELMONT
 SOIL & WATER MANAGEMENT NOTES

PLAN No: 110185BEL/CC96 **F**
 FILE No: 110185BELCC96
 SHEET SIZE: A1 ORIGINAL

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

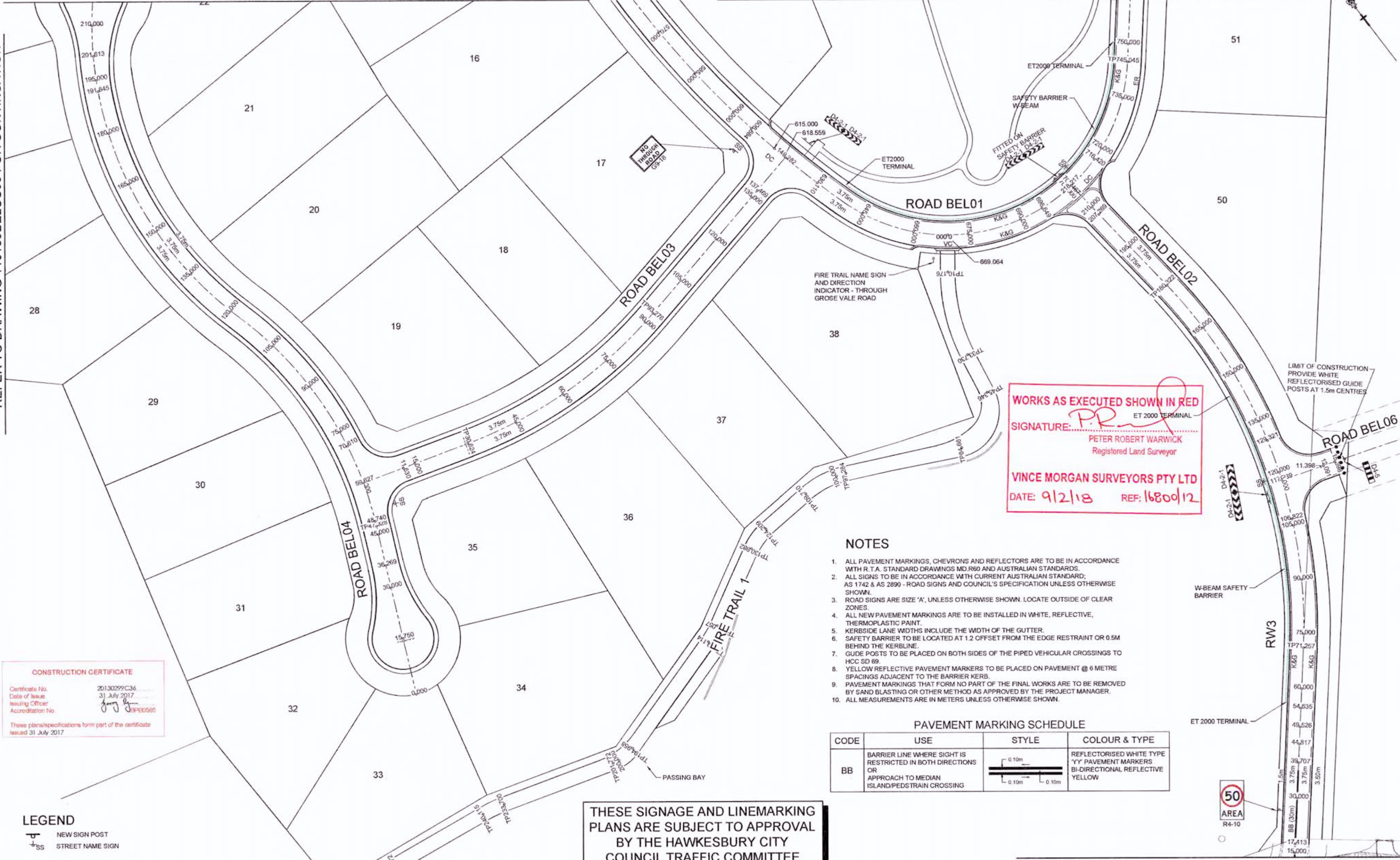
	MP	MG	MS	RO	20/10/16
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	MS	RO
E	CLIENT COMMENTS	VG	LS	MS	RO
D	CERTIFIER COMMENTS	MP	MG	RO	RO
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO
B	CLIENT COMMENTS	MP	MG	MS	RO
A	ADVANCED COPY	MP	MG	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR DATE

REFER TO DRAWING 110185BELCC98 FOR CONTINUATION

REFER TO DRAWING 110185BELCC99 FOR CONTINUATION

REFER TO DRAWING 110185BELCC98 FOR CONTINUATION

Plotted: 18 July 2017 5:35:48 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\110185BELCC97.dwg



WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P.R.W.* ET 2000 TERMINAL
 PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

NOTES

1. ALL PAVEMENT MARKINGS, CHEVRONS AND REFLECTORS ARE TO BE IN ACCORDANCE WITH R.T.A. STANDARD DRAWINGS MD.R60 AND AUSTRALIAN STANDARDS.
2. ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD, AS 1742 & AS 2890 - ROAD SIGNS AND COUNCIL'S SPECIFICATION UNLESS OTHERWISE SHOWN.
3. ROAD SIGNS ARE SIZE 'A', UNLESS OTHERWISE SHOWN. LOCATE OUTSIDE OF CLEAR ZONES.
4. ALL NEW PAVEMENT MARKINGS ARE TO BE INSTALLED IN WHITE, REFLECTIVE, THERMOPLASTIC PAINT.
5. KERBSIDE LANE WIDTHS INCLUDE THE WIDTH OF THE GUTTER.
6. SAFETY BARRIER TO BE LOCATED AT 1.2 OFFSET FROM THE EDGE RESTRAINT OR 0.5M BEHIND THE KERBLINE.
7. GUIDE POSTS TO BE PLACED ON BOTH SIDES OF THE PIPED VEHICULAR CROSSINGS TO HCC SD 69.
8. YELLOW REFLECTIVE PAVEMENT MARKERS TO BE PLACED ON PAVEMENT @ 6 METRE SPACINGS ADJACENT TO THE BARRIER KERB.
9. PAVEMENT MARKINGS THAT FORM NO PART OF THE FINAL WORKS ARE TO BE REMOVED BY SAND BLASTING OR OTHER METHOD AS APPROVED BY THE PROJECT MANAGER.
10. ALL MEASUREMENTS ARE IN METERS UNLESS OTHERWISE SHOWN.

PAVEMENT MARKING SCHEDULE

CODE	USE	STYLE	COLOUR & TYPE
BB	BARRIER LINE WHERE SIGHT IS RESTRICTED IN BOTH DIRECTIONS OR APPROACH TO MEDIAN ISLAND/PEDESTRIAN CROSSING		REFLECTORISED WHITE TYPE 'YY' PAVEMENT MARKERS BI-DIRECTIONAL REFLECTIVE YELLOW

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer [Signature]
 Accreditation No. 29PE0565

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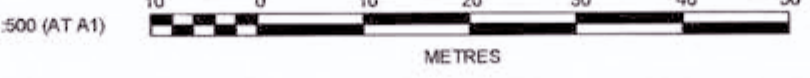
LEGEND

NEW SIGN POST
 STREET NAME SIGN

REVISION E

FIRE TRAIL 1 ALIGNMENT AMENDED

THESE SIGNAGE AND LINEMARKING PLANS ARE SUBJECT TO APPROVAL BY THE HAWKESBURY CITY COUNCIL TRAFFIC COMMITTEE



REFER TO DRAWING 110185BELCC207 FOR CONTINUATION

ISSUED FOR CONSTRUCTION APPROVAL

AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG			
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4364 PERLITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

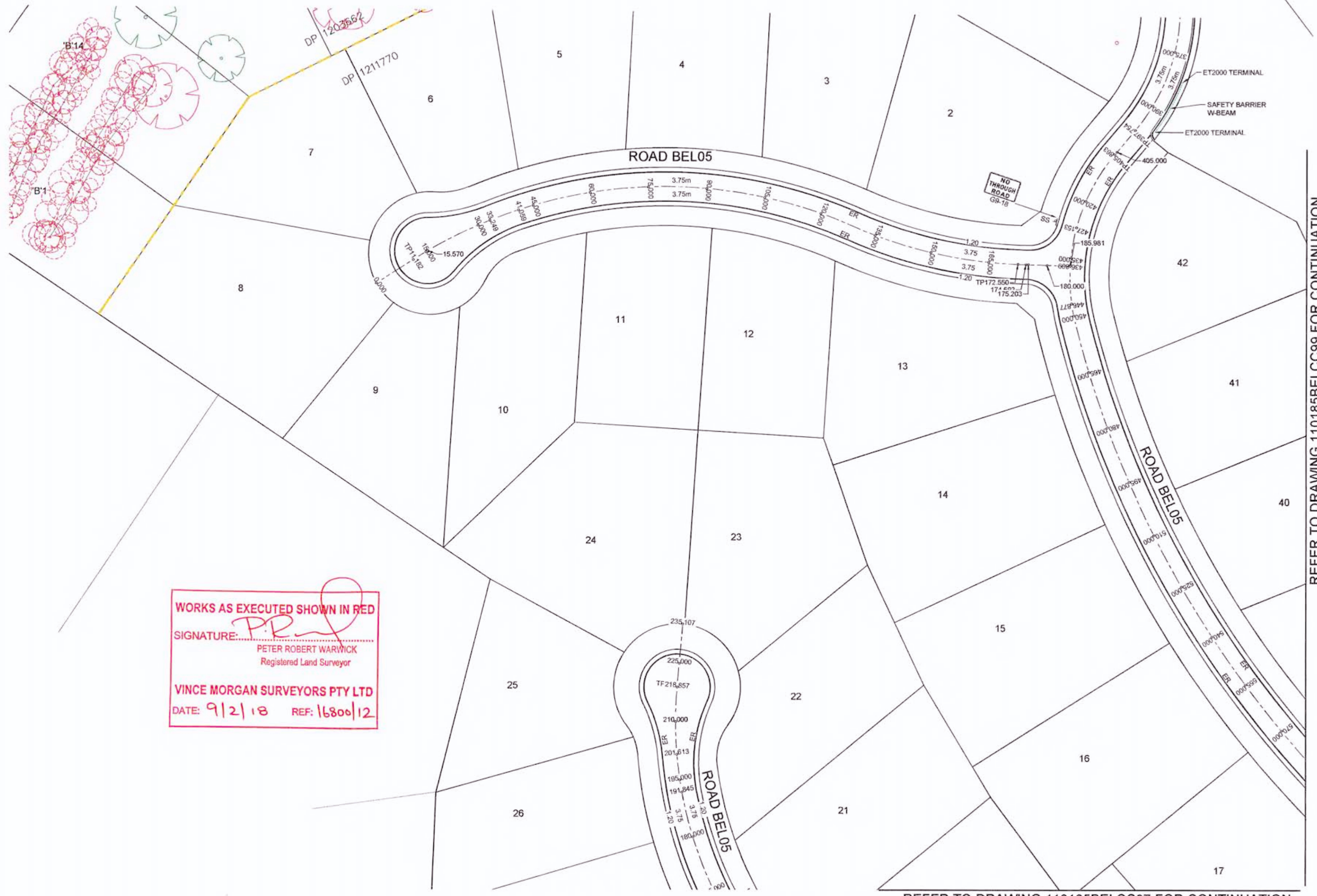
CLIENT: REDBANK

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REDBANK, NORTH RICHMOND BELMONT
 SIGNPOSTING & LINEMARKING SHEET 1

PLAN No: 110185BEL/CC97 [E]
 FILE No: 110185BELCC97
 SHEET SIZE: A1 ORIGINAL

REFER TO DRAWING 110185BELCC100 FOR CONTINUATION



REFER TO DRAWING 110185BELCC99 FOR CONTINUATION

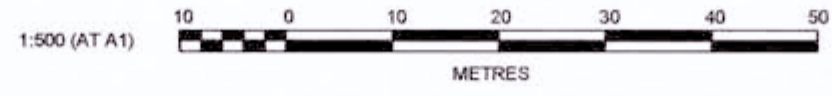
REFER TO DRAWING 110185BELCC97 FOR CONTINUATION

LEGEND

- NEW SIGN POST
- STREET NAME SIGN

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *[Signature]*
 Accreditation No: 168005
 These plans/specifications form part of the certificate issued 31 July 2017



AMENDMENT	DES	DRN	CKD	APR	DATE
E	MP	MG			
D	MP	MG	RO	RO	27/09/16
C	MP	MG	RO	RO	29/07/16
B	MP	MG	MS	RO	13/07/16
A	MP	MG	RO		21/06/16

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwvp@jwprince.com.au

CLIENT:
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 SIGNPOSTING & LINEMARKING
 SHEET 2

PLAN No: 110185BEL/CC98 **E**
 FILE No: 110185BELCC98
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 5:36:12 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC-BELMONT\110185BELCC98.dwg

REFER TO DRAWING 110185BELCC101 FOR CONTINUATION

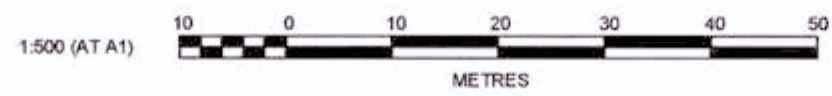


REFER TO DRAWING 110185BELCC98 FOR CONTINUATION

REFER TO DRAWING 110185BELCC97 FOR CONTINUATION

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *[Signature]* 1390665
 Accreditation No: 1390665
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REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG			
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO		21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

CLIENT:

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ISSUED FOR CONSTRUCTION APPROVAL

**REDBANK, NORTH RICHMOND
 BELMONT**
 SIGNPOSTING & LINEMARKING
 SHEET 3

PLAN No: 110185BEL/CC99	E
FILE No: 110185BELCC99	
SHEET SIZE: A1 ORIGINAL	

Plotted: 18 July, 2017 5:36:39 PM File Name: J110185 - Redbank North Richmond Residential Precincts01 - Description/CD/CC/BELMONT/110185BELCC99.dwg


LEGEND

- SIGN POST
- SS STREET NAME SIGN

NOTES

1. ALL PAVEMENT MARKINGS, CHEVRONS AND REFLECTORS ARE TO BE IN ACCORDANCE WITH R.T.A. STANDARD DRAWINGS MD.R60 AND AUSTRALIAN STANDARDS.
2. ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD, AS 1741 & AS 2890 - ROAD SIGNS AND COUNCIL'S SPECIFICATION UNLESS OTHERWISE SHOWN.
3. ROAD SIGNS ARE SIZE 'A', UNLESS OTHERWISE SHOWN. LOCATE OUTSIDE OF CLEAR ZONES.
4. ALL NEW PAVEMENT MARKINGS ARE TO BE INSTALLED IN WHITE, REFLECTIVE, THERMOPLASTIC PAINT.
5. DEDICATED PARKING SPACE FOR PEOPLE WITH DISABILITIES IN ACCORDANCE WITH AS 2890.5, PART 4.5: 5.1 TO BE OUTLINED WITH YELLOW BROKEN SLIP RESISTANT SURFACE LINES 80 TO 100mm WIDE.
- 5.2 DISABLED ACCESS SYMBOL TO BE PAINTED YELLOW.
6. ALL MEASUREMENTS ARE IN METERS UNLESS OTHERWISE SHOWN.

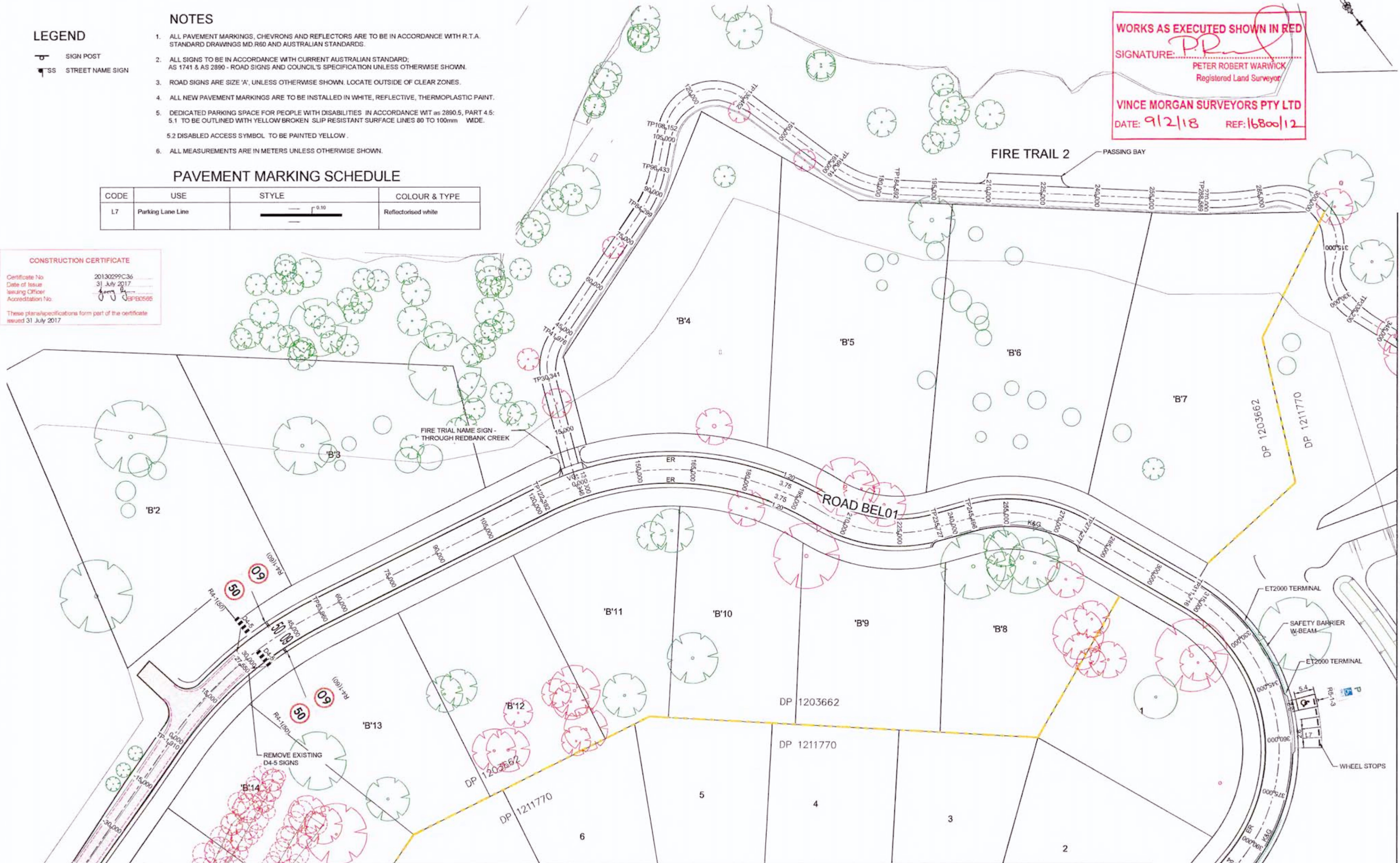
PAVEMENT MARKING SCHEDULE

CODE	USE	STYLE	COLOUR & TYPE
L7	Parking Lane Line		Reflectorised white

CONSTRUCTION CERTIFICATE

Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *[Signature]*
 Accreditation No: 139800505
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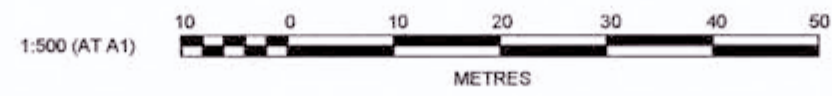
WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *[Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



REFER TO DRAWING 110185BELCC101 FOR CONTINUATION

REFER TO DRAWING 110185BELCC98 FOR CONTINUATION

REVISION F
 FIRE TRAIL 2 ALIGNMENT AMENDED



REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
F	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	18/07/17
E	FIRE TRAIL 2 AMENDED	MP	NA	MS	MS	13/02/17
D	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16
C	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16
B	CLIENT COMMENTS	MP	MG	MS	RO	13/07/16
A	ADVANCED COPY	MP	MG	RO	RO	21/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

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CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

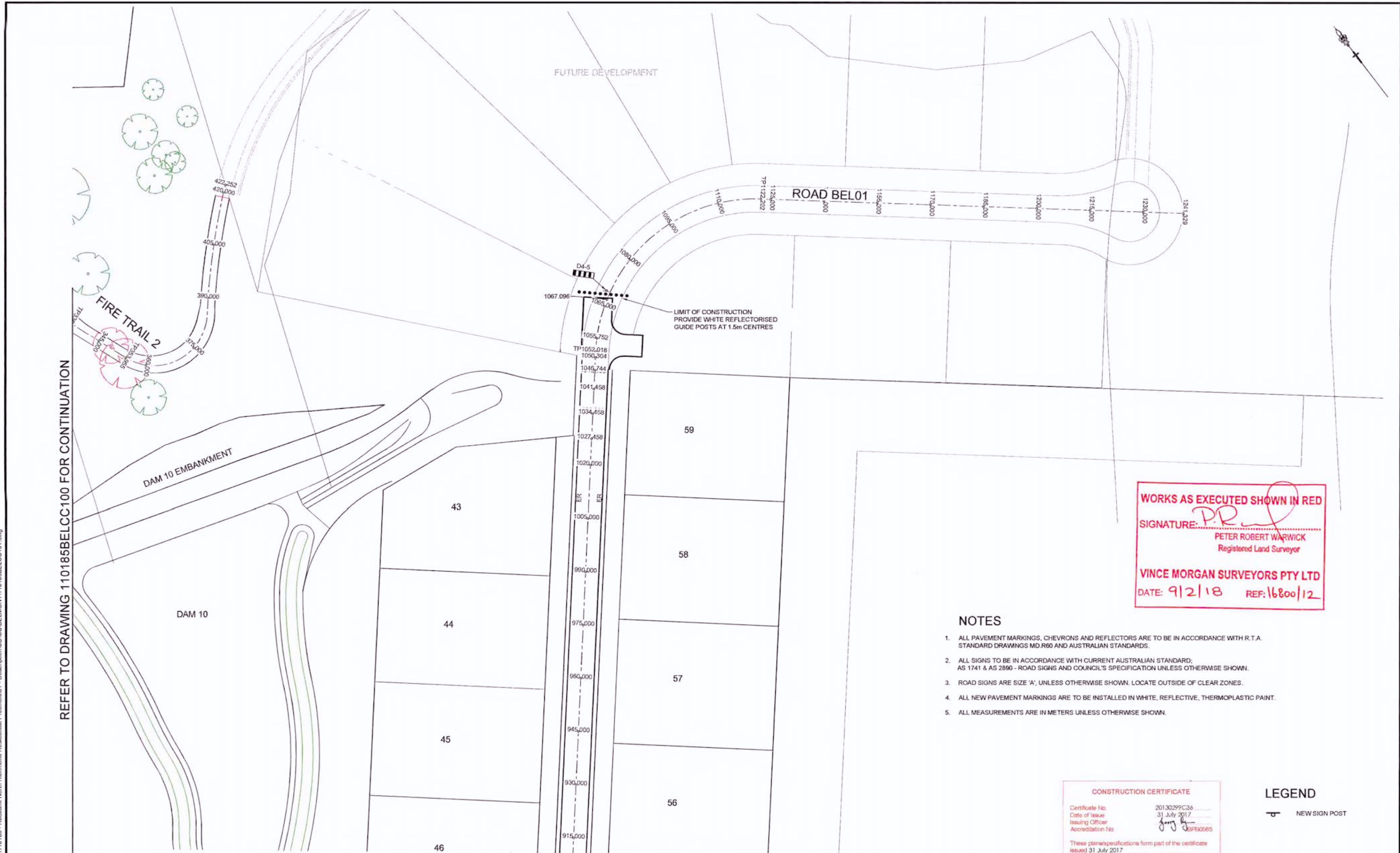


ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
 BELMONT
 SIGNPOSTING & LINEMARKING
 SHEET 4

PLAN No: 110185BEL/CC100 F
 FILE No: 110185BELCC100
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July 2017 4:56:37 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC101.dwg



REFER TO DRAWING 110185BELCC100 FOR CONTINUATION

REFER TO DRAWING 110185BELCC99 FOR CONTINUATION

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

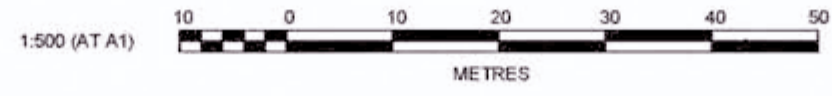
NOTES

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2. ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD; AS 1741 & AS 2890 - ROAD SIGNS AND COUNCIL'S SPECIFICATION UNLESS OTHERWISE SHOWN.
3. ROAD SIGNS ARE SIZE 'A', UNLESS OTHERWISE SHOWN. LOCATE OUTSIDE OF CLEAR ZONES.
4. ALL NEW PAVEMENT MARKINGS ARE TO BE INSTALLED IN WHITE, REFLECTIVE, THERMOPLASTIC PAINT.
5. ALL MEASUREMENTS ARE IN METERS UNLESS OTHERWISE SHOWN.

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *[Signature]* 33950665
 Accreditation No:
 These plans/specifications form part of the certificate issued 31 July 2017

LEGEND
 NEW SIGN POST

REVISION E
 • FIRE TRAIL 2 ALIGNMENT AMENDED



NO.	REVISION	DATE	BY	CHECKED	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL	27/09/16	MP	MG	
D	CERTIFIER COMMENTS	29/07/16	MP	MG	RO
C	ISSUED FOR CONSTRUCTION APPROVAL	13/07/16	MP	MG	MS
B	CLIENT COMMENTS	21/06/16	MP	MG	RO
A	ADVANCED COPY		MP	MG	RO
	AMENDMENT		DES	DRN	CKD

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CLIENT:
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 SIGNPOSTING & LINEMARKING
 SHEET 5

PLAN No: 110185BEL/CC101 E	FILE No: 110185BELCC101 SHEET SIZE: A1 ORIGINAL
--	--

DESIGN STORM 1:100yr ARI HYDROLOGIC RESULTS

PIT NAME (-)	PIT TYPE (-)	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	FLOODED DEPTH d (m)	FLOODED WIDTH w (m)	FLOODED (sq.m/s) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKER FACTOR (-)	INLET FLOW Ql (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS	
																												2/1
2/2	1.8 m lintel	0.092	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	24	5	219.1	26	26	0	42	0.06	0.75	0.13	13.4	3	0.8	33	9	2/3		
2/3	2.4 m lintel sag	0.085	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	34	5	219.1	36	36	0	46	0.08				4.1	0.5	46	0	2/4		
2/4	1.8 m lintel	0.047	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	19	5	219.1	20	20	0	20	0.02	3.38	0.01			16.7	0.8	0	20	2/5	
2/5	1.8 m lintel	0.027	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	11	5	219.1	11	11	0	31	0.05	0.94	0.09	11.2	3.1	0.8	25	6	2/6		
2/6	1.8 m lintel	0.063	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	25	5	219.1	27	27	0	33	0.06	0.69	0.11	13	3	0.8	26	7	2/7		
2/7	1.8 m lintel	0.023	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	9	5	219.1	10	10	0	16	0.04	0.41	0.08	14.8	3.3	0.8	13	3	2/8		
2/8	1.8 m lintel	0.278	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	110	5	219.1	118	118	0	121	0.08	1.97	0.16	8.3	3	0.8	72	49	2/9		
2/9	1.8 m lintel	0.057	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	23	5	219.1	24	24	0	77	0.07	1.99	0.11	8.3	3	0.8	52	25	LOST		
2/10	H.W.																											
3/1	H.W.	3.426	5	0.42	5	219.1	7.466877	191.2	7.466877	191.2	764	5	219.1	614	764	0	764							764	0			
3/2	H.W.																											
4/1	GSIP 900x900 SAG	0.405	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	160	5	219.1	171	171	0	189	0			0.3	16.7	0.5	0	189	4/2		
4/2	2.4 m lintel sag	0.08	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	32	5	219.1	34	34	0	223	0.11			0.4	3	0.5	83	140	LOST		
4/3	H.W.																											
5/1	Swale GSIP	0.071	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	28	5	219.1	30	30	0	30	0.03	1.3	0.03	4.1	16.6	0.8	19	11	6/1		
5/2	Swale GSIP	0.043	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	17	5	219.1	18	18	0	18	0.02	1.23	0.02	3.6	16.7	0.8	12	6	5/3		
5/3	GSIP 900x900 SAG	0.047	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	19	5	219.1	20	20	0	410	0.2			0.4	16.7	0.384159	206	205	5/4		
5/4	Swale GSIP	0	0								0	0	0	0	0	0	205	0.06	1.68	0.16	7.7	15.5	0.8	96	106	5/5		
5/5	Swale GSIP	0.226	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	89	5	219.1	95	95	0	202	0.05	1.59	0.16	16.4	16.7	0.8	102	99	5/6		
5/6	Swale GSIP	0.192	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	76	5	219.1	81	81	0	181	0.05	1.57	0.15	16.4	16.2	0.8	93	87	5/7		
5/7	Swale GSIP	0.033	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	13	5	219.1	14	14	0	101	0.03	1.41	0.08	15.4	16.7	0.8	57	44	5/8		
5/8	GSIP 900x900 SAG	1.054	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	418	5	219.1	446	446	0	491	0.15			5.2	17.3	0.413545	143	347	LOST		
5/9	JP	0	0								0	0	0	0	0	0	0	0						0	0			900 X 900 CONCRETE COVER
5/10	JP	0	0								0	0	0	0	0	0	0	0						0	0			900 X 900 CONCRETE COVER
5/11	H.W.																											
5A/1	Swale GSIP	0.119	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	47	5	219.1	50	50	0	50							50	0			
6/1	GSIP 900x900 SAG	0.884	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	350	5	219.1	374	374	0	386	0.2			0.5	16.7	0.003505	2	384	5/3		
7/1	Swale GSIP	0.062	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	25	5	219.1	26	26	0	26	0.03	1.2	0.04	15.3	11.7	0.8	17	9	8/1		
8/1	Swale GSIP	0.057	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	23	5	219.1	24	24	0	34	0.02	1.23	0.04	14.5	16.7	0.8	21	12	9/1		
9/1	Swale GSIP	0.075	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	30	5	219.1	32	32	0	44	0.03	1.3	0.04	8.5	16.7	0.8	27	17	4/1		
10/1	GSIP 900x900 SAG	0.186	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	74	5	219.1	79	79	0	79	0.09					0.5	79	0			
10/2	GSIP 900x900 IAD	0.249	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	99	5	219.1	105	105	0	105							105	0			
10/3	GSIP 900x900 IAD	0.203	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	80	5	219.1	86	86	0	86							86	0			
10/4	JP	0	0								0	0	0	0	0	0	0	0						0	0			900 X 900 CONCRETE COVER
10/5	JP	0	0								0	0	0	0	0	0	0	0						0	0			900 X 900 CONCRETE COVER
10/6	GSIP 900x900 IAD	0	0								0	0	0	0	0	0	0	0						0	0			
11/1	Swale GSIP	0.205	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	81	5	219.1	87	87	0	87							87	0			
11/2	Swale GSIP	0.231	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	92	5	219.1	98	98	0	98	0.06	1.72	0.07	2	16.7	0.8	50	47	11/3		
11/3	Swale GSIP	0.19	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	75	5	219.1	80	80	0	128	0.05	1.6	0.1	6.1	16.5	0.8	66	62	11/4		
11/4	Swale GSIP	0.174	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	69	5	219.1	74	74	0	135	0.05	1.58	0.11	8.3	16.7	0	-285	420	11/5		
11/5	Swale GSIP	0	0								0	0	0	0	0	0	420	0.09	2.08	0.29	8.3	16.7	0.8	176	244	11/6		
11/6	GSIP 900x900 SAG	0.321	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	127	5	219.1	136	136	0	380	0.25			8.3	14.5	0	-334	714	11/7		
11/7	Swale GSIP	0.121	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	48	5	219.1	51	51	0	775	0.08	2.34	0.46	8.3	22.5	0.8	282	494	11/8		
11/8	Swale GSIP	0.035	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	14	5	219.1	15	15	0	508	0.09	2.11	0.34	10.2	16.6	0.8	209	300	11/9		
11/9	Swale GSIP	0.024	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	9	5	219.1	10	10	0	310	0.07	1.81	0.23	11.5	16.5	0.466497	82	227	11/10		
11/10	Swale GSIP	0	0								0	0	0	0	0	0	227	0.06	1.75	0.17	9	16.7	0	-85	313	11/11		
11/11	Swale GSIP	0	0								0	0	0	0	0	0	313	0.09	2.01	0.21	5.6	16.7	0.696232	117	195	11/12		
11/12	Swale GSIP	0	0								0	0	0	0	0	0	195	0.07	1.83	0.14	4.6	16.7	0.336013	38	157	11/13		
11/13	GSIP 900x900 SAG	0.095	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	37	5	219.1	40	40	0	483	0.38			0.4	16.7	0	-365	848	11/14		
11/14	2.4 m lintel sag	0	0								0	0	0	0	0	0	848	0.2			0.3	3	0.5	221	627	11/15		
11/15	JP	0	0								0	0	0	0	0	0	639	0	4.32	0.3			0	-10	649	LOST	900 X 900 CONCRETE COVER	
11/16	H.W.																											
11A/1	Swale GSIP	0.09	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	35	5	219.1	38	38	0	38	0.04	1.45	0.03	2.2	16.7	0.8	23	15	LOST		
12/1	Swale GSIP	0.065	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	26	5	219.1	28	28	0	28	0.03	1.36	0.02	1.7	16.7	0.8	17	10	11/7		
13/1	Swale GSIP	0.079	70	0.																								

