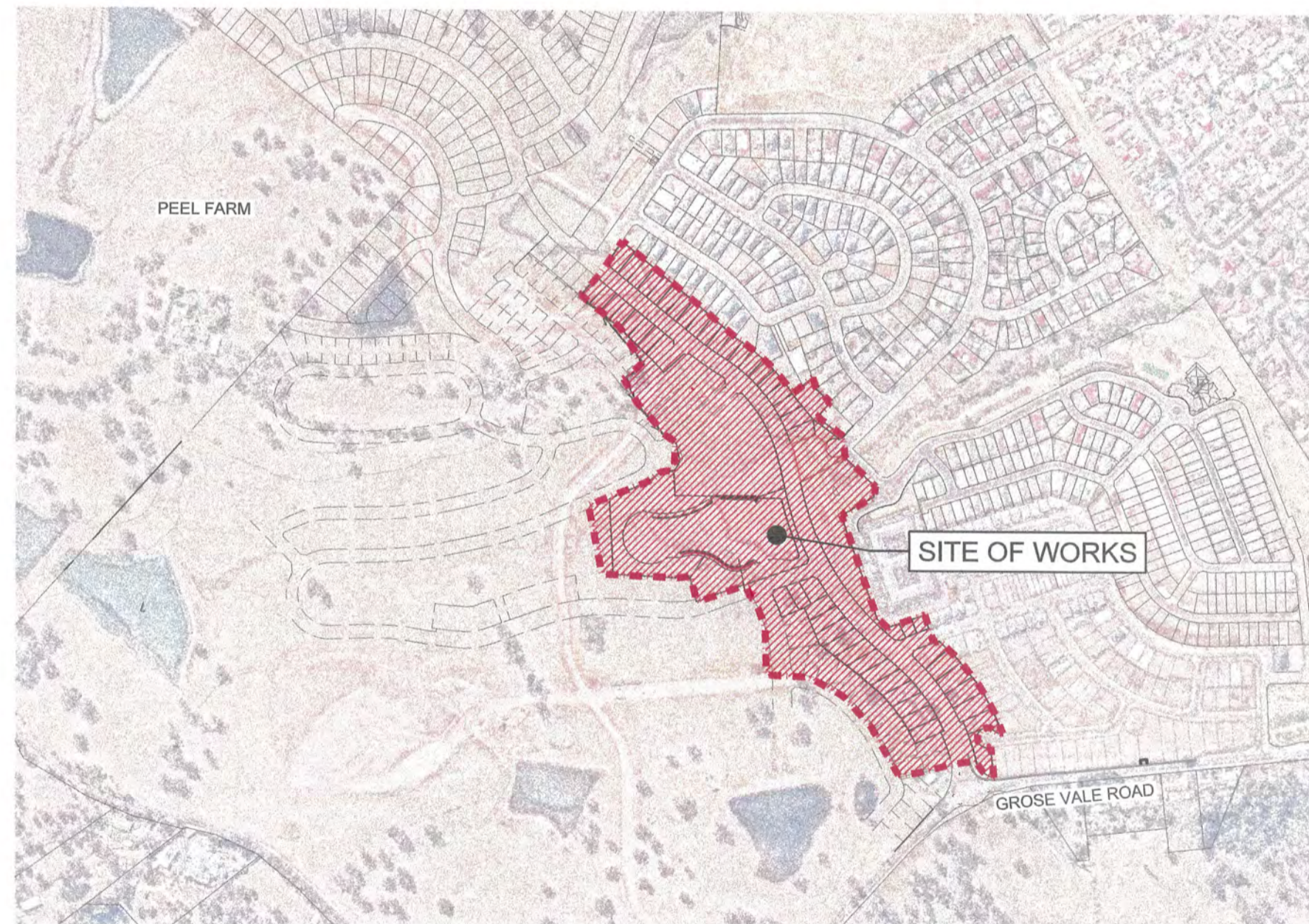


# REDBANK - YEOMANS ENTRY PROPOSED LOT, ROAD & DRAINAGE WORKS CONSTRUCTION CERTIFICATE

HAWKESBURY CITY COUNCIL REF: DA 0216/16



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](http://www.jwprince.com.au)

E [jwp@jwprince.com.au](mailto:jwp@jwprince.com.au)

**WORKS AS EXECUTED SHOWN IN RED**  
SIGNATURE: *I. Myers*  
IAN VINCENT MYERS  
Registered Land Surveyor  
VINCE MORGAN SURVEYORS PTY LTD  
DATE: REF:

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *J. Prince*  
Accreditation No. BPB0565

These plans/specifications form part of the certificate  
issued 28/09/2018

Survey By:  
**VINCE MORGAN SURVEYORS**

REGISTERED SURVEYORS  
177 UNION ROAD PENRITH NSW 2750  
Ph. (02) 4721 5293

REF: NORTH RICHMOND - DETAIL SURVEY UPDATE 15 March 2017

LOT LAYOUT PLAN OF PROPOSED SUBDIVISION REF: 16800-6-P3(C) & 16800-12-L3(B)  
REDBANK-YEO-ENTRY-VMS-WEST SIDE LOTS OFF GVR - 171020

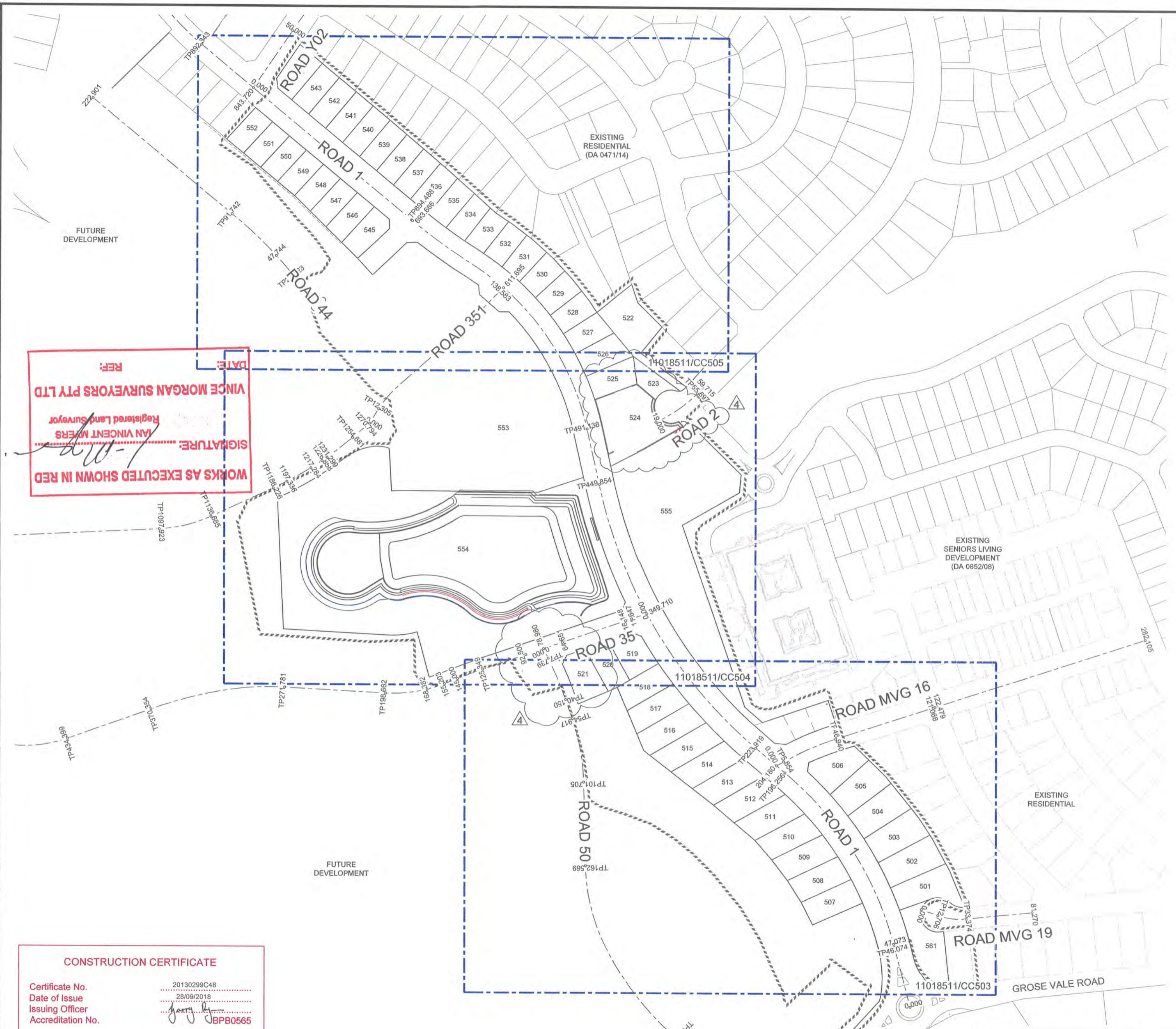
**ISSUED FOR CONSTRUCTION APPROVAL**

PLAN No.  
11018511/CC500 3

FILE No. 11018511CC500



Plotted: 13 September, 2018 9:32:33 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\ENTRY ROAD\1101851\CC502.dwg



**ROAD 1**

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286934.24	6281230.25	345°18'11.07"		
46.07	286922.55	6281274.82	345°18'11.07"		
121.17	286902.88	6281349.81		-245	150.18
196.26	286843.64	6281399.84	310°10'53.28"		
223.92	286822.51	6281417.69	310°10'53.28"		
300.6	286762.9	6281468.03		337.5	153.35
377.27	286731.43	6281539.43	336°12'55.22"		
383.66	286728.85	6281545.28		337.5	12.79
390.06	286726.5	6281551.23	338°23'09.01"		
419.96	286715.46	6281579.08		375	59.8
449.85	286708.99	6281608.33	347°31'20.00"		
491.14	286700.07	6281648.64	347°31'20.00"		
565.97	286683	6281725.78		-189	149.67
640.81	286616.1	6281767.82	302°08'53.28"		
667.65	286593.35	6281782.13		411	53.68
694.49	286572.65	6281799.27	309°37'51.36"		
892.34	286420.28	6281925.47			
956.13	286369.42	6281967.58		201	127.58
1019.92	286353.44	6282031.64	345°59'50.99"		
1155.02	286314.2	6282189.02		-194	270.18
1290.12	286152.35	6282178.27	266°11'54.60"		
1358.81	286080.79	6282173.51		-194	137.39
1427.51	286029.53	6282123.36	225°37'18.28"		

**ROAD MVG 16**

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286837.59	6281404.95	60°10'53.29"		
5.85	286842.67	6281407.86	60°10'53.29"		
26.4	286860.55	6281418.11	71°57'06.63"	200	41.09
46.94	286880.16	6281424.5	71°57'06.63"		
282.11	287103.75	6281497.36	71°57'06.63"		

**ROAD 35**

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286743.56	6281514.69	251°02'36.11"		
125.35	286625.01	6281473.97	251°02'36.11"		
139.87	286611.28	6281469.25		-500	29.03
154.38	286597.84	6281463.74	247°42'58.32"		
156.85	286595.56	6281462.81		100	4.93

**ROAD 44**

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286573.26	6281798.76	225°00'40.08"		
38.46	286546.08	6281771.56		1130.58	76.91
76.91	286517.06	6281746.27	228°54'32.58"		
89.26	286504.87	6281735.64		15	24.7
101.61	286495.18	6281748.6	323°14'47.82"		
137.26	286473.75	6281777.3		-300	71.3
172.92	286446.16	6281800.15			
308.4	286341.82	6281886.56	309°37'51.36"		

**ROAD 50**

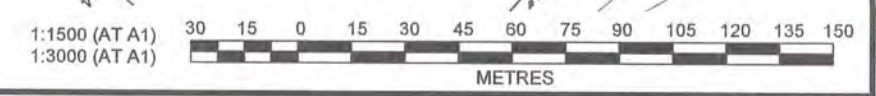
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286688.87	6281489.03	153°32'51.55"		
7.74	286672.31	6281482.1	153°32'51.55"		
23.94	286679.54	6281467.57		255.13	32.41
40.15	286684.87	6281452.25	160°49'34.87"		
54.92	286689.72	6281438.3	160°49'34.87"		
78.31	286697.47	6281416.02		150	46.79
101.71	286698.01	6281392.44	178°41'53.55"		
162.57	286699.39	6281331.59	178°41'53.55"		
194.52	286700.13	6281299.07		-139	63.91
226.48	286715.22	6281270.26	152°21'20.67"		
266.64	286734.08	6281234.29		-221	80.32
306.79	286784.46	6281207.36	131°31'57.95"		
351.45	286797.89	6281177.75	131°31'57.95"		

**ROAD 351**

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286542.61	6281652.08	32°47'23.04"		
12.3	286549.27	6281662.43	32°47'23.04"		
24.63	286555.99	6281672.86		86	24.66
36.96	286565.39	6281680.97			
87.77	286603.89	6281714.18		-1211.58	101.62
138.58	286639.47	6281750.5	44°24'37.69"		

REF: \_\_\_\_\_ DATE: \_\_\_\_\_  
**VINCE MORGAN SURVEYORS PTY LTD**  
 Registered Land Surveyor  
 IAN VINCENT MIERS  
 SIGNATURE: \_\_\_\_\_  
 WORKS AS EXECUTED SHOWN IN RED

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130295C48  
 Date of Issue 28/09/2018  
 Issuing Officer \_\_\_\_\_  
 Accreditation No. BPP0565  
 These plans/specifications form part of the certificate issued 28/09/2018



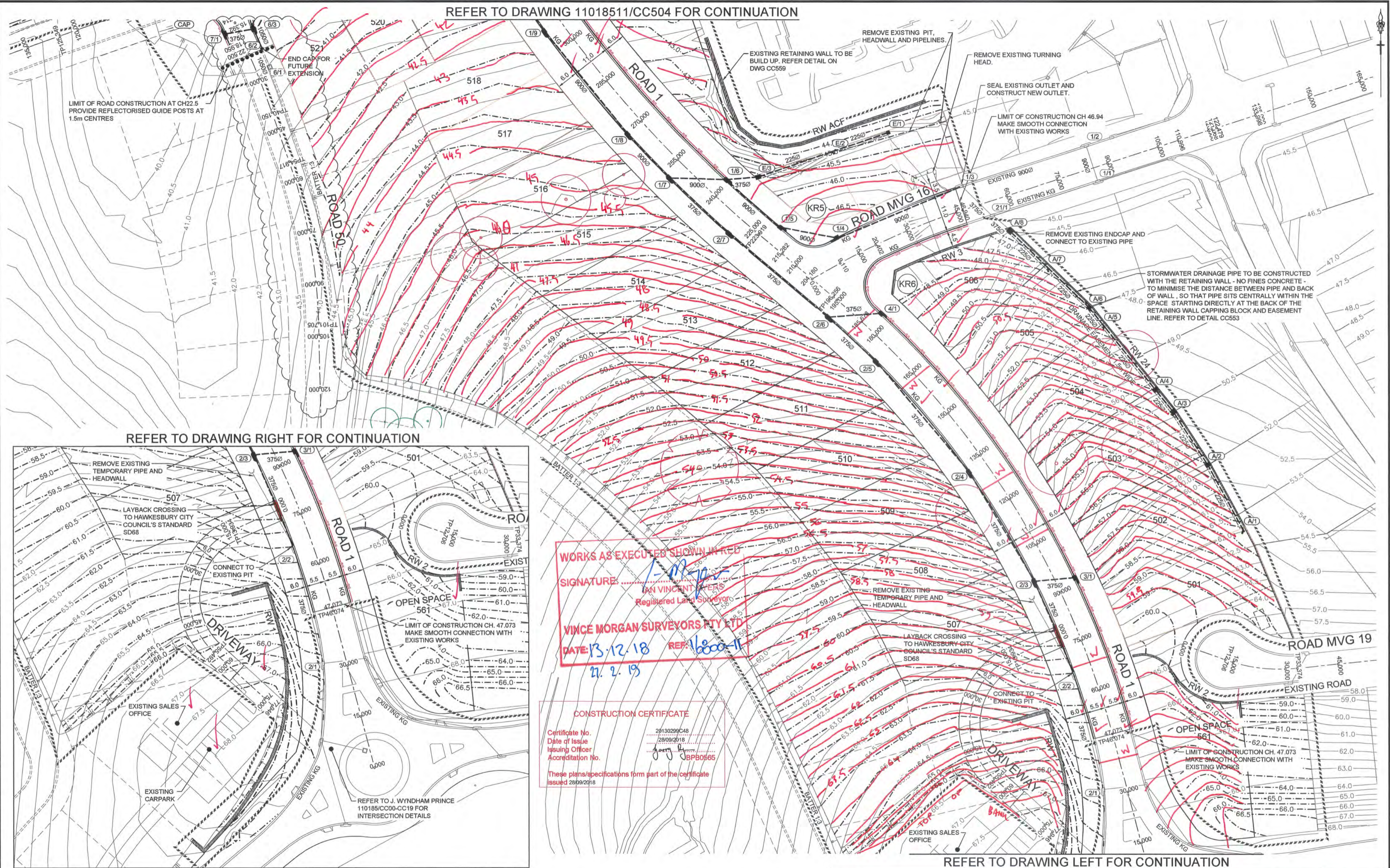
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
 PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 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 YEOMANS ENTRY  
 LAYOUT PLAN  
 PLAN No: 11018511/CC502 4  
 FILE No: 11018511CC502  
 SHEET SIZE: A1 ORIGINAL

NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
4	ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

REFER TO DRAWING 11018511/CC504 FOR CONTINUATION



REFER TO DRAWING RIGHT FOR CONTINUATION

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *[Signature]*  
VINCE MORGAN SURVEYORS PTY LTD  
Registered Land Surveyor