DESIGN STORM 1:100yr ARI HYDROLOGIC RESULTS

PIT NAME (-)	PIT TYPE (-)	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	FLOODED DEPTH d (m)	FLOODED WIDTH w (m)	FLOODED (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKER FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS
A1/2	H.W.																										
A2/1	GSIP 900x900 IAD	0.174	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	69	5	219.1	74	74	0	74								74	0	
A2/2	H.W.																										
B/1	GSIP 900x900 IAD	0.181	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	72	5	219.1	77	77	0	77								77	0	
B/2	GSIP 900x900 IAD	0.193	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	77	5	219.1	82	82	0	82								82	0	
B/3	GSIP 900x900 IAD	0.155	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	61	5	219.1	66	66	0	66								66	0	
B/4	GSIP 900x900 IAD	0.159	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	63	5	219.1	68	68	0	68								66	0	
B/5	JP	0	0						0	0	0	0	0	0	0	0	0								0	0	900 X 900 CONCRETE COVER
B/6	JP	0	0						0	0	0	0	0	0	0	0	0								0	0	900 X 900 CONCRETE COVER
B/7	JP	0	0						0	0	0	0	0	0	0	0	0								0	0	900 X 900 CONCRETE COVER
C/1	GSIP 900x900 IAD	0.198	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	78	5	219.1	84	84	0	84								84	0	
C/2	GSIP 900x900 IAD	0.21	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	83	5	219.1	89	89	0	89								89	0	
C/3	GSIP 900x900 IAD	0.185	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	73	5	219.1	78	78	0	78								78	0	
D/1	GSIP 900x900 IAD	0.152	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	60	5	219.1	64	64	0	64								64	0	
D/2	GSIP 900x900 IAD	0.158	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	63	5	219.1	67	67	0	67								67	0	
D/3	GSIP 900x900 IAD	0.197	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	78	5	219.1	83	83	0	83								83	0	
D/4	GSIP 900x900 IAD	0.215	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	85	5	219.1	91	91	0	91								91	0	
E/1	GSIP 900x900 IAD	0.264	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	105	5	219.1	112	112	0	112								112	0	
E/2	JP	0	0						0	0	0	0	0	0	0	0	0								0	0	900 X 900 CONCRETE COVER
E/3	GSIP 900x900 IAD	0.173	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	69	5	219.1	73	73	0	73								73	0	
E/4	GSIP 900x900 IAD	0.152	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	60	5	219.1	64	64	0	64								64	0	
E/5	GSIP 900x900 IAD	0.217	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	86	5	219.1	92	92	0	92								92	0	
F/1	GSIP 900x900 IAD	0.156	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	62	5	219.1	66	66	0	66								66	0	
F1/1	Swale GSIP	0.599	5	0.8	5	219.1	8.842961	178.3	8.842961	178.3	237	5	219.1	171	237	0	237								237	0	
F1/2	H.W.																										
F2/1	GSIP 900x900 IAD	0.405	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	161	5	219.1	172	172	0	172								172	0	
F2/2	Swale GSIP	0.093	65	0.8	5	219.1	8.842961	178.3	8.842961	178.3	37	5	219.1	38	38	0	38								38	0	
F2/3	H.W.																										
F3/1	GSIP 900x900 IAD	0.378	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	150	5	219.1	160	160	0	160								160	0	
F3/2	H.W.																										
F4/1	GSIP 900x900 IAD	0.366	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	145	5	219.1	155	155	0	155								155	0	
F4/2	H.W.																										
F5/1	GSIP 900x900 IAD	0.366	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	145	5	219.1	155	155	0	155								155	0	
F5/2	Swale GSIP	0.105	70	0.8	5	219.1	8.842961	178.3	8.842961	178.3	42	5	219.1	44	44	0	44								44	0	
F5/3	H.W.																										

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P. Warwick*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *John B...*
 Accreditation No: EPB0565
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION C
 100YR DRAINAGE CALCULATIONS AMENDED

C	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG				
B	CERTIFIER COMMENTS	MP	MG	RO	RO	27/09/16	
A	ISSUED FOR CONSTRUCTION APPROVAL	MP	MG	RO	RO	29/07/16	
	AMENDMENT	DES	DRN	CKD	APR	DATE	

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 100YR HYDROLOGIC CALCULATIONS SHEET 2
 PLAN No: 110185BEL/CC103 B
 FILE No: 110185BELCC103
 SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

PIPE NAME	PIPE TYPE	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA (sq.m)	FULL AREA TIME TO INTENSITY	FULL AREA SUM CA	FULL AREA FLOW Qc	PART-AREA TIME TO INTENSITY	PART-AREA SUM CA	PART-AREA FLOW Qc	DIRECT PIPE FLOW Qp	PEAK FLOW Qp	NET BYPASS FLOW Qb	PIPE FLOW Q	FLOW CAP. Qc	Q/Coap RATIO	FULL PIPE VELOCITY (m/s)	NORM. DEPTH VELOCITY (m/s)	CRIT DEPTH VELOCITY (m/s)	U/S PIT GRATE RL (m)	PIPE U/S IL (m)	PIPE D/S IL (m)	PIPE D/S DROP (m)	U/S PIT K _u	U/S PIT K _w	PIPE VHEAD (m)	PIT LOSS (K _u Vhead)	WSE LOSS (K _w Vhead)	TOTAL PIPE LOSS	U/S PIT HGL (m)	U/S PIPE HGL (m)	D/S PIPE HGL (m)	HGL GRADE (%)	MIN. COVER (m)	U/S FREEBOARD (m)	COMMENTS	
2/1 to 2/2	RCP	375	30.77	12.5	0.11	8.84	178.3	0.119	58.7	5	219.1	0.1	62.7	-16.2	46.5	671.8	0.07	0.42	3.49	1.07	78.26	76.168	72.322	0.03	4.5		0.01	0.04	0.04	0.04	3.81	76.583	76.543	72.735	12.38	1.18	1.68	
2/2 to 2/3	RCP	375	13.71	12.18	0.11	8.99	176.9	0.208	102.4	5.15	217	0.18	109.5	-13.7	95.8	663.1	0.14	0.87	4.27	1.37	73.744	72.292	70.622	0.03	1.78		0.04	0.07	0.07	0.07	1.54	72.735	72.667	71.123	11.26	0.91	1.01	
2/3 to 2/4	RCP	375	7.51	3.8	0.11	9.04	176.4	0.277	135.6	5.2	216.3	0.24	145.1	-4.3	140.8	370.6	0.38	1.27	3.13	1.61	71.83	70.592	70.306	0.03	1.88		0.08	0.16	0.16	0.16	0.26	71.123	70.967	70.707	3.47	0.97	0.77	
2/4 to 2/5	RCP	375	13.92	10	0.11	9.08	176	0.314	153.6	5.24	215.7	0.27	164.4	-24.1	140.3	600.9	0.23	1.27	4.44	1.61	71.855	70.276	68.885	0.03	0.67	0.68	0.08	0.06	0.06	0.06	1.29	70.707	70.651	69.359	9.47	1.33	1.15	
2/5 to 2/6	RCP	375	24.35	12.09	0.11	9.14	175.5	0.336	163.7	5.29	215	0.29	175.2	-17.2	160.6	660.8	0.25	1.29	4.97	1.75	70.67	68.855	65.911	0.5	1.14		0.11	0.13	0.13	0.13	2.73	69.359	69.23	66.088	12.9	1.17	1.31	
2/6 to 2/7	RCP	375	23.66	13.45	0.11	9.22	174.7	0.386	187.3	5.37	213.8	0.34	200.5	-11.1	189.4	697	0.27	1.72	5.37	1.9	67.612	65.411	62.228	0.03	2.01	2.46	0.15	0.3	0.37	0.37	3.12	66.155	65.786	62.663	13.2	1.64	1.46	
2/7 to 2/8	RCP	375	25.6	11.48	0.11	9.29	174	0.404	195.4	5.45	212.8	0.35	209.1	-7.6	201.5	643.8	0.31	1.82	5.15	1.98	64.312	62.198	59.26	0.05	0.53		0.17	0.09	0.09	0.09	2.37	62.663	62.573	60.205	9.25	1.38	1.65	
2/8 to 2/9	RCP	375	7.63	5	0.11	9.37	173.2	0.64	306	5.53	211.7	0.56	331	-53.3	277.7	424.9	0.65	2.51	4.1	2.56	61.276	59.21	58.628	0.03	1.58	1.78	0.32	0.51	0.57	0.16	60.269	59.695	59.532	2.13	1.7	1.01		
2/9 to 2/10	RCP	375	18.18	4.39	0.11	9.4	173	0.686	329.4	5.56	211.2	0.6	354.1	-25.1	329	399.7	0.82	2.98	4.03	3	61.158	58.798	58		0.79		0.45	0.36	0.36	0.57	59.532	59.173	58.6	3.15	0.38	1.63		
3/1 to 3/2	Box Culvert	1200x900	28.91	3.94	1.08	7.47	191.2	1.439	764.5	5	219.1	1.01	613.9	593	1357.5	0	1357.5	11121.5	0.12	1.26	5.95	2.23	57.565	56.5	55.36		0.04	0.16	0.16	0.16	0.57	57.565	57.4	56.26	3.94	0.9	0	
4/1 to 4/2	RCP	375	11	3.62	0.11	8.84	178.3	0.324	160.4	5	219.1	0.28	171.5	-171.5	0	361.5	0	0	0	0	58.485	57.092	56.694	0.03	4.5		0	0	0	0	57.285	57.285	57.285	0	1	1.2		
4/2 to 4/3	RCP	375	19.12	6.82	0.11	8.93	177.4	0.388	191.3	5.09	217.8	0.34	204.4	-122.9	81.5	496.2	0.16	0.74	3.32	1.29	58.786	56.684	55.36		8.86		0.03	0.25	0.25	0.25	0.78	57.285	57.039	56.26	4.07	0.74	1.5	
5/1 to 5/2	RCP	375	16.96	4.02	0.11	8.84	178.3	0.057	28.2	5	219.1	0.05	30.1	-11.3	18.8	381.1	0.05	0.17	1.79	0.82	78.217	76.812	76.129	0.03	4.5		0	0.01	0.01	0.01	0.34	77.193	77.187	76.85	1.98	1	1.02	
5/2 to 5/3	RCP	375	34.17	2.34	0.11	9	176.8	0.092	45	5.16	216.9	0.08	48.1	-17.7	30.4	290.6	0.1	0.28	1.7	0.94	77.879	76.099	75.3	0.03	1.91	2.16	0	0.01	0.01	0.01	0.01	76.851	76.843	76.834	0.03	1.09	1.03	
5/3 to 5/4	RCP	375	8.78	1	0.11	9.34	173.6	0.837	403.8	5.44	212.9	0.73	430.6	-204.7	225.9	190	1.19	2.05	2.05	2.05	76.836	75.727	75.182	0.03	2.3		0.21	0.49	0.49	0.12	76.834	76.344	76.22	1.41	1.16	0		
5/4 to 5/5	RCP	375	32.51	14.33	0.11	9.41	172.9	0.887	426	5.51	211.9	0.77	454.4	-115.7	338.7	719.4	0.47	3.07	6.41	3.09	76.895	75.152	70.494	0.03	1.44	1.47	0.48	0.69	0.71	3.97	76.235	75.527	71.562	12.2	1.09	0.46		
5/5 to 5/6	RCP	375	31.45	14.21	0.11	9.49	172.1	1.067	510.3	5.6	210.7	0.93	545.9	-108.7	437.1	716.4	0.61	3.96	6.8	3.96	72.742	70.464	65.994	0.03	0.9		0.8	0.72	0.72	3.6	71.562	70.339	67.24	11.44	1.28	1.18		
5/6 to 5/7	RCP	375	34.29	16.29	0.11	9.57	171.4	1.267	603.2	5.67	209.7	1.11	646.7	-98.8	546.9	767	0.71	4.95	7.54	4.96	67.583	65.964	60.378	0.03	0.72		1.25	0.9	0.9	5.9	67.24	66.339	60.753	16.29	1.11	0.34		
5/7 to 5/8	RCP	450	26.13	10.39	0.16	9.64	170.7	1.293	613.2	5.75	209.6	1.13	657.1	-56.8	600.3	905.9	0.6	3.77	6.55	3.79	62.167	60.303	57.588	0.03	0		0.73	0	0	1.4	60.753	60.753	59.348	5.38	1.03	1.41		
5/8 to 5/9	RCP	450	17.96	4.38	0.16	9.71	170.1	2.197	1037.8	5.81	207.7	1.94	1121.7	-364.6	757.1	646.5	1.17	4.76	4.76	4.76	59.363	57.558	56.772	0.03	0.69		1.16	0.8	0.8	1.08	59.348	58.55	57.471	6	1.31	0.01		
5/9 to 5/10	RCP	450	19.1	14.9	0.16	9.77	169.5	2.292	1079.1	5.88	206.8	2.03	1166.3	-364.6	801.7	1192.7	0.67	5.04	8.04	5.04	59.741	56.742	53.896	1.731	0.22		1.3	0.28	0.28	1.02	57.471	57.192	54.166	15.84	0.69	2.27		
5/10 to 5/11	RCP	525	12.84	5	0.22	9.81	169.1	2.292	1076.7	5.92	206.3	2.03	1163.2	-364.6	798.5	1046.2	0.76	3.69	5.3	3.71	54.913	52.165	51.523		1.62	2	0.69	1.12	1.39	0.49	54.078	52.09	52.2	3.82	0.52	0.83		
5A/1 to 5/9	RCP	375	3.52	10.83	0.11	8.84	178.3	0.095	47.3	5	219.1	0.08	50.5	0	50.5	625.3	0.08	0.46	3.4	1.1	59.497	57.228	56.847		0.105	4.5	0.01	0.05	0.05	0.13	57.851	57.803	57.471	3.75	1.85	1.85		
6/1 to 5/3	RCP	375	14.5	1	0.11	8.84	178.3	0.708	350.4	5	219.1	0.62	374.4	0	374.4	-372.5	1.9	190	0.01	0.02	0.55	0.45	76.836	75.445	75.3		0.03	4.5	0	0	0	76.834	76.834	76.834	0	1	0	
7/1 to 5/4	RCP	375	14.7	1	0.11	8.84	178.3	0.05	24.7	5	219.1	0.04	26.4	-8.4	17	190	0.09	0.15	1.06	0.8	76.845	75.329	75.182	0.03	4.5		0	0.01	0.01	0	76.226	76.221	76.22	0.01	1.1	0.62		
8/1 to 5/6	RCP	375	23.44	12	0.11	8.84	178.3	0.046	22.8	5	219.1	0.04	24.3	-3.1	21.2	658.3	0.03	0.19	2.72	0.85	70.432	68.807	65.994	0.03	4.5		0	0.01	0.01	1.94	69.191	69.182	67.24	8.28	1.14	1.24		
9/1 to 5/8	RCP	375	16.6	5	0.11	8.84	178.3	0.06	29.7	5	219.1	0.05	31.7	-4.9	26.8	424.9	0.06	0.24	2.15	0.91	59.849	58.493	57.663	0.105	4.5		0	0.01	0.01	0	59.365	59.351	59.348	0.02	0.94	0.48		
10/1 to 10/2	RCP	375	52.69	7.62	0.11	8.84	178.3	0.149	73.5	5	219.1	0.13	78.6	0	78.6	524.4	0.15	0.71	3.41	1.27	77.212	76.2	72.187	0.05	4.5		0.03	0.12	0.12	3.04	76.691	76.575	73.535	5.77	0.62	0.52		
10/2 to 10/3	RCP	375	33.01	7.1	0.11	10.09	166.8	0.898	416.1	6.25	202.8	0.8	451.2	0	451.2	506.4	0.89	4.09	5.18	4.09	73.723	72.137	69.792	0.03	0.88		0.59	0.52	0.52	1.3	73.535	73.011	71.714	3.93	1.15	0.19		
10/3 to 10/4	RCP	375	2.88	5.41	0.11	10.2	166.1	1.535	708.1	6.35	201.8	1.38	771.9	0	771.9	441.9	1.75	6.99	6.99	6.99	71.714	69.762	69.606	0.03	0.75		0.56	0.42	0.42	0.11	71.714	71.296	71.189	3.71	1.49	0		
10/4 to 10/5	RCP	375	28.89	10.44	0.11	10.2	166	1.535	707.9	6.36	201.7	1.38	771.2	0	771.2	614	1.26	6.99	6.99	6.99	71.469	69.576	66.566	1.16	1.45	1.78	0.85	1.24	1.52	2.1	71.469	69.951	67.848	7.28	1.42	0		
10/5 to 10/6	RCP	375	15.5	18.51	0.11	10.27	165.6	1.535	706	6.43	201.7	1.38	769.2	0	769.2	65.4	0.94	6.96	8.41	6.96	68.393	65.4	62.476	0.796	1.52	1.92	1.36	2.07	2.62	2.07	68.393	65.775	63.707	13.09	1.15	0		
10/6 to 11/4	RCP	375	4.16	5	0.11	10.3	165.4	1.535	705.2	6.46	200.7	1.38	768	0	768	424.9	1.81	6.95	6.95	6.95	63.857	61.68	61.472	0.105	1.52	1.92	0.37	0.57	0.72	0.1	63.857	63.138	63.035	2.48	1.17	0		
11/1 to 11/2	RCP	375	37.2	1	0.11	8.84	178.3	0.164	81	5	219.1	0.14	86.6	0	86.6	190	0.46	0.78	1.68	1.32	66.165	64.403	64.031	0.03	4.5		0.03	0.14	0.14	0.24	64.919							

DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

PIPE NAME	PIPE TYPE	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA A1 (sq.m)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY (mm/hr)	FULL AREA SUM CA (ha)	FULL AREA FLOW Qc (L/s)	PART-AREA TIME Tc (min)	PART-AREA INTENSITY (mm/hr)	PART-AREA SUM CA (ha)	PART-AREA FLOW Qc (L/s)	DIRECT PIPE FLOW Qp (L/s)	PEAK FLOW Qp (L/s)	NET BYPASS FLOW Qb (L/s)	PIPE FLOW Q (L/s)	FLOW CAP. Qcap (L/s)	Q/Qcap RATIO	FULL PIPE VELOCITY (m/s)	NORM. DEPTH VELOCITY (m/s)	CRIT. DEPTH VELOCITY (m/s)	U/S PIT GRATE RL	PIPE U/S IL (m)	PIPE D/S IL (m)	PIPE D/S DROP (m)	U/S PIT Ku	U/S PIT Kw	PIPE VHEAD (m)	PIT LOSS (Ku.Vhead)	WSE LOSS (Kw.Vhead)	TOTAL PIPE LOSS (m)	U/S PIT HGL (m)	U/S PIPE HGL (m)	D/S PIPE HGL (m)	HGL GRADE (%)	MIN. COVER (m)	U/S FREEBOARD (m)	COMMENTS
B/2 to B/3	uPVC	300	42.47	1	0.07	9.02	176.6	0.299	146.8	5.18	216.6	0.26	157.1	0	157.1	0	157.1	125.8	1.25	2.22	2.22	2.22	75.33	74.264	73.839	0.03	1.25		0	0	0	0	75.33	75.33	75.33	0	0.77	0	
B/3 to B/4	uPVC	300	55.45	1	0.07	9.34	173.6	0.423	204.1	5.5	212.1	0.37	218.7	0	218.7	0	218.7	125.8	1.74	3.09	3.09	3.09	75.467	73.809	73.254	0.03	0.96		0	0	0	0	75.33	75.33	75.33	0	1.36	0.14	
B/4 to B/5	uPVC	300	2.49	1	0.07	9.64	170.8	0.551	261.3	5.79	208	0.49	280.5	0	280.5	0	280.5	125.8	2.23	3.97	3.97	3.97	75.599	73.224	73.199	0.03	0.78	0.06	0.04	0.04	0.01	75.33	75.285	75.276	0.36	2.05	0.27		
B/5 to B/6	uPVC	300	13.78	1	0.07	9.65	170.7	0.551	261.1	5.8	207.8	0.49	280.3	0	280.3	0	280.3	125.8	2.23	3.97	3.97	3.97	75.534	73.169	73.032	0.03	1.21	1.3	0.64	0.78	0.83	0.55	75.33	74.499	73.952	3.97	1.18	0.2	
B/6 to B/7	uPVC	300	44.28	1	0.07	9.71	170.1	0.551	260.3	5.86	207	0.49	279.2	0	279.2	0	279.2	125.8	2.22	3.95	3.95	3.95	73.963	73.002	72.559	0.075	1.67	1.99	0.09	0.16	0.19	0.26	73.983	73.794	73.535	0.59	0.73	0	
B/7 to 10/2	RCP	375	29.72	1	0.11	9.89	168.3	0.551	257.6	6.05	204.6	0.49	276	0	276	0	276	190	1.45	2.5	2.5	2.5	73.535	72.484	72.187	0.05	0.09	0.14	0	0	0	0	73.535	73.535	73.535	0	0.66	0	
C/1 to C/2	uPVC	225	33.77	1	0.04	8.84	178.3	0.158	78.2	5	219.1	0.14	83.6	0	83.6	0	83.6	58.4	1.43	2.1	2.1	2.1	72.994	71.983	71.645	0.075	4.5		0	0	0	0	72.994	72.994	72.994	0	0.8	0	
C/2 to C/3	uPVC	300	33.21	1.02	0.07	9.11	175.7	0.326	159.3	5.27	215.3	0.29	170.7	0	170.7	0	170.7	127.3	1.34	2.41	2.41	2.41	73.4	71.57	71.23	0.03	0.95		0	0	0	0	72.994	72.994	72.994	0	1.53	0.41	
C/3 to 10/3	uPVC	300	34.99	3.81	0.07	9.34	173.6	0.475	228.8	5.5	212.1	0.42	245.6	0	245.6	0	245.6	245.4	1	3.47	3.47	3.47	73.422	71.2	69.867	0.105	0.98	0.41	0.4	0.4	0.88	72.994	72.997	71.714	2.52	1.58	0.43		
D/1 to D/2	uPVC	225	38.08	5.21	0.04	8.84	178.3	0.122	60.2	5	219.1	0.11	64.3	0	64.3	0	64.3	133.3	0.48	1.62	3.32	1.69	58.491	57.6	55.615	0.03	4.5		0.13	0.6	0.6	1.18	58.426	57.825	56.647	3.09	0.64	0.06	
D/2 to D/3	uPVC	225	1.33	8	0.04	9.03	176.5	0.248	121.7	5.19	216.4	0.22	130.3	0	130.3	0	130.3	165.2	0.79	3.28	4.6	3.28	56.647	55.585	55.479	0.03	1.39		0.1	0.14	0.14	0.01	56.647	56.51	56.498	0.9	0.79	0	
D/3 to D/4	uPVC	225	45.13	13.18	0.04	9.04	176.4	0.406	198.9	5.2	216.3	0.35	213.3	0	213.3	0	213.3	212	1.01	5.36	5.36	5.36	56.804	55.449	49.5	0.593	1.44	1.82	0.57	0.82	0.93	5.52	56.803	55.674	50.154	12.23	0.73	0	
D/4 to 14/1	RCP	375	3.9	8	0.11	9.18	175.1	0.578	281.1	5.34	214.4	0.51	301.6	0	301.6	0	301.6	537.5	0.56	2.73	5	2.76	50.304	48.907	48.595	0.03	1.43	2.02	0.25	0.36	0.51	0.07	50.304	49.791	49.725	1.68	0.75	0	
E/1 to E/2	uPVC	225	34.33	3.35	0.04	8.84	178.3	0.211	104.7	5	219.1	0.18	111.9	0	111.9	0	111.9	106.9	1.05	2.81	2.81	2.81	61.023	60.118	58.968	0.03	4.5		0.15	0.68	0.68	0.56	61.023	60.343	59.779	1.64	0.6	0	
E/2 to E/3	uPVC	225	26.43	1.66	0.04	9.05	176.3	0.211	103.6	5.2	216.2	0.18	110.5	0	110.5	0	110.5	75.2	1.47	2.78	2.78	2.78	59.779	58.938	58.5	0.03	0.36		0.13	0.05	0.05	0.31	59.779	59.733	59.424	1.17	0.59	0	
E/3 to E/4	uPVC	225	33.02	5.88	0.04	9.2	174.8	0.35	170.1	5.36	214	0.31	182	0	182	0	182	141.6	1.29	4.58	4.58	4.58	59.424	58.47	56.53	0.33	1.09		0.45	0.49	0.49	1.34	59.424	58.939	57.599	4.06	0.69	0	
E/4 to E/5	uPVC	225	56.16	11.57	0.04	9.33	173.7	0.597	288	5.48	212.3	0.52	309.3	0	309.3	0	309.3	198.7	1.56	7.78	7.78	7.78	58.248	56.2	49.7	1.04	1.47	1.79	0.8	1.17	1.43	6.16	57.856	56.425	50.269	10.96	0.67	0.39	
E/5 to 15/1	RCP	375	4.11	5.77	0.11	9.45	172.6	0.771	389.4	5.6	210.7	0.68	397.3	0	397.3	0	397.3	456.4	0.87	3.6	4.65	3.61	50.473	48.66	48.423	0.075	1.37	2.1	0.28	0.38	0.58	0.08	50.473	49.89	49.815	1.84	1.02	0	
F/1 to E/4	uPVC	225	9.49	1	0.04	8.84	178.3	0.125	61.9	5	219.1	0.11	66.2	0	66.2	0	66.2	58.4	1.13	1.66	1.66	1.66	57.856	56.325	56.23	0.03	1.82		0.1	0.17	0.17	0.08	57.856	57.682	57.599	0.87	1.31	0	
F/1/1 to F/1/2	RCP	375	14.14	1	0.11	8.84	178.3	0.479	237.4	5	219.1	0.28	171.3	0	237.4	0	237.4	190.8	1.24	2.15	2.15	2.15	40.607	39.324	39.183		4.5		0.15	0.68	0.68	0.14	40.427	39.742	39.6	1.01	0.36	0.18	
F/2/1 to F/2/2	RCP	300	2.7	2.06	0.07	8.84	178.3	0.324	160.5	5	219.1	0.28	171.6	0	171.6	0	171.6	150.5	1.14	2.43	2.43	2.43	41.785	40.439	40.383	0.03	4.5		0.2	0.9	0.9	0.05	41.785	40.887	40.839	1.78	0.99	0	
F/2/2 to F/2/3	RCP	300	11.92	1	0.07	8.86	178.1	0.398	197	5.02	218.8	0.34	209.6	0	209.6	0	209.6	105.2	1.99	2.96	2.96	2.96	41.23	40.353	40.234		1.05		0.11	0.12	0.12	0.12	40.839	40.72	40.6	1.01	0.3	0.39	
F/3/1 to F/3/2	RCP	300	16.21	2	0.07	8.84	178.3	0.302	149.7	5	219.1	0.26	160	0	160	0	160	148.8	1.08	2.26	2.26	2.26	42.747	40.714	40.39		4.5		0.23	1.02	1.02	0.33	42.544	41.527	41.2	2.02	0.3	0.2	
F/4/1 to F/4/2	RCP	300	17.44	1.25	0.07	8.84	178.3	0.293	145	5	219.1	0.25	154.9	0	154.9	0	154.9	117.6	1.32	2.19	2.19	2.19	42.304	40.5	40.282		4.5		0.14	0.64	0.64	0.22	41.675	41.04	40.82	1.26	0.3	0.63	
F/5/1 to F/5/2	RCP	225	5.01	2.24	0.04	8.84	178.3	0.293	145	5	219.1	0.25	154.9	0	154.9	0	154.9	72.8	2.13	3.9	3.9	3.9	41.28	39.649	39.537	0.03	4.5		0.2	0.9	0.9	0.13	41.28	40.381	40.25	2.61	0.59	0	
F/5/2 to F/5/3	RCP	300	12.71	1	0.07	8.86	178.1	0.377	186.4	5.02	218.8	0.33	199.2	0	199.2	0	199.2	105.2	1.89	2.82	2.82	2.82	40.378	39.507	39.38		0.19		0.11	0.02	0.02	0.13	40.25	40.228	40.1	1.01	0.3	0.13	

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE
 Certificate No: 20130299C36
 Date of Issue: 31 July 2017
 Issuing Officer: *Jerry*
 Accreditation No: JSPB0595
 These plans/specifications form part of the certificate issued 31 July 2017

REVISION C
 • 100YR DRAINAGE CALCULATIONS AMENDED

NO.	DESCRIPTION	DATE	BY	CHECKED	DATE
C	ISSUE FOR CONSTRUCTION APPROVAL	27/09/16	MP	MG	
B	CERTIFIER COMMENTS		MP	MG	RO
A	ISSUED FOR CONSTRUCTION APPROVAL AMENDMENT	29/07/16	MP	MG	RO

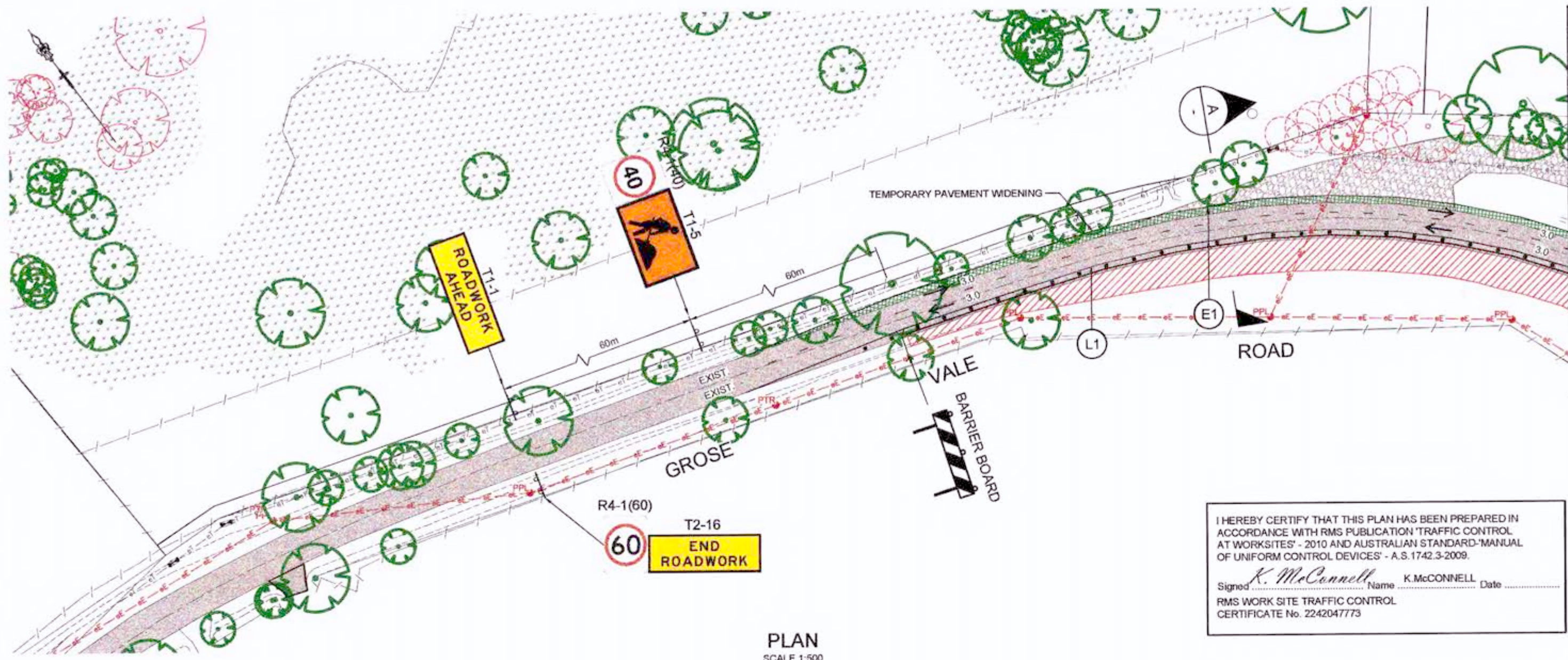
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: REDBANK
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 100YR HYDRAULIC CALCULATIONS
 SHEET 2

PLAN No: 110185BEL/CC105 **B**
 FILE No: 110185BELCC105
 SHEET SIZE: A1 ORIGINAL

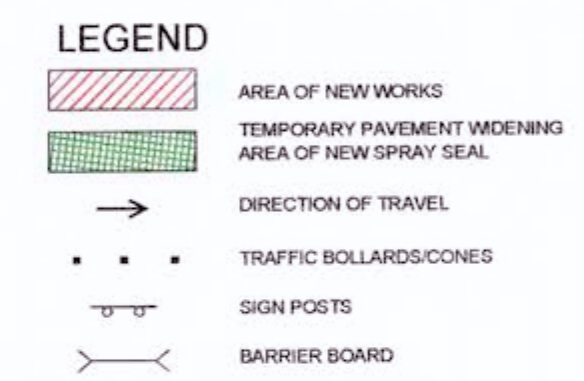


REFER BELOW FOR CONTINUATION

- NOTES:**
- ALL TRAFFIC CONTROL AND MANAGEMENT WORKS ARE TO BE COMPLETED AND MAINTAINED IN ACCORDANCE WITH AUSTRALIAN STANDARD 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES' (AS1742.3-2009).
 - THIS PLAN IS PROVIDED AS A GUIDE ONLY BASED ON RTA 'TRAFFIC CONTROL AT WORKSITES' - Ver 4/JUNE 2010, TCP No. 42 TO BE ADJUSTED TO SUIT THE ACTIVITY AND LOCAL SITE CONDITIONS AND CONSTRUCTION STAGING.
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 - A 'ROAD OCCUPANCY' APPLICATION IS TO BE MADE TO COUNCIL AT LEAST 10 DAYS PRIOR TO WORKS COMMENCING.
 - PROVIDE APPROVED REFLECTORISED TRAFFIC SAFETY BARRIERS, TRITON PLASTIC (WATER FILLED) OR EQUIVALENT, OR CONCRETE (TYPE F) FOR DURATION OF WORKS. LOCATE min. 1.2m CLEAR OF ANY WORKS, MAINTAINING A 3.0m min. THROUGH LANE ROAD WIDTH.
 - SPEED ZONING THROUGH THE SITE IS 40KPH.
 - THIS PLAN ASSUMES WORKS ARE TO BE UNDERTAKEN DURING DAYLIGHT HOURS ONLY. AT COMPLETION OF DAILY WORKS:
 - SIGNS T1-5 ARE TO BE COVERED
 - SIGNS T1-1 ARE TO BE COVERED
 - BARRIER BOARDS, WITH FLASHING LIGHTS, TO BE PLACED ACROSS THE WORK SITE @ 15m INTERVALS.
 - ALL SIGNAGE, DELINEATION AND FLASHING LIGHTS ARE TO BE MAINTAINED AT ALL TIMES AND PLACED PRIOR TO ANY WORKS.
 - CONTRACTOR TO NOTIFY ALL AFFECTED RESIDENTS NEAR AREA OF WORKS VIA DOOR KNOCK, LETTERBOX DROP, IN WRITING AND KEPT INFORMED OF ROAD WORKS AND CONFIGURATIONS TO TRAFFIC MANEUVERING
 - THE CONTRACTOR SHALL MAKE GOOD ANY DAMAGE TO EXISTING ROADS DURING WORK.
 - CURRENT GROSE VALE ROAD POSTED SPEED LIMIT 60KPH.

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH RMS PUBLICATION 'TRAFFIC CONTROL AT WORKSITES' - 2010 AND AUSTRALIAN STANDARD 'MANUAL OF UNIFORM CONTROL DEVICES' - A.S.1742.3-2009.

Signed *K. McConnell* Name K. McCONNELL Date _____
 RMS WORK SITE TRAFFIC CONTROL CERTIFICATE No. 2242047773

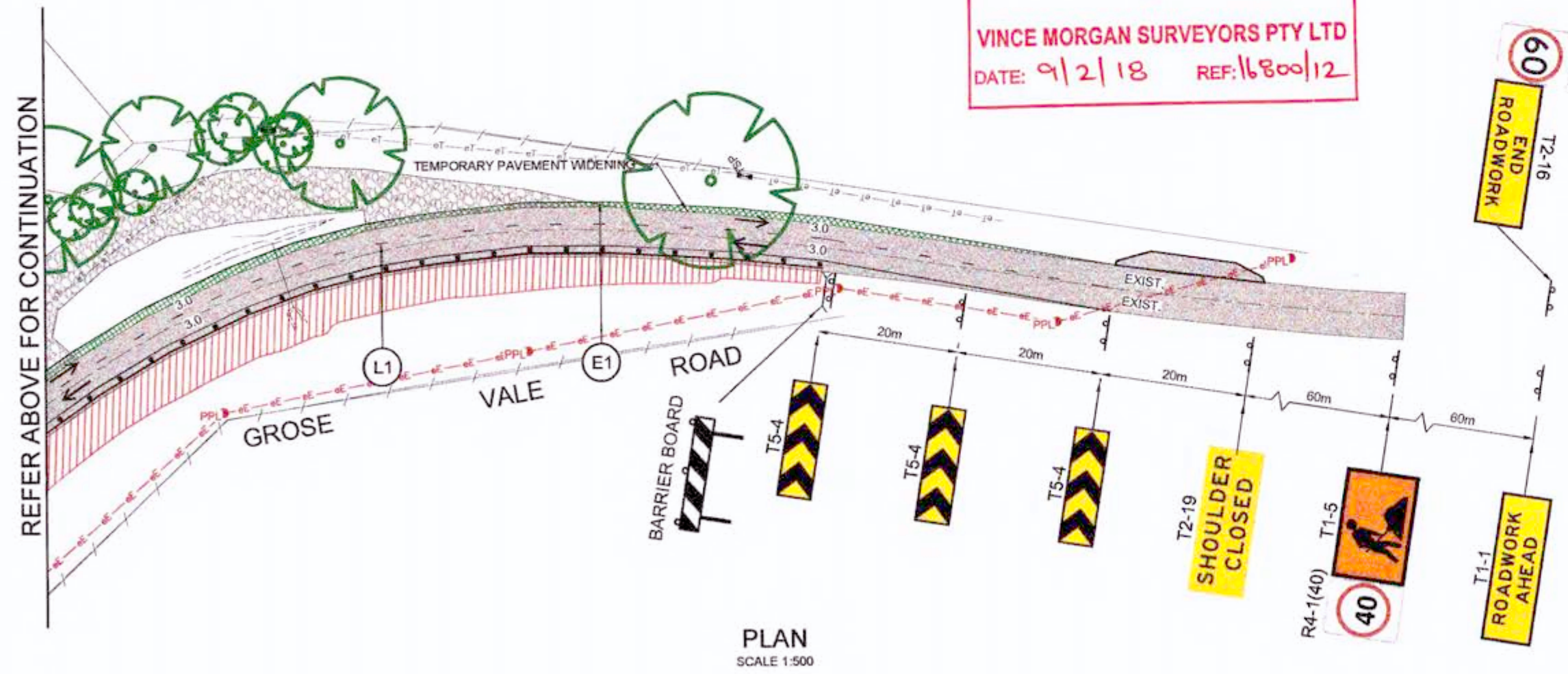


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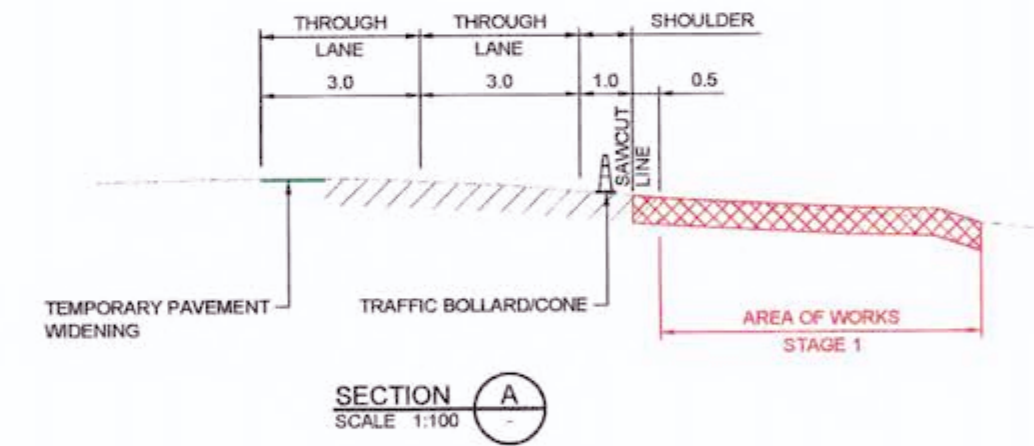
WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P. R. Warwick*
 PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



REFER ABOVE FOR CONTINUATION



PAVEMENT MARKING SCHEDULE

CODE	USE	STYLE	COLOUR & TYPE
L1	LANE LINE ON MULTI LANE ROADS INCLUDING MOTORWAYS AND DUAL CARRIAGEWAYS		REFLECTORISED WHITE TYPE 'W' PAVEMENT MARKERS MONO-DIRECTIONAL REFLECTIVE WHITE
E1	LEFT HAND EDGE LINE ON GENERAL PURPOSE ROAD		REFLECTORISED WHITE

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C35
 Date of Issue 31 July 2017
 Issuing Officer *Gary B...* JSPB0565
 Accreditation No. JSPB0565

These plans/specifications form part of the certificate issued 31 July 2017



J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: **REDBANK**

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

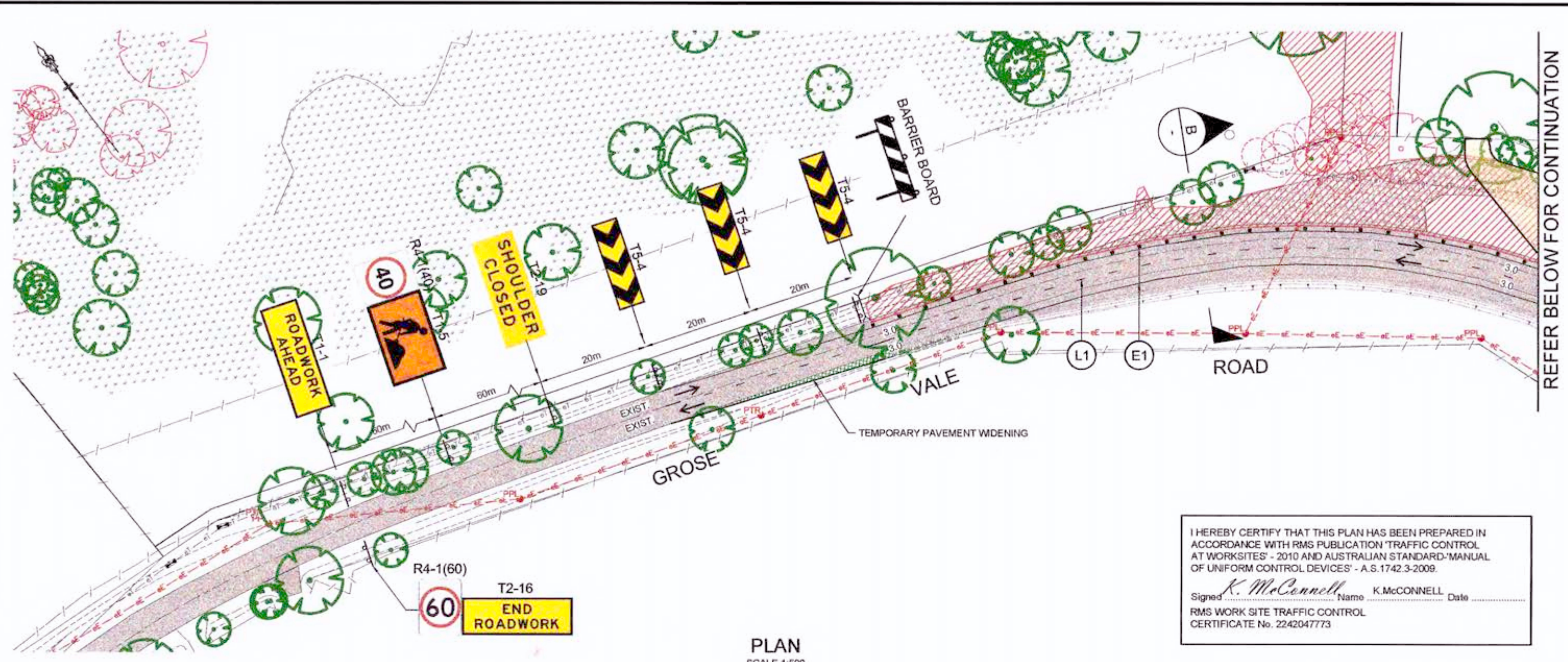
REDBANK, NORTH RICHMOND BELMONT
 TRAFFIC MANAGEMENT PLAN SHEET 1

PLAN No: 110185BEL/CC106 B
 FILE No: 110185BELCC106
 SHEET SIZE: A1 ORIGINAL

Printed: 18 July 2017 4:58:47 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts 01 - Description\CD\CC\BELMONT\110185BELCC106.dwg

REV	DESCRIPTION	MP	MG	RO	MS	DATE
B	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	11/10/18
A	ISSUED FOR COUNCIL APPROVAL	VG	VG	RO	MS	
	AMENDMENT	DES	DRN	CKD	APR	DATE

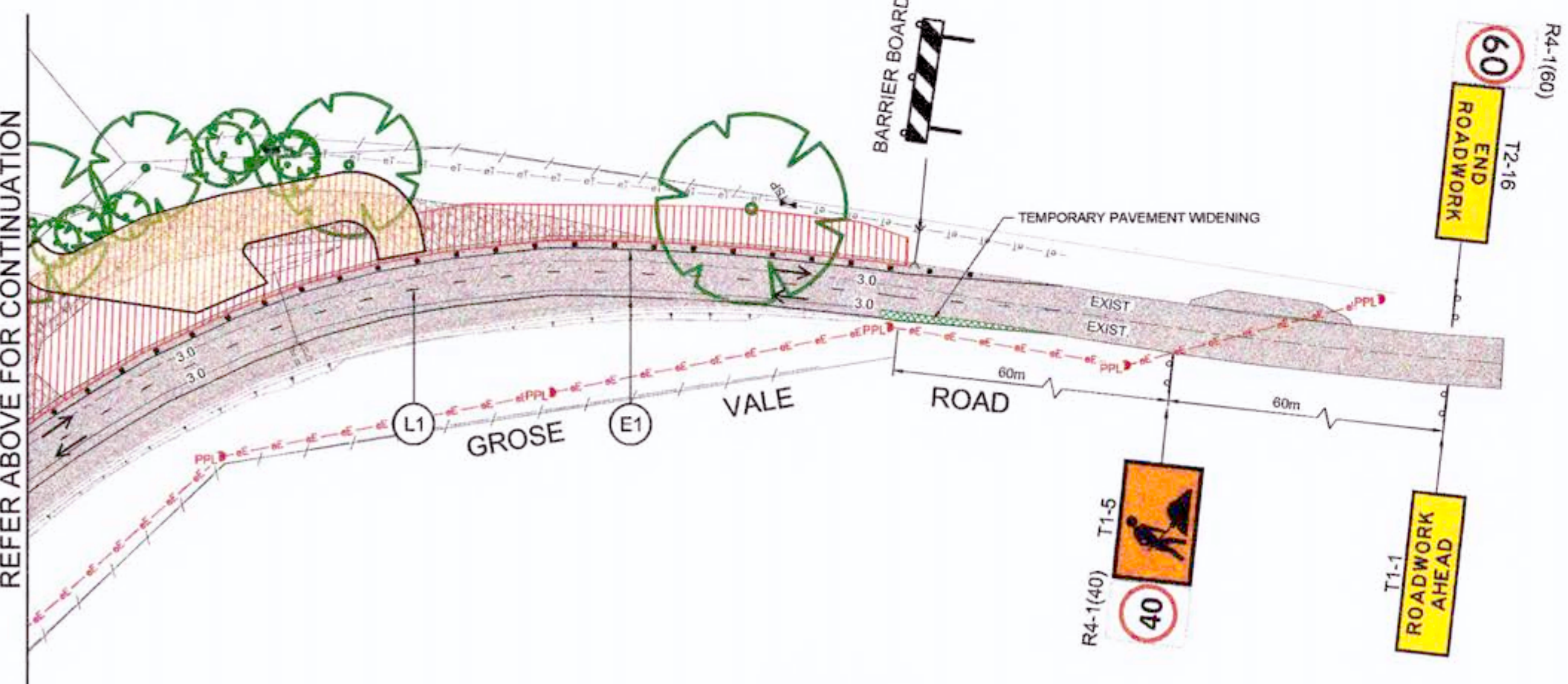
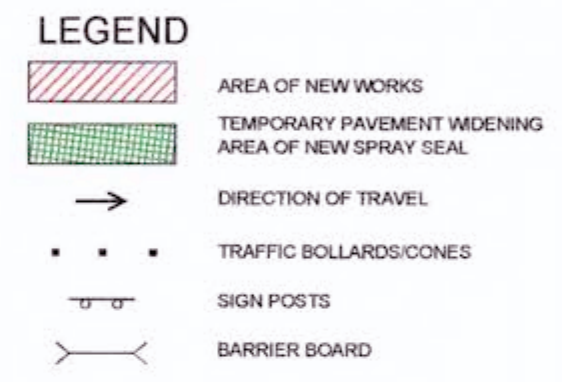
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PLAN
SCALE 1:500

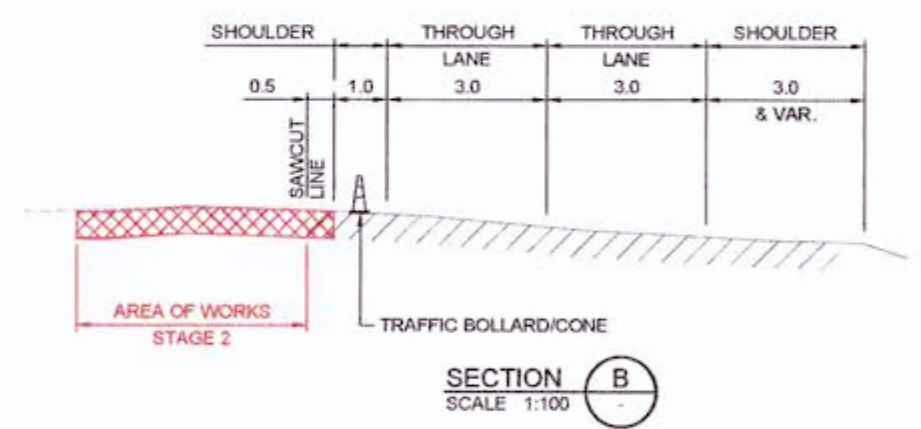
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 Signed *K. McConnell* Name K. McCONNELL Date _____
 RMS WORK SITE TRAFFIC CONTROL CERTIFICATE No. 2242047773

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PLAN
SCALE 1:500

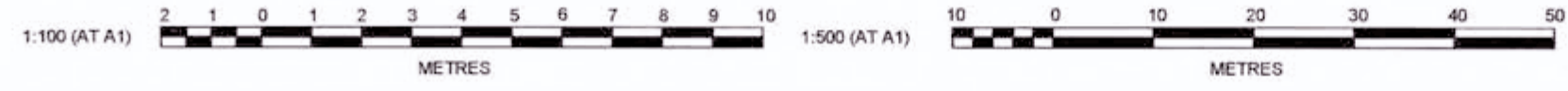
WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12



PAVEMENT MARKING SCHEDULE

CODE	USE	STYLE	COLOUR & TYPE
L1	LANE LINE ON MULTI LANE ROADS INCLUDING MOTORWAYS AND DUAL CARRIAGEWAYS		REFLECTORISED WHITE TYPE W PAVEMENT MARKERS MONO-DIRECTIONAL REFLECTIVE WHITE
E1	LEFT HAND EDGE LINE ON GENERAL PURPOSE ROAD		REFLECTORISED WHITE

CONSTRUCTION CERTIFICATE
 Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Jerry Prince*
 Accreditation No. JP0505
 These plans/specifications form part of the certificate issued 31 July 2017



J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
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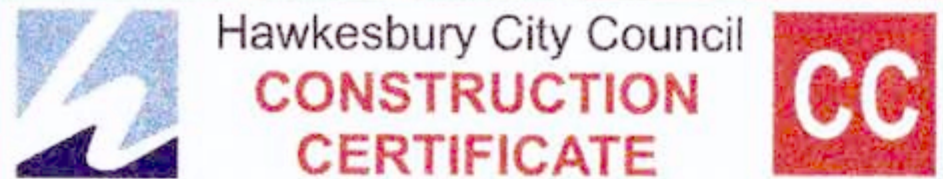
CLIENT: **REDBANK**
 AZIMUTH:
 DATUM:
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
 BELMONT
 TRAFFIC MANAGEMENT PLAN
 SHEET 2

PLAN No: 110185BEL/CC107 **B**
 FILE No: 110185BELCC107
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	MG			
A	VG	VG	RO	MS	11/10/16



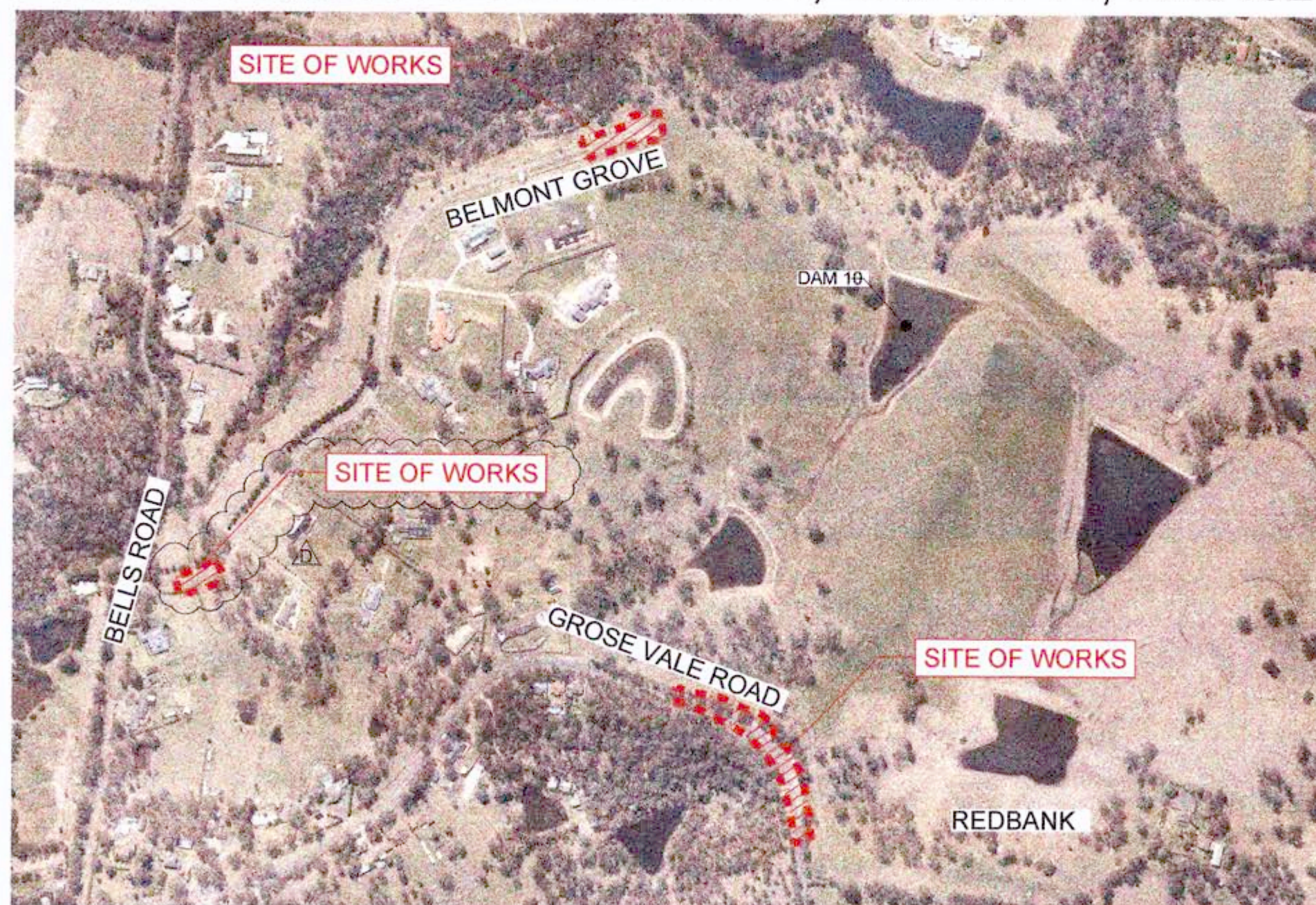
Construction Certificate No. CC0399/16

Consent Date: 09/11/17



REDBANK - BELMONT PRECINCT GROSE VALE ROAD, INTERSECTION & BELMONT GROVE EXTENSION PROPOSED ROAD & DRAINAGE WORKS CONSTRUCTION CERTIFICATE

HAWKESBURY CITY COUNCIL REF: DA0438-14, DA0451-14, DA0452-14 & DA0467-15



LOCALITY SKETCH

Prepared By:

J. WYNDHAM PRINCE

CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750

P 02 4720 3300 F 02 4720 3399

W www.jwprince.com.au

E jwp@jwprince.com.au

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE:
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 12/2/18 REF: 16800/12

Survey By:
VINCE MORGAN SURVEYORS

REGISTERED SURVEYORS
1/77 UNION ROAD PENRITH NSW 2750
Ph. (02) 4721 5293

REF: NORTH RICHMOND - DETAIL SURVEY DATED 15/08/2012 AND UPDATED 15/03/2017
LOT LAYOUT PLAN OF PROPOSED SUBDIVISION REF: 16800-6-P3(C) & 16800-12-L3(B)

ISSUED FOR CONSTRUCTION APPROVAL

PLAN No.
110185BEL/CC200 D
FILE No. 110185BELCC200

Plotted: 2 November 2017 3:32:46 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC201.dwg

DESCRIPTION	LEGEND		
	PROPOSED	EXISTING	FUTURE
EXTENT OF WORKS			
KERB & GUTTER	KG		
ROLL KERB	RK		
KERB ONLY	KO		
DISH CROSSING	DC		
PRAM RAMP			
DRAINAGE LINE, PIT & EASEMENT			
DRAINAGE LINE & PIT			
HEADWALL			
GUIDE POSTS			
EXTENT OF FILL			
EXTENT OF CUT			
CONTOURS	46.0	47.0	
CATCH DRAIN			
KERB RETURN No	KR		
ELECTRICITY, POWER POLE			
TELECOM, BOX			
WATER, STOP VALVE, HYDRANT			
SEWER, MANHOLE			
GAS			
TREES TO BE PROTECTED			
TREES TO BE REMOVED			
STREET NAME SIGNS	SP		
SURVEY MARKS - BENCH MARKS			
STATE SURVEY MARKS			
STABILISED SITE ACCESS			
SEDIMENT FENCE			
STRAW BALE BARRIER			
STOCKPILE			
TREE PROTECTIVE FENCING			
MESH AND GRAVEL INLET FILTER			
GEOTEXTILE INLET FILTER			

PLAN INDEX		
PLAN No.	PLAN NAME	REV
110185BEL/CC200	COVER SHEET	D
110185BEL/CC201	GENERAL NOTES, INDEX & LEGEND	E
110185BEL/CC202	SITE LAYOUT	E
110185BEL/CC203	ENGINEERING PLAN	D
110185BEL/CC204	ROAD LONGITUDINAL SECTIONS	D
110185BEL/CC205	ROAD CROSS SECTIONS	C
110185BEL/CC206	KERB RETURN PLAN	D
110185BEL/CC207	EDGE OF CARRIAGEWAY PLAN & PROFILE SHEET 1	D
110185BEL/CC208	EDGE OF CARRIAGEWAY PLAN & PROFILE SHEET 2	D
110185BEL/CC209	PAVEMENT PLAN & DETAILS	C
110185BEL/CC210	SIGNPOSTING & LINEMARKING	E
110185BEL/CC211	LINEMARKING SETOUT PLAN	E
110185BEL/CC212	CATCHMENT PLAN, PIT SCHEDULE & DETAILS	D
110185BEL/CC213	SOIL & WATER MANAGEMENT PLAN & NOTES	D
110185BEL/CC214	TRAFFIC MANAGEMENT PLAN SHEET 1	C
110185BEL/CC215	TRAFFIC MANAGEMENT PLAN SHEET 2	D
110185BEL/CC216	BELMONT GROVE - PAVEMENT PLAN SHEET 1 OF 2	D
110185BEL/CC217	BELMONT GROVE - PAVEMENT PLAN SHEET 2 OF 2	B

Hawkesbury City Council
CONSTRUCTION CERTIFICATE
CC
Construction Certificate No. CC0399/16
Consent Date: 09/11/17

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE:

PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 12/2/18 REF: 16304/12



UTILITIES SHOWN ARE DIAGRAMMATIC ONLY, CONTRACTORS ARE RESPONSIBLE TO LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDE LINES & STANDARDS.