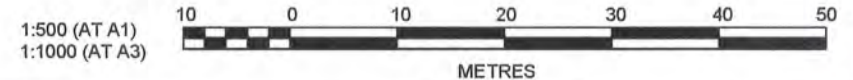
DATE: 13.12.18 REF: 16000-11  
21.2.19

CONSTRUCTION CERTIFICATE

Certificate No. 201130299C48  
Date of Issue 28/09/2018  
Issuing Officer JJP  
Accreditation No. JBPB0565

These plans/specifications form part of the certificate issued 28/09/2018

REFER TO DRAWING LEFT FOR CONTINUATION



**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

PRINCIPAL:  
**REDBANK**  
AZIMUTH: MGA 56  
DATUM: AHD  
ORIGIN:  
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

**ISSUED FOR CONSTRUCTION APPROVAL**

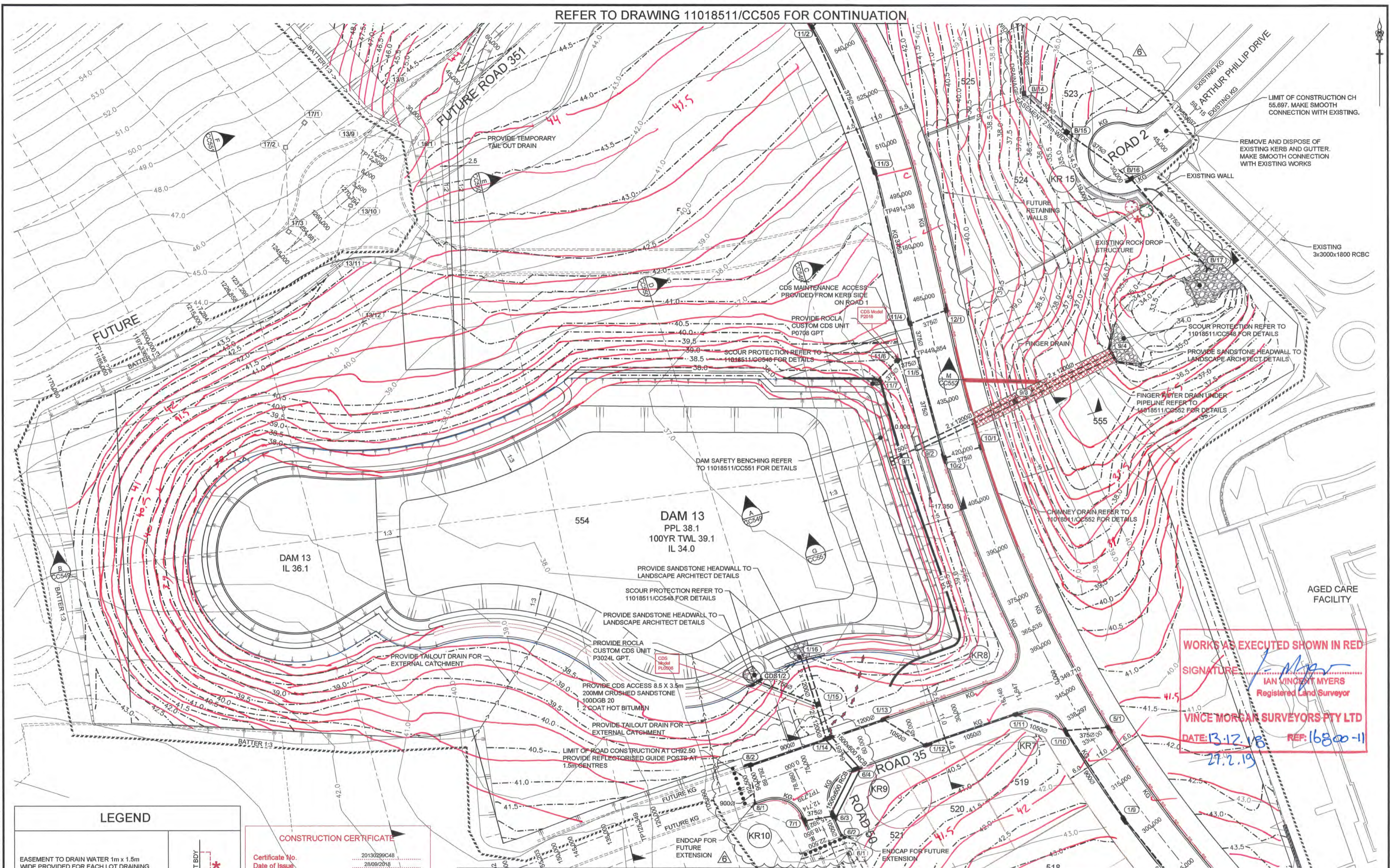
REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
ENGINEERING PLAN  
SHEET 1

PLAN No: 11018511/CC503 4  
FILE No: 11018511CC503  
SHEET SIZE: A1 ORIGINAL

Plotted: 13 September, 2018 9:44:32 AM File Name: J110185 - Redbank North Richmond Residential Precinct001 - Description\CC\CENTRY ROAD\11018511CC503.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
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3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

REFER TO DRAWING 11018511/CC505 FOR CONTINUATION



WORKS AS EXECUTED SHOWN IN RED  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18  
 REF: 16800-11

**LEGEND**

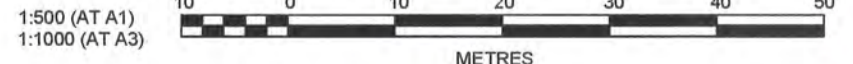
EASEMENT TO DRAIN WATER 1m x 1.5m WIDE PROVIDED FOR EACH LOT DRAINING DIRECTLY TO OPEN SPACE OR KEYLINE	LOT BDY
---	---------

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPP0565

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REFER TO DRAWING 11018511/CC503 FOR CONTINUATION



6	ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
5	PIT 9/2 APRON REDUCED TO MEET LANDSCAPING CONSTRAINTS	MP	MP	RO	MS	04/07/18
4	STORMWATER PITS IN CDS RELOCATION	MP	TG	MS	RO	26/06/18
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	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

PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

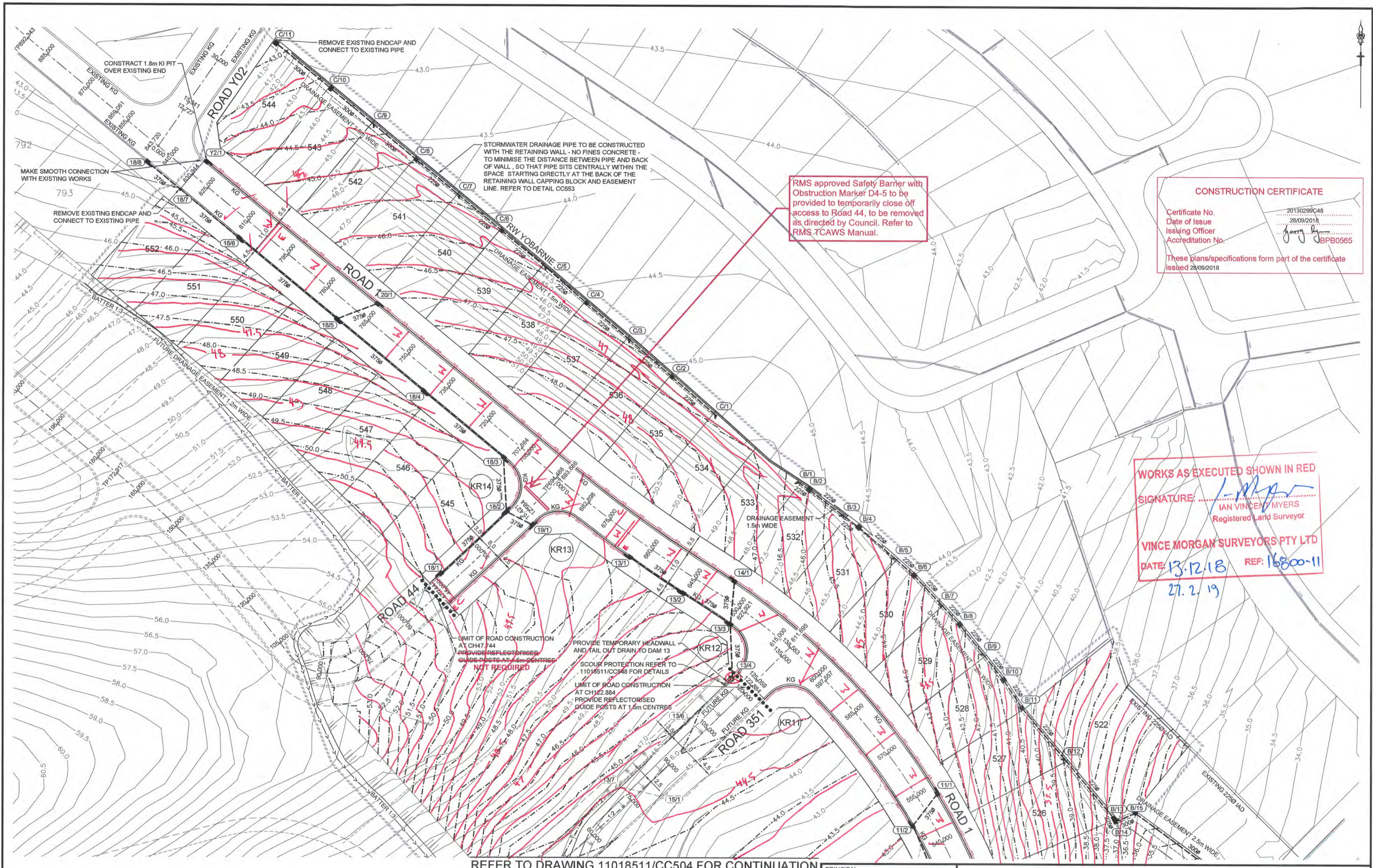
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 ENGINEERING PLAN  
 SHEET 2

PLAN No: 11018511/CC504 6  
 FILE No: 11018511CC504  
 SHEET SIZE: A1 ORIGINAL

Plotted: 13 September, 2018 9:33:46 AM File Name: J:\11018511 - Redbank North Richmond Residential Precincts\01 - Description\CDC\CENTURY ROAD\11018511CC504.dwg

Plotted: 14 May, 2018 10:38:57 AM File Name: \\1101851 - Redbank North Richmond Residential Precincts01 - Description\CC\CENTRY ROAD\1101851\CC505.dwg

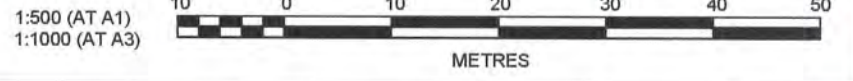


RMS approved Safety Barrier with Obstruction Marker D4-5 to be provided to temporarily close off access to Road 44, to be removed as directed by Council. Refer to RMS TCAWS Manual.

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565  
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**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27.2.19

REFER TO DRAWING 1101851/CC504 FOR CONTINUATION



AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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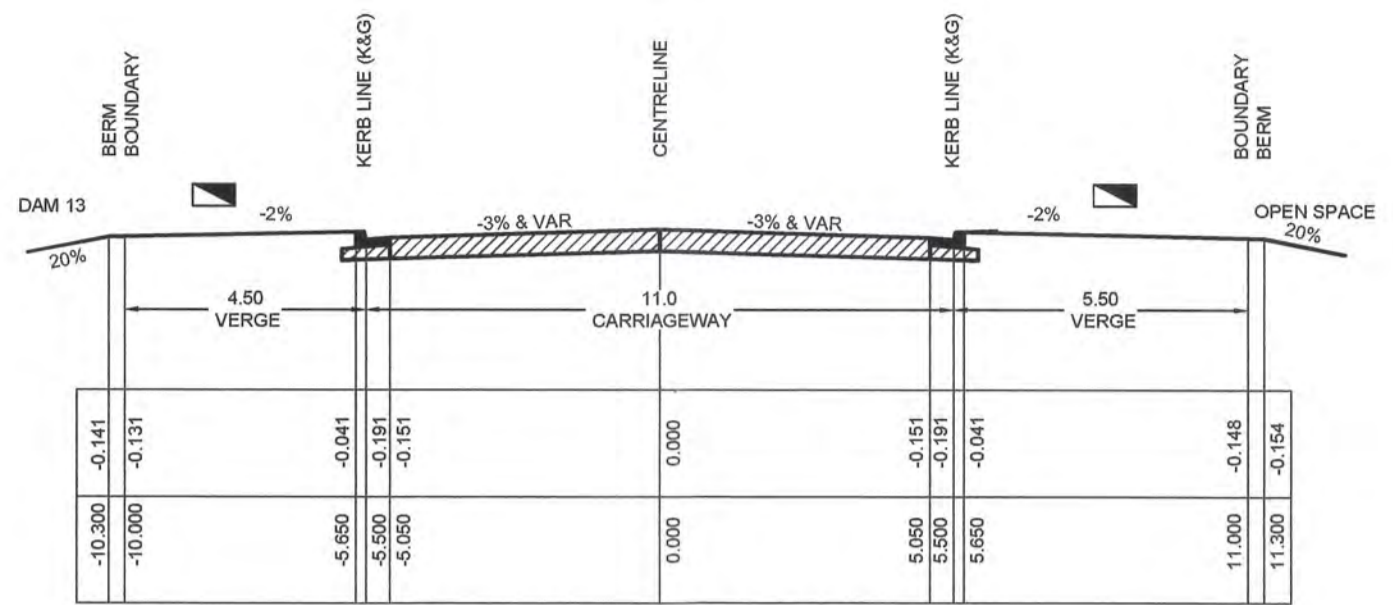
PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**  
 REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 ENGINEERING PLAN  
 SHEET 3

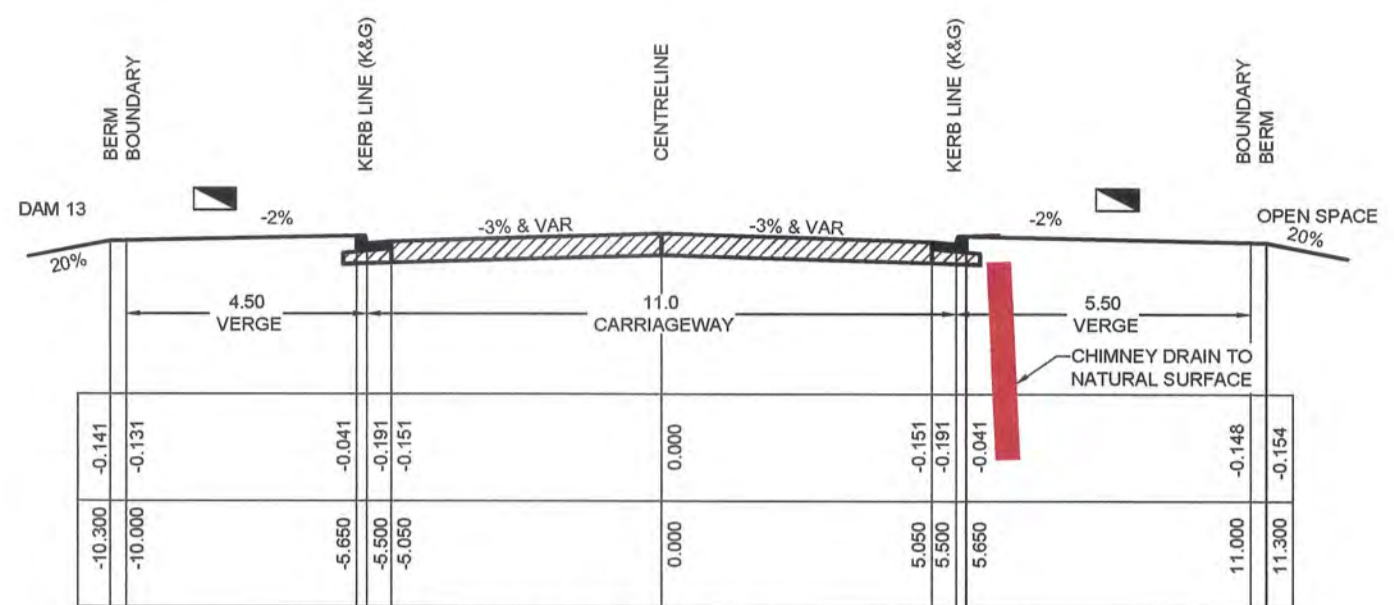
PLAN No: 1101851/CC505 3  
 FILE No: 1101851/CC505  
 SHEET SIZE: A1 ORIGINAL

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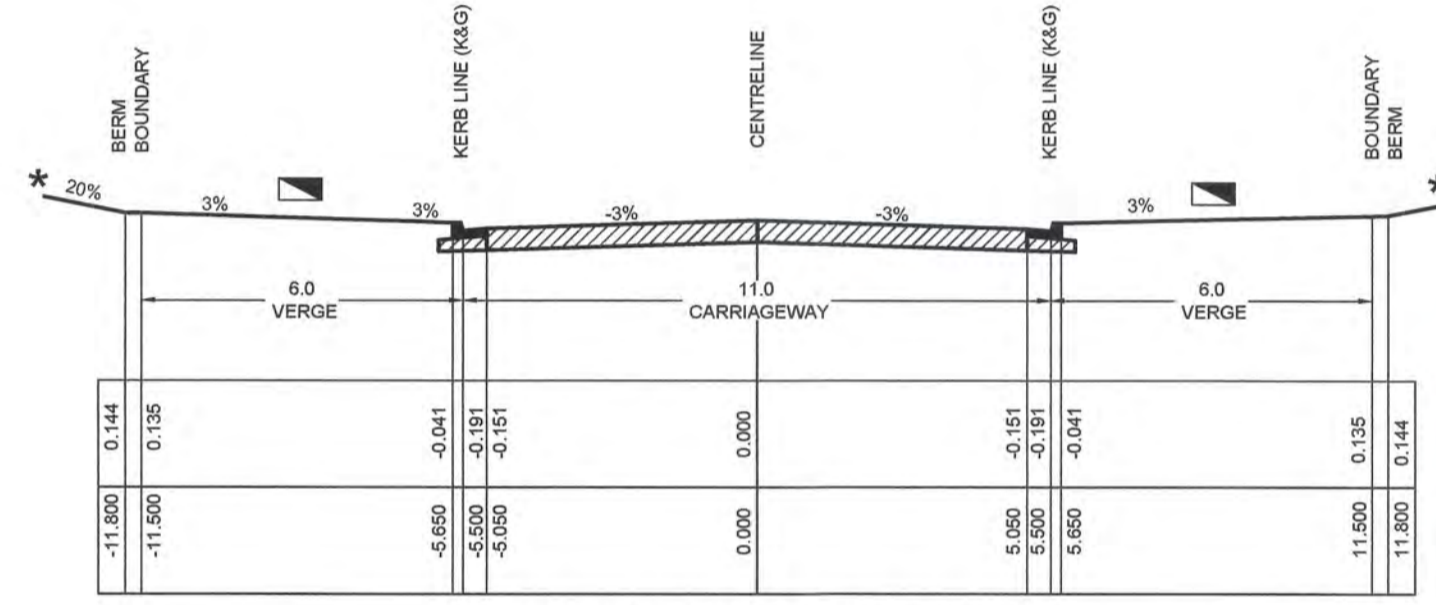
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**TYPICAL CROSS SECTION**  
 ROAD No.1 (CH236.0 - CH390.0)  
 (21m ROAD RESERVE)  
 SCALE 1:100 NATURAL

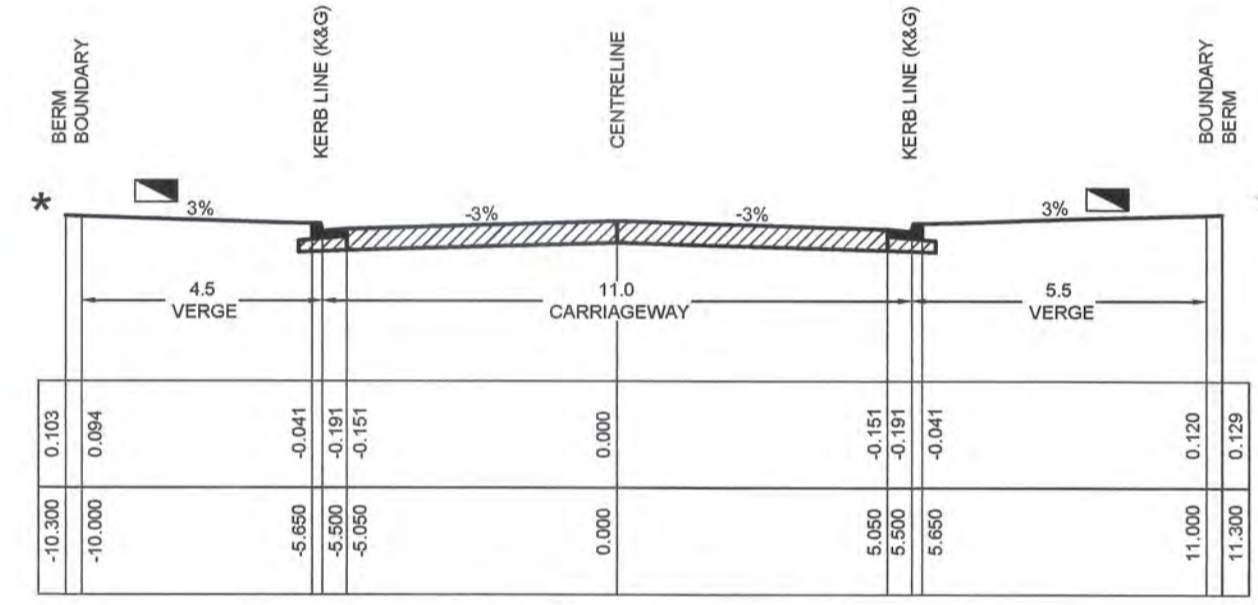


**TYPICAL CROSS SECTION**  
 ROAD No.1 (CH390.0 - CH450.0)  
 (21m ROAD RESERVE)  
 SCALE 1:100 NATURAL



**TYPICAL CROSS SECTION**  
 ROAD No.1 (CH85.000 - CH236.000)  
 (23m ROAD RESERVE)  
 SCALE 1:100 NATURAL

**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27. 2. 19



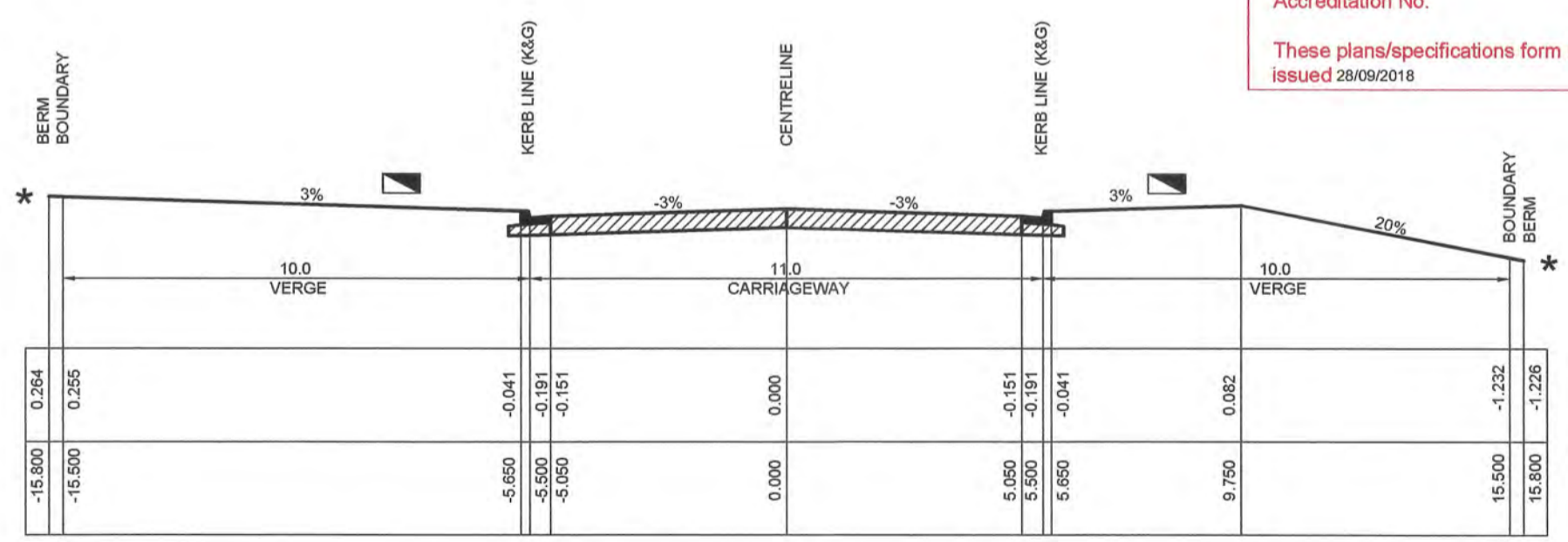
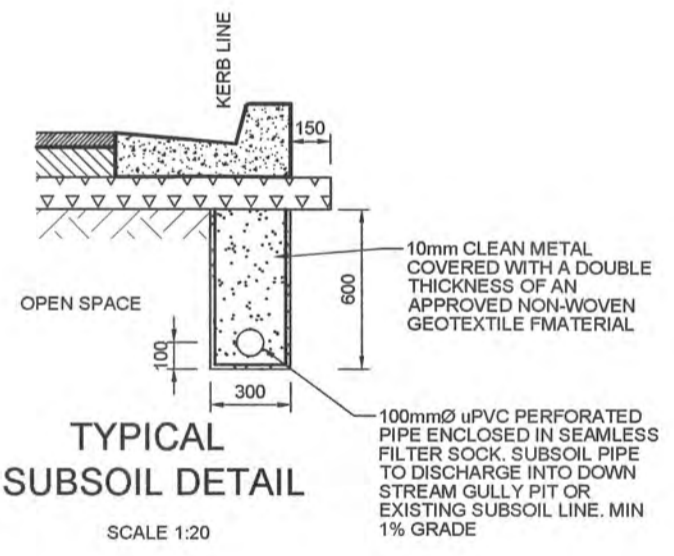
**TYPICAL CROSS SECTION**  
 ROAD No.1 (CH450.0 - CH830.944)  
 (21m ROAD RESERVE)  
 SCALE 1:100 NATURAL

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018

**PAVEMENT EVALUATION**

PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC -R1) DATED 7 JUNE 2017)

ROAD 1 ESA 1x10 <sup>6</sup>	= 2x25
AC10 (mm)	= 150
ONE COAT HOT BITUMEN FLUSH SEAL	= 150
BASE COURSE (mm) DGB20	= 340
SUB-BASE COURSE (mm)	= 540
CRUSHED SANDSTONE	
TOTAL (mm)	

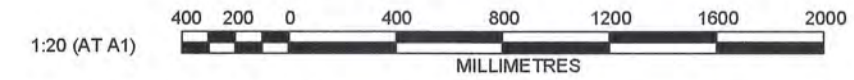


**TYPICAL CROSS SECTION**  
 ROAD No.1 (CH47.074 - CH85.000)  
 (31m ROAD RESERVE)  
 SCALE 1:100 NATURAL

\* REFER TO ENGINEERING PLANS FOR SITE REGRADING

REFER TO LANDSCAPE ARCHITECT PLANS FOR FOOTPATH LOCATION DETAILS

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



**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 56  
 DATUM: AHD  
 ORIGIN:



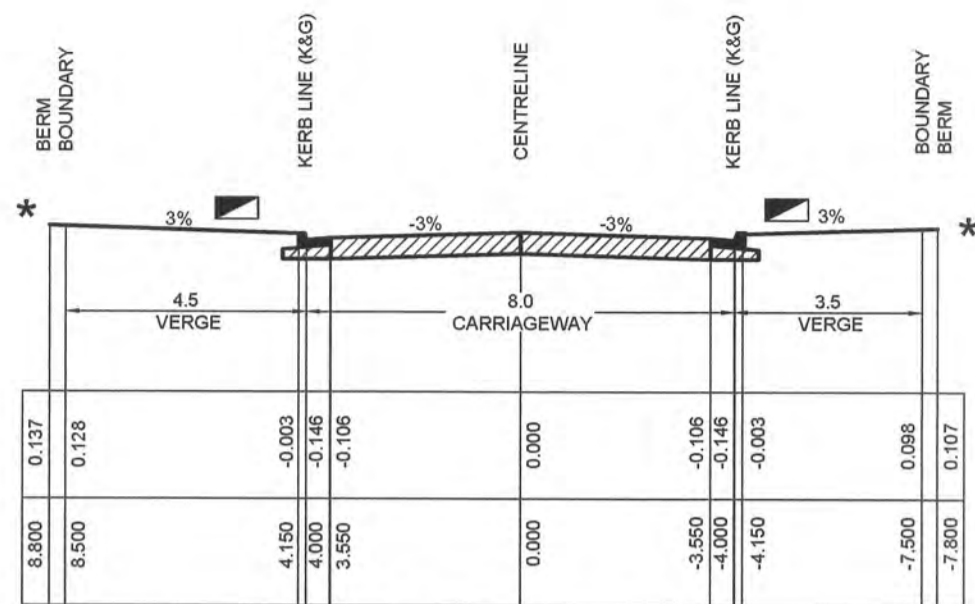
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 ROAD TYPICAL SECTIONS  
 SHEET 1

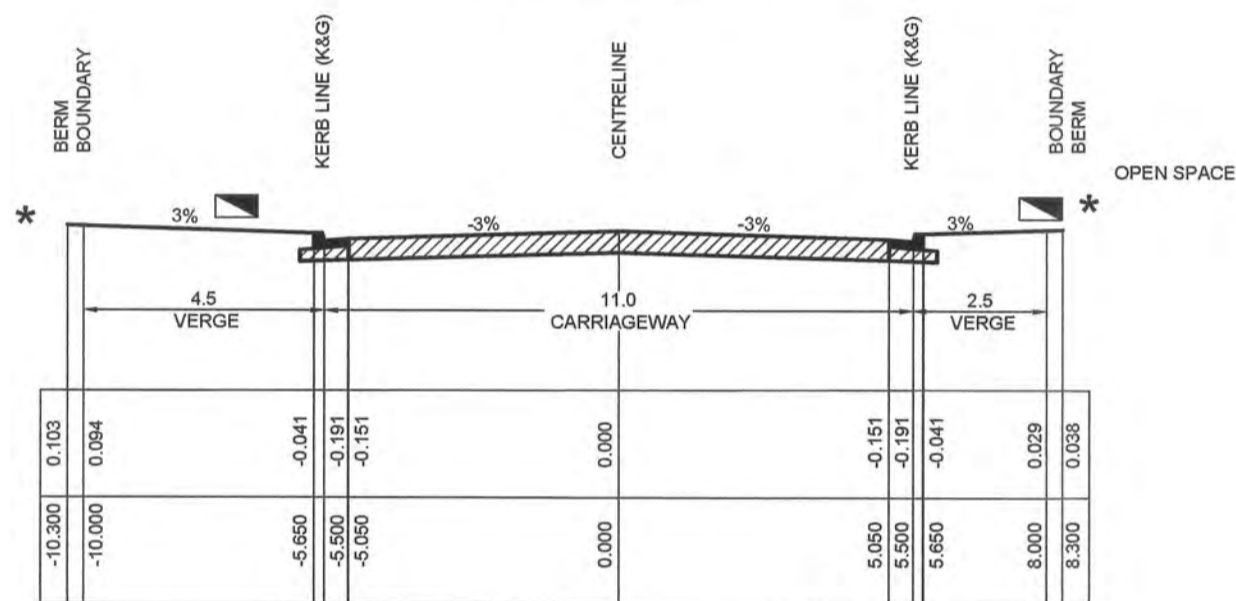
PLAN No:	1101851/CC506	3
FILE No:	1101851CC506	
SHEET SIZE:	A1 ORIGINAL	

AMENDMENT	DES	DRN	CKD	APR	DATE
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2	MP	LS			26/02/18
1	MP	JG			19/12/17

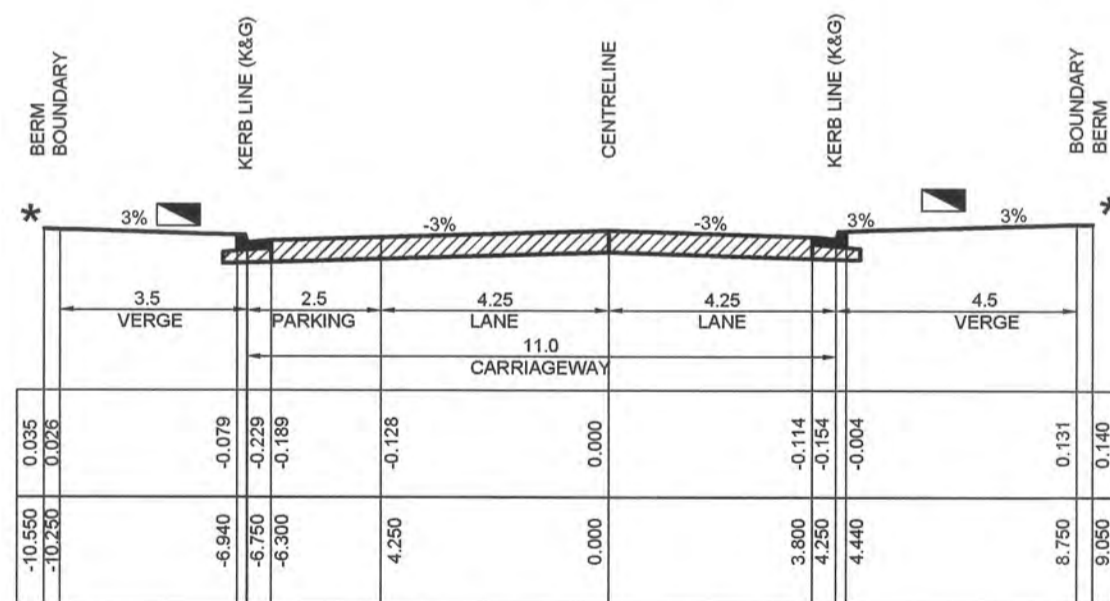
Plotted: 13 September, 2018 9:33:56 AM. File Name: J:\110185 - Redbank North Richmond Residential Precincts01 - Description\CD\CC507 - ROAD\11018511CC507.dwg



**TYPICAL CROSS SECTION**  
 ROAD No.44 (CH0.00 - CH47.744)  
 (16m ROAD RESERVE)  
 SCALE 1:100 NATURAL



**TYPICAL CROSS SECTION**  
 ROAD No.35 (CH0.00 - CH92.50) - OPEN SPACE  
 (17m ROAD RESERVE)  
 SCALE 1:100 NATURAL



**TYPICAL CROSS SECTION**  
 ROAD No.16 (MVG) (CH0.00 - CH50.00)  
 (19m ROAD RESERVE)  
 SCALE 1:100 NATURAL

**PAVEMENT EVALUATION**

PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC -R1) DATED 7 JUNE 2017)

ROAD 351 ESA 2x10 <sup>5</sup>	
AC10 (mm)	= 2x25
ONE COAT HOT BITUMEN FLUSH SEAL	= 150
BASE COURSE (mm) DGB20	= 250
SUB-BASE COURSE (mm)	= 250
CRUSHED SANDSTONE	= 450
TOTAL (mm)	= 450

**PAVEMENT EVALUATION**

PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC -R1) DATED 7 JUNE 2017)

ROAD 50 ESA 5x10 <sup>4</sup>	
AC10 (mm)	= 2x25
ONE COAT HOT BITUMEN FLUSH SEAL	= 150
BASE COURSE (mm) DGB20	= 200
SUB-BASE COURSE (mm)	= 200
CRUSHED SANDSTONE	= 400
TOTAL (mm)	= 400

**PAVEMENT EVALUATION**

PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC -R1) DATED 7 JUNE 2017)