NOTE: UTILITIES SHOWN MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS

GENERAL NOTES

- ALL WORKS ARE TO BE IN ACCORDANCE WITH HAWKESBURY CITY COUNCIL CIVIL WORKS SPECIFICATION - APPENDIX E. WHERE DISCREPANCIES OCCUR BETWEEN NOTES PRESENT ON DRAWINGS AND COUNCIL'S NOTES, THE COUNCIL'S NOTES TAKE PRECEDENCE.
- SURVEY MARKS: -
 - STATE SURVEY MARKS SHOWN THUS SHALL BE SET IN TOP OF THE EDGE RESTRAINT AS IT IS BEING LAID, BY THE CONTRACTOR, IN THE INDICATED LOCATIONS. MARKS SHALL BE SUPPLIED BY THE PROJECT SURVEYOR.
 - SURVEY MARKS SHOWN THUS SHALL BE RETAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE SUPERINTENDENT MUST BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- THE CONTRACTOR SHALL LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION AND MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST IF NECESSARY.
- THE CONTRACTOR SHALL NOT ENTER UPON NOR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT THE WRITTEN PERMISSION OF THE OWNERS. TO BE PROVIDED PRIOR TO THE APPROVAL OF THE PLANS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO ADJOINING PROPERTIES.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL'S ENGINEER. REFER TO ARTERRA'S TREES RETAINED/REMOVED PLAN.
- TREES TO BE RETAINED ON SITE SHALL BE PROTECTED BY SUITABLE STURDY APPROVED PROTECTIVE FENCING PRIOR TO COMMENCEMENT OF SITE WORKS.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, AND DEBRIS ETC.
- PUBLIC RESERVE AREAS SHALL BE CLEARED OF UNDERGROWTH, IMPROVEMENTS AND FENCES AS DIRECTED BY THE ENGINEER.
- FILLING IS TO BE FROM A NOMINATED SOURCE, OF SOUND CLEAN MATERIAL, FREE FROM LARGE ROCK, STUMPS, CONTAMINATED MATTER, INDUSTRIAL AND BUILDING WASTE, ORGANIC MATTER AND OTHER DEBRIS. PLACING OF FILLING ON THE PREPARED AREAS SHALL NOT COMMENCE UNTIL THE AUTHORITY TO DO SO HAS BEEN OBTAINED FROM THE COUNCIL.
- SITE FILL AREAS: - THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
- ALL SITE FILLING TO BE COMPACTED TO 95% STANDARD COMPACTION AND SHALL BE CONTROLLED BY A REGISTERED SOIL LABORATORY IN ACCORDANCE WITH COUNCIL'S DEVELOPMENT CONTROL PLAN APPENDIX 'E' - CIVIL WORKS SPECIFICATIONS, PART 2 CONSTRUCTION SPECIFICATIONS.
- ALL SITE REGRADING AREAS SHALL BE GRADED AT A MINIMUM 1% TO THE ENGINEERS' REQUIREMENTS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED BY THE SUPERINTENDENT.
- ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- DIMENSIONS OF ANY DETAIL SHALL NOT BE SCALED - DIMENSIONS, IF IN DOUBT, SHALL BE VERIFIED BY THE SUPERINTENDENT.
- ALL CONSTRUCTION AND RESTORATION WORK ON COUNCIL'S ROAD AND FOOTPATH ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED DRAWINGS AND COUNCIL'S STANDARD SPECIFICATIONS.
- SERVICE ADJUSTMENTS TO BE AT DEVELOPERS EXPENSE.

STORMWATER NOTES

- STORMWATER DESIGN CRITERIA:
AVERAGE RECURRENT INTERVAL:
1:100 MAJOR SYSTEM
1:5 MINOR SYSTEM
- PIPES TO BE INSTALLED TO TYPE HS1 SUPPORT IN ACCORDANCE WITH AS 3725 (1989) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 300mm LAYERS TO MINIMUM 100% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
- ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998).
- CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- GRATES AND COVERS SHALL CONFORM TO AS 3996.
- AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THE FOLLOWING EASEMENTS: -
 - INTERALLOTMENT DRAINS (C.D.L.) - 3.0m WIDE TO BE CREATED
 - ALL OTHER DRAINS - REFER TO COUNCIL'S DESIGN GUIDELINES SUBDIVISION/ DEVELOPMENTS.
- DRAINAGE LINES UNDER ROADS SHALL BE BACKFILLED WITH NON-COHESIVE SAND AND HAVE 2m OF SUBSOIL DRAIN WRAPPED IN APPROVED FILTER SOCK, DISCHARGING INTO DOWN STREAM PITS. FOR PIPELINES GREATER THAN 525Ø, SUBSOIL DRAIN SHALL BE PROVIDED ON BOTH SIDES OF THE TRENCH.
- ALL STORMWATER PIPES WITHIN ROADS TO BE REINFORCED CONCRETE PIPE (RRJ) CLASS 2 OR FRC CLASS 2.
- ALL INTERALLOTMENT DRAINAGE LINES SHALL BE LAID AT A MINIMUM GRADE OF 1% UNLESS OTHERWISE INDICATED.
- DRAINAGE LINES ON PLANS ARE DIAGRAMMATIC ONLY AND PIPE CENTRELINES SHALL ENTER AND EXIT PITS AT THE CENTRE OF THE RESPECTIVE PIT WALLS.
- STEP IRONS REQUIRED WHERE THE PIT EXCEEDS 1200 IN DEPTH. REFER TO COUNCIL DRAWING SD41
- WHERE GRADES EXCEED 15.0%, BULKHEADS TO BE PROVIDED IN ACCORDANCE WITH SECTION 5.12 OF COUNCIL'S CIVIL WORKS SPECIFICATION PART 2 CONSTRUCTION.

SURVEY SET OUT INFORMATION NOTES:

- ALL SITE SET OUT AND CONTROL POINTS ARE TO BE CERTIFIED BY A REGISTERED SURVEYOR.
- THE INFORMATION DETAILED ON THE CERTIFIED CONSTRUCTION CERTIFICATE PLANS TAKES PRECEDENCE OVER ALL ELECTRONIC INFORMATION PROVIDED. THE ORDER OF PRIORITY FOR USE OF ALL INFORMATION PROVIDED IS AS FOLLOWS:
 - CERTIFIED CONSTRUCTION CERTIFICATE DRAWINGS
 - 2D DRAFTING BASE (ELECTRONIC FILE)
 - 3D DTM (ELECTRONIC FILE)
- ANY DISCREPANCY BETWEEN ANY OF THE INFORMATION CONTAINED WITHIN THESE FILES IS TO BE BROUGHT TO THE ATTENTION OF THE SUPERINTENDENT WHO WILL SEEK CLARIFICATION AND ISSUE INSTRUCTIONS ON THE APPROPRIATE COURSE OF ACTION.

COMPACTION SPECIFICATION

- WITHIN FULL WIDTH OF ROAD CARRIAGEWAY PLUS 1.0M EITHER SIDE -
 - ALL SUBGRADE SHALL BE CARRIED UP IN HORIZONTAL LAYERS, OF NOT MORE THAN 300MM THICK LOOSE MEASUREMENT, IF REQUIRED, AND SHALL HAVE EACH LAYER COMPACTED TO A 100% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
 - ALL SUB-BASE COURSE SHALL BE PLACED AND COMPACTED TO AT LEAST 98% MODIFIED DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
 - ALL BASE COURSE SHALL BE PLACED AND COMPACTED TO AT LEAST 98% MODIFIED DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
 - ALL ROAD CROSSINGS TO BE PROVIDED IN EXISTING ROADS, THE TRENCHES SHALL BE BACKFILLED AND COMPACTED WITH A SAND/CEMENT BLEND 20:1 MIX TO SUBGRADE LEVEL, THEN DGB20 TO WITHIN 50MM OF THE ROAD SURFACE, OR IF REQUIRED TO A HIGHER SPECIFICATION BY A SPECIFIC UTILITY AUTHORITY, TO THAT SPECIFICATION AS INSTRUCTED BY THE PROJECT SUPERINTENDENT.
 - ALL TESTS TO BE TAKEN EVERY 50 METRE LENGTH OF PAVEMENT, TAKEN 1.0M FROM ALTERNATE SIDES OF PAVEMENT, BY A NAT REGISTERED LABORATORY, f) THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
- ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
- WITHIN FULL WIDTH OF ROAD FOOTPATH / VERGE EXCLUDING 1.0M BESIDE ROAD CARRIAGEWAY EITHER SIDE -
 - ALL FILL SHALL BE CARRIED OUT IN HORIZONTAL LAYERS, EXTENDING THE FULL WIDTH OF THE AREA BEING FILLED, OF NOT MORE THAN 300MM CONSOLIDATED THICKNESS EACH LAYER SHALL BE COMPACTED TO AT LEAST 98% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
 - ALL TESTS TO BE TAKEN EVERY 50 METRE LENGTH OF ROAD FOOTPATH / VERGE ON CENTRELINE, BY A NAT REGISTERED LABORATORY
 - ALL TRENCHES TO BE BACKFILLED TO HAVE EQUAL COMPACTION (+2%/-0% VARIATION) AS THE SURROUNDING ROAD FOOTPATH / VERGE.
 - ALL TRENCH TESTS TO BE TAKEN IN EACH 300MM LAYER AND EVERY 50 METRES OF TRENCH, BY A NAT REGISTERED LABORATORY.
 - THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
- ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
- WITHIN LOTS -
 - ALL FILL SHALL BE CARRIED OUT IN HORIZONTAL LAYERS, EXTENDING THE FULL WIDTH OF THE AREA BEING FILLED, OF NOT MORE THAN 300MM CONSOLIDATED THICKNESS. EACH LAYER SHALL BE COMPACTED TO A DENSITY OF AT LEAST 98% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO". THE DEPTHS OF FILL AND THE COMPACTION THEREOF ARE TO BE VERIFIED BY THE SUBMISSION OF COMPACTION CERTIFICATES AND A PLAN SHOWING CONTOURED DEPTHS OF FILL IN RELATION TO LOT BOUNDARIES.
 - ALL TESTS TO BE A MINIMUM OF TWO COMPACTION TESTS PER LOT PER LAYER ARE TO BE CARRIED OUT, BY A NAT REGISTERED LABORATORY.
 - ALL TRENCHES TO BE BACKFILLED TO HAVE EQUAL COMPACTION (+2%/-0% VARIATION) AS THE SURROUNDING LOTS.
 - ALL TRENCH TESTS TO BE TAKEN IN EACH 300MM LAYER AND EVERY 50 METRES OF TRENCH, BY A NAT REGISTERED LABORATORY.
 - THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
- ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.

REV	DESCRIPTION	BY	CHKD	DATE
E	ISSUE FOR CONSTRUCTION APPROVAL	VG	VG	RO MS 02/11/17
D	COUNCIL COMMENTS	VG	VG	RO MS 17/10/16
C	CLIENT AMENDMENTS	VG	VG	RO MS 11/10/16
B	CLIENT COMMENTS	MP	MG	MS MS 13/07/16
A	FIRST ISSUE	MP	MG	RO RO 15/06/16
	AMENDMENT	DES	DRN	CKD APR DATE

J. WYNDHAM PRINCE

CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PEIWRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT:

AZIMUTH: MGA

DATUM: AHD

ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
BELMONT
GENERAL NOTES, INDEX & LEGEND

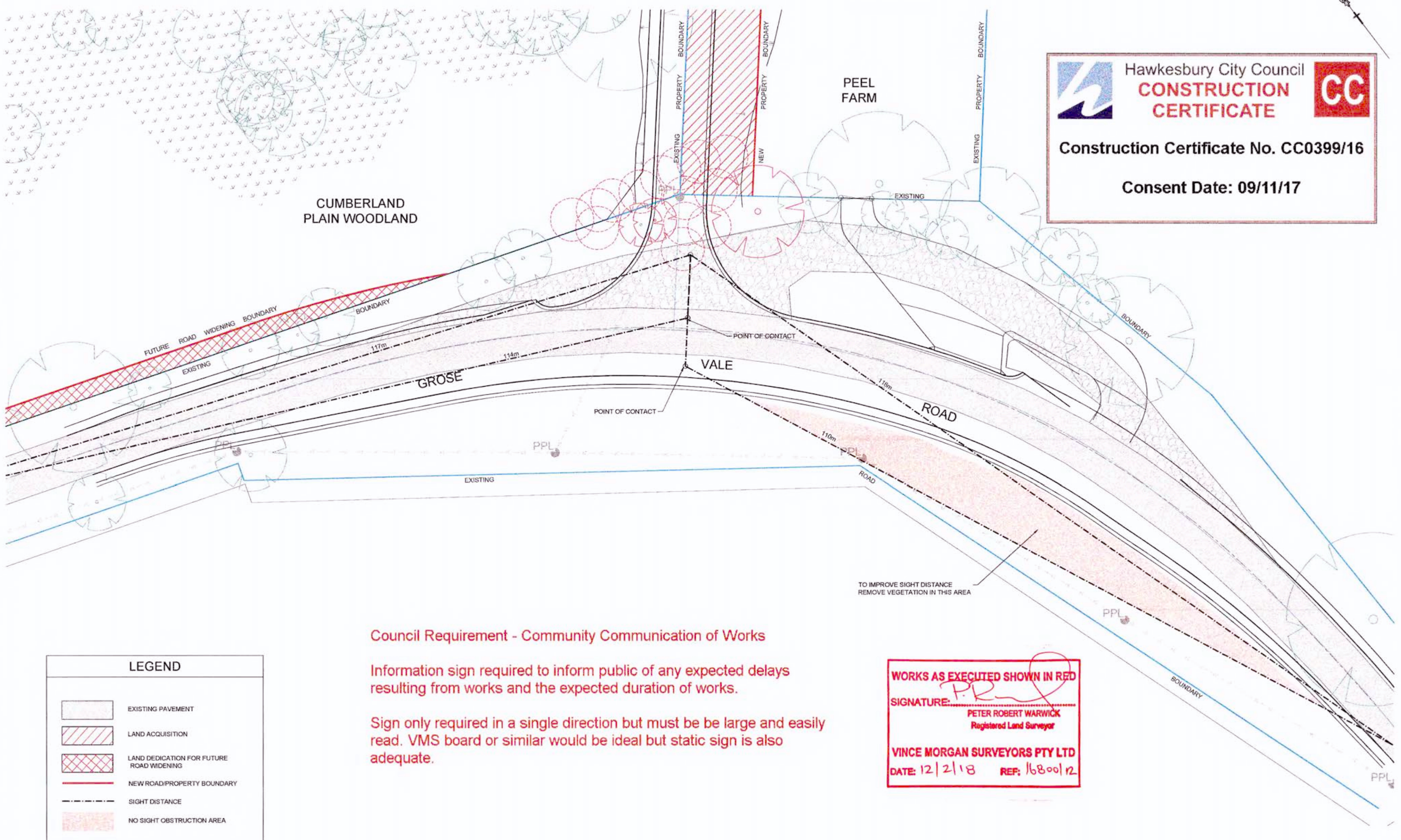
PLAN No:	110185BEL/CC201 E
FILE No:	110185BELCC201
SHEET SIZE:	A1 ORIGINAL



Hawkesbury City Council
**CONSTRUCTION
 CERTIFICATE**



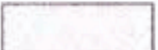





Construction Certificate No. CC0399/16
 Consent Date: 09/11/17



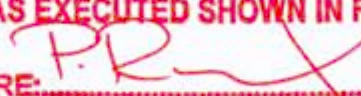
Council Requirement - Community Communication of Works

Information sign required to inform public of any expected delays resulting from works and the expected duration of works.

Sign only required in a single direction but must be be large and easily read. VMS board or similar would be ideal but static sign is also adequate.

LEGEND	
	EXISTING PAVEMENT
	LAND ACQUISITION
	LAND DEDICATION FOR FUTURE ROAD WIDENING
	NEW ROAD/PROPERTY BOUNDARY
	SIGHT DISTANCE
	NO SIGHT OBSTRUCTION AREA

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: 
 PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE: 12/2/18 REF: 1680012



AMENDMENT	DES	DRN	CKD	APR	DATE
E	VG	VG	RO	MS	02/11/17
D	VG	VG	RO	MS	17/10/16
C	VG	VG	RO	MS	11/10/16
B	MP	MG	MS	MS	13/07/16
NOT ISSUED					

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT:
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

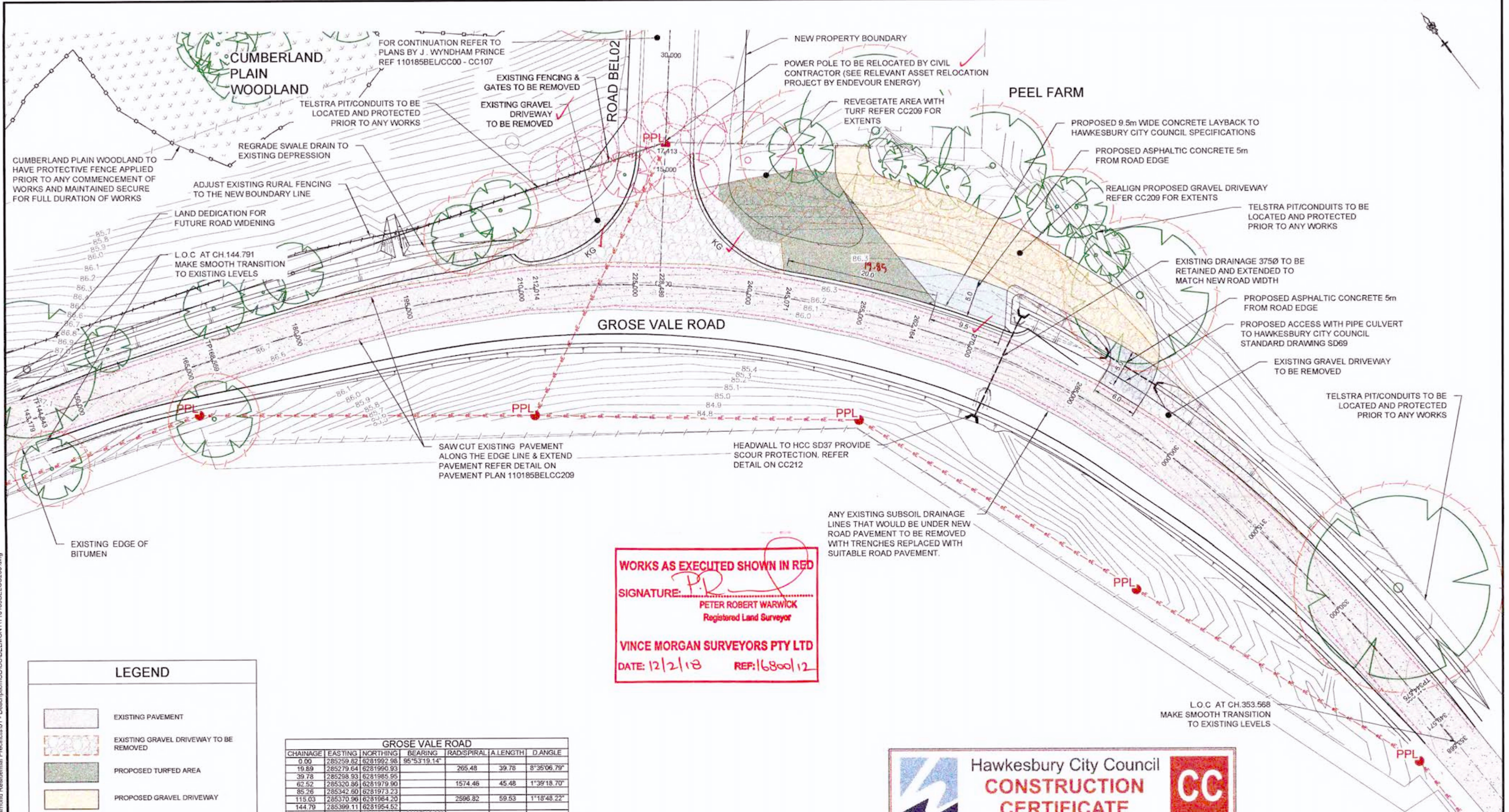


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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
 BELMONT
 SITE LAYOUT

PLAN No: 110185BEL/CC202 E
 FILE No: 110185BELCC202
 SHEET SIZE: A1 ORIGINAL



WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P.R.*
PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE: 12/2/18 REF: 16800/12

LEGEND

- EXISTING PAVEMENT
- EXISTING GRAVEL DRIVEWAY TO BE REMOVED
- PROPOSED TURFED AREA
- PROPOSED GRAVEL DRIVEWAY
- PROPOSED AC PAVEMENT
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- TREES PROTECTION
- PROPOSED SAWCUT LINE (NOMINAL 0.5m WIDE FROM EDGE OF EX. PAVEMENT)

GROSE VALE ROAD

CHAINAGE	EASTING	NORTHING	BEARING	RAD SPIRAL	A LENGTH	D ANGLE
0.00	285259.82	6281992.98	95°53'19.14"	265.48	39.78	8°35'06.79"
19.89	285279.64	6281990.93				
39.78	285298.93	6281989.95				
62.52	285320.86	6281979.90		1574.46	45.48	1°39'18.70"
85.26	285342.60	6281973.23				
115.03	285370.96	6281964.20		2596.82	59.53	1°18'48.22"
144.79	285399.11	6281954.52				
168.56	285421.52	6281946.61	109°27'16.26"			
180.99	285433.25	6281942.46		265.6	24.86	5°21'44.05"
193.42	285444.54	6281937.24				
206.67	285455.69	6281932.08		135	24.52	10°24'19.22"
217.93	285465.74	6281924.99				
232.51	285477.69	6281916.56		135	29.15	12°22'19.35"
247.08	285487.56	6281905.75				
256.70	285494.05	6281898.64		139.5	19.22	7°53'44.73"
266.31	285499.50	6281890.71	145°29'23.58"			
283.96	285509.61	6281876.01		100	35.31	20°13'55.88"
301.62	285514.01	6281858.72	165°43'19.45"			
323.16	285519.33	6281837.53		204.5	42.96	12°02'05.90"
344.58	285520.17	6281818.29	177°45'25.35"			
353.57	285520.52	6281807.30	177°45'25.35"			

Hawkesbury City Council

CONSTRUCTION CERTIFICATE

Construction Certificate No. CC0399/16

Consent Date: 09/11/17

NOTE

- PROVIDE 10m WIDE FROM ROAD CENTRELINE FOR FUTURE GROSE VALE ROAD WIDENING
- REFER PLANS BY ARTERRA FOR TREE MANAGEMENT



REV	DESCRIPTION	BY	CHKD	DATE
D	ISSUE FOR CONSTRUCTION APPROVAL	VG	VG	RO MS 02/11/17
C	CLIENT AMENDMENTS	VG	VG	RO MS 11/10/16
B	CLIENT COMMENTS	MP	MG	MS MS 13/07/16
A	FIRST ISSUE	MP	MG	RO RO 15/06/16
	AMENDMENT	DES	DRN	CKD APR DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

CLIENT:

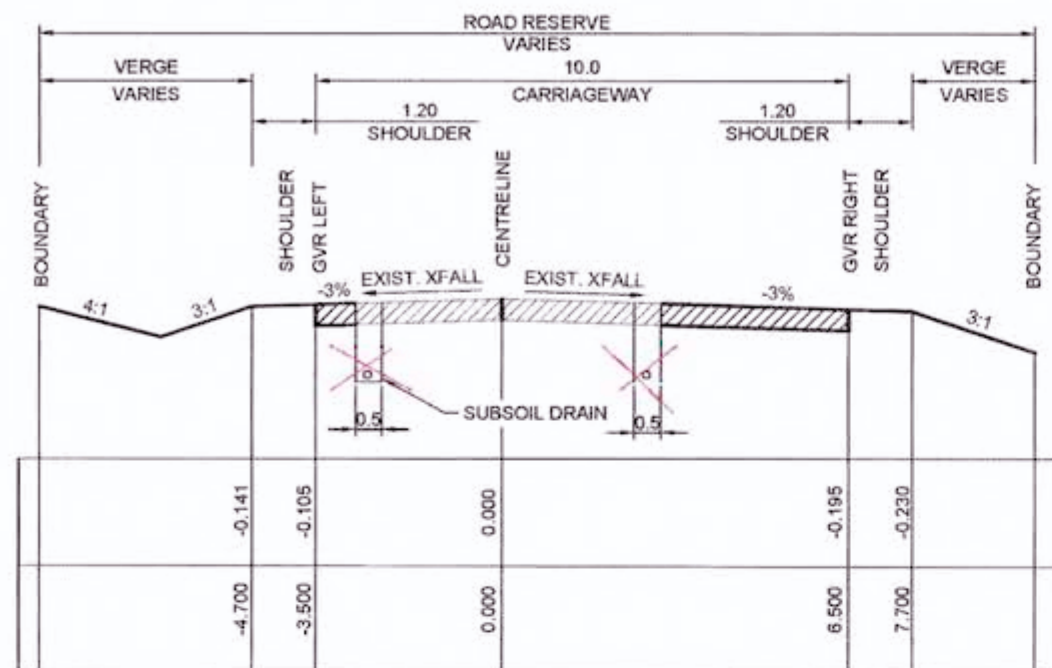
REDBANK

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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 ENGINEERING PLAN

PLAN No: 110185BEL/CC203 **D**
 FILE No: 110185BELCC203
 SHEET SIZE: A1 ORIGINAL

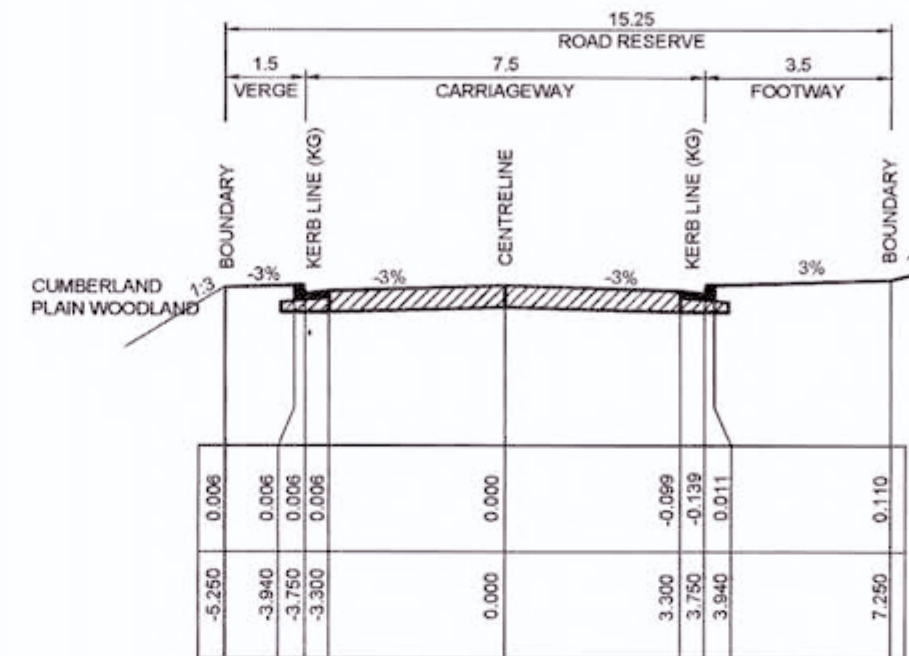


TYPICAL CROSS SECTION - GROSE VALE ROAD
 SCALE 1:100

PAVEMENT DESIGN
NEW PAVEMENT

GROSE VALE ROAD WIDENING ESA 1x10⁶
 50mm AC
 ONE COAT BITUMEN SEAL
 150mm DGB20 BASE COURSE
 210mm DGS40 SUB BASE COURSE

REFER GEOTECH REPORT DATED 17/06/16
 BY GEOTECHNIQUE DOC REF. 12261/14-AA-R1

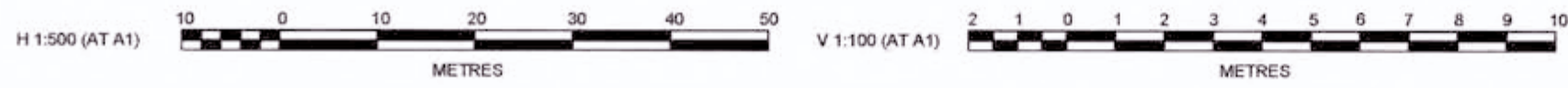
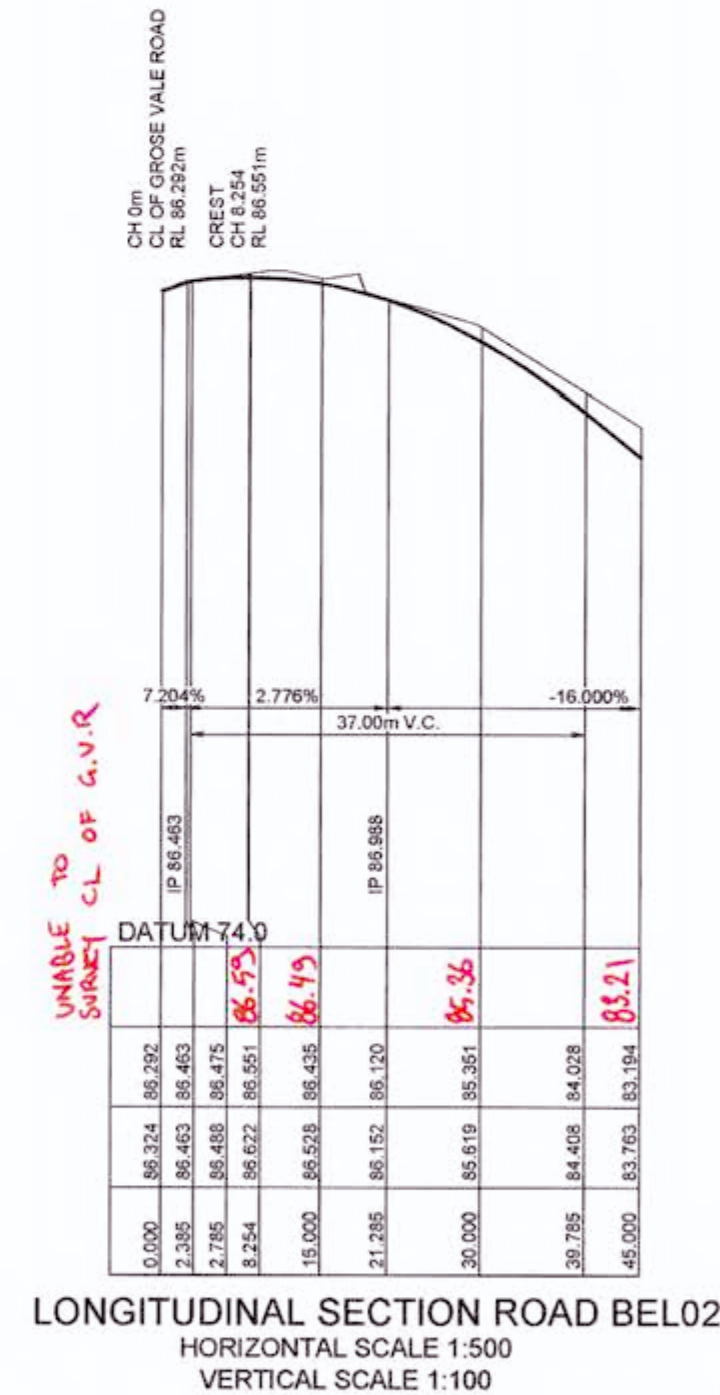
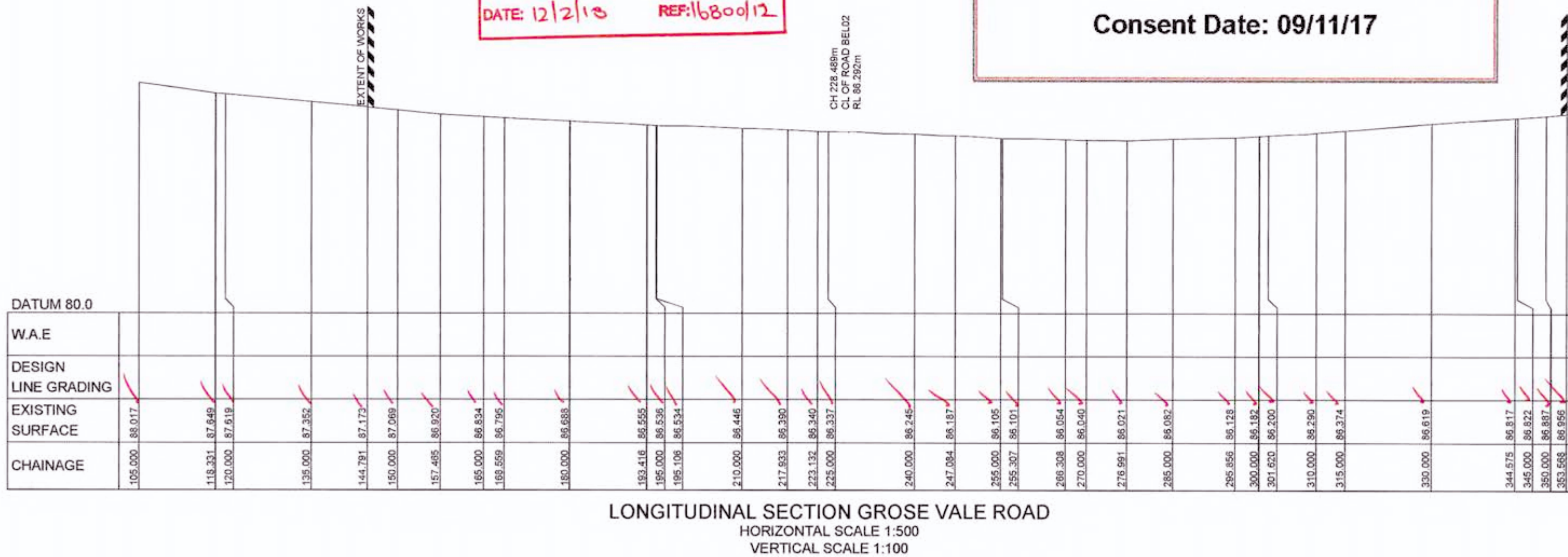