ROAD 44 ESA 5x10 <sup>4</sup>	
AC10 (mm)	= 2x25
ONE COAT HOT BITUMEN FLUSH SEAL	= 150
BASE COURSE (mm) DGB20	= 200
SUB-BASE COURSE (mm)	= 200
CRUSHED SANDSTONE	= 400
TOTAL (mm)	= 400

**PAVEMENT EVALUATION**

PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC -R1) DATED 7 JUNE 2017)

ROAD 35 ESA 2x10 <sup>5</sup>	
AC10 (mm)	= 2x25
ONE COAT HOT BITUMEN FLUSH SEAL	= 150
BASE COURSE (mm) DGB20	= 250
SUB-BASE COURSE (mm)	= 250
CRUSHED SANDSTONE	= 450
TOTAL (mm)	= 450

**PAVEMENT EVALUATION**

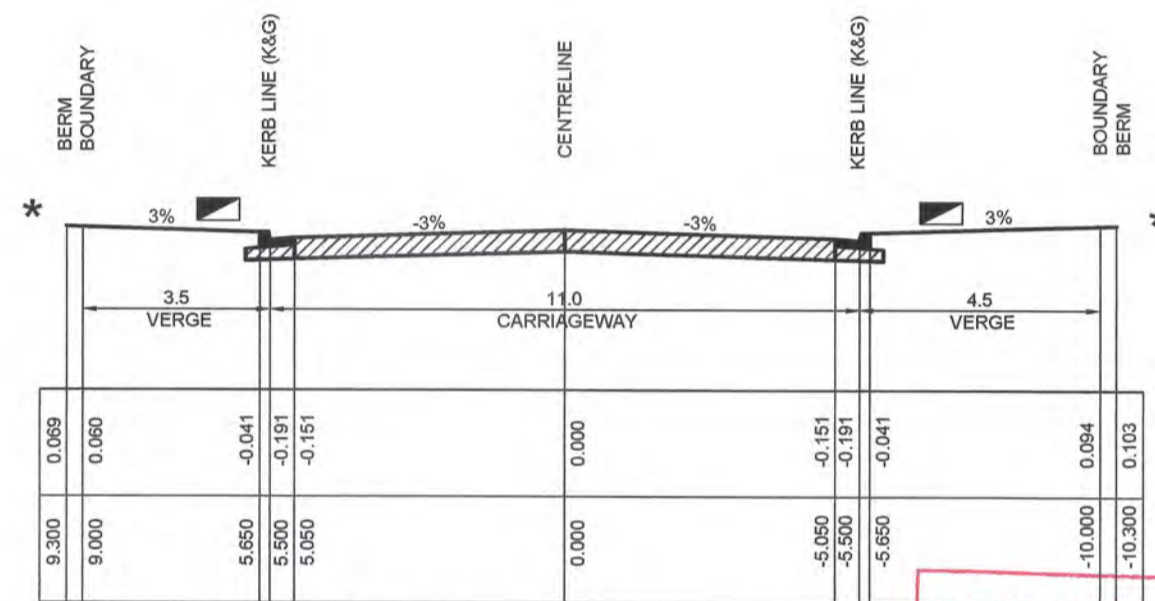
PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC -R1) DATED 7 JUNE 2017)

ROAD MVG 16 ESA 5x10 <sup>4</sup>	
AC10 (mm)	= 2x25
ONE COAT HOT BITUMEN FLUSH SEAL	= 150
BASE COURSE (mm) DGB20	= 200
SUB-BASE COURSE (mm)	= 200
CRUSHED SANDSTONE	= 400
TOTAL (mm)	= 400

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

\* REFER TO ENGINEERING PLANS FOR SITE REGRADING

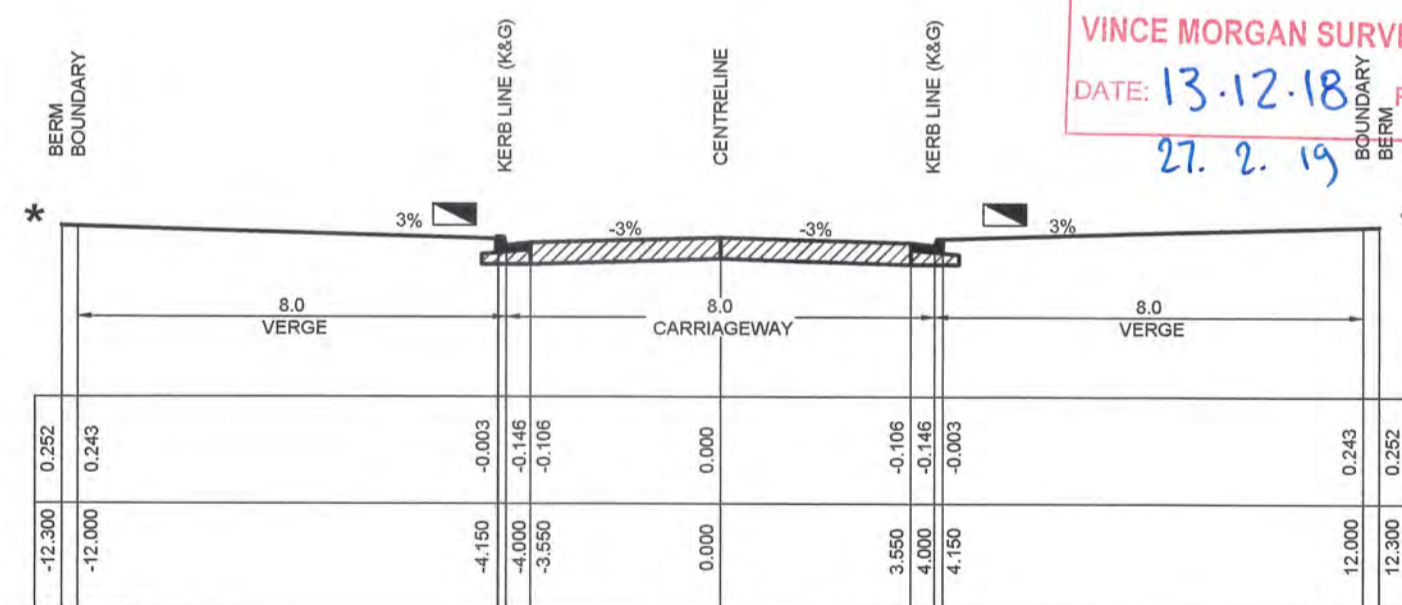
REFER TO LANDSCAPE ARCHITECT PLANS FOR FOOTPATH LOCATION DETAILS



**TYPICAL CROSS SECTION**  
 ROAD No.351 (CH122.884)  
 (19m ROAD RESERVE)  
 SCALE 1:100 NATURAL

**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor

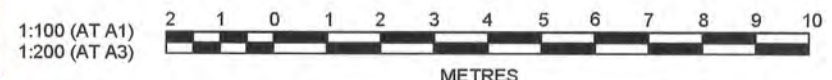
VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27. 2. 19



**TYPICAL CROSS SECTION**  
 ROAD No.50  
 (24m ROAD RESERVE)  
 SCALE 1:100 NATURAL

ROAD 35 CHAINAGE UPDATED.

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018



PRINCIPAL:  
  
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**ISSUED FOR CONSTRUCTION APPROVAL**  
 REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 ROAD TYPICAL SECTIONS  
 SHEET 2

PLAN No: 11018511/CC507 4  
 FILE No: 11018511CC507  
 SHEET SIZE: A1 ORIGINAL

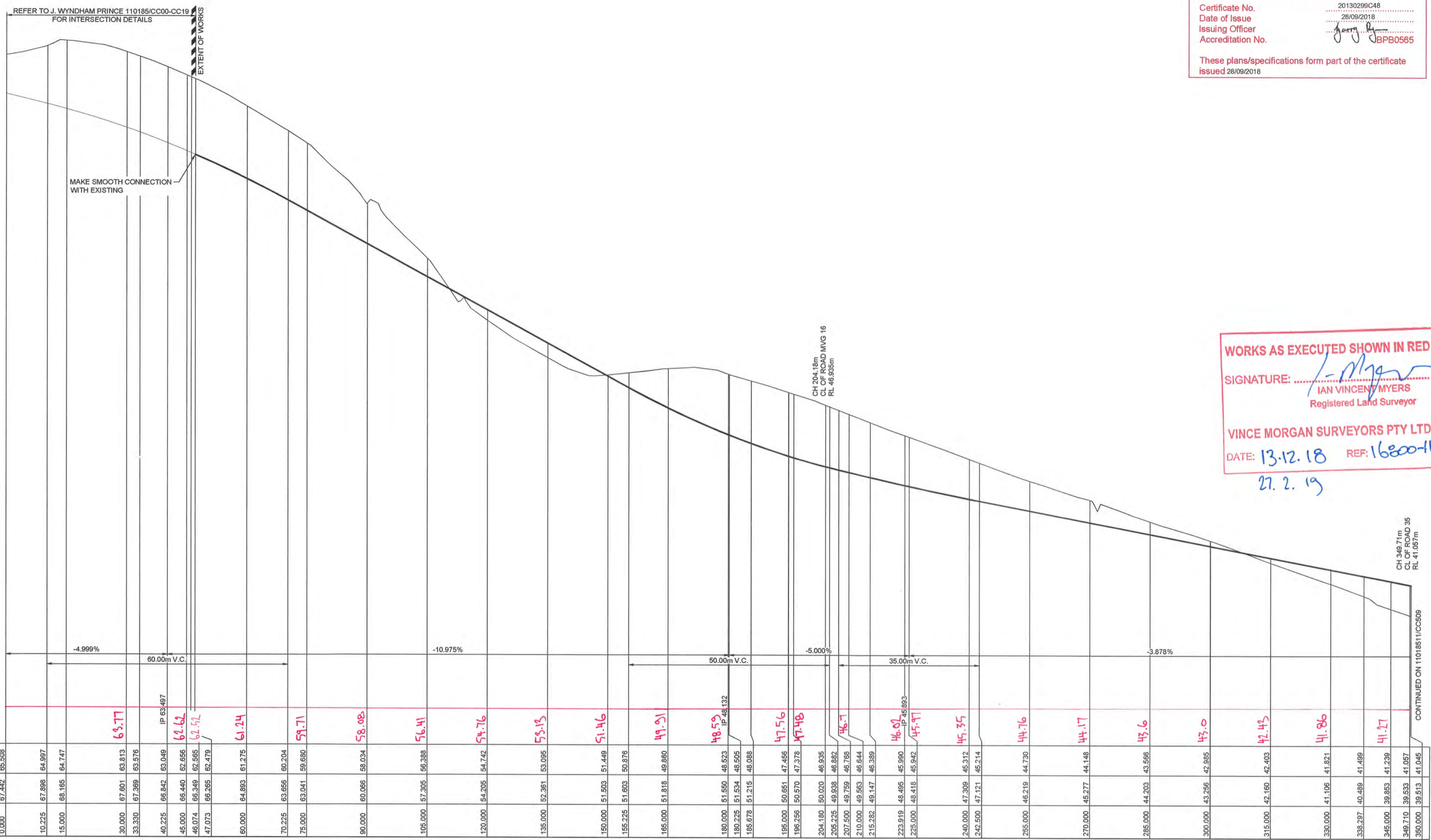
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
 PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AMENDMENT	DES	DRN	CKD	APR	DATE
4 ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17



**CONSTRUCTION CERTIFICATE**

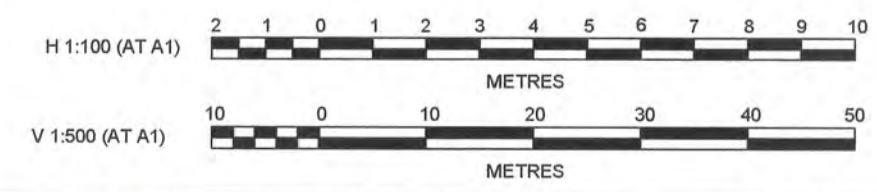
Certificate No. 20130298C48  
 Date of Issue 28/09/2018  
 Issuing Officer *Jerry B*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018



**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *I. Morgan*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16200-11  
 27.2.19

CHAINAGE	EXISTING SURFACE	DESIGN LINE GRADING
0.000	67.442	65.508
10.225	67.898	64.997
15.000	68.165	64.747
30.000	67.601	63.813
33.330	67.369	63.576
40.225	66.842	63.049
45.000	66.440	62.656
46.074	66.249	62.565
47.073	66.265	62.479
60.000	64.893	61.275
70.225	63.656	60.204
75.000	63.041	59.680
90.000	60.066	58.034
105.000	57.305	56.441
120.000	54.205	54.742
135.000	52.361	53.095
150.000	51.503	51.449
155.225	51.603	50.876
165.000	51.818	49.860
180.000	51.550	48.523
180.225	51.534	48.505
185.678	51.215	48.088
195.000	50.651	47.456
196.255	50.570	47.378
204.180	50.020	46.935
205.225	49.938	46.852
207.500	49.759	46.768
210.000	49.563	46.644
215.282	49.147	46.389
223.919	48.495	45.990
225.000	48.418	45.942
240.000	47.309	45.312
242.500	47.121	45.214
255.000	46.219	44.730
270.000	45.277	44.148
285.000	44.203	43.566
300.000	43.256	42.985
315.000	42.160	42.403
330.000	41.106	41.821
338.297	40.469	41.499
345.000	39.853	41.239
349.710	39.533	41.057
350.000	39.513	41.045

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



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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

AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**  
 REDBANK, NORTH RICHMOND YEOMANS ENTRY  
 ROAD LONGITUDINAL SECTIONS SHEET 1  
 PLAN No: 11018511/CC508 3  
 FILE No: 11018511CC508  
 SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:39:28 AM File Name: \\110185 - Redbank North Richmond Residential Precincts01 - Description\CC\CENTRY ROAD\11018511CC508.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

**CONSTRUCTION CERTIFICATE**

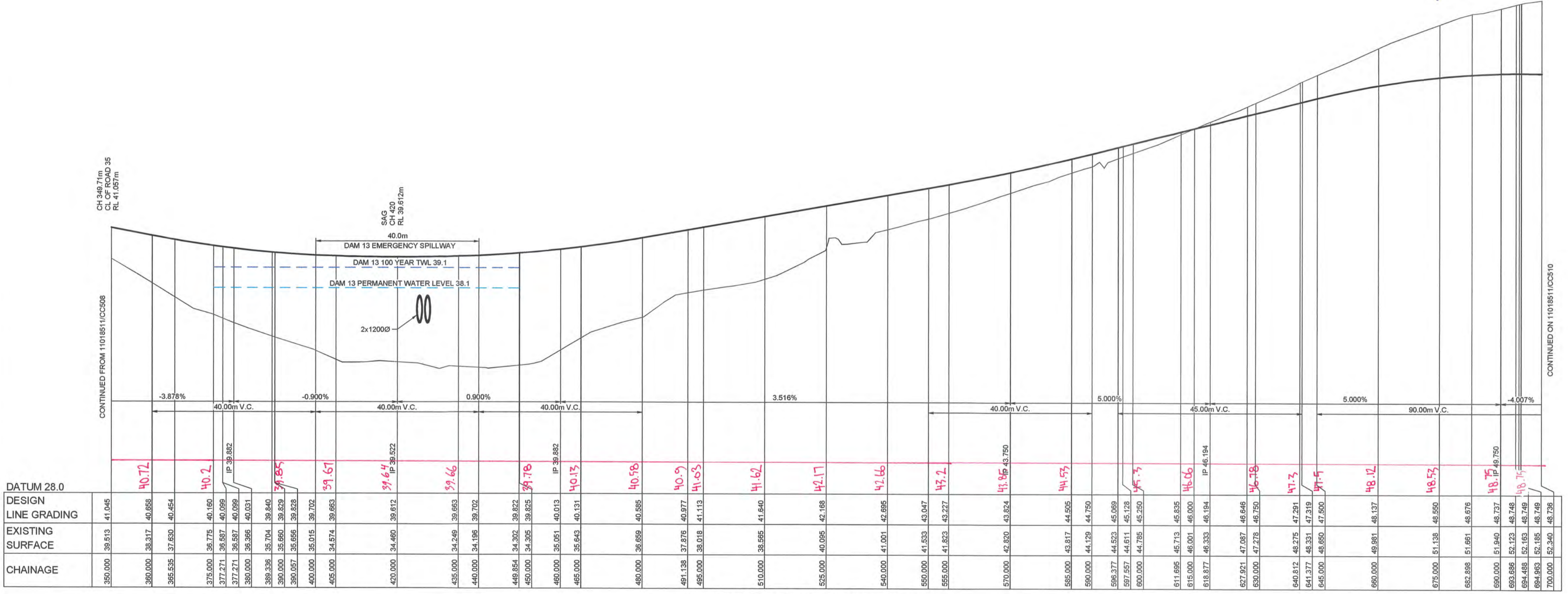
Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018

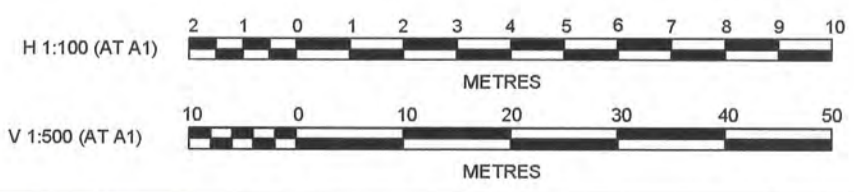
**WORKS AS EXECUTED SHOWN IN RED**

SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 1000-11  
 21.2.19



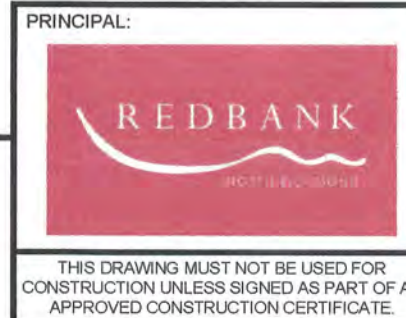
**LONGITUDINAL SECTION ROAD 1**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100



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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

AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 ROAD LONGITUDINAL SECTIONS  
 SHEET 2**

PLAN No: 11018511/CC509 **3**  
 FILE No: 11018511CC509  
 SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:39:39 AM File Name: \\1101851 - Redbank North Richmond Residential Precincts01 - Description\CC509\ROAD11018511\CC509.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

**CONSTRUCTION CERTIFICATE**

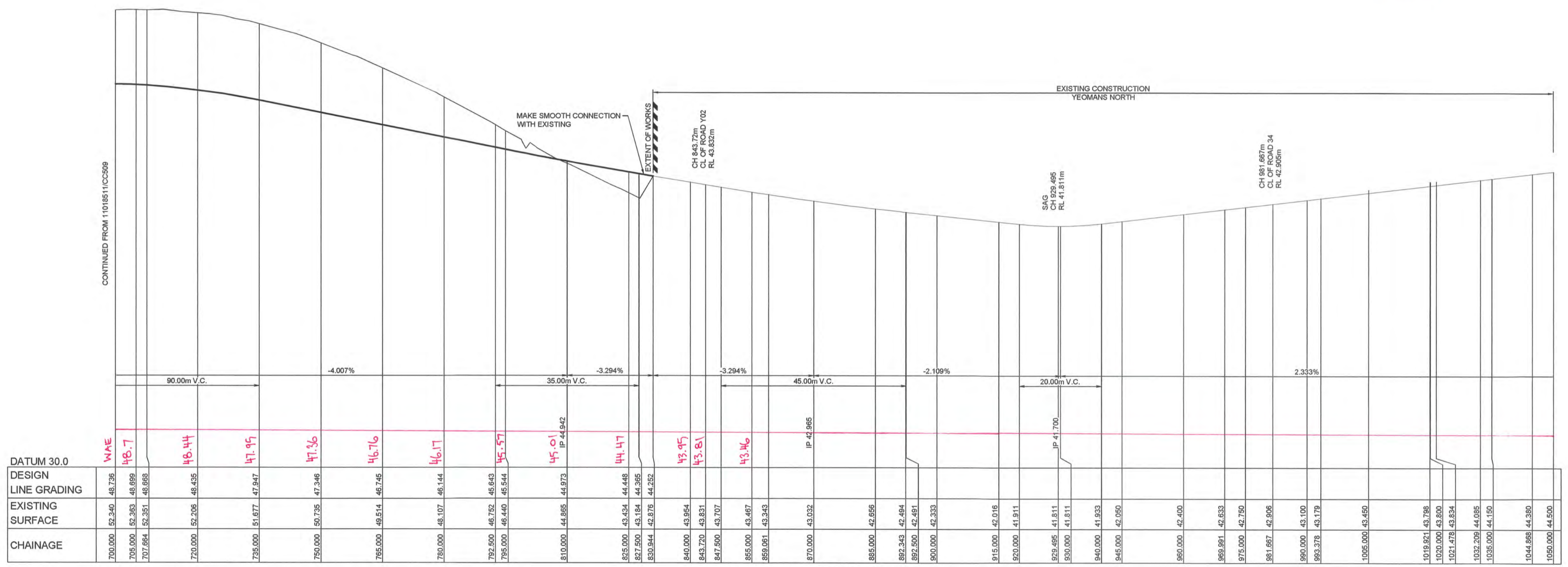
Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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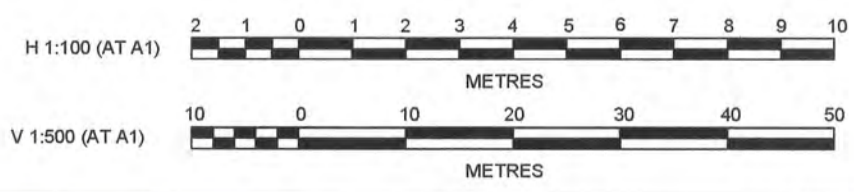
**WORKS AS EXECUTED SHOWN IN RED**

SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27.2.19



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



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

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

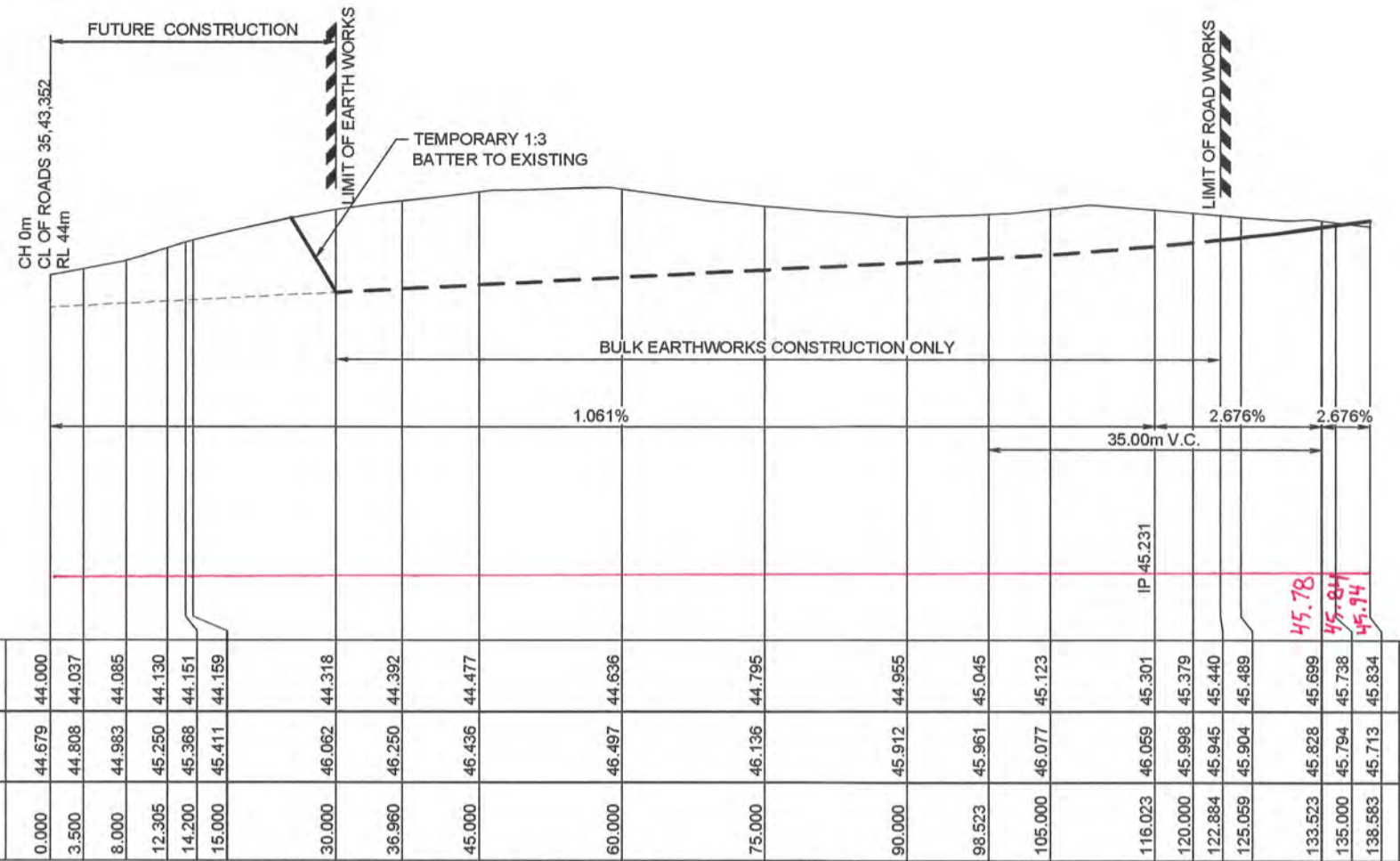
REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 ROAD LONGITUDINAL SECTIONS  
 SHEET 3

PLAN No: 11018511/CC510 **3**  
 FILE No: 11018511CC510  
 SHEET SIZE: A1 ORIGINAL

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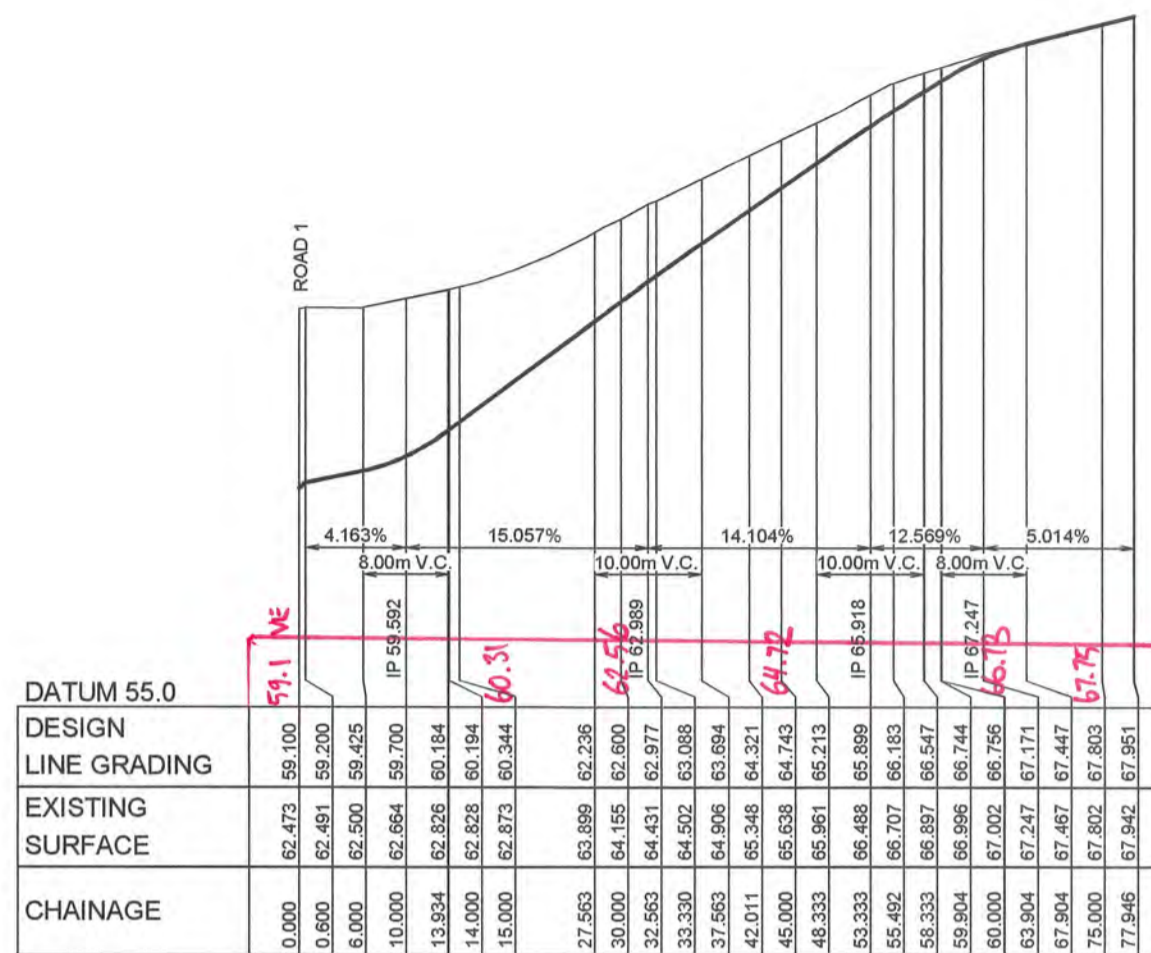
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2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 13 September, 2018 9:34:13 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CENTREY ROAD\1101851\CC511.dwg



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DESIGN LINE GRADING		44.000	44.037	44.095	44.130	44.151	44.159	46.062	46.392	46.477	46.636	46.795	46.955	45.045	45.123	45.301	45.379	45.440	45.469	45.699	45.738	45.834
EXISTING SURFACE		44.679	44.808	44.983	45.250	45.368	45.411	46.062	46.250	46.456	46.467	46.136	45.912	45.961	46.077	46.069	45.998	45.945	45.904	45.828	45.794	45.713
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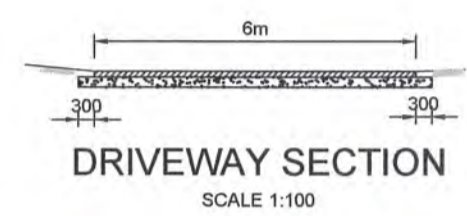
LONGITUDINAL SECTION ROAD 351  
HORIZONTAL SCALE 1:500  
VERTICAL SCALE 1:100



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DESIGN LINE GRADING		59.100	59.200	59.425	59.700	60.184	60.194	60.344	62.236	62.600	64.431	63.088	63.894	64.321	64.743	65.213	65.981	66.707	66.183	66.744	66.744	66.756	67.171	67.447	67.803	67.951
EXISTING SURFACE		59.473	59.481	59.425	59.684	60.184	60.194	60.344	62.236	62.600	64.431	63.088	63.894	64.321	64.743	65.213	65.981	66.707	66.183	66.744	66.744	66.756	67.171	67.447	67.803	67.951
CHAINAGE		0.000	6.000	6.000	10.000	13.934	14.000	15.000	27.553	30.000	32.553	33.330	37.593	42.011	45.000	48.333	53.333	55.492	58.333	59.804	60.000	63.904	67.504	75.000	77.946	

LONGITUDINAL SECTION DRIVEWAY  
(access to sales office)  
HORIZONTAL SCALE 1:500  
VERTICAL SCALE 1:100

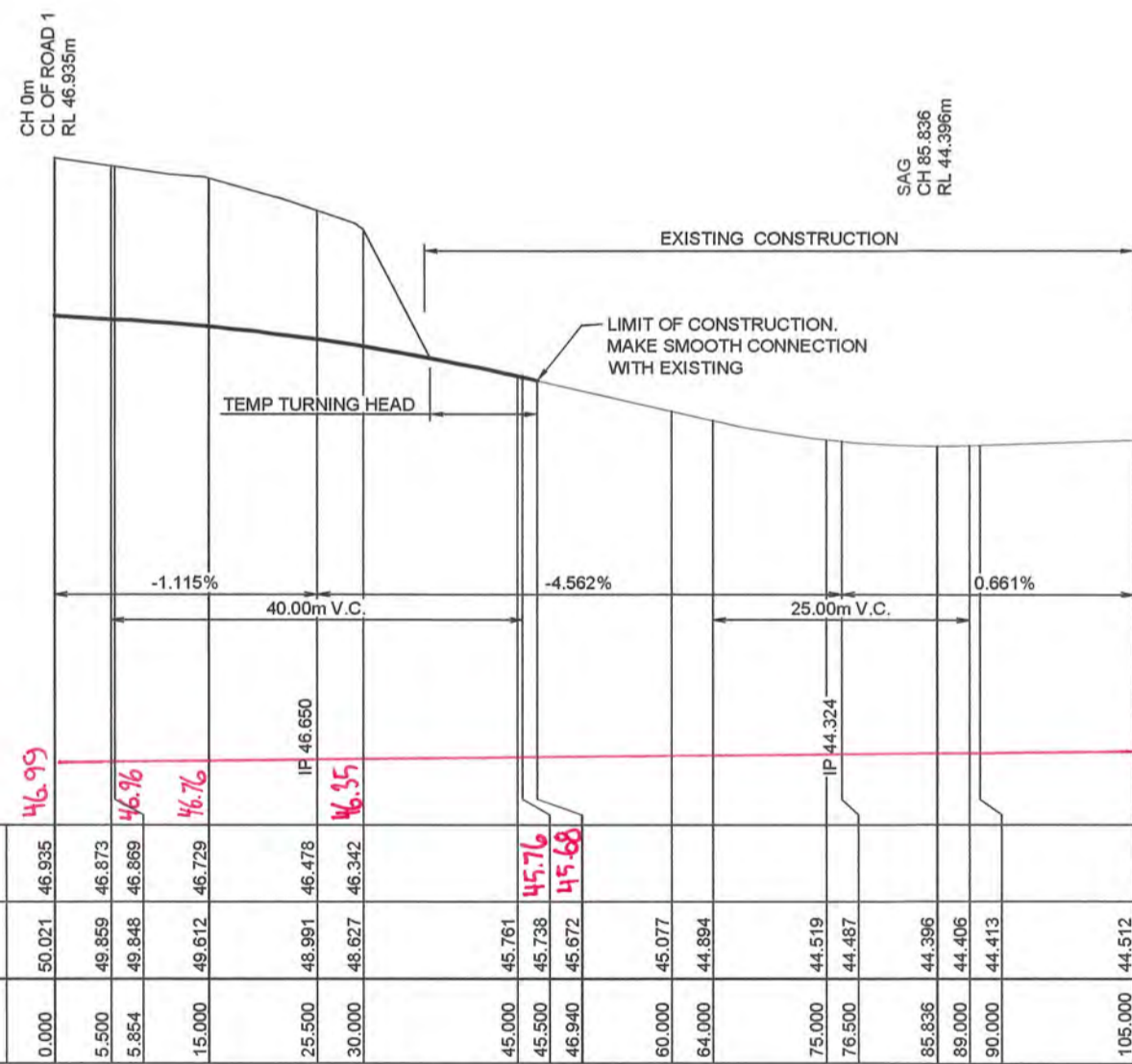
- PAVEMENT NOTES**  
DRIVEWAY
- TWO COAT HOT BITUMEN FLUSH SEAL WITH 14mm & 10mm AGGREGATE
  - 100mm COMPACTED THICKNESS DGB20 BASE COURSE
  - 200mm COMPACTED THICKNESS CRUSHED SANDSTONE SUB-BASE COURSE



WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16000-11  
27.2.19



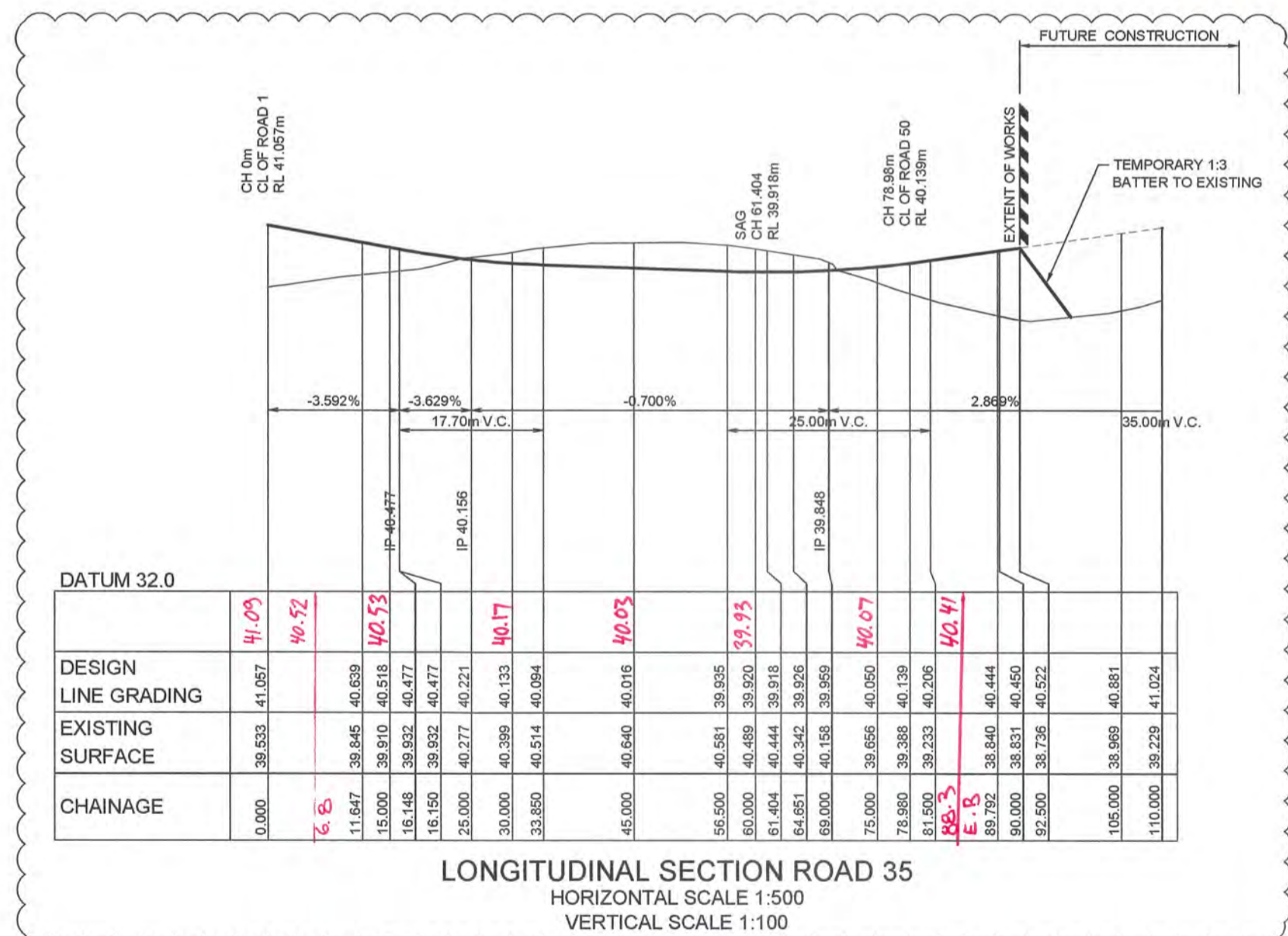
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DESIGN LINE GRADING		46.935	46.873	46.869	46.729	46.478	46.342	45.716	45.738	45.672	45.077	44.894	44.519	44.487	44.396	44.406	44.413	44.512	44.512
EXISTING SURFACE		50.021	49.859	49.848	49.612	49.981	49.627	45.781	45.738	45.672	45.077	44.894	44.519	44.487	44.396	44.406	44.413	44.512	44.512
CHAINAGE		0.000	5.500	5.854	15.000	25.500	30.000	45.000	45.500	46.940	60.000	64.000	75.000	76.500	85.836	89.000	90.000	105.000	105.000

LONGITUDINAL SECTION ROAD MVG 16  
HORIZONTAL SCALE 1:500  
VERTICAL SCALE 1:100

**CONSTRUCTION CERTIFICATE**

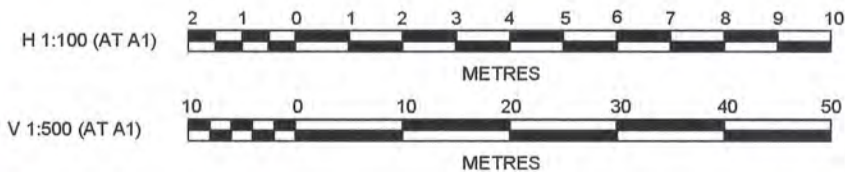
Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *J. Morgan*  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018



DATUM 32.0		0.000	11.647	16.148	16.150	25.000	30.000	33.650	45.000	56.500	60.000	61.404	64.651	69.000	75.000	78.980	81.500	105.000	110.000
DESIGN LINE GRADING		41.057	40.639	40.477	40.477	40.221	40.133	40.094	40.016	39.935	39.920	39.918	39.926	39.959	40.050	40.139	40.206	40.444	40.450
EXISTING SURFACE		39.533	39.845	39.910	39.932	39.932	39.932	39.932	39.932	39.935	39.920	39.918	39.926	39.959	40.050	40.139	40.206	40.444	40.450
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LONGITUDINAL SECTION ROAD 35  
HORIZONTAL SCALE 1:500  
VERTICAL SCALE 1:100



PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
ROAD LONGITUDINAL SECTIONS  
SHEET 4

PLAN No: 11018511/CC511 4

FILE No: 11018511CC511

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 jwp@jwprince.com.au

NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
4	ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 13 September, 2018 9:34:04 AM File Name: J110185 - Redbank North Richmond Residential Precincts01 - Description\CD\CC512.dwg

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *Jerry B...*  
 Accreditation No. JPB0565

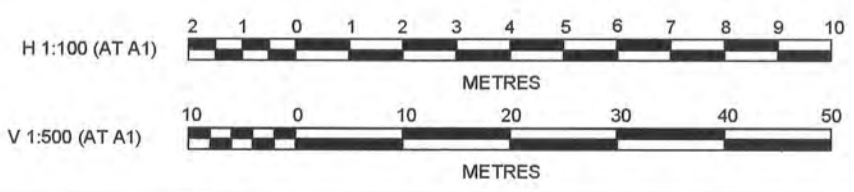
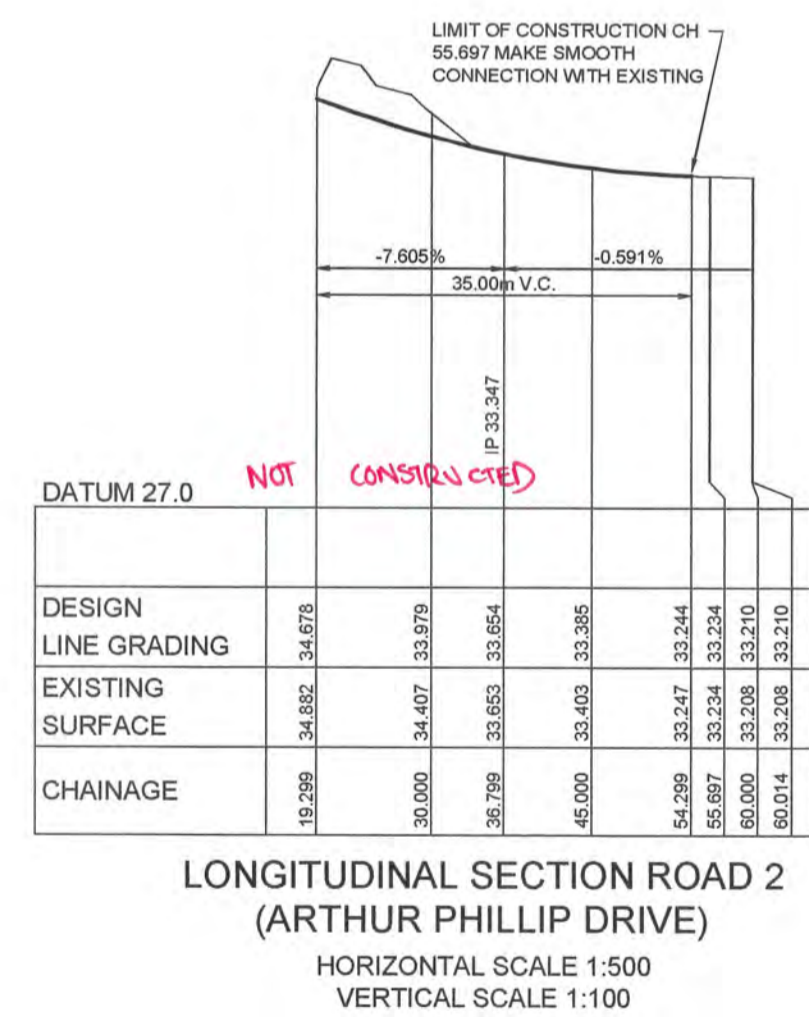
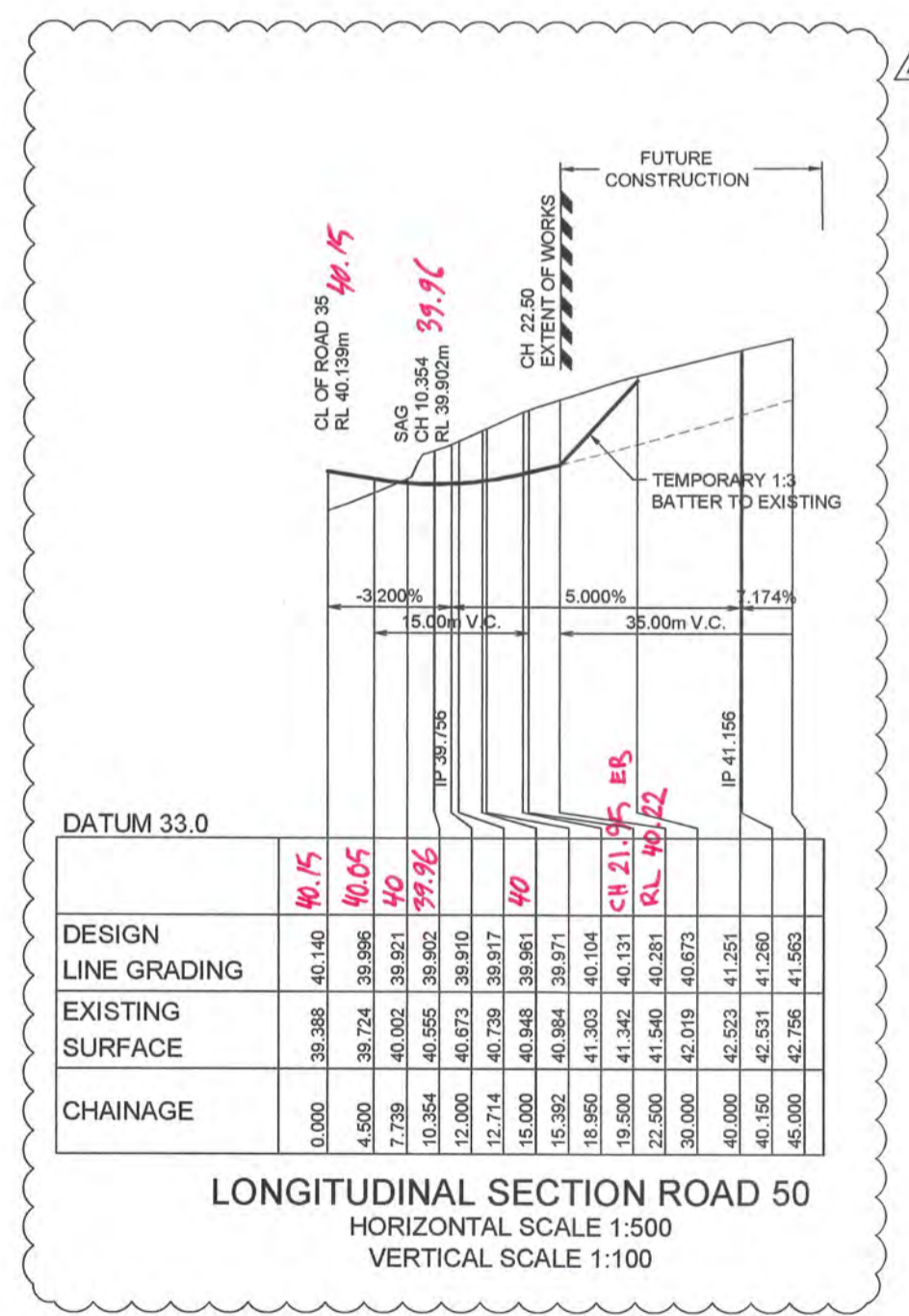
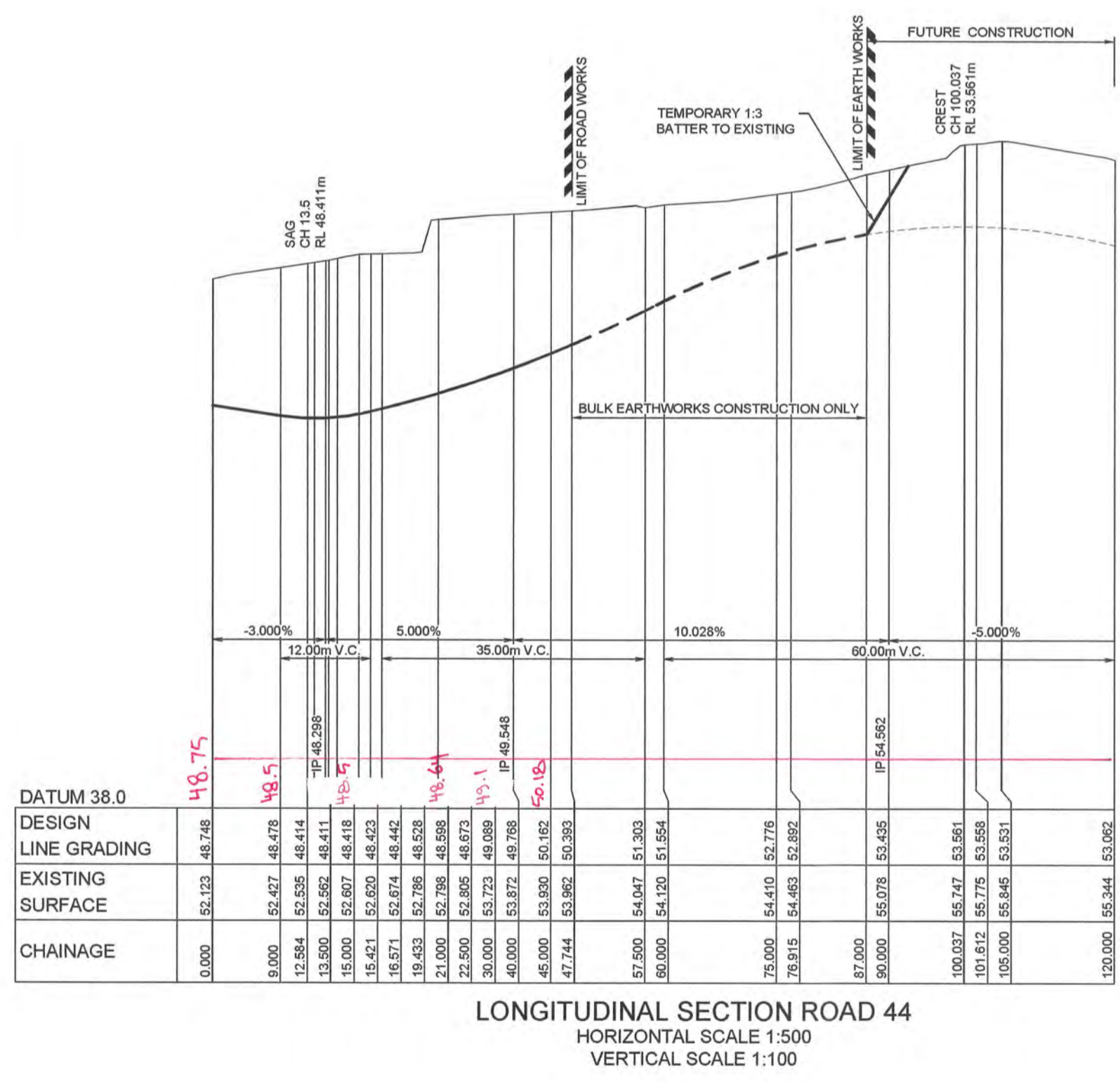
These plans/specifications form part of the certificate issued 28/09/2018

**WORKS AS EXECUTED SHOWN IN RED**

SIGNATURE: *I. Morgan*  
 IAN VINCENT MYERS  
 Registered Land Surveyor

**VINCE MORGAN SURVEYORS PTY LTD**

DATE: 13.12.18 REF: 16800-11  
 27.2.19



PRINCIPAL:

AZIMUTH: MGA 56  
 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**  
**YEOMANS ENTRY**  
 ROAD LONGITUDINAL SECTIONS  
 SHEET 5