TYPICAL CROSS SECTION
 ROAD BEL02

Council Requirement - NO SUBSOIL DRAINAGE UNDER ROAD PAVEMENT

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P. Warwick*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 12/2/18 REF: 16800/12

Hawkesbury City Council
CONSTRUCTION CERTIFICATE
 Construction Certificate No. CC0399/16
 Consent Date: 09/11/17



Printed: 2 November, 2017 3:35:58 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts 01 - Description\CD\CC\BELMONT\110185BELCC204.dwg

REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
D	ISSUE FOR CONSTRUCTION APPROVAL	VG	VG	RO	MS	02/11/17
C	CLIENT AMENDMENTS	VG	VG	RO	MS	11/10/16
B	CLIENT COMMENTS	MP	MG	MS	MS	13/07/16
A	FIRST ISSUE	MP	MG	RO	RO	15/06/16

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PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpp@jwprince.com.au

CLIENT: REDBANK

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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 ROAD LONGITUDINAL SECTIONS

PLAN No: 110185BEL/CC204
 FILE No: 110185BELCC204
 SHEET SIZE: A1 ORIGINAL

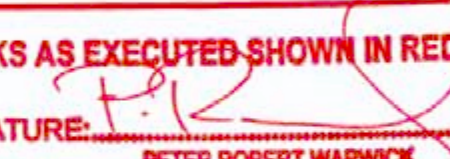


Hawkesbury City Council
CONSTRUCTION CERTIFICATE

Construction Certificate No. CC0399/16

Consent Date: 09/11/17

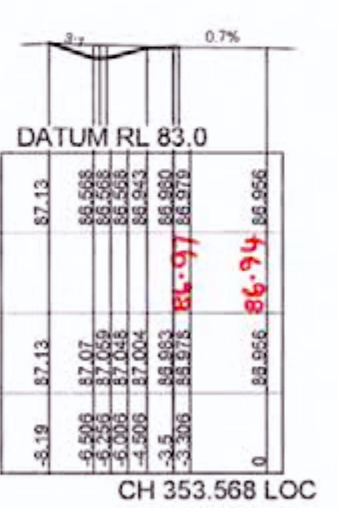
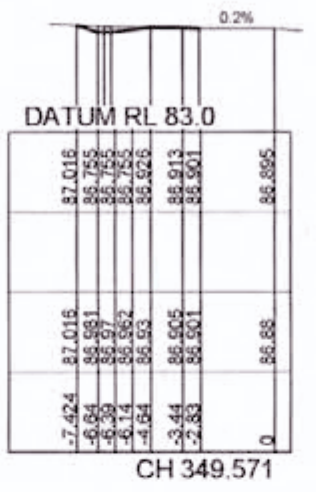
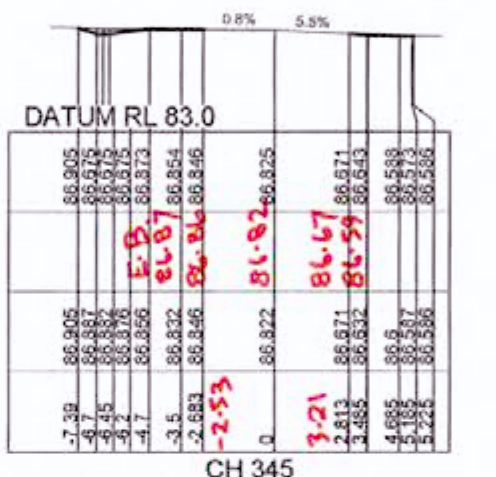
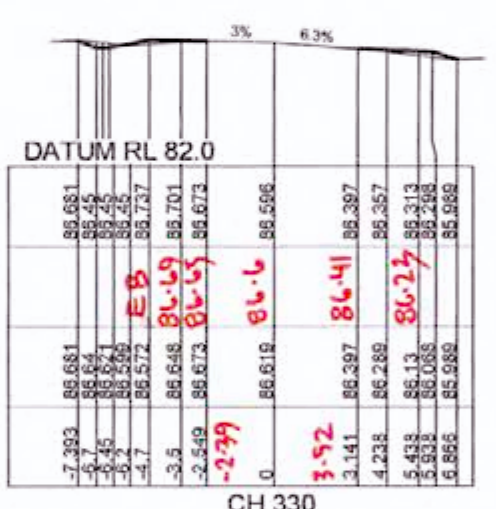
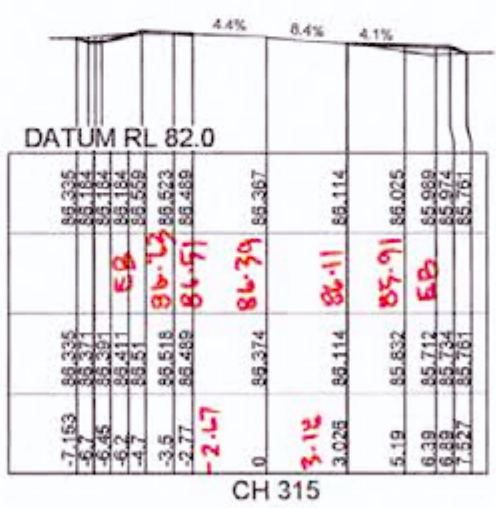
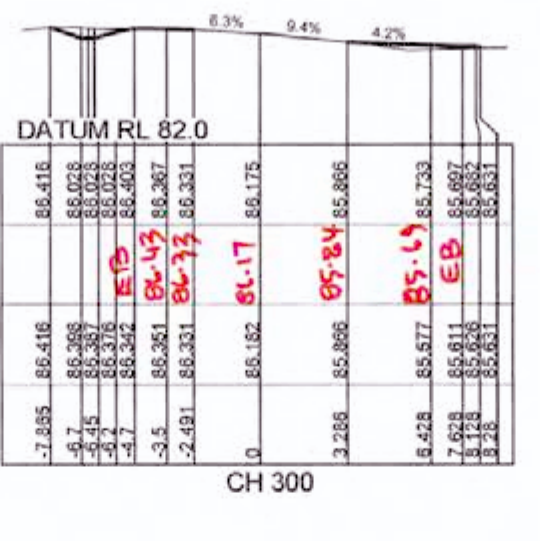
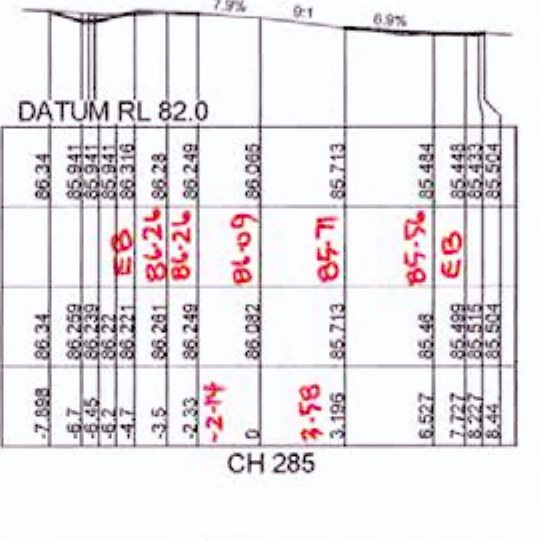
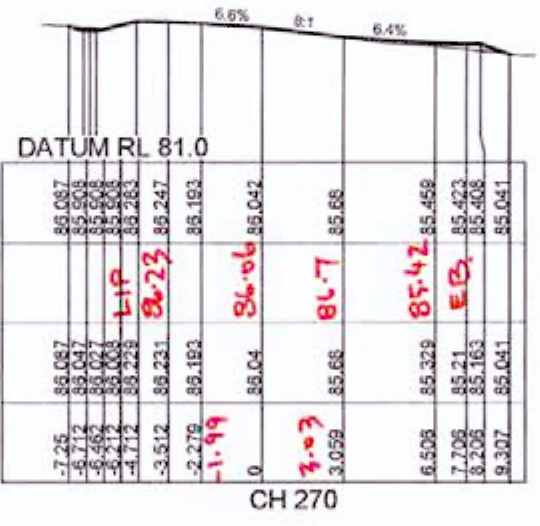
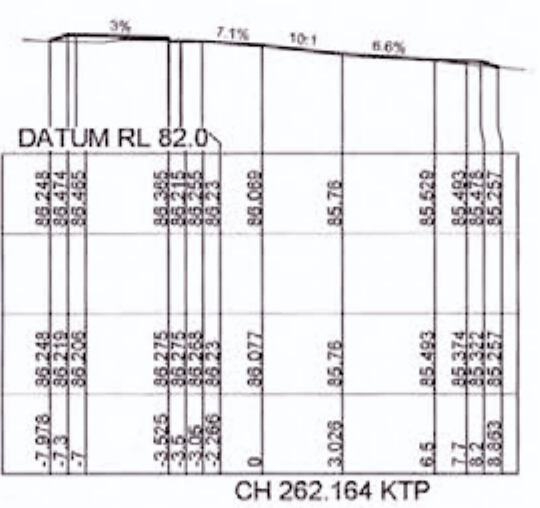
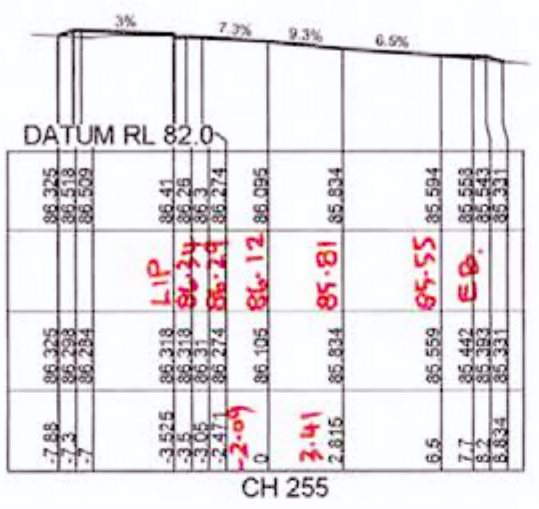
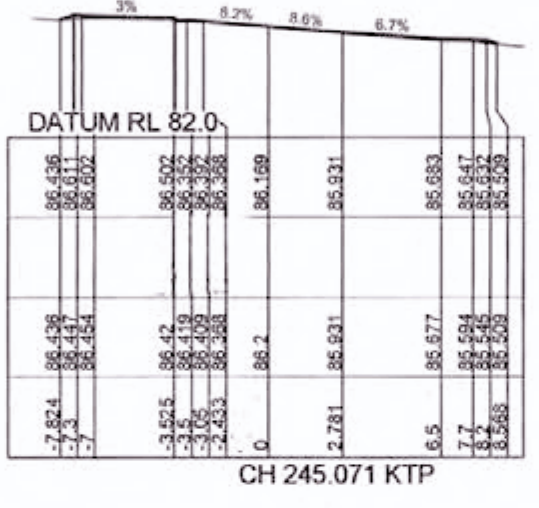
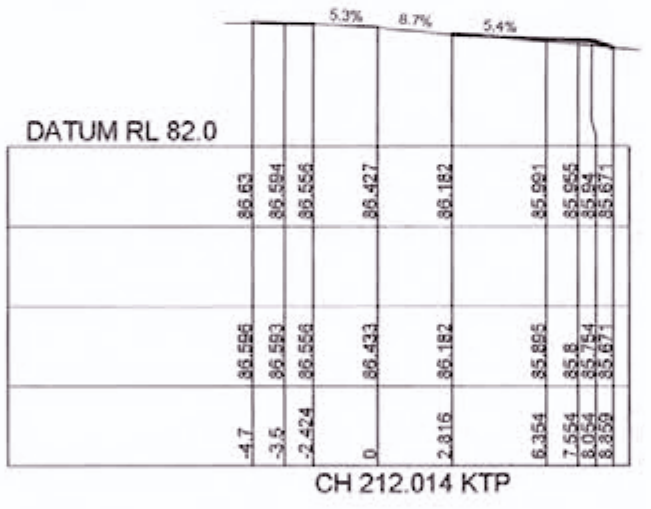
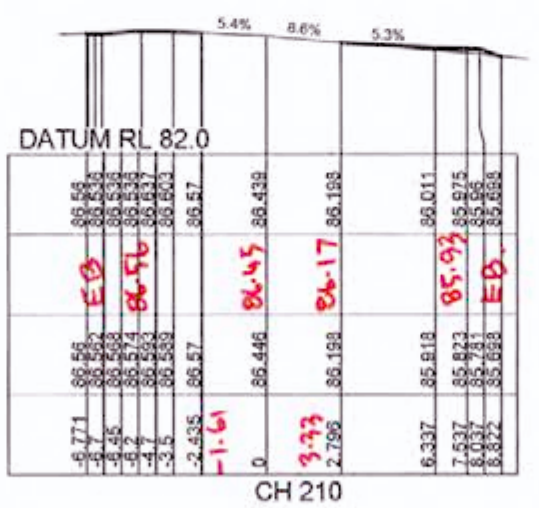
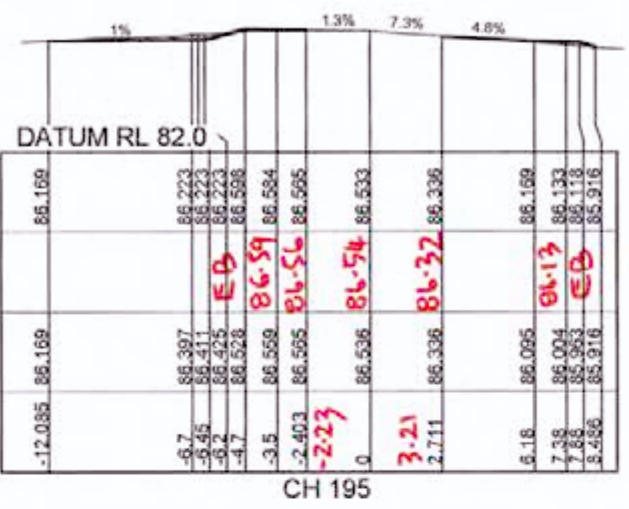
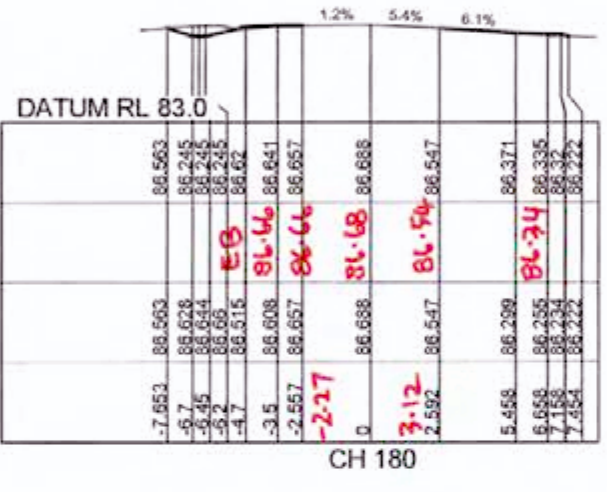
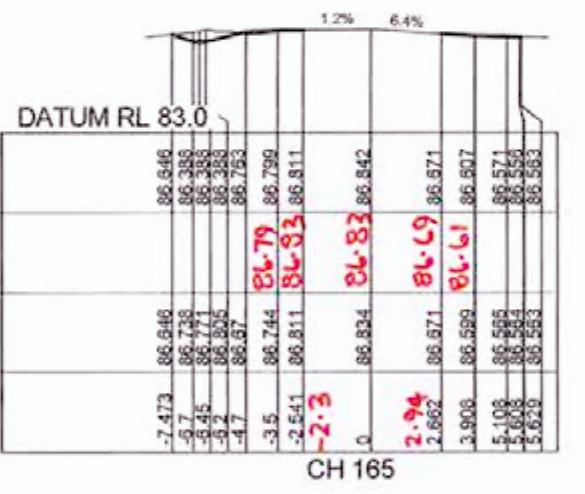
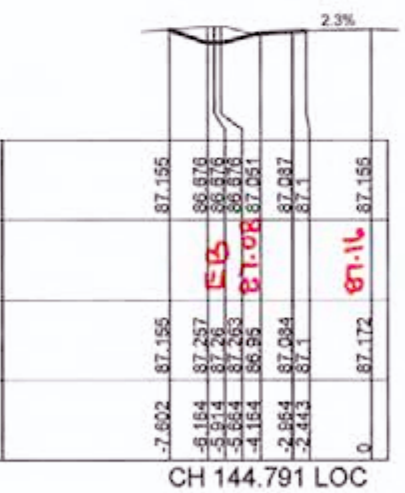
WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: 

PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
DATE: 23/2/18 REP: 16800/12

DESIGN SURFACE LEVEL	WAE	EXISTING SURFACE LEVEL	OFFSET
87.155		87.155	0



J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: 

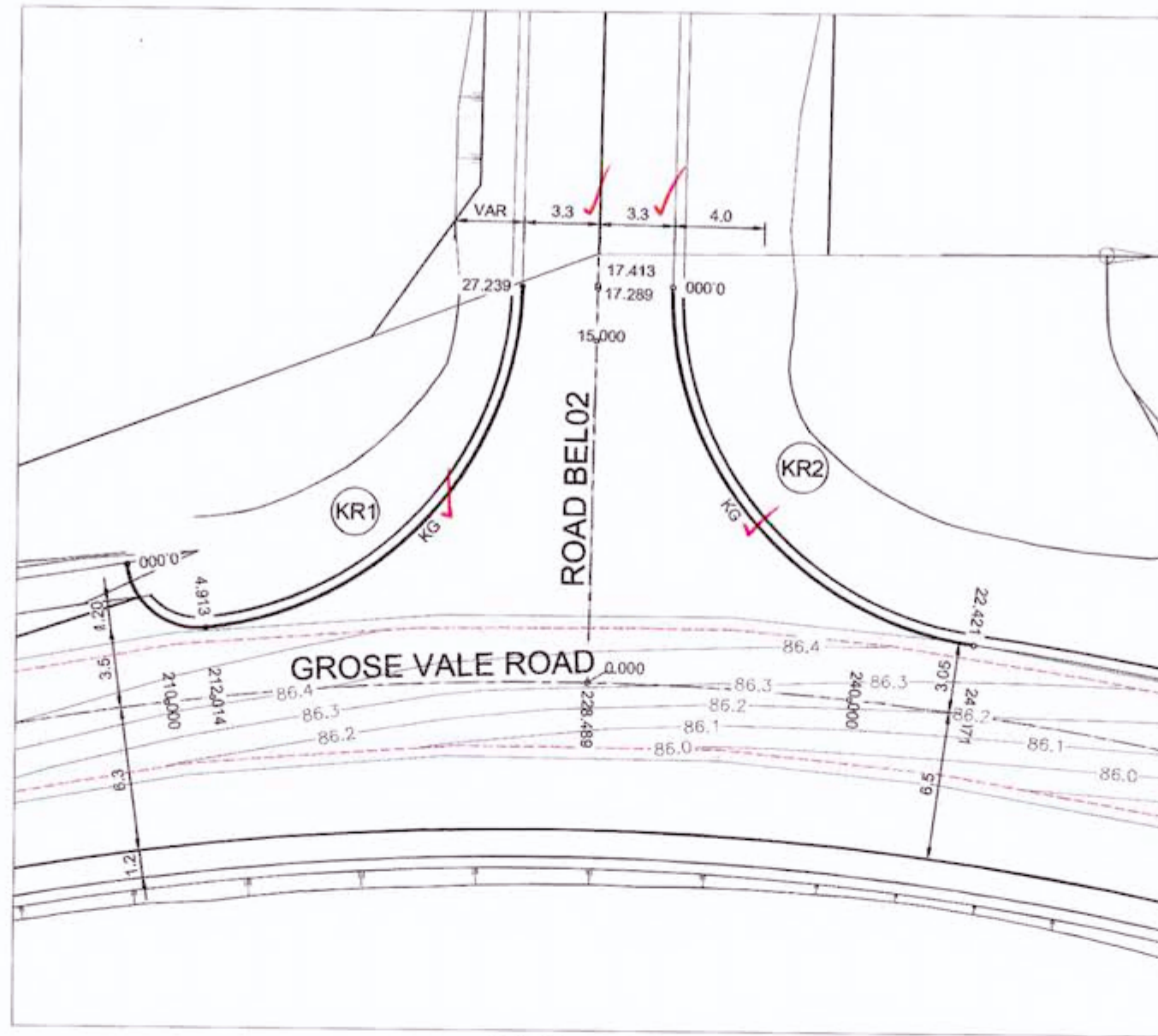
REDBANK, NORTH RICHMOND
BELMONT
ROAD CROSS SECTIONS

ISSUED FOR CONSTRUCTION APPROVAL

PLAN No: 110185BEL/CC205 C

FILE No: 110185BELCC205

SHEET SIZE: A1 ORIGINAL



KR No.1 & 2
SCALE 1:200

CREST
CH 11.756
RL 86.654m

CHAINAGE	WAE	DESIGN LIP GRADING	ROAD CHAINAGE	CHAINAGE
0	86.55	86.55	0	1.558
1.558	86.58	86.58	1.558	4.913
4.913	86.63	86.63	4.913	9.229
9.229	86.64	86.64	9.229	11.756
11.756	86.63	86.63	11.756	14.228
14.228	86.6	86.6	14.228	19.229
19.229	86.48	86.48	19.229	22.239
22.239	86.53	86.53	22.239	24.739
24.739	86.434	86.434	24.739	27.239
27.239	86.349	86.349	27.239	
	86.244	86.244		
	86.26	86.26		

KR1
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

CREST
CH 9.467
RL 86.514m

CHAINAGE	WAE	DESIGN LIP GRADING	ROAD CHAINAGE	CHAINAGE
0	86.42	86.42	0	2
2	86.336	86.336	2	4
4	86.415	86.415	4	7.5
7.5	86.5	86.5	7.5	9.467
9.467	86.53	86.53	9.467	11
11	86.506	86.506	11	15
15	86.468	86.468	15	22.421
22.421	86.392	86.392	22.421	

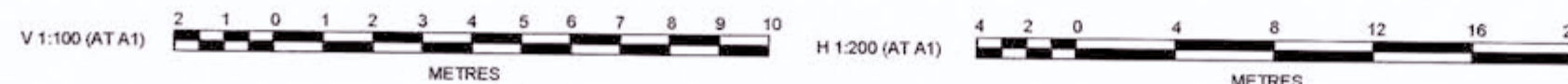
KR2
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

NOTES:
• SETOUT TO LIP OF KERB

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *PR*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 12/2/18 REF: 16809/12

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
-4.91	285461.51	6281935.19	212°04'14.82"			
-2.46	285459.85	6281932.55		-3.15	4.91	89°21'39.19"
0.00	285462.47	6281930.87	122°42'35.62"			
11.16	285473.94	6281923.51		-15.45	22.33	82°47'44.67"
22.33	285482.67	6281933.95	39°54'50.95"			

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285487.82	6281929.81	219°54'50.95"			
11.21	285479.02	6281919.30		-15.45	22.42	83°08'51.22"
22.42	285488.41	6281908.32	136°45'59.73"			



AMENDMENT	DES	DRN	CKD	APR	DATE
D	VG	VG	RO	MS	02/11/17
C	VG	VG	RO	MS	11/10/16
B	MP	MG	MS	MS	13/07/16
A	MP	MG	RO	MS	15/06/16

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 PO Box 4366 PENRITH WESTFIELD NSW 2750
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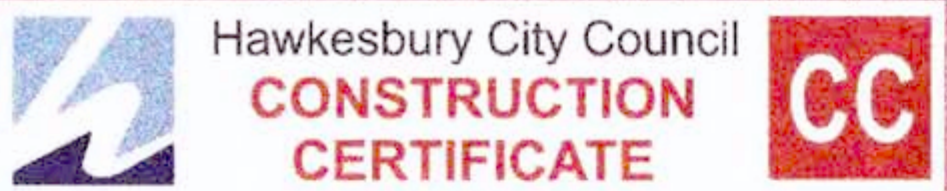
CLIENT:

 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:
 THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

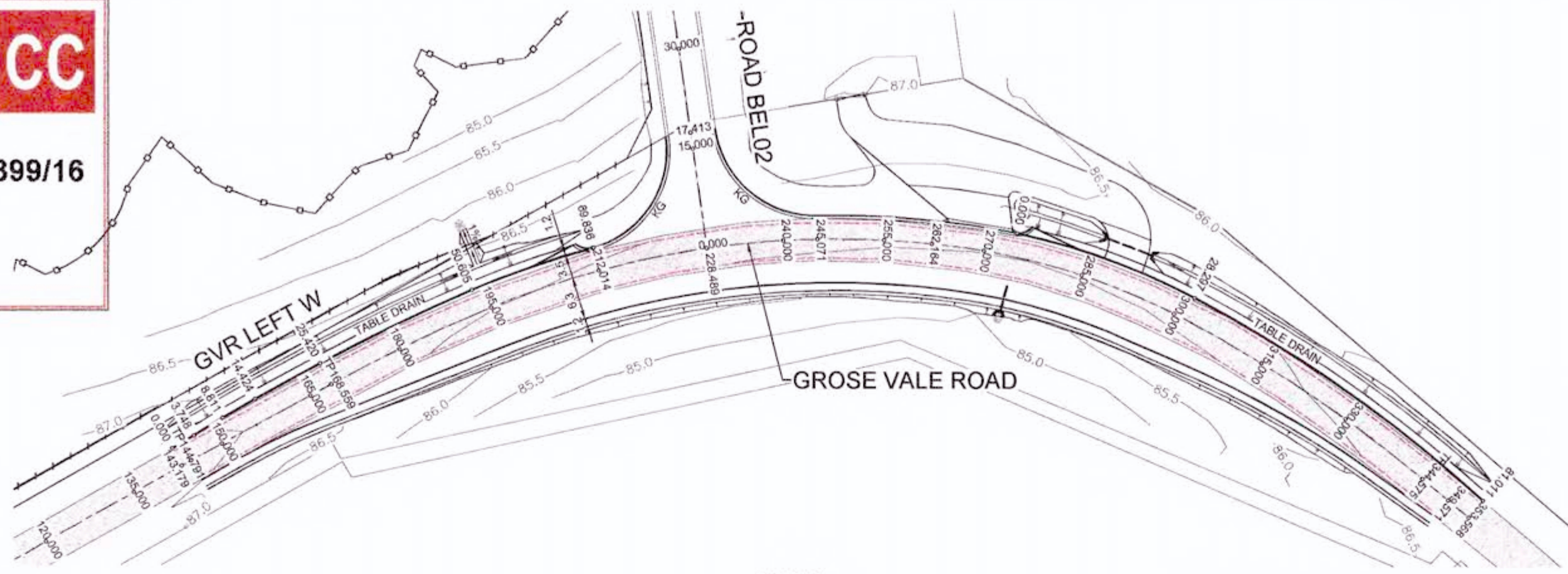
REDBANK, NORTH RICHMOND BELMONT
 KERB RETURN PLAN

PLAN No: 110185BEL/CC206 **D**
 FILE No: 110185BELCC206
 SHEET SIZE: A1 ORIGINAL



Construction Certificate No. CC0399/16

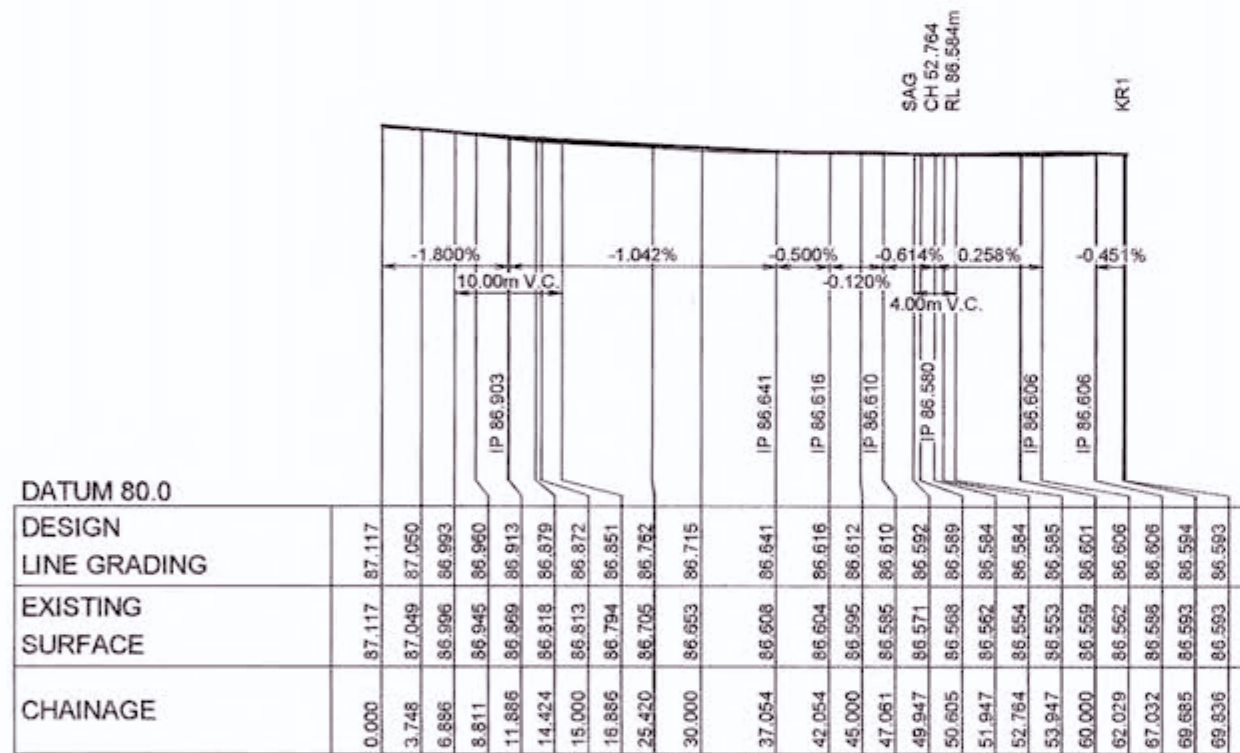
Consent Date: 09/11/17



PLAN
SCALE 1:500

NOTES:
• SETOUT TO EDGE OF CARRIAGEWAY

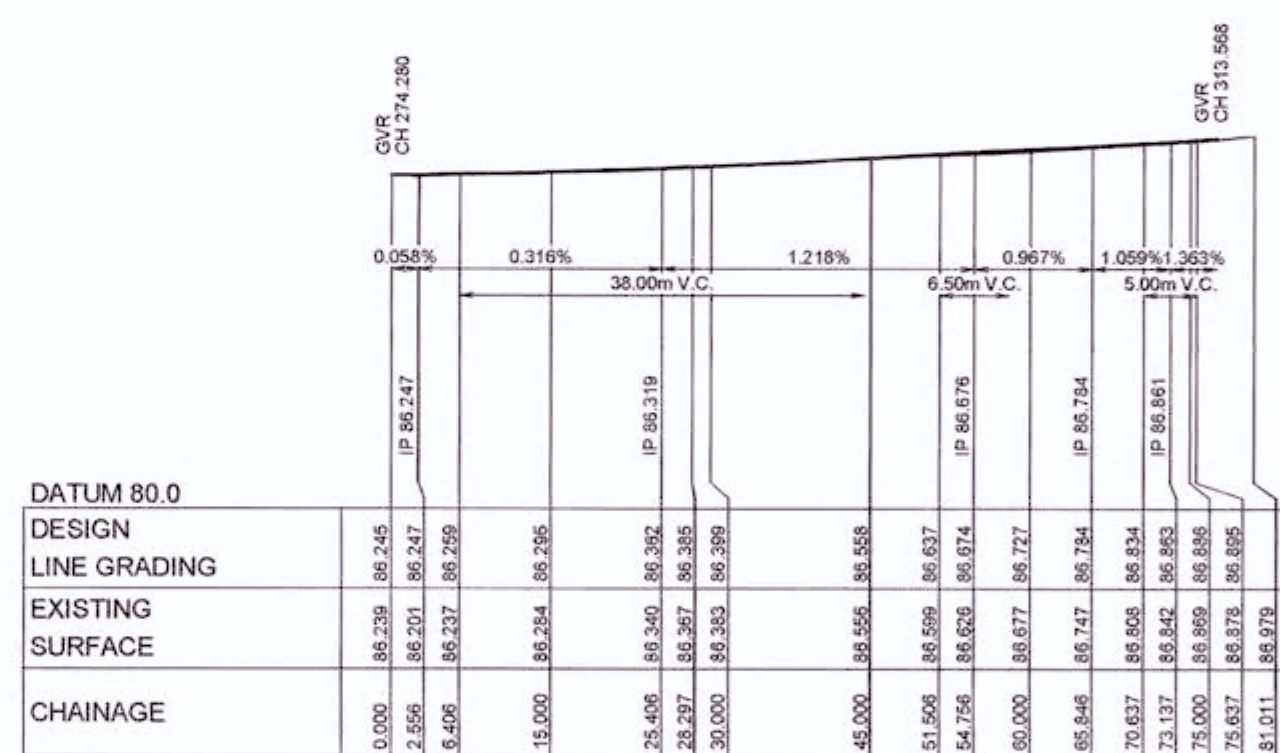
WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 12/2/18 REF: 16800/12



LONGITUDINAL SECTION GVR LEFT W
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

TABLE DRAIN NOT CONSTRUCTED

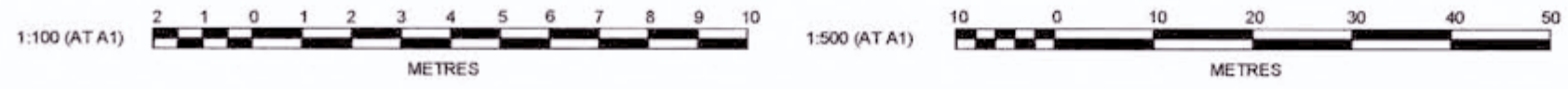
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285398.54	6281957.82	108°23'09.20"			
1.87	285400.31	6281957.23		-100	3.75	2°08'50.06"
3.75	285402.11	6281956.70	106°14'19.14"			
8.81	285406.97	6281955.29	106°14'19.14"			
11.62	285409.67	6281954.50		100	5.61	3°12'57.12"
14.42	285412.32	6281953.57	109°27'16.26"			
25.42	285422.69	6281949.91	109°27'16.26"			
38.01	285434.57	6281945.71		269.1	25.18	5°21'44.05"
50.61	285446.01	6281940.42	114°49'00.31"			
60.15	285454.68	6281938.41		138.5	19.08	7°53'35.31"
69.69	285462.72	6281931.25				
69.84	285462.85	6281931.17	122°25'15.42"			



LONGITUDINAL SECTION GVR LEFT E
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

TABLE DRAIN NOT CONSTRUCTED

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
0.00	285506.79	6281805.71	150°03'25.89"			
14.15	285513.89	6281873.38		103.5	28.3	15°39'53.56"
28.30	285517.40	6281859.58	165°43'19.45"			
54.65	285523.94	6281833.90		208	52.71	14°31'13.61"
81.01	285523.83	6281807.40	180°14'33.26"			

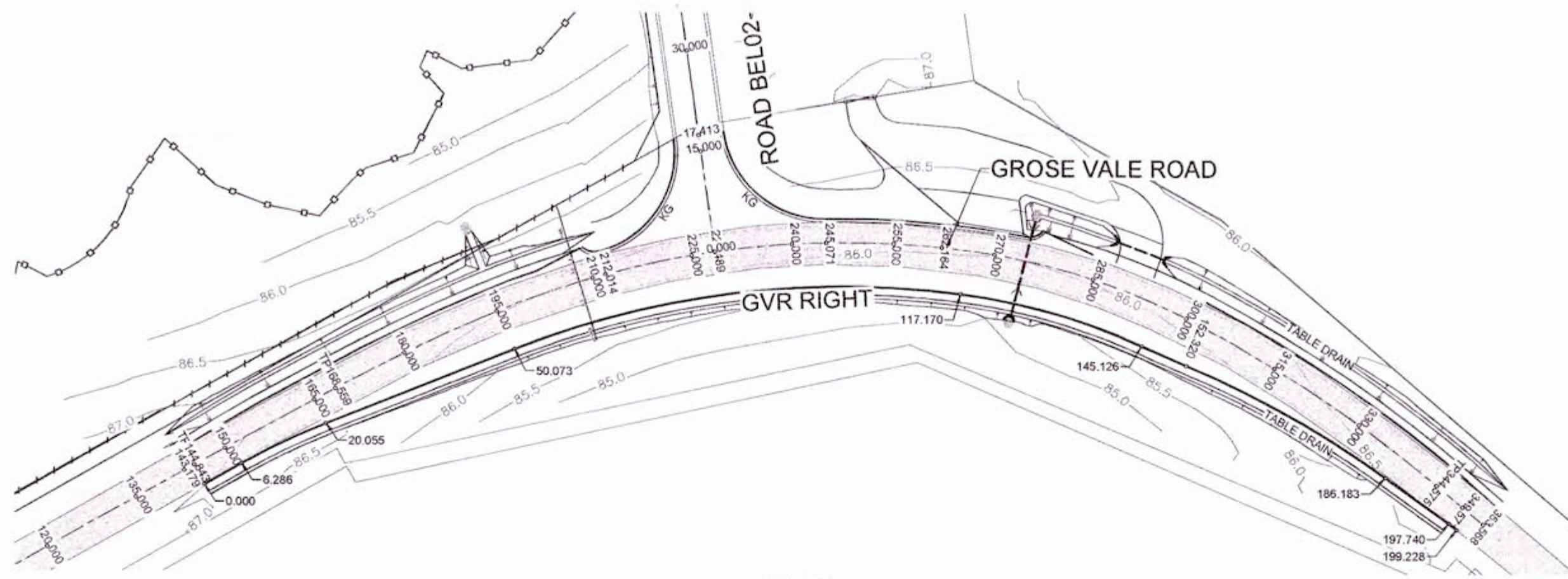


REV	DESCRIPTION	VG	VG	RO	MS	DATE
D	ISSUE FOR CONSTRUCTION APPROVAL	VG	VG	RO	MS	02/11/17
C	CLIENT AMENDMENTS	VG	VG	RO	MS	11/10/16
B	CLIENT COMMENTS	MP	MG	MS	MS	13/07/16
A	FIRST ISSUE	MP	MG	RO	RO	15/06/16
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
 PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

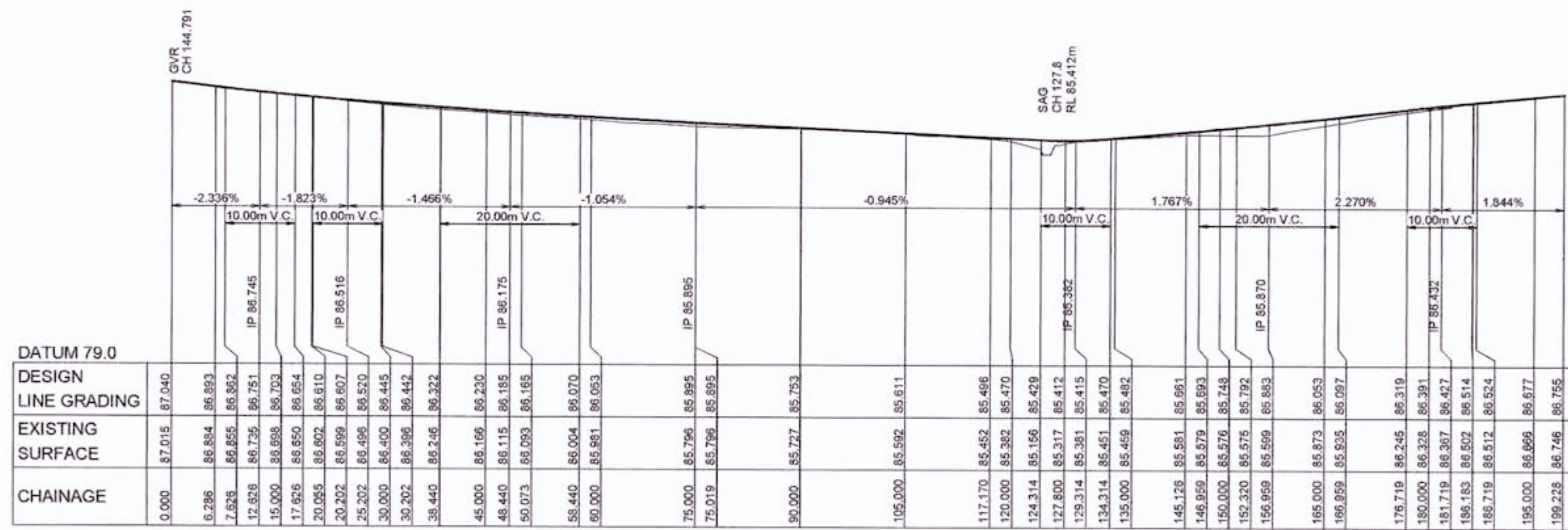
CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL
 REDBANK, NORTH RICHMOND BELMONT
 EDGE OF CARRIAGEWAY PLAN & PROFILE SHEET 1
 PLAN No: 110185BEL/CC207 D
 FILE No: 110185BELCC207
 SHEET SIZE: A1 ORIGINAL



PLAN
SCALE 1:500

NOTES:
• SETOUT TO EDGE OF CARRIAGEWAY



CHAINAGE	DESIGN LINE GRADING	EXISTING SURFACE
0.000	87.040	87.015
6.286	86.854	86.883
7.628	86.855	86.882
12.828	86.735	86.751
15.000	86.698	86.703
17.626	86.650	86.654
20.000	86.602	86.610
20.202	86.599	86.607
25.202	86.496	86.520
30.000	86.400	86.445
30.202	86.396	86.442
38.440	86.246	86.322
45.000	86.195	86.230
48.440	86.115	86.185
50.073	86.093	86.165
58.440	86.004	86.070
60.000	85.981	86.053
75.000	85.796	85.895
75.019	85.796	85.895
90.000	85.727	85.752
105.000	85.592	85.611
117.170	85.452	85.496
120.000	85.382	85.470
124.314	85.156	85.429
127.800	85.317	85.412
129.314	85.381	85.415
134.314	85.451	85.470
135.000	85.459	85.482
145.126	85.581	85.661
146.859	85.579	85.693
150.000	85.576	85.748
152.320	85.575	85.792
156.859	85.509	85.853
165.000	85.873	86.053
166.859	85.835	86.097
176.719	86.245	86.319
180.000	86.326	86.391
181.719	86.307	86.427
186.183	86.502	86.514
188.719	86.512	86.524
195.000	86.666	86.677
199.228	86.746	86.755

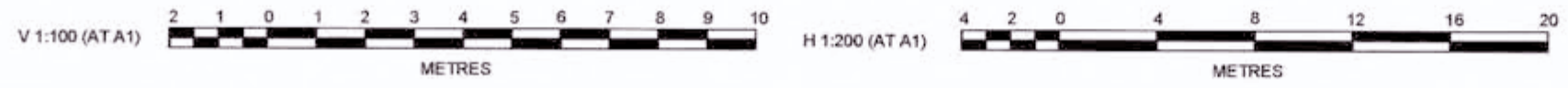
LONGITUDINAL SECTION GVR RIGHT
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

TABLE DRAIN NOT CONSTRUCTED

CHAINAGE	EASTING	NORTHING	BEARING	TRAD/SPIRAL	A LENGTH	D ANGLE
0.00	285398.06	6281951.40	108°21'19.92"			
6.29	285404.03	6281949.42				
13.17	285410.57	6281947.23		100	13.77	7°53'18.65"
20.05	285416.74	6281944.17				
50.07	285443.64	6281930.83				
83.82	285474.35	6281915.60		133	67.1	28°54'17.07"
117.17	285483.87	6281887.43	145°16'47.82"			
131.15	285501.89	6281875.88		93.5	27.96	17°07'53.71"
145.13	285506.15	6281862.43	162°24'41.53"			
148.72	285507.23	6281859.00		-240	7.19	1°43'02.84"
152.32	285508.42	6281855.60	160°41'38.69"			
169.25	285514.05	6281839.56		150	33.86	12°56'03.77"
186.18	285515.93	6281822.66				
197.74	285517.22	6281811.17				
199.23	285517.31	6281809.69	176°32'24.47"			

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *PR*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 12/2/18 REF: 16800/12

Hawkesbury City Council
CONSTRUCTION CERTIFICATE
Construction Certificate No. CC0399/16
Consent Date: 09/11/17



J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA
DATUM: AHD
ORIGIN:

CLIENT:
REDBANK
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ISSUED FOR CONSTRUCTION APPROVAL

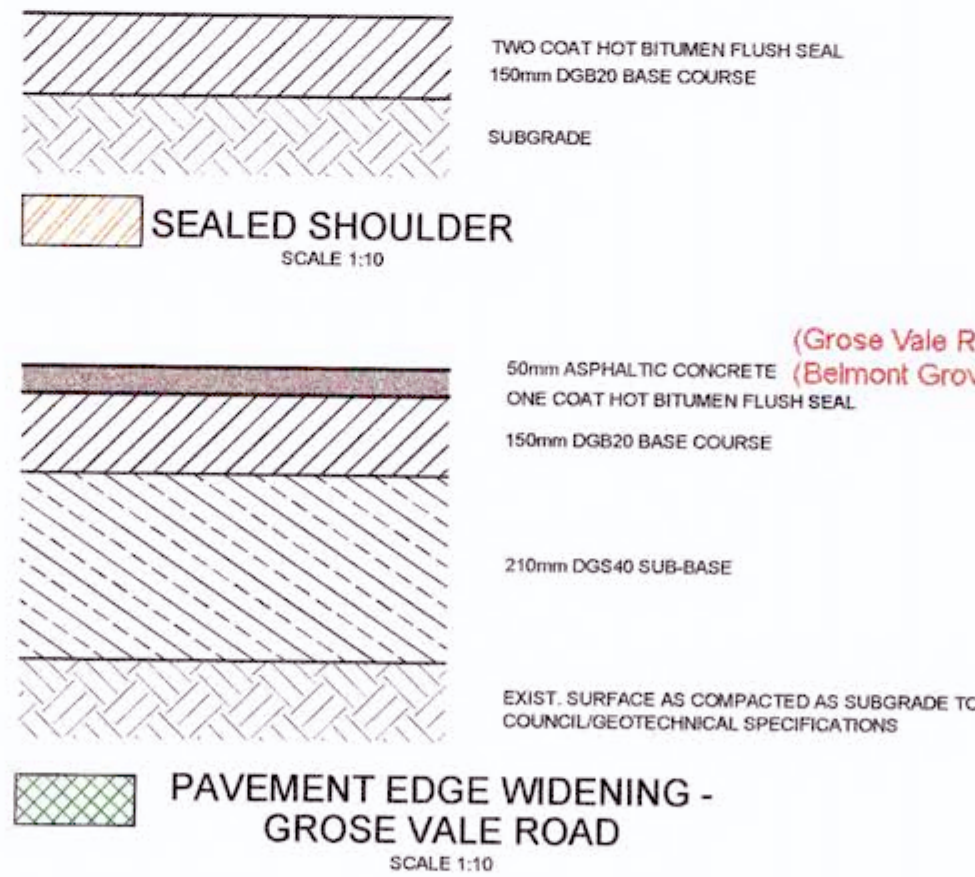
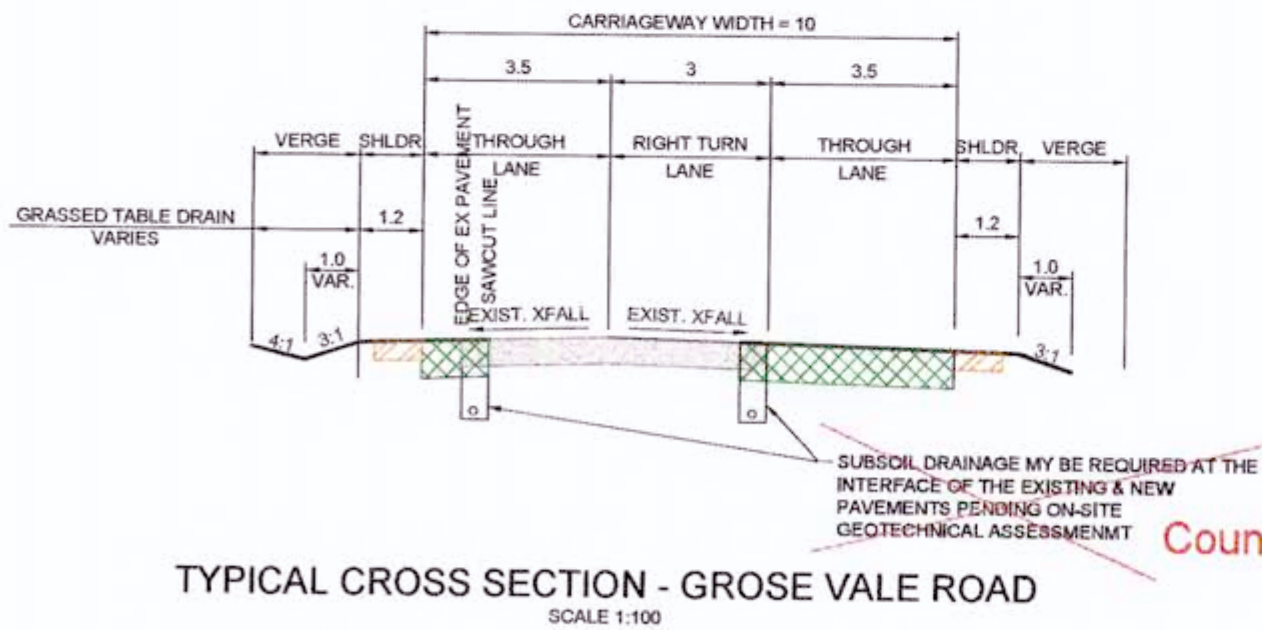
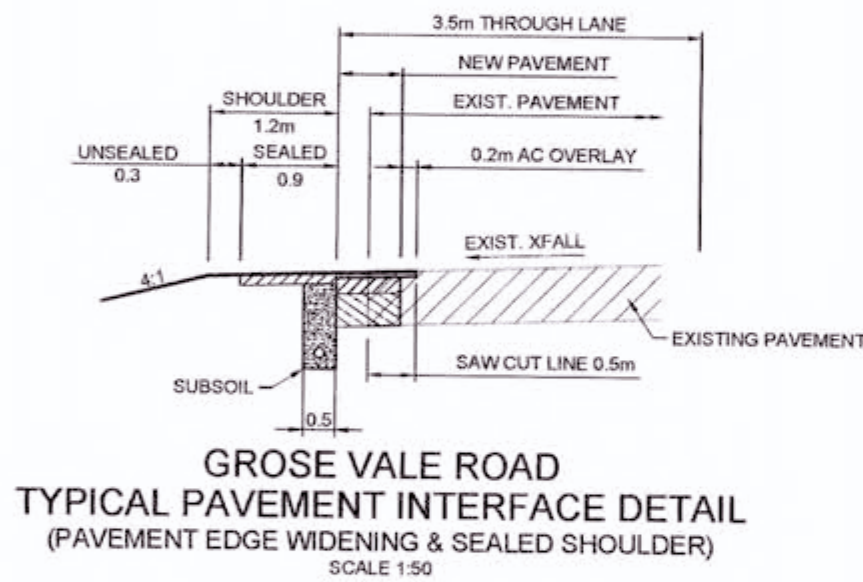
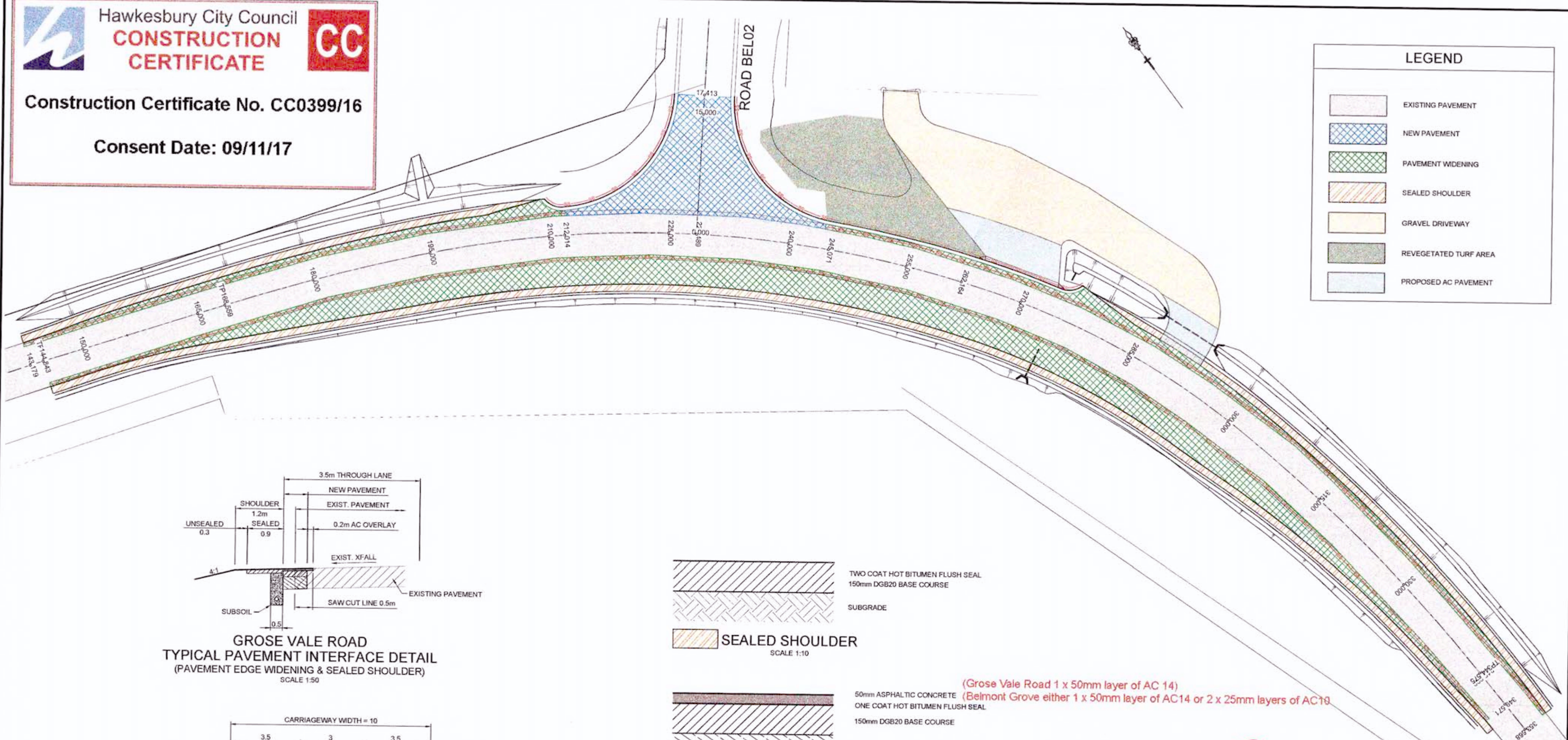
REDBANK, NORTH RICHMOND BELMONT
EDGE OF CARRIAGEWAY PLAN & PROFILE SHEET 2

PLAN No: 110185BEL/CC208 D
FILE No: 110185BELCC208
SHEET SIZE: A1 ORIGINAL

Printed: 2 November, 2017 3:35:37 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC-BELMONT\110185BELCC208.dwg

LEGEND

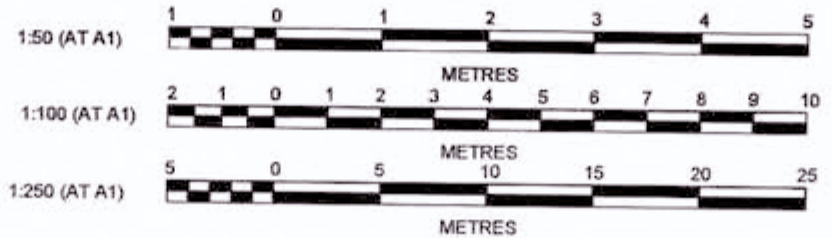
- EXISTING PAVEMENT
- NEW PAVEMENT
- PAVEMENT WIDENING
- SEALED SHOULDER
- GRAVEL DRIVEWAY
- REVEGETATED TURF AREA
- PROPOSED AC PAVEMENT



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 12/2/18 REF: 16800/12

Council Requirement - NO SUBSOIL DRAINAGE UNDER ROAD PAVEMENT

PAVEMENT DESIGN
 NEW PAVEMENT
 GROSE VALE ROAD WIDENING ESA 1x10⁶
 50mm AC (2x25mm LAYERS)
 ONE COAT BITUMEN SEAL
 150mm DGB20 BASE COURSE
 210mm DGS40 SUB BASE COURSE
 REFER GEOTECH REPORT DATED 17/06/16
 BY GEOTECHNIQUE DOC REF. 12261/14-AA-R1



AMENDMENT	DES	DRN	CKD	APR	DATE
D	VG	VG	RO	MS	02/11/17
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CLIENT: **REDBANK**
 AZIMUTH: MGA
 DATUM: AHD
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 PAVEMENT PLAN & DETAILS

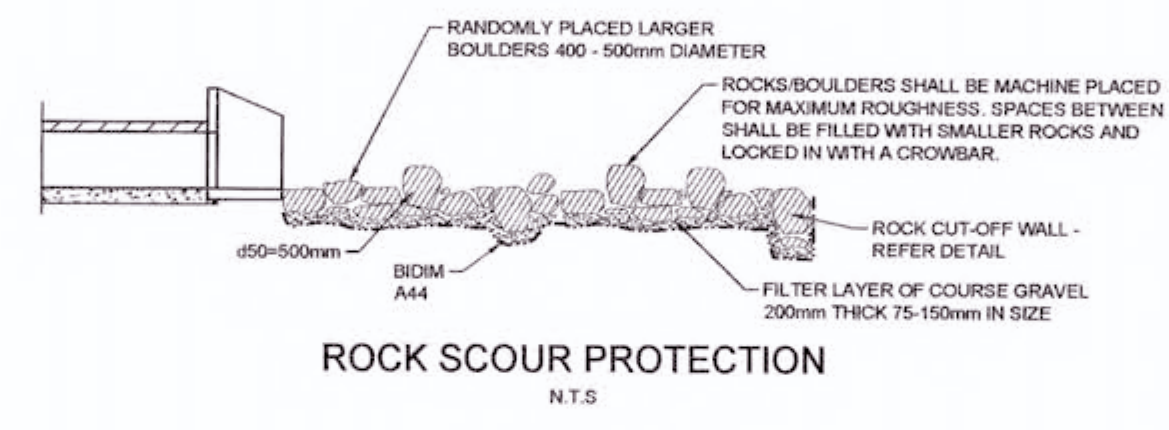
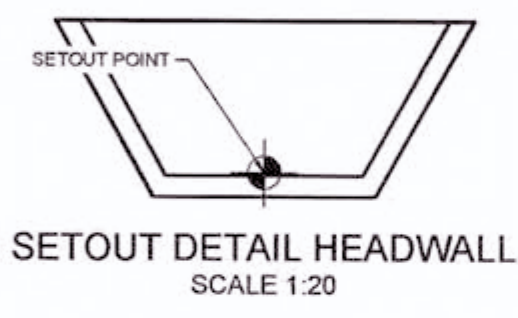
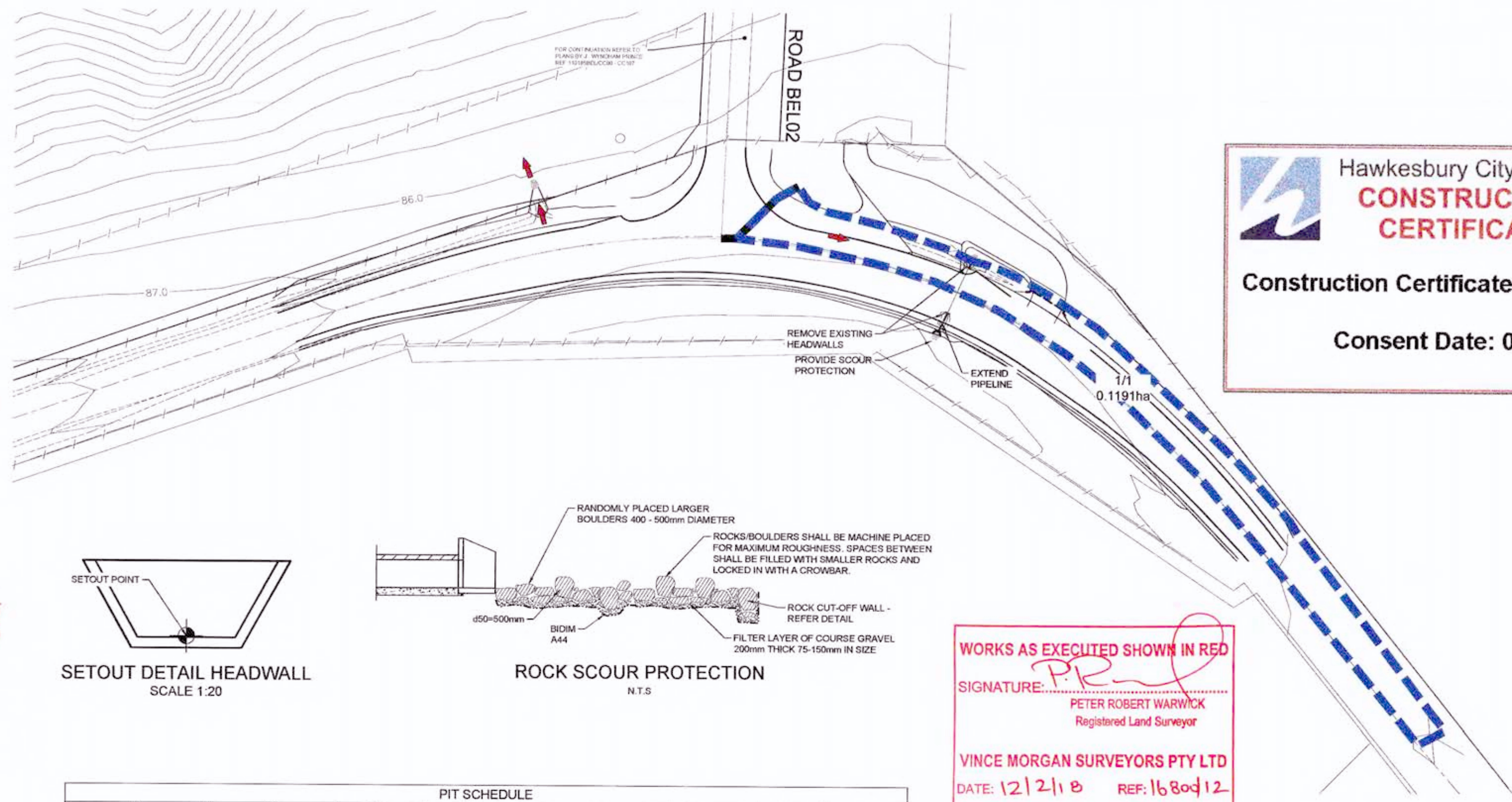
PLAN No: 110185BEL/CC209 **C**
 FILE No: 110185BELCC209
 SHEET SIZE: A1 ORIGINAL