PLAN No: 11018511/CC512 **4**  
 FILE No: 11018511CC512  
 SHEET SIZE: A1 ORIGINAL

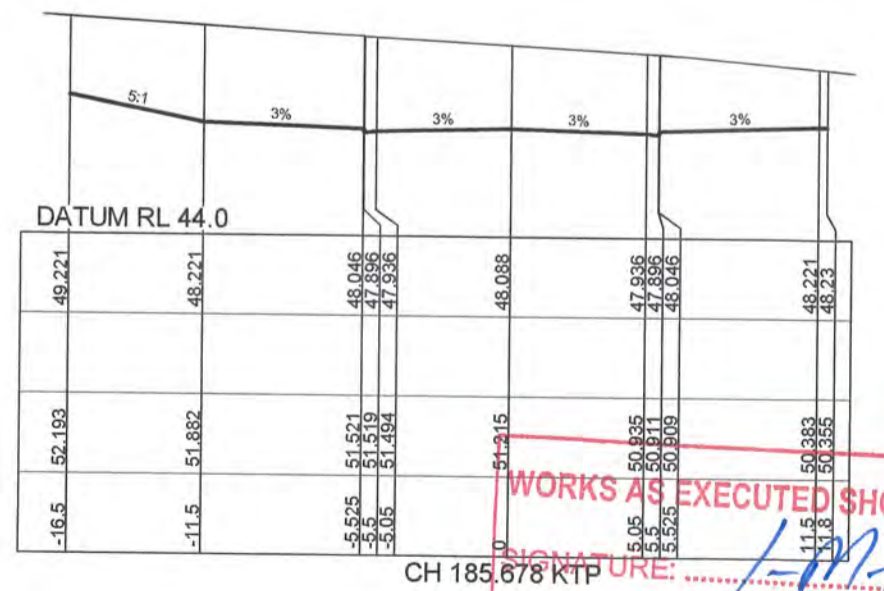
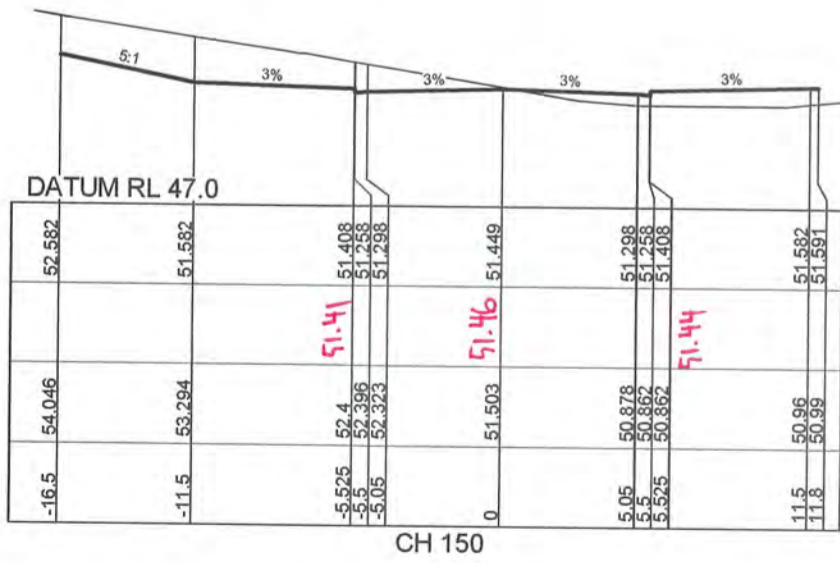
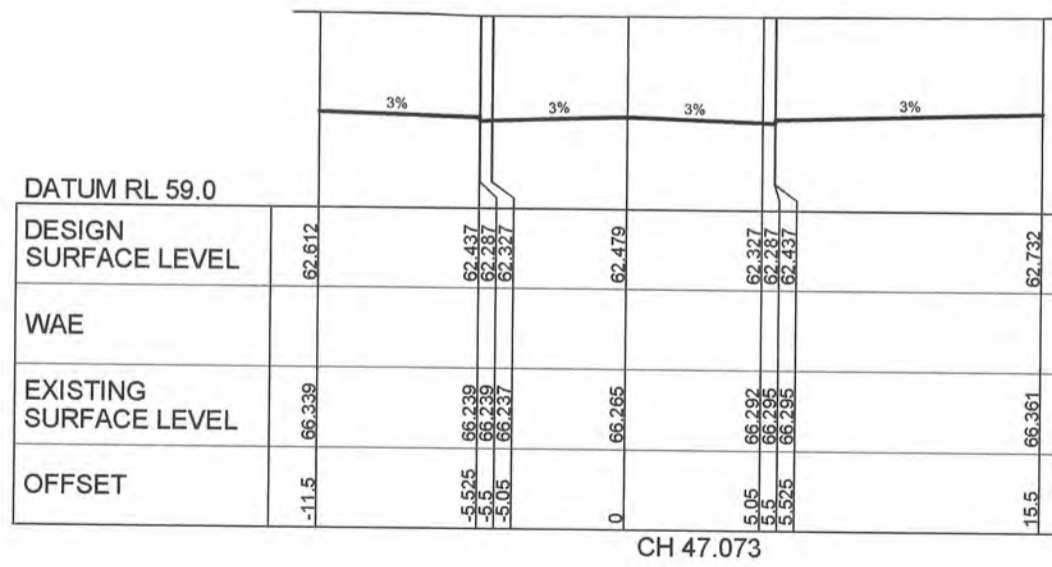
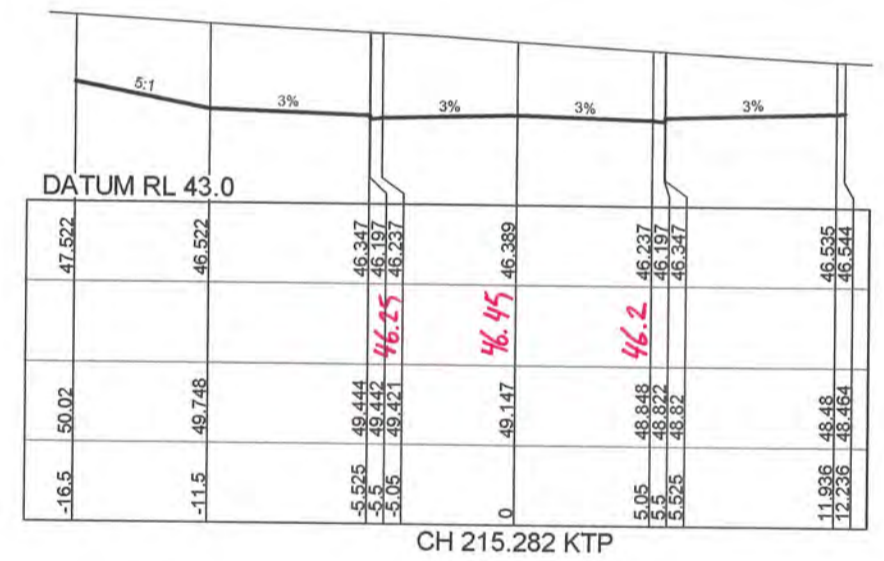
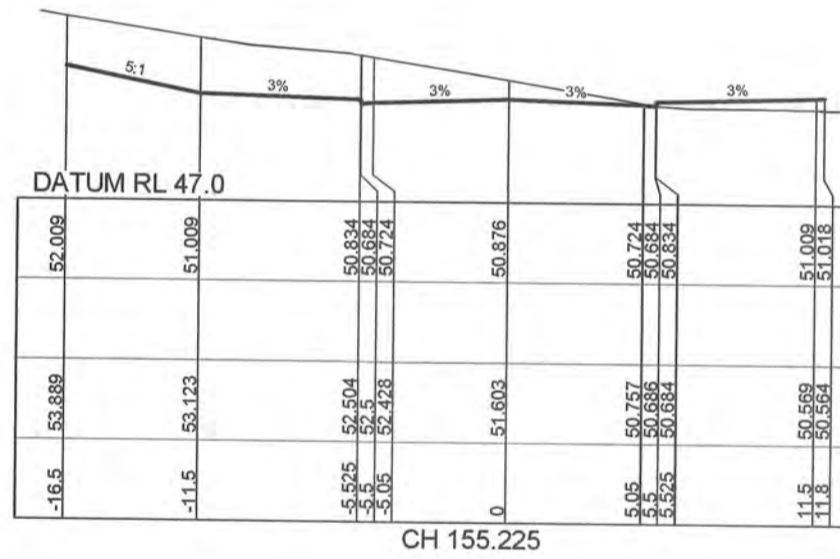
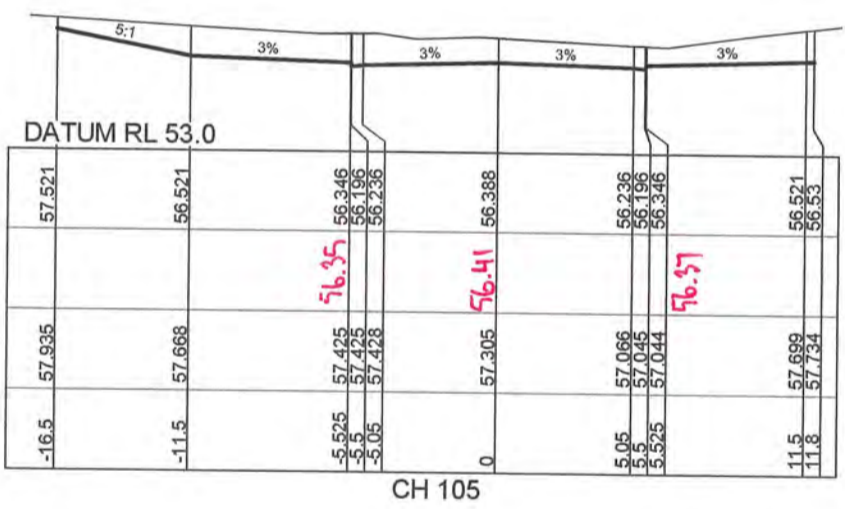
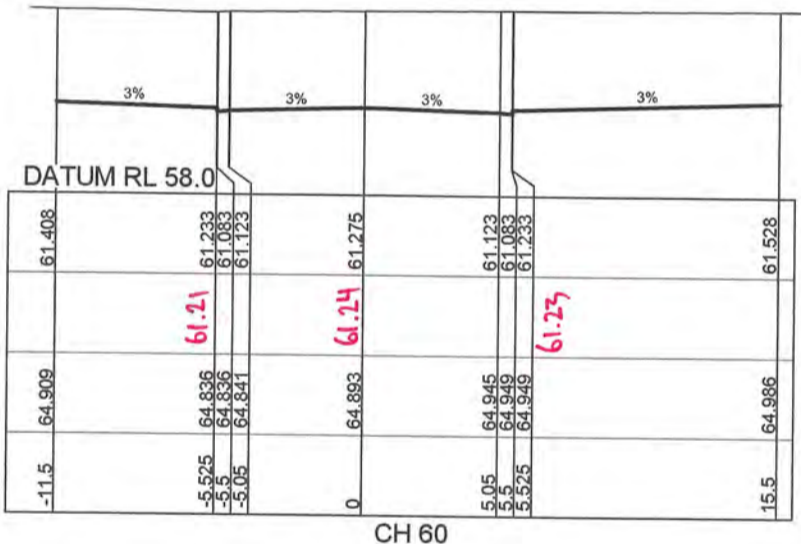
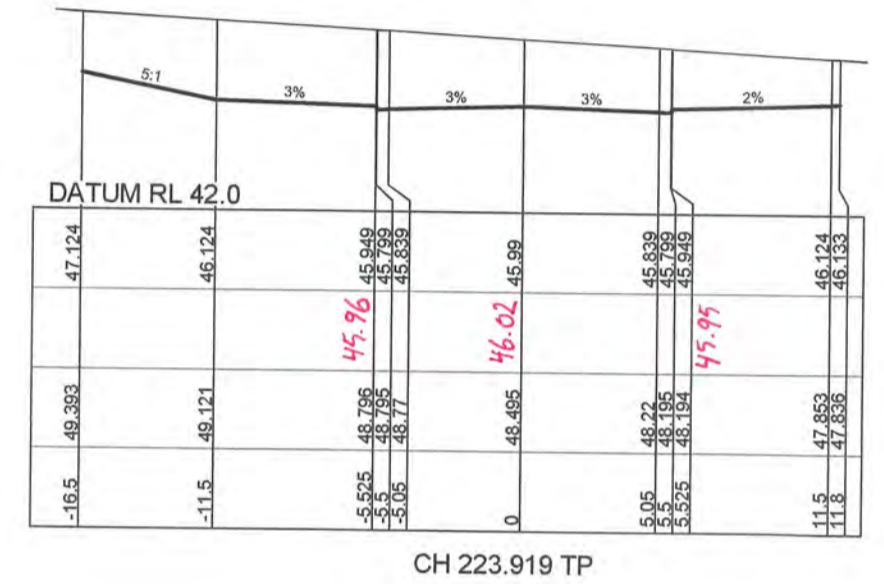
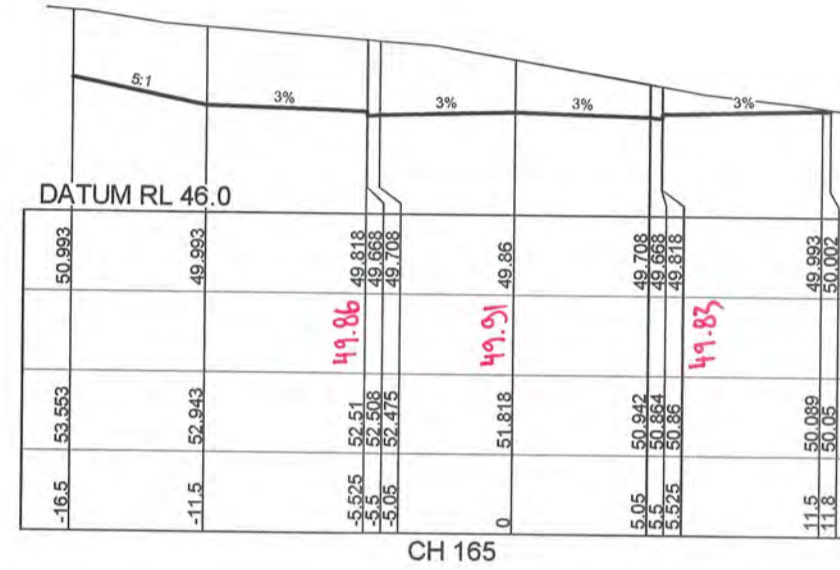
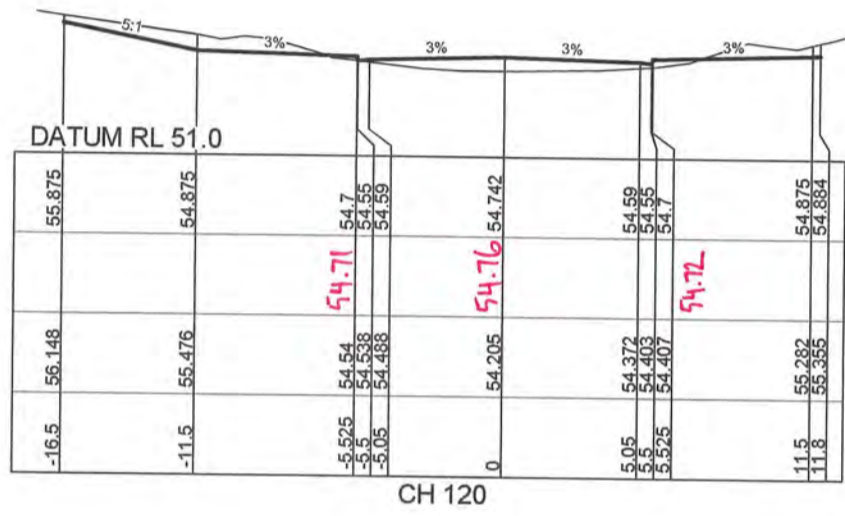
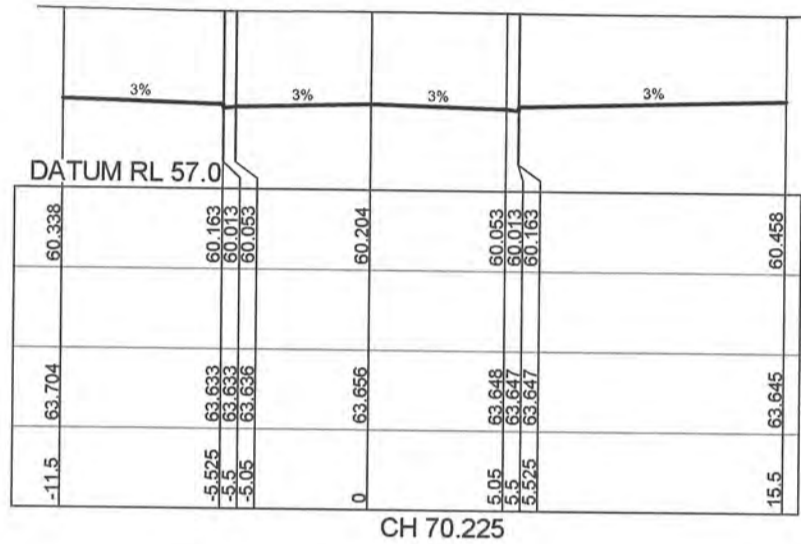
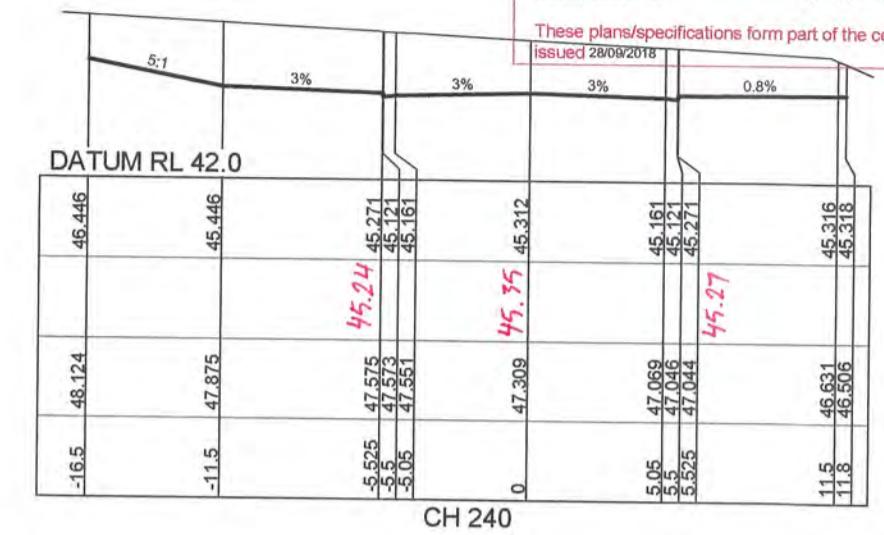
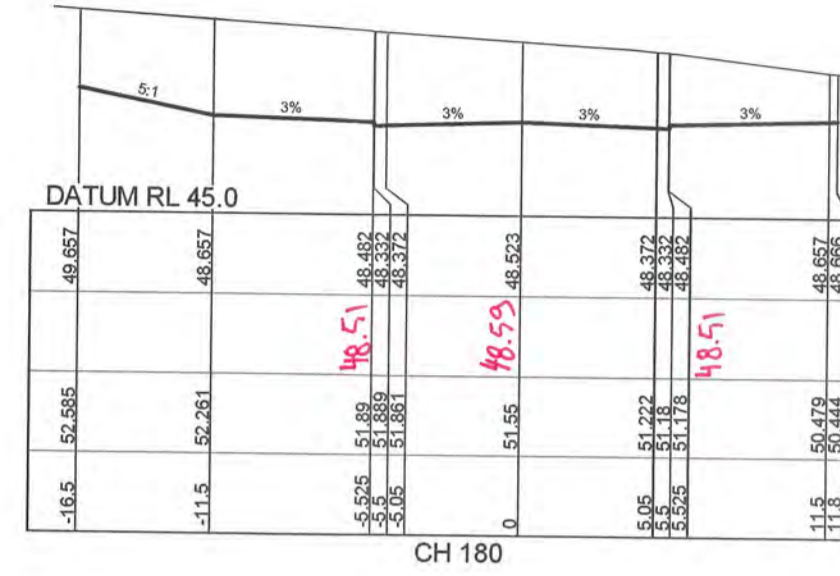
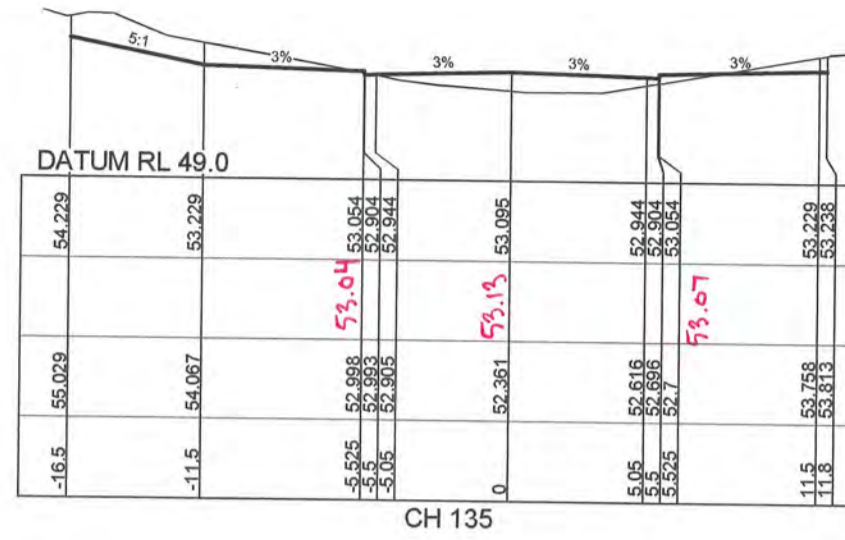
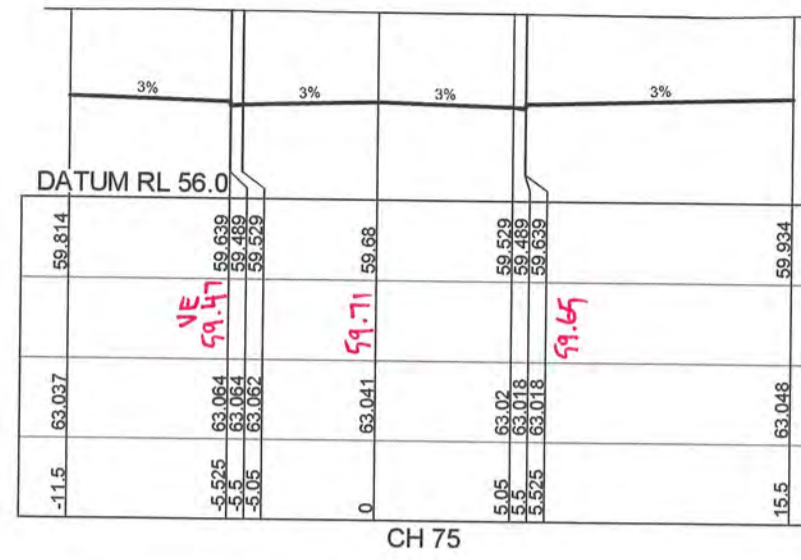
AMENDMENT	DES	DRN	CKD	APR	DATE
4 ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

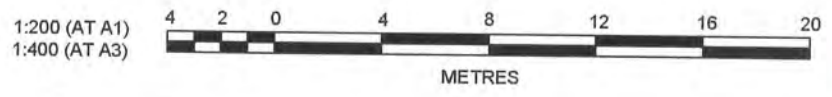
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

Plotted: 14 May 2018 10:40:22 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CC\CENTURY ROAD\1101851\CC513.dwg

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130296C48  
 Date of Issue 28/09/2018  
 Issuing Officer *Jerry H*  
 Accreditation No. SPB0565  
 These plans/specifications form part of the certificate  
 Issued 28/09/2018



DESIGN SURFACE LEVEL	WAE	EXISTING SURFACE LEVEL	OFFSET
62.612		66.339	-11.5
62.437		66.439	-5.525
62.337		66.337	-5.005
62.347		66.447	-5.005
62.479		66.285	0
62.227		66.292	5.005
62.327		66.327	5.005
62.437		66.437	5.525
62.732		66.361	15.5



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

PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: AHJ  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**  
 DATE: 13.12.18 REF: 16800-11  
 VINCE MORGAN SURVEYORS PTY LTD  
 IAN VINCENT MYERS Registered Land Surveyor  
 WORKS AS EXECUTED SHOWN IN RED  
 SIGNATURE: *I. Myer*  
 11018511/CC513 3  
 FILE No: 11018511CC513  
 SHEET SIZE: A1 ORIGINAL

NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *Joey B*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018

WORKS AS EXECUTED SHOWN IN RED

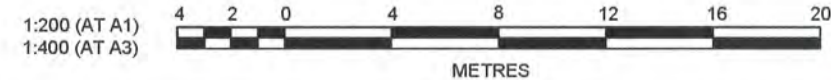
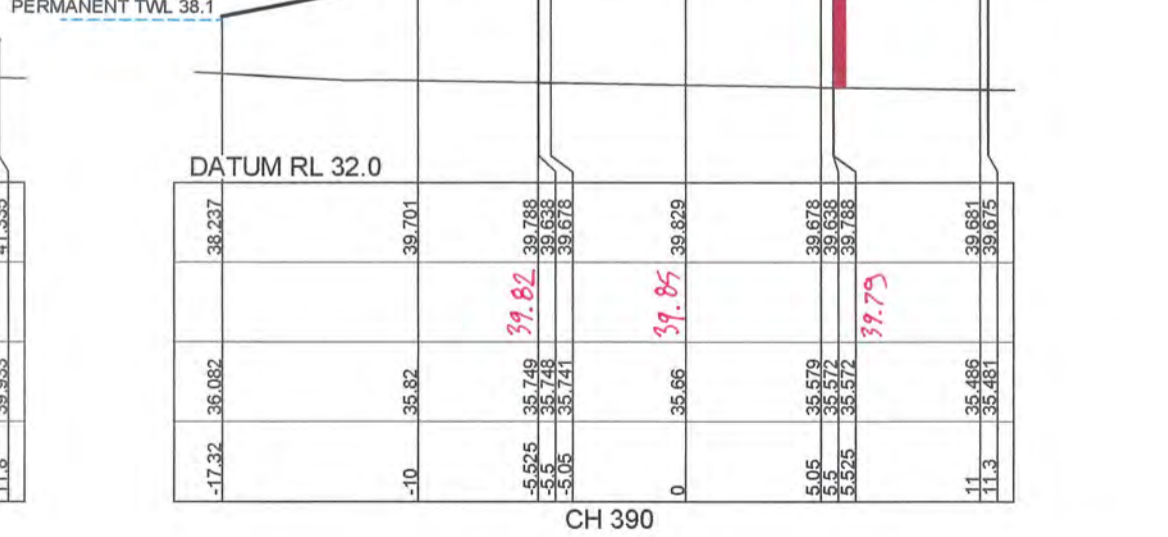
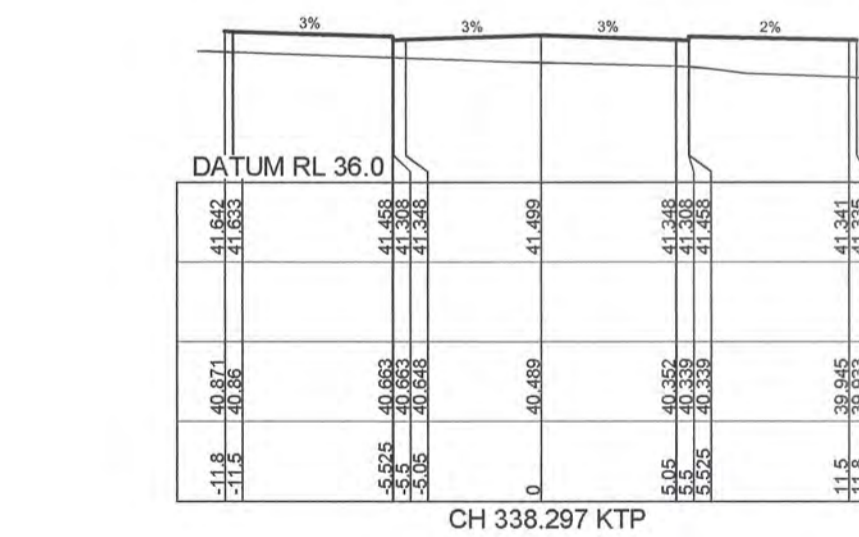
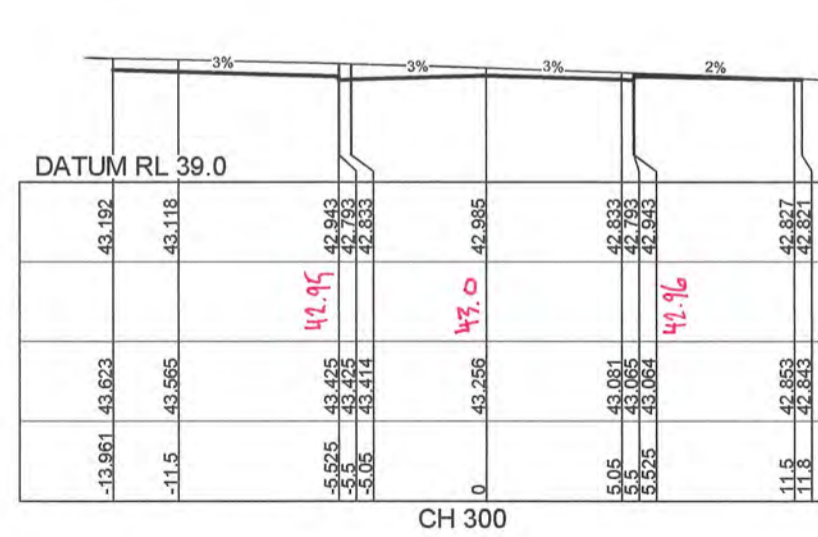
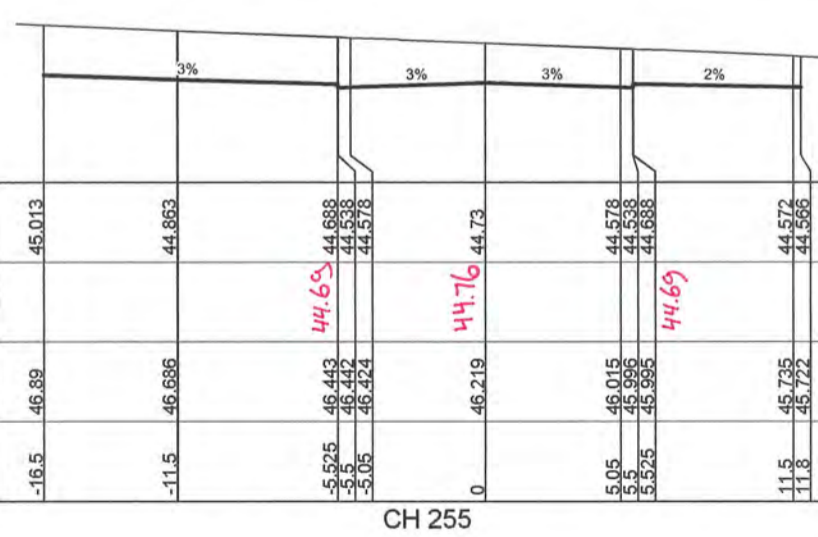
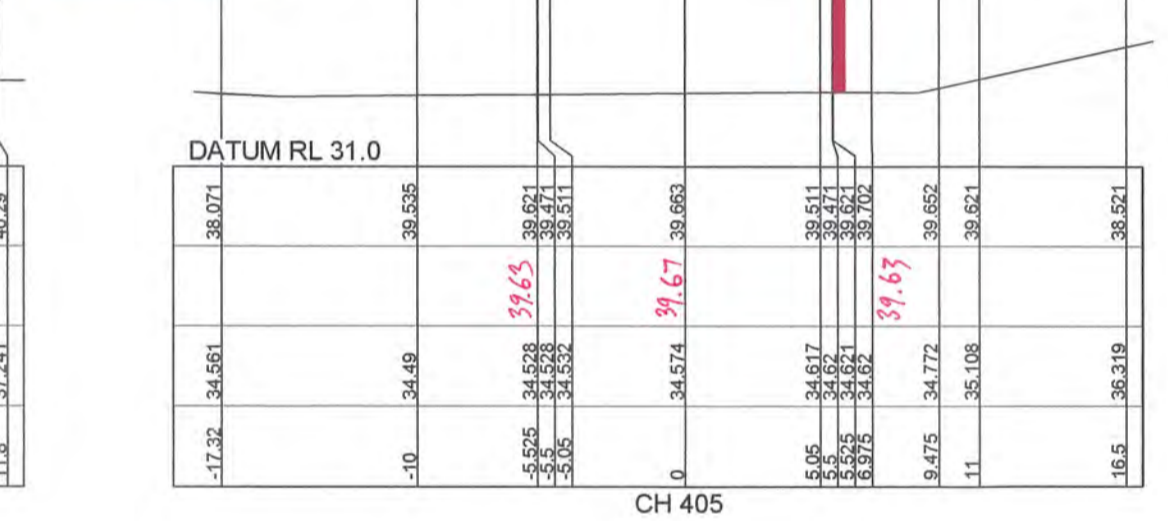
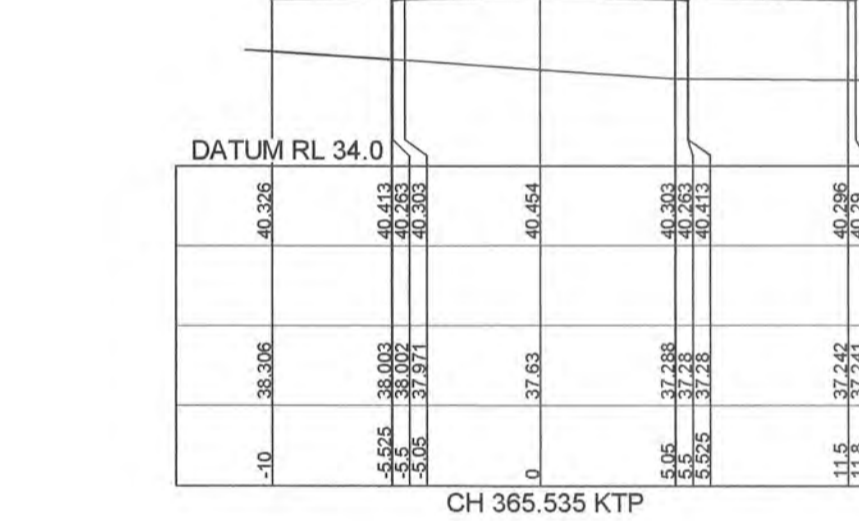
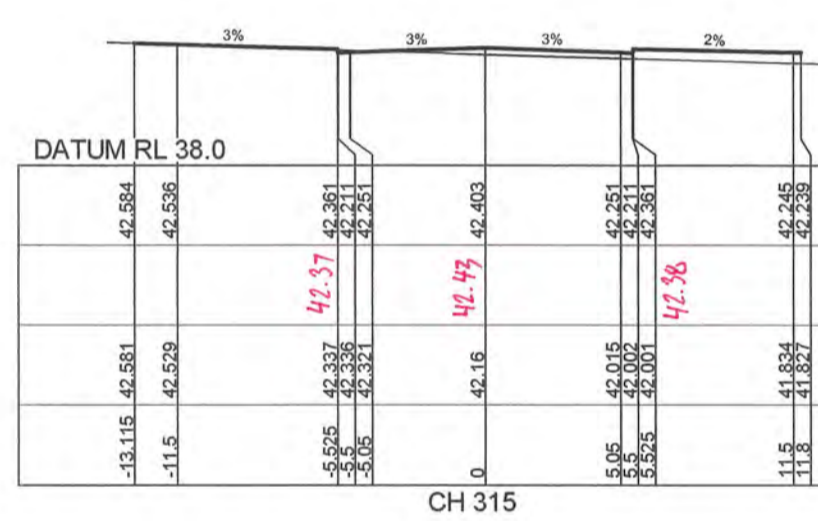