Hawkesbury City Council
CONSTRUCTION CERTIFICATE
 Construction Certificate No. CC0399/16
 Consent Date: 09/11/17

	1/1	1/2	1/3	1/4
H.W.				
EXISTING H.W.				
EXISTING H.W.				
H.W.				
DATUM (m)	79.00			
PEAK FLOW (L/s)	28	28	28	
PIPE SIZE (mm)	375	375	375	
PIPE CLASS	RCP	RCP	RCP	
PIPE GRADE (%)	4.0	4.0	4.0	
PIPE COVER MINIMUM	0.21	0.14	0.38	
FULL PIPE VELOCITY (m/s)	0.25	0.25	0.25	
HGL GRADE (%)	3.9	3.95	3.89	

WAE				
HYDRAULIC GRADE LINE	85.861	85.816	85.815	85.435
INVERT LEVEL	85.466	85.44	85.06	84.874
DESIGN SURFACE LEVEL	85.085	86.119	85.607	85.249
ROAD CHAINAGE	274.83	274.79	274.47	274.29
PIPE CHAINAGE	0	1.53	10.747	15.435

LINE 1



WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 12/2/18 REF: 16804/12

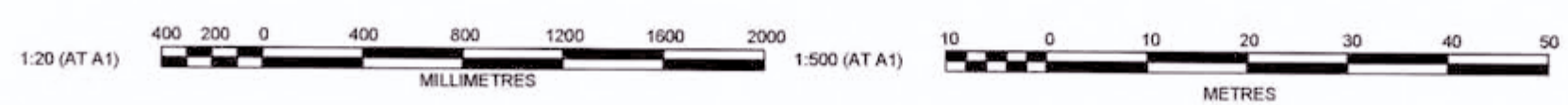
LEGEND

PROPOSED CATCHMENT
 FLOW DIRECTION

PIT SCHEDULE					
PIT NAME	PIT TYPE	PIT EASTING	PIT NORTHING	PIT DEPTH	COMMENTS
1/1	H.W.	285509.8	6281887	0.375	
1/2	H.W.	285508.4	6281886	0.753	EXISTING HEADWALL INLET
1/3	H.W.	285499.9	6281882	0.493	EXISTING HEADWALL OUTLET
1/4	H.W.	285495.8	6281879	0.375	

DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS																												
PIT NAME	PIT TYPE	CATCHMENT AREA	IMPERVIOUS PERCENTAGE	RUNOFF C	IMPERVIOUS TIME Tc	IMPERVIOUS INTENSITY I	PERVIOUS TIME Tc	PERVIOUS INTENSITY I	FULL AREA TIME Tc	FULL AREA INTENSITY I	FULL AREA CATCHMENT FLOW Qc	PARTIAL AREA TIME Tc	PARTIAL AREA INTENSITY I	PARTIAL AREA CATCHMENT FLOW Qc	TOTAL CATCHMENT FLOW Qc	DIRECT FLOW Qd	APPROACH FLOW Qa	FLOODED DEPTH d	FLOODED WIDTH w	FLOODED (vx/d)	ROAD GRADE (%)	ROAD XFALL	CHOKO FACTOR	INLET FLOW Qg	BYPASS FLOW Qb	BYPASS PIT	COMMENTS	
1/1	H.W.	0.119	90	0.705	5	127.4	11.53566	91.7	11.53566	91.7	21	5	127.4	28	28	0	28	0.15			1.3	-3	1	28	0	0	1/3	EXISTING HEADWALL INLET
1/2	EXISTING PIT	0	0							0	0	0	0	0	0	0	0											
1/3	EXISTING PIT	0.051	70	0.715	5	127.4	11.53566	91.7	11.53566	91.7	9	5	127.4	11	11	0	11	0.01	3.32	0.01			1	0	11	LOST	EXISTING HEADWALL OUTLET	
1/4	H.W.																											

DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS																																							
PIPE NAME	PIPE TYPE	PIPE DIAMETER	PIPE LENGTH	PIPE SLOPE	PIPE AREA A1	FULL AREA TIME Tc	FULL AREA INTENSITY I	FULL AREA SUM CA	FULL AREA FLOW Qc	PART-AREA TIME Tc	PART-AREA INTENSITY I	PART-AREA SUM CA	PART-AREA FLOW Qc	DIRECT PIPE FLOW Qp	PEAK FLOW Qrat	NET BYPASS FLOW Qb	PIPE FLOW Q	FLOW CAP Qcap	Q/Qcap	FULL PIPE VELOCITY	NORM. DEPTH VELOCITY	CRIT. DEPTH VELOCITY	U/S PIT GRATE RL	PIPE U/S IL	PIPE D/S IL	PIPE D/S DROP	U/S PIT Ku	U/S PIT Kw	PIPE VHEAD	PIT LOSS (Ku.Vhead)	WSE LOSS (Kw.Vhead)	TOTAL PIPE LOSS	U/S PIT HGL	PIPE HGL	D/S PIPE HGL	HGL GRADE (%)	MIN. COVER (m)	U/S FREEBOARD (m)	COMMENTS
1/1 to 1/2	RCP	375	1.64	4.62	0.08	11.54	91.7	0.084	21.4	5	127.4	0.08	27.9	0	27.9	0	27.9	462.8	0.06	0.33	2.67	0.92	85.783	85.516	85.44	0	4.5	0.01	0.03	0.03	0.08	85.661	85.635	85.56	4.58	0.27	0.12		
1/2 to 1/3	RCP	375	9.59	3.96	0.11	11.55	91.7	0.084	21.4	5.01	127.3	0.08	27.9	0	27.9	0	27.9	536.7	0.05	0.26	2.53	0.92	86.193	85.44	85.06	0	0.2	0	0	0	0.16	85.56	85.559	85.436	1.29	0.12	0.63	EXISTING PIPELINE	
1/3 to 1/4	RCP	375	4.69	3.96	0.11	11.61	91.4	0.121	30.6	5.07	126.8	0.11	38.4	0	38.4	-10.7	27.8	507.4	0.05	0.25	2.52	0.92	85.553	85.06	84.874	0.2		0	0	0	0.18	85.436	85.435	85.252	3.89	0.38	0.12		



CLIENT:

 REDBANK, NORTH RICHMOND BELMONT
 CATCHMENT PLAN, PIT SCHEDULE & DETAILS

ISSUED FOR CONSTRUCTION APPROVAL

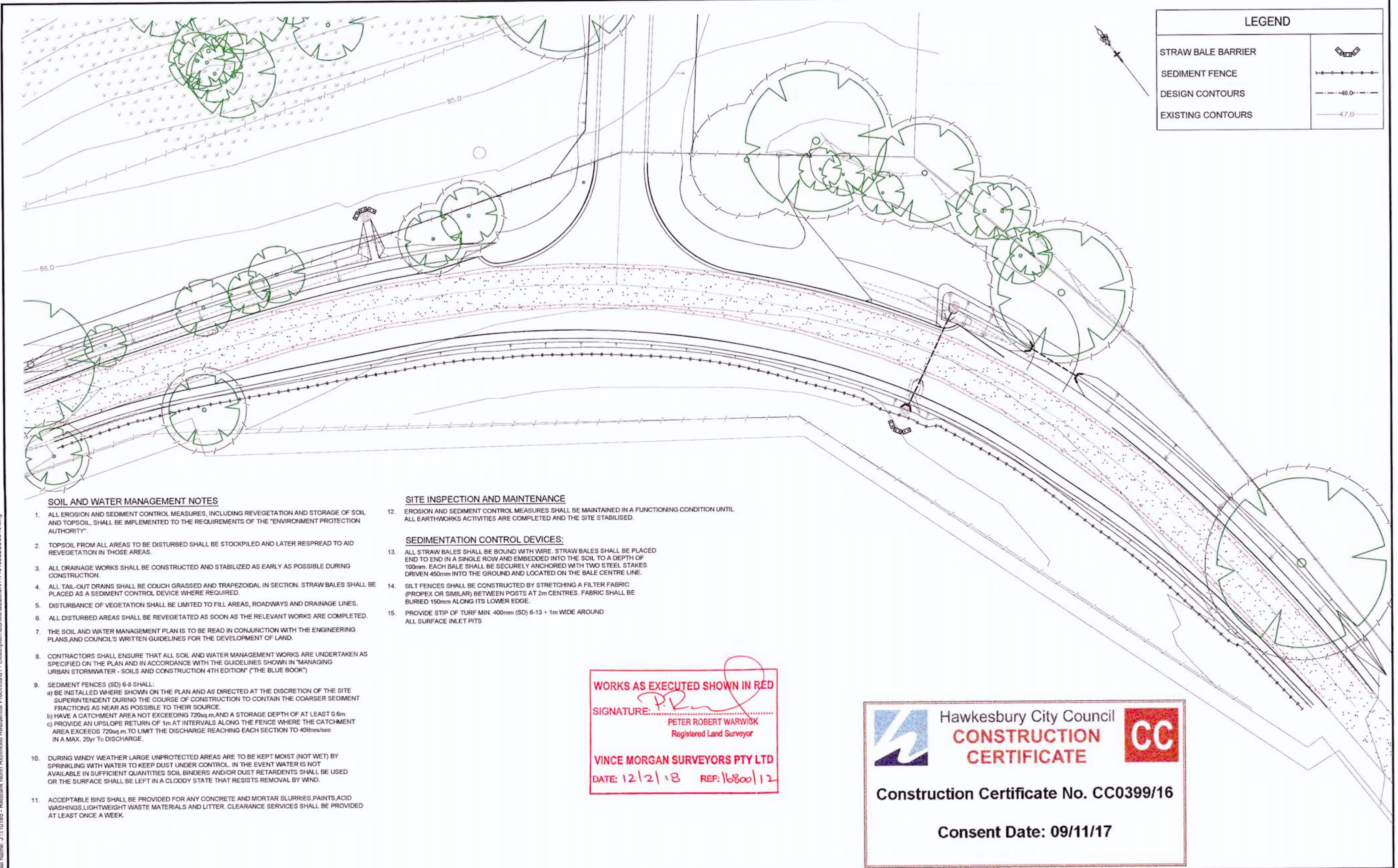
PLAN No: 110185BEL/CC212 **D**
 FILE No: 110185BEL/CC212
 SHEET SIZE: A1 ORIGINAL

Printed: 2 November, 2017 3:37:13 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC0399/16\110185BEL/CC212.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
D	VG	VG	RO	MS	02/11/17
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B	MP	MG	MS	MS	13/07/16
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AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:



LEGEND	
STRAW BALE BARRIER	
SEDIMENT FENCE	
DESIGN CONTOURS	
EXISTING CONTOURS	

SOIL AND WATER MANAGEMENT NOTES

- ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE "ENVIRONMENT PROTECTION AUTHORITY".
- TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.
- ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING CONSTRUCTION.
- ALL TAIL-OUT DRAINS SHALL BE COUGH GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.
- DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES.
- ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.
- THE SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS AND COUNCIL'S WRITTEN GUIDELINES FOR THE DEVELOPMENT OF LAND.
- CONTRACTORS SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS SPECIFIED ON THE PLAN AND IN ACCORDANCE WITH THE GUIDELINES SHOWN IN "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" ("THE BLUE BOOK")
- SEDIMENT FENCES (SD) 6-8 SHALL:
 - BE INSTALLED WHERE SHOWN ON THE PLAN AND AS DIRECTED AT THE DISCRETION OF THE SITE SUPERINTENDENT DURING THE COURSE OF CONSTRUCTION TO CONTAIN THE COARSER SEDIMENT FRACTIONS AS NEAR AS POSSIBLE TO THEIR SOURCE.
 - HAVE A CATCHMENT AREA NOT EXCEEDING 720sq.m AND A STORAGE DEPTH OF AT LEAST 0.6m.
 - PROVIDE AN UPSLOPE RETURN OF 1m AT INTERVALS ALONG THE FENCE WHERE THE CATCHMENT AREA EXCEEDS 720sq.m TO LIMIT THE DISCHARGE REACHING EACH SECTION TO 40litres/sec IN A MAX. 20yr To DISCHARGE.
- DURING WINDY WEATHER LARGE UNPROTECTED AREAS ARE TO BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. IN THE EVENT WATER IS NOT AVAILABLE IN SUFFICIENT QUANTITIES SOIL BINDERS AND/OR DUST RETARDENTS SHALL BE USED OR THE SURFACE SHALL BE LEFT IN A CLODDY STATE THAT RESISTS REMOVAL BY WIND.
- ACCEPTABLE BINS SHALL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES SHALL BE PROVIDED AT LEAST ONCE A WEEK.

SITE INSPECTION AND MAINTENANCE

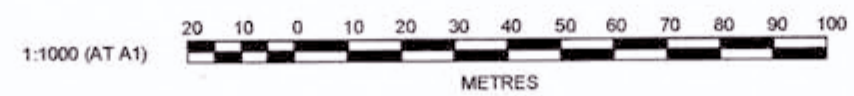
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN A FUNCTIONING CONDITION UNTIL ALL EARTHWORKS ACTIVITIES ARE COMPLETED AND THE SITE STABILISED.

SEDIMENTATION CONTROL DEVICES:

- ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 450mm INTO THE GROUND AND LOCATED ON THE BALE CENTRE LINE.
- SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2m CENTRES. FABRIC SHALL BE BURIED 150mm ALONG ITS LOWER EDGE.
- PROVIDE STIP OF TURF MIN. 400mm (SD) 6-13 + 1m WIDE AROUND ALL SURFACE INLET PITS

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE:
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 12/2/18 REF: 16800/12

Hawkesbury City Council
CONSTRUCTION CERTIFICATE
 Construction Certificate No. CC0399/16
 Consent Date: 09/11/17



Plotted: 2 November, 2017 3:37:37 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CC\BELMONT\110185BELCC213.dwg

	VG	VG	RO	MS	02/11/17	
D	ISSUE FOR CONSTRUCTION APPROVAL	VG	VG	RO	MS	11/10/16
C	CLIENT AMENDMENTS	MP	MG	MS	MS	13/07/16
B	CLIENT COMMENTS	MP	MG	RO		15/05/16
A	FIRST ISSUE	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
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CLIENT:
 AZIMUTH: MGA
 DATUM: AHD
 ORIGIN: THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 SOIL & WATER MANAGEMENT PLAN & NOTES

PLAN No: 110185BEL/CC213 **D**
 FILE No: 110185BELCC213
 SHEET SIZE: A1 ORIGINAL



Hawkesbury City Council
**CONSTRUCTION
CERTIFICATE**



Construction Certificate No. CC0399/16

Consent Date: 09/11/17

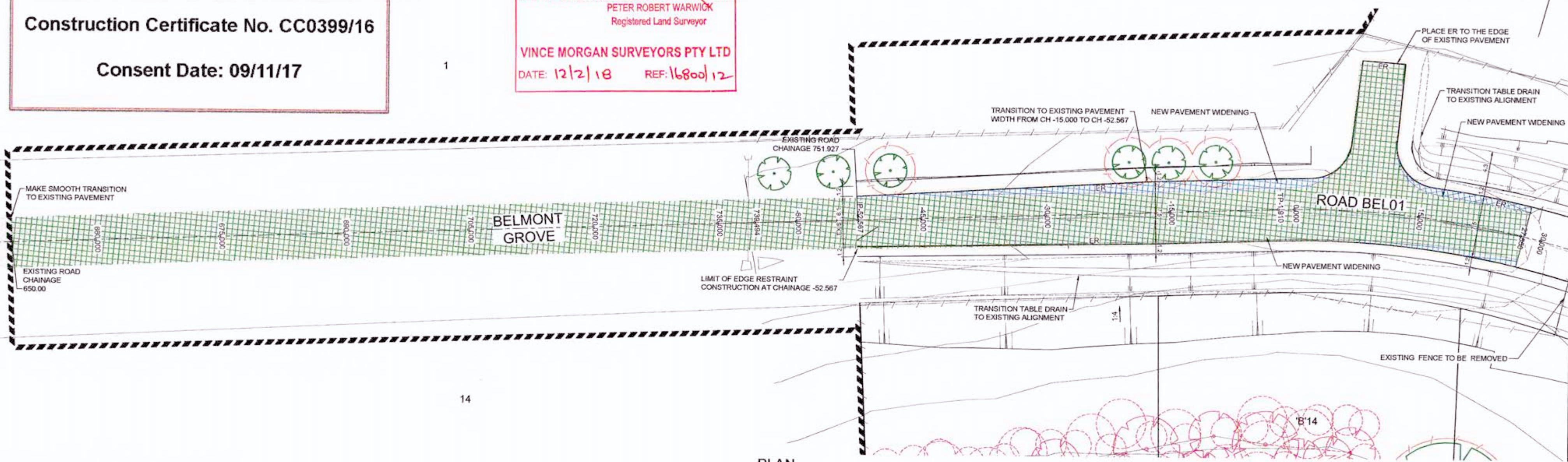
WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
DATE: 12/2/18 REF: 16800/12

REFER TO DRAWING 110185BELCC217 FOR CONTINUATION

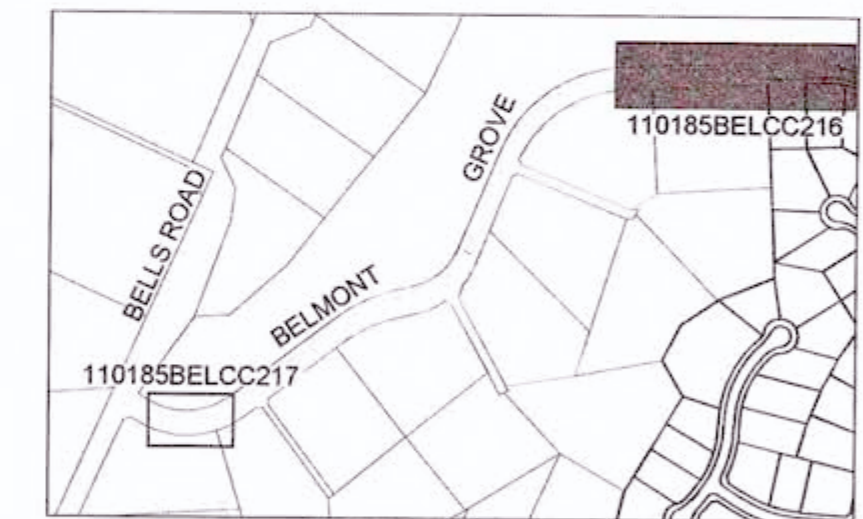
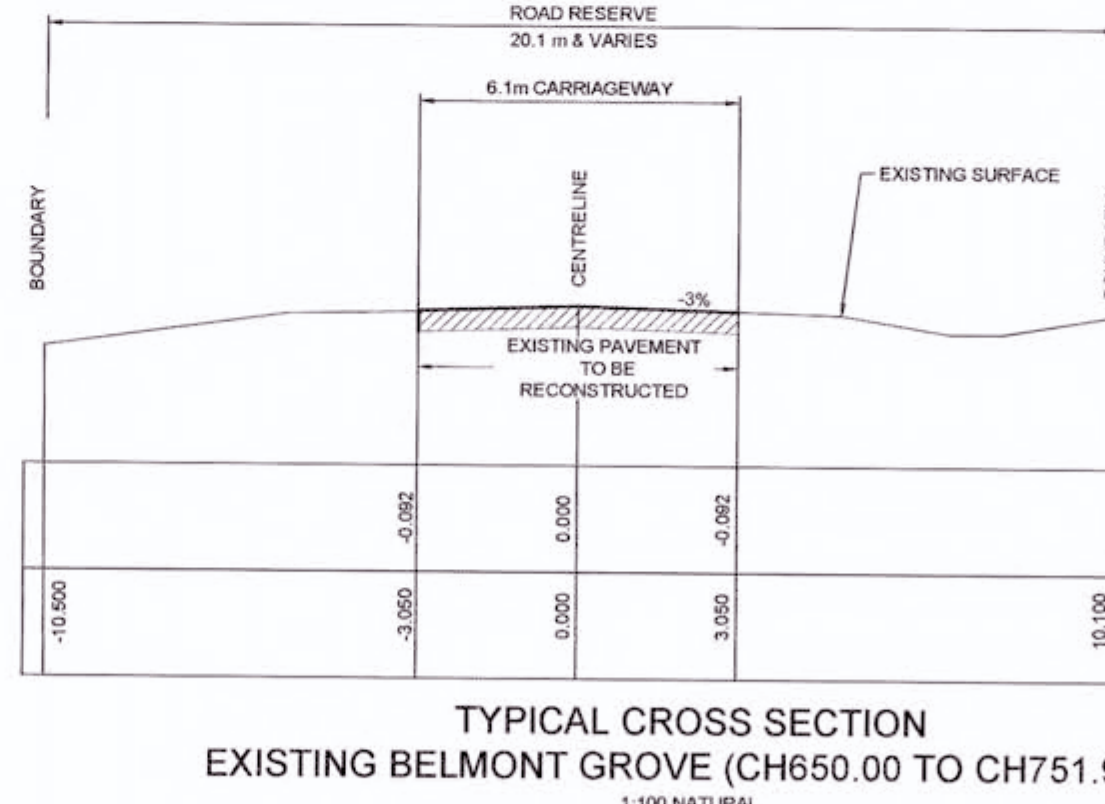
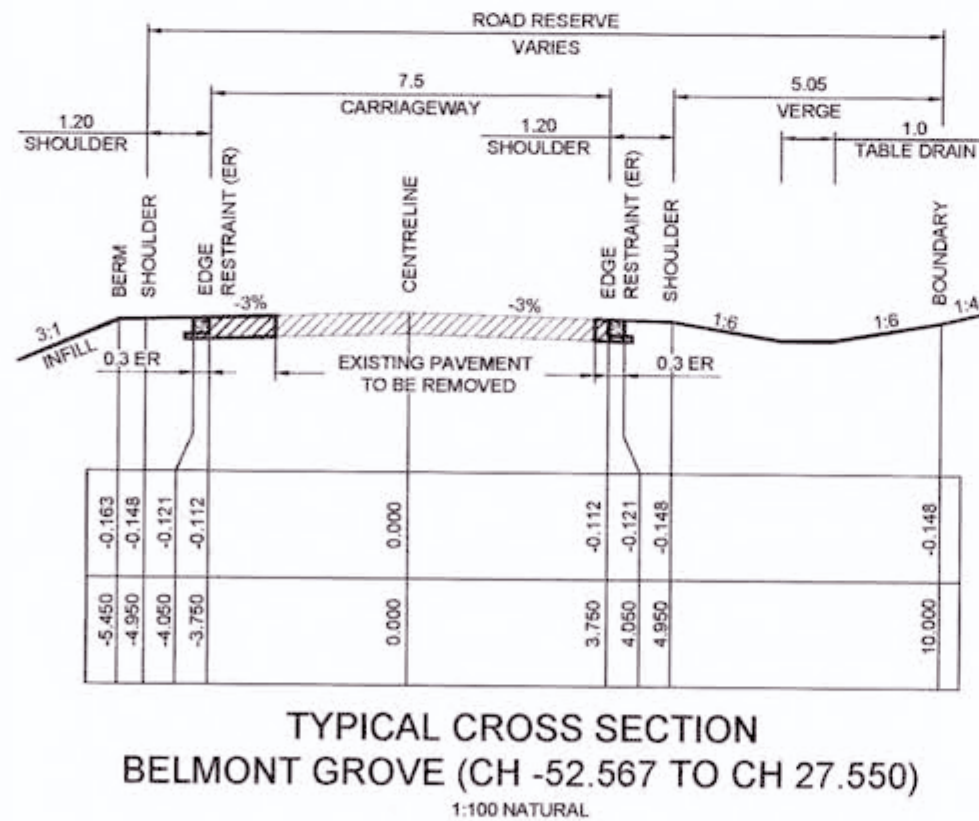
REFER TO DRAWING 110185BELCC10 FOR CONTINUATION



PLAN
SCALE 1:250

LEGEND

- EXISTING PAVEMENT
- PAVEMENT WIDENING
- PAVEMENT RECONSTRUCTION
- TREES TO BE RETAINED
- TREES PROTECTION



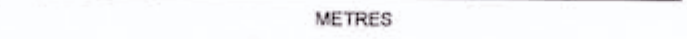
ROAD BEL01

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH	D ANGLE
-65.39	285271.43	6282545.90	71°59'00.17"			
-2.30	285331.42	6282565.41	71°59'00.17"			
25.64	285358.56	6282574.24		111.21	55.87	28°47'00.41"
53.58	285386.80	6282588.91	100°46'00.58"			
122.00	285453.81	6282558.12	100°46'00.58"			
162.34	285497.19	6282547.88		80	80.69	57°47'29.14"
202.69	285513.33	6282506.78	158°33'29.72"			
219.02	285519.66	6282490.58		-40	32.65	46°46'17.37"
235.34	285535.72	6282484.26	111°47'12.35"			
245.11	285544.79	6282480.63	111°47'12.35"			
261.00	285560.37	6282474.40		40	31.78	45°31'23.38"
276.89	285566.85	6282458.92	157°18'35.73"			
311.33	285580.13	6282427.14	157°18'35.73"			
354.35	285602.79	6282372.95		49.3	86.04	99°58'52.04"
397.37	285545.49	6282360.03	257°17'27.77"			
405.48	285537.58	6282358.24	257°17'27.77"			
421.14	285521.75	6282354.67		-49	31.33	36°38'09.57"
436.81	285511.18	6282342.37	220°39'18.20"			
444.30	285506.26	6282336.64		-49	14.99	17°31'38.91"
451.80	285503.30	6282329.69	203°07'39.28"			
545.16	285465.03	6282240.09		-264.86	186.73	40°23'38.27"
638.53	285493.95	6282147.04				
665.05	285502.67	6282118.96		-49.5	53.07	61°25'24.00"
691.59	285531.51	6282113.20	101°18'37.01"			
718.13	285560.34	6282107.43		-49.5	53.07	61°25'24.00"
744.66	285579.20	6282129.99				
1051.63	285776.05	6282365.54	39°53'13.00"			
1066.72	285504.59	6282399.68		45	70.18	89°21'40.00"
1121.82	285639.05	6282371.53	129°14'53.01"			
1240.94	285931.30	6282296.16	129°14'53.01"			

1:100 (AT A1)

1:50 (AT A1)

1:250 (AT A1)



PAVEMENT DESIGN
PAVEMENT WIDENING AND RECONSTRUCTION

- BELMONT GROVE WIDENING ESA 2x10⁶
- 50mm AC (ONE LAYER)
- ONE COAT BITUMEN SEAL
- 125mm DGB20 BASE COURSE
- 250mm CRUSHED SANDSTONE SUB BASE COURSE

REFER GEOTECH REPORT DATED 17/06/16
BY GEOTECHNIQUE DOC REF. 12261/14-AA-R1

AMENDMENT	DES	DRN	CKD	APR	DATE
D	VG	VG	RO	MS	02/11/17
C	MP	LS	RO	RC	05/10/16
B	MP	MG	MS	MS	13/07/16
NOT ISSUED					

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

CLIENT: **REDBANK**

AZIMUTH: MGA
DATUM: AHD
ORIGIN:

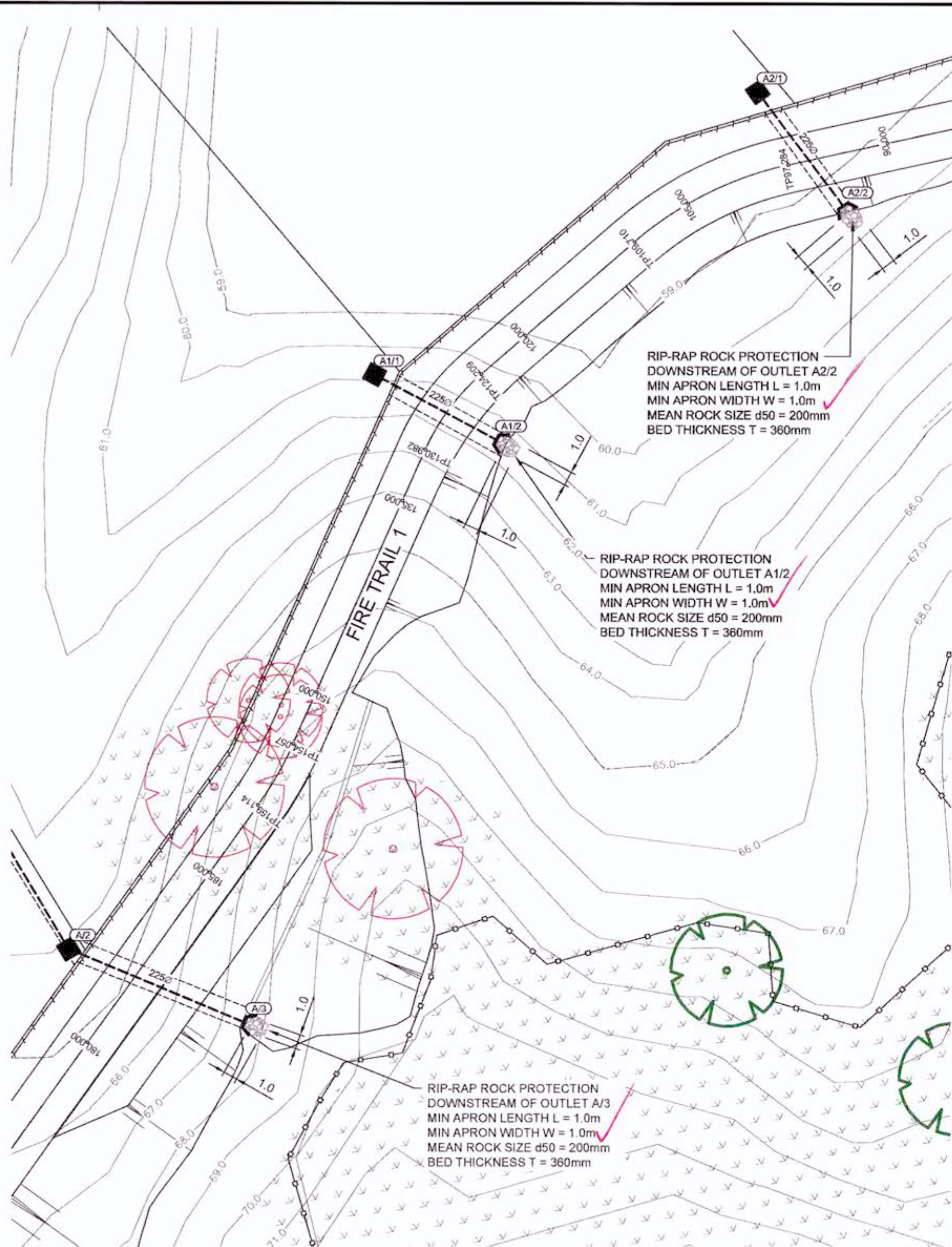
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND
BELMONT
BELMONT GROVE - PAVEMENT PLAN
SHEET 1 OF 2

PLAN No: 110185BEL/CC216 **D**
FILE No: 110185BELCC216
SHEET SIZE: A1 ORIGINAL

Plotted: 18 July, 2017 5:06:48 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CC BELMONT\110185BELCC301.dwg



PLAN
SCALE 1:200

NOTE

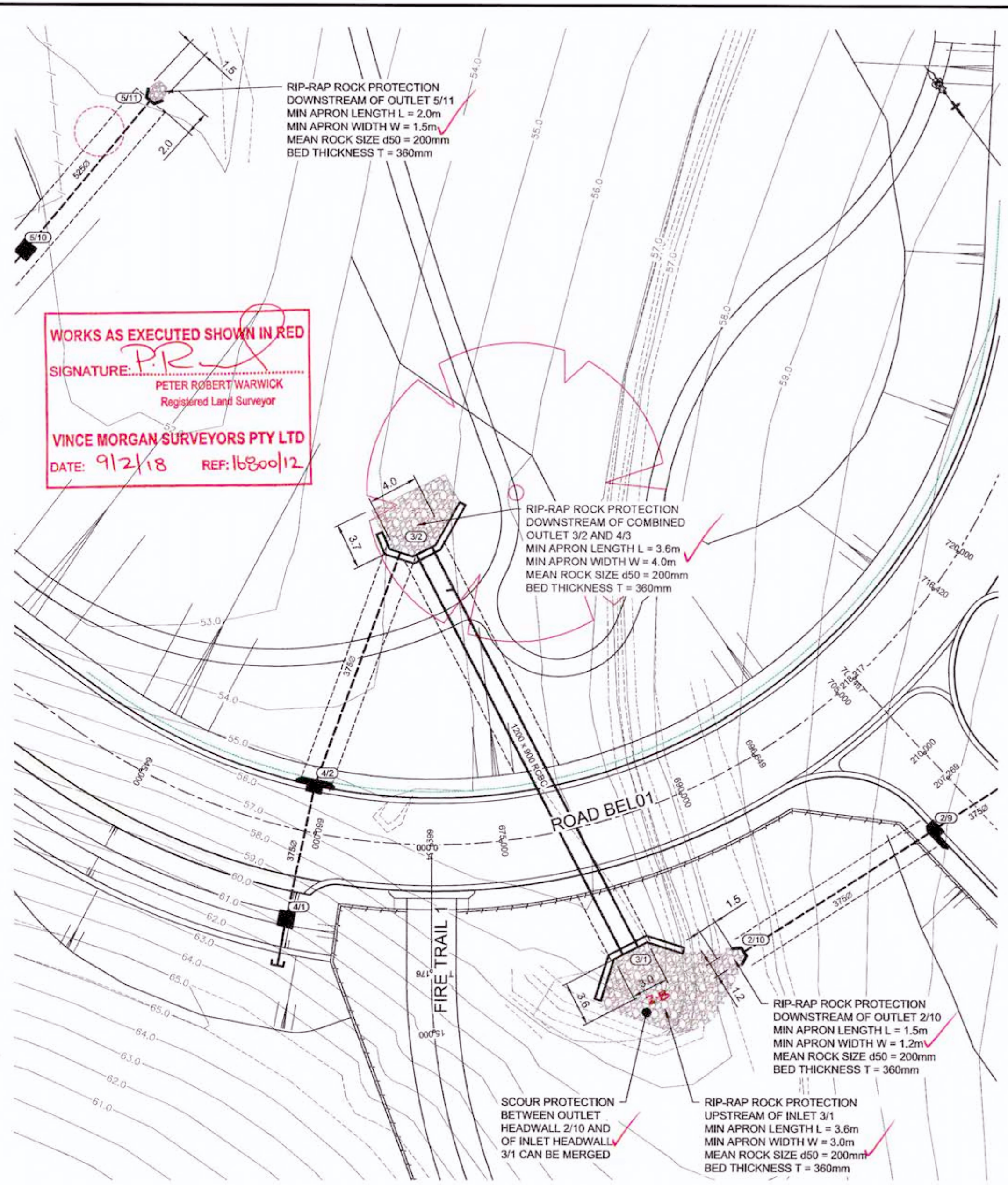
- REFER TO DRAWING CC303 FOR TYPICAL OUTLET DETAILS AND TABLE OUTLINING MINIMUM RECOMMENDED DIMENSIONS FOR EACH STRUCTURE PARAMETER

REVISION B
DRAINAGE LINE 3/2 TO 3/1 ALIGNMENT REVISED

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
 Date of issue 31 July 2017
 Issuing Officer *[Signature]*
 Accreditation No. 83P00565

These plans/specifications form part of the certificate issued 31 July 2017



PLAN
SCALE 1:200

WORKS AS EXECUTED SHOWN IN RED
 SIGNATURE: *[Signature]*
 PETER ROBERT WARWICK
 Registered Land Surveyor
 VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

ISSUED FOR CONSTRUCTION APPROVAL

B	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG						
A	FIRST ISSUE	JC	JC	RO					12/05/17
	AMENDMENT	DES	DRN	CKD	APR	DATE			

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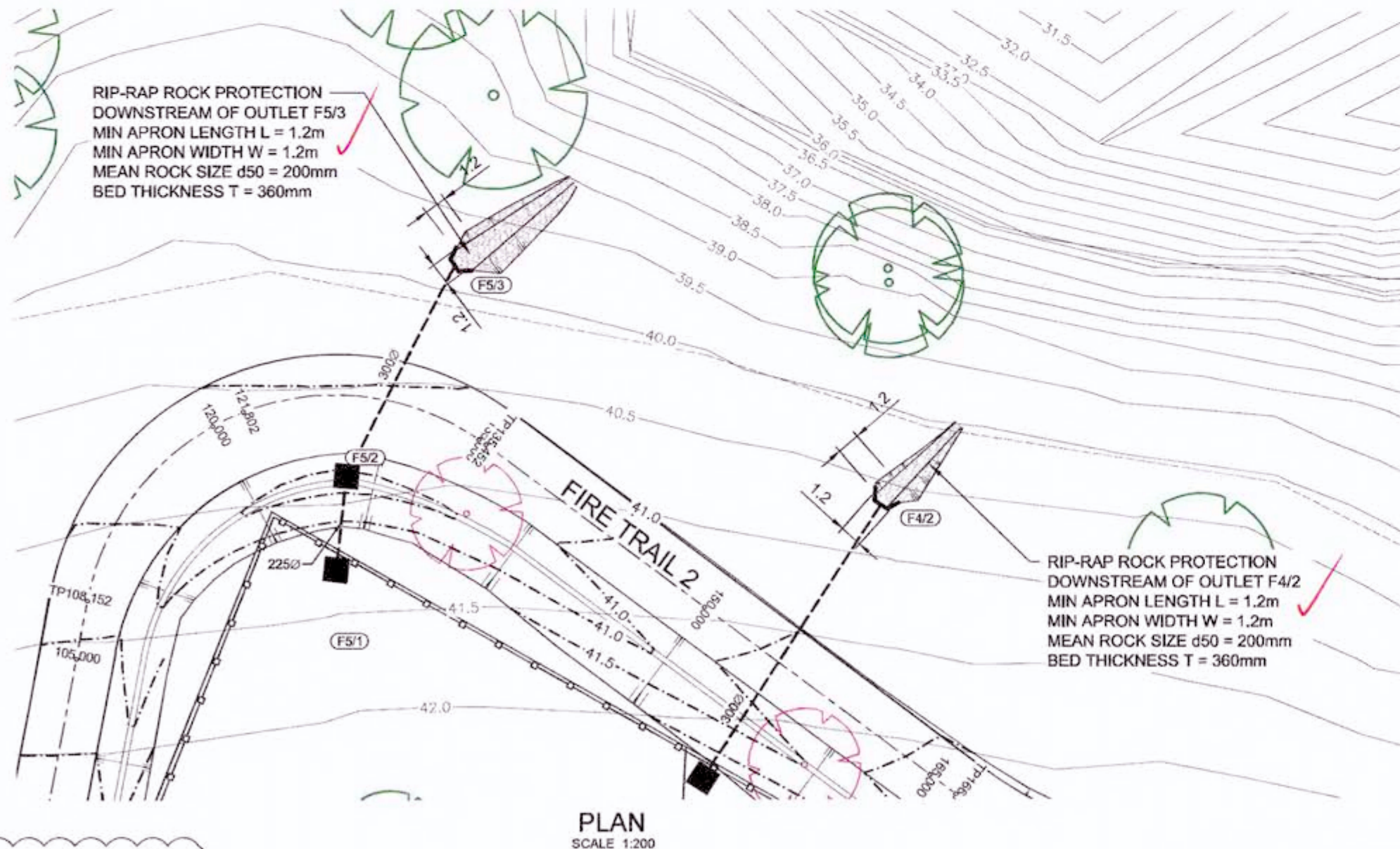
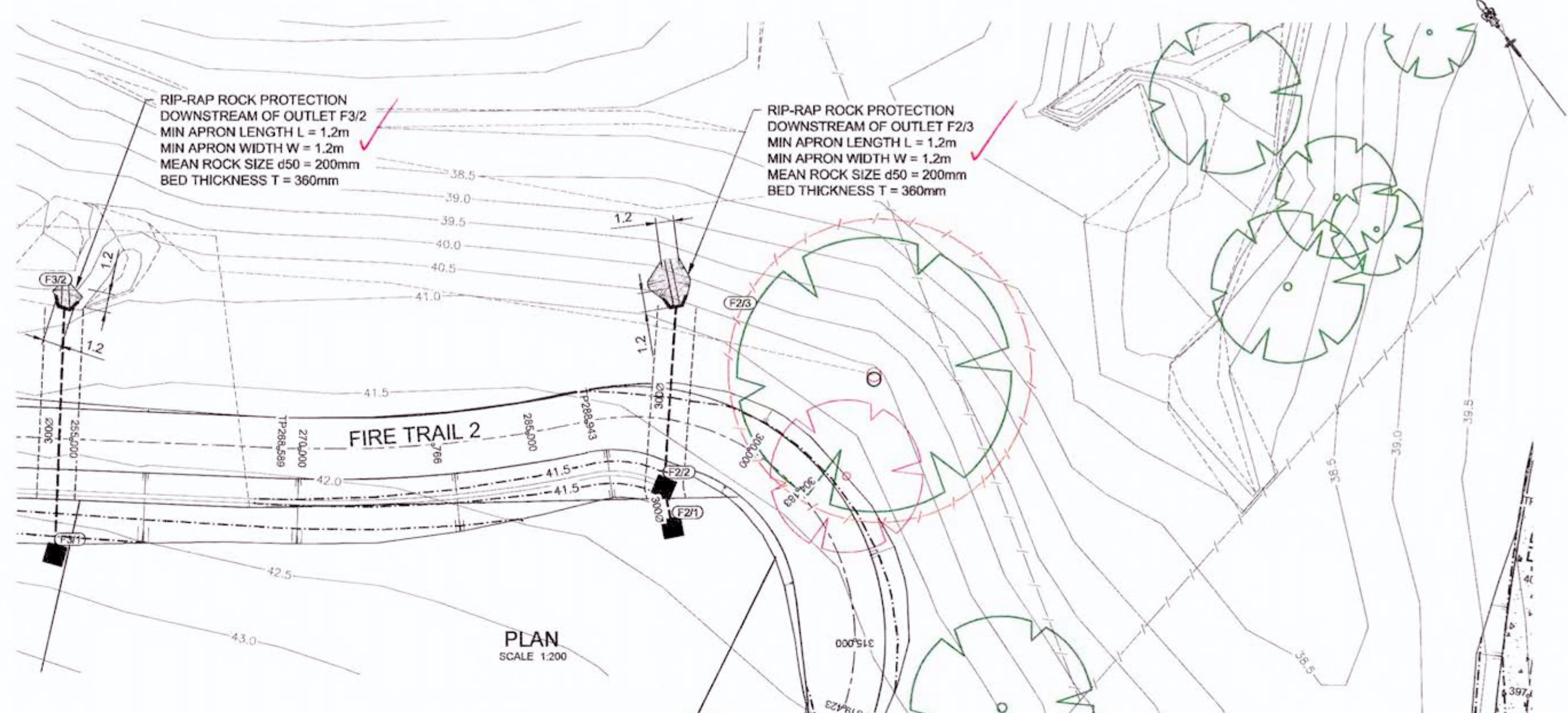
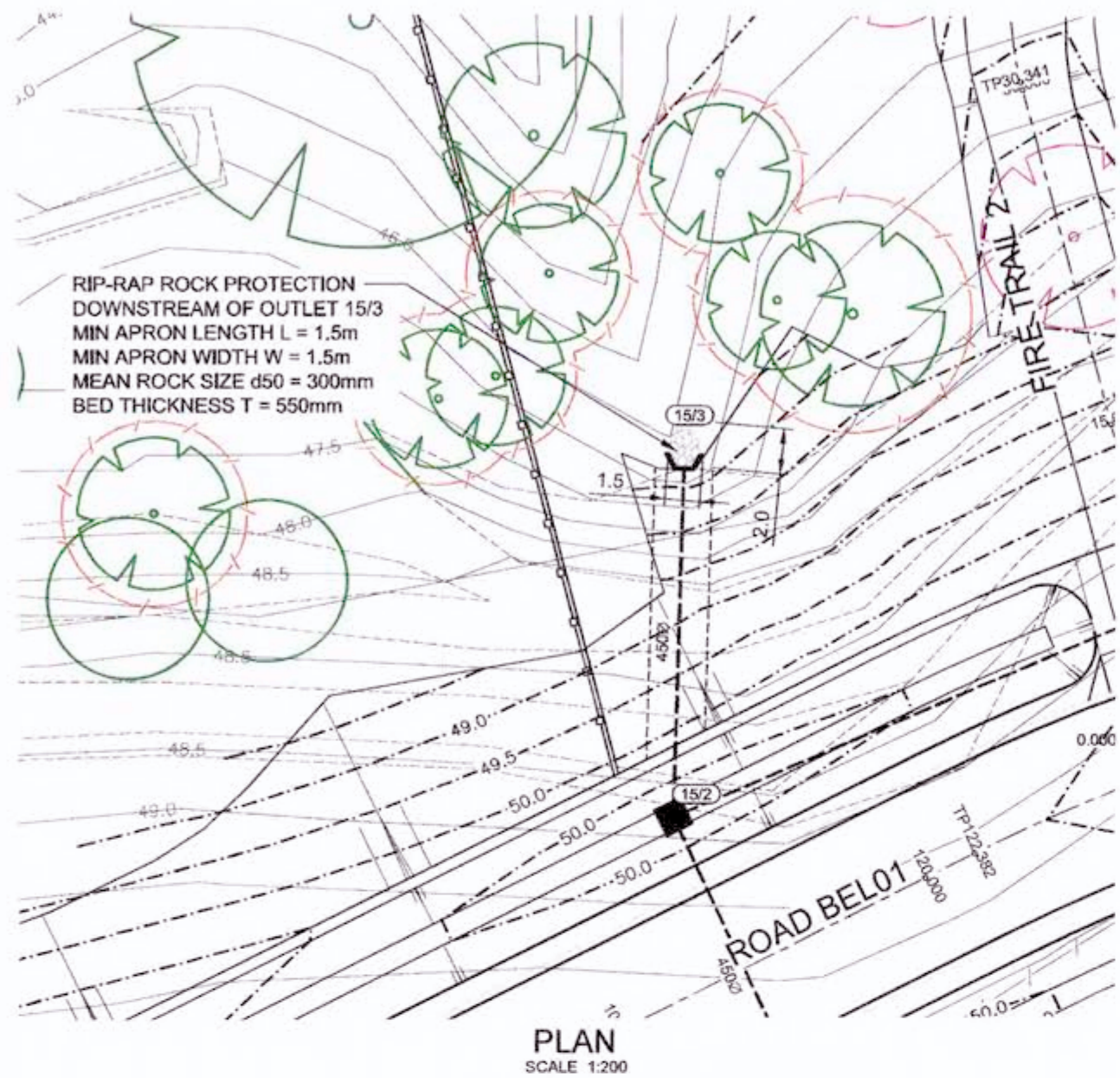
CLIENT: **REDBANK**

AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:

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REDBANK, NORTH RICHMOND BELMONT
 OUTLET CONTROLS
 OUTLET DETAIL SHEET 1

PLAN No:	110185BEL/CC301	B
FILE No:	110185BELCC301	
SHEET SIZE:	A1 ORIGINAL	



WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P.R.*
 PETER ROBERT WARWICK
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
 DATE: 9/2/18 REF: 16800/12

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
 Date of Issue 31 July 2017
 Issuing Officer *Jerry* JSP60565
 Accreditation No. JSP60565

These plans/specifications form part of the certificate issued 31 July 2017

NOTE

- REFER TO DRAWING CC303 FOR TYPICAL OUTLET DETAILS AND TABLE OUTLINING MINIMUM RECOMMENDED DIMENSIONS FOR EACH STRUCTURE PARAMETER

REVISION B
 FIRE TRAIL 2 ALIGNMENT AMENDED



NO.	REVISION	DATE	BY	CHKD	APR
B	ISSUE FOR CONSTRUCTION APPROVAL	12/05/17	MP	MG	
A	FIRST ISSUE		JC	JC	
	AMENDMENT		DES	DRN	CKD

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

AZIMUTH: MGA
 DATUM: AHD
 ORIGIN:



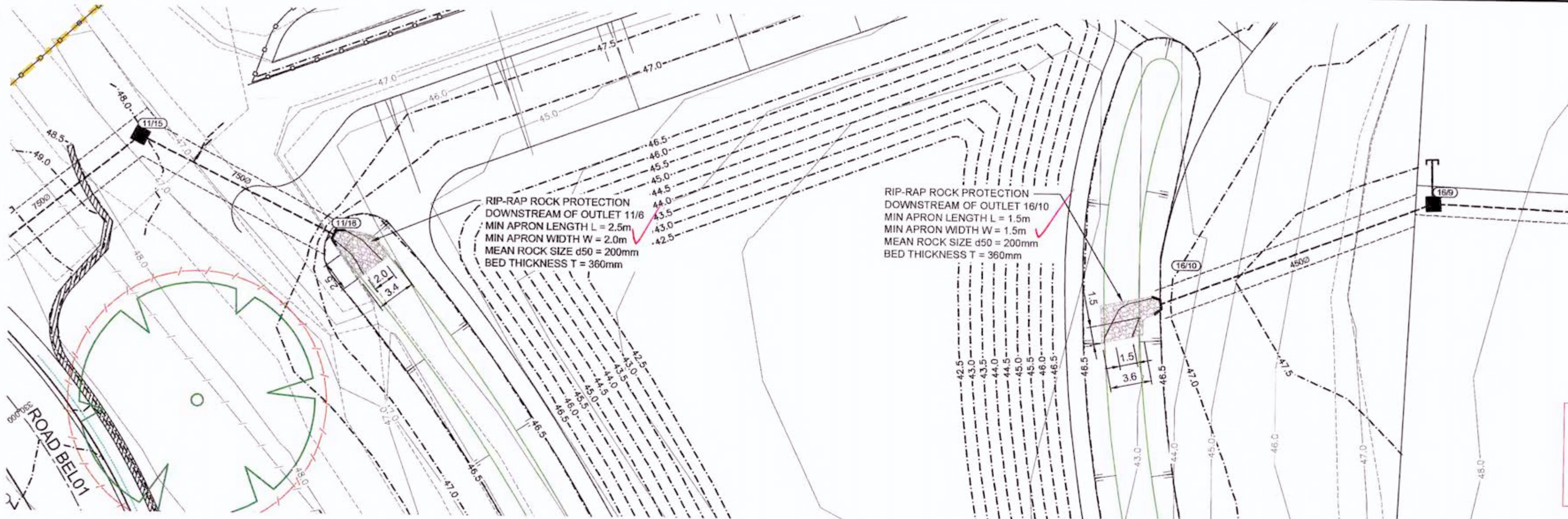
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
 OUTLET CONTROLS
 OUTLET DETAIL SHEET 2

CLIENT:

PLAN No: 110185BEL/CC302 B
 FILE No: 110185BELCC302
 SHEET SIZE: A1 ORIGINAL

Plotted: 18 July, 2017 5:58:28 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC302.dwg



RIP-RAP ROCK PROTECTION
DOWNSTREAM OF OUTLET 11/16
MIN APRON LENGTH L = 2.5m
MIN APRON WIDTH W = 2.0m
MEAN ROCK SIZE d50 = 200mm
BED THICKNESS T = 360mm

RIP-RAP ROCK PROTECTION
DOWNSTREAM OF OUTLET 16/10
MIN APRON LENGTH L = 1.5m
MIN APRON WIDTH W = 1.5m
MEAN ROCK SIZE d50 = 200mm
BED THICKNESS T = 360mm

PLAN
SCALE 1:200

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C36
Date of Issue 31 July 2017
Issuing Officer [Signature]
Accreditation No. JBP0565

These plans/specifications form part of the certificate
Issued 31 July 2017

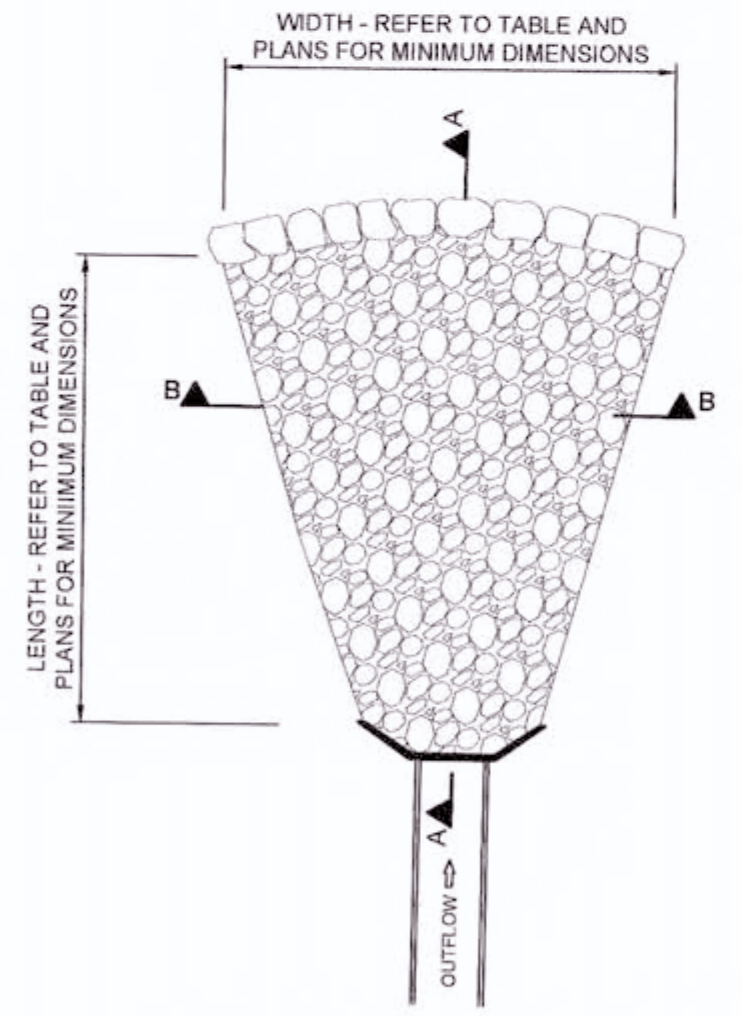
NOTES

- DESIGN BASED ON FLOW VELOCITIES FROM 12D DRAINAGE OUTPUTS FOR 100 YEAR ARI STORM EVENT
- RIP-RAP SCOUR PROTECTION DIMENSIONS CALCULATED FROM "ROCK SIZING FOR SINGLE PIPE OUTLETS - STORMWATER MANAGEMENT PRACTICES" BY CATCHMENTS AND CREEKS, VERSION 2 DATED NOVEMBER 2014
- ROCK HEADWALL ARRANGEMENT SHOWN ON PLANS, PRECAST CONCRETE OUTLET ARRANGEMENT CAN BE ADOPTED, HOWEVER RIP-RAP LENGTH SHALL COMMENCE AT THE END OF THE PRECAST CONCRETE APRON SLAB
- MINIMUM RIP-RAP DIMENSIONS ARE DENOTED ON BOTH TABLE AND PLANS
- ALL RIP-RAP TO CONSIST OF ANGULAR DURABLE QUARRY ROCK PLACED OVER A LAYER OF ANGULAR COBBLES (D50=50mm)
- RIP-RAP IS TO BE PLACED BY HAND AND PACKED INTO PLACE WITH A CROW-BAR TO ENSURE UNIFORM FIT WITH MINIMUM VOIDS

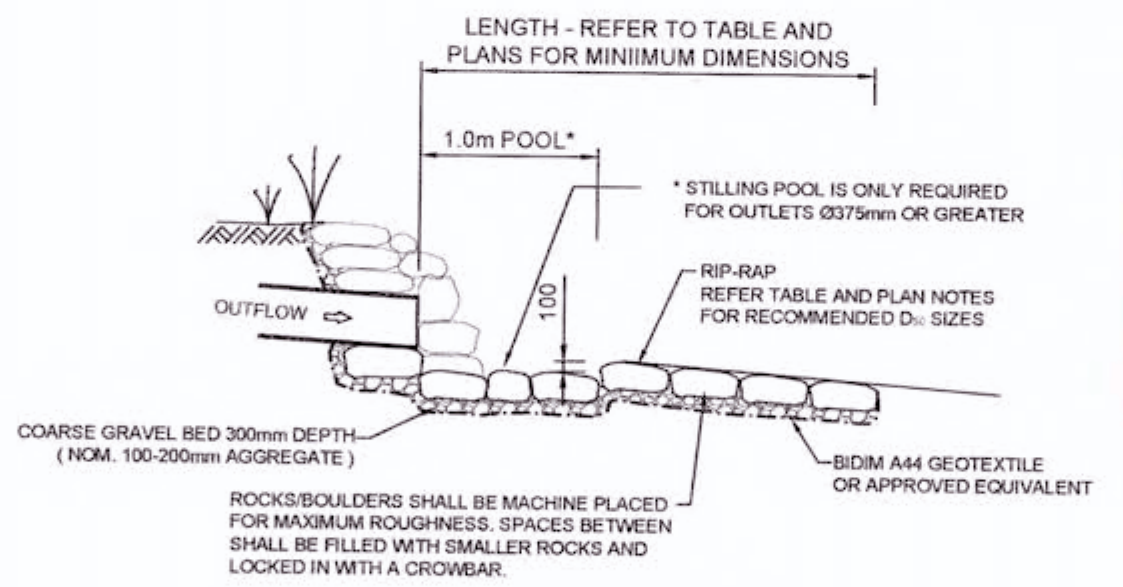
WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: [Signature]
PETER ROBERT WARWICK
Registered Land Surveyor

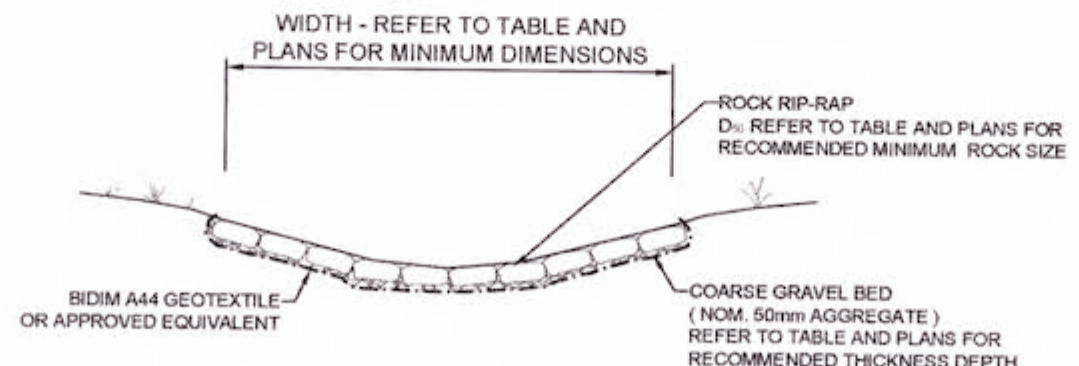
VINCE MORGAN SURVEYORS PTY LTD
DATE: 9/2/18 REF: 16800/12



TYPICAL OUTLET SCOUR PROTECTION PLAN
SCALE 1:50



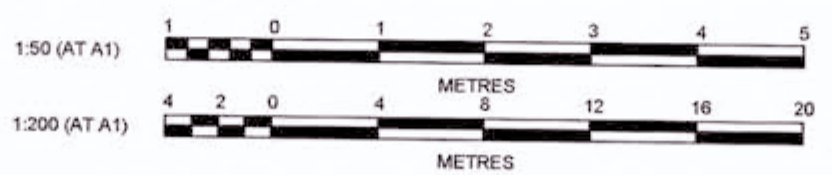
TYPICAL OUTLET DETAIL SECTION A-A
1:50



TYPICAL OUTLET DETAIL SECTION B-B
1:50

OUTLET HEADWALL RIP-RAP SCOUR PROTECTION (MINIMUM RECOMMENDED DIMENSIONS)

HEADWALL NAME	PIPE SIZE (mm)	MEAN ROCK SIZE (D50 mm)	APRON LENGTH (m)	APRON WIDTH (m)	BED THICKNESS (mm)
2/10	Ø375	200	1.5	1.2	360
3/1	1200x900 BC	200	3.6	3.0	360
3/2 - 4/3	1200x900 BC / Ø375	200	3.6	4.0	360
5/11	Ø525	200	2.0	2.0	360
11/16	Ø750	200	2.5	2.0	360
15/3	Ø450	300	2.0	1.5	550
16/10	Ø450	200	1.5	1.5	360
A/3	Ø225	200	1.0	1.0	360
A1/2	Ø225	200	1.0	1.0	360
A2/2	Ø225	200	1.0	1.0	360
F1/2	Ø375	200	1.5	1.2	360
F2/3	Ø300	200	1.2	1.2	360
F3/2	Ø300	200	1.2	1.2	360
F4/2	Ø300	200	1.2	1.2	360
F5/3	Ø300	200	1.2	1.2	360



REVISION B
DRAINAGE LINE 16/9 TO 16/10 ALIGNMENT REVISED

Plotted: 18 July 2017 5:59:18 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\BELMONT\110185BELCC303.dwg

B	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG					
A	FIRST ISSUE	JC	JC	RO	12/05/17			
	AMENDMENT	DES	DRN	CKD	APR	DATE		

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA
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ORIGIN:

CLIENT:

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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND BELMONT
OUTLET CONTROLS
OUTLET DETAIL SHEET 3

PLAN No: 110185BEL/CC303 B
FILE No: 110185BELCC303
SHEET SIZE: A1 ORIGINAL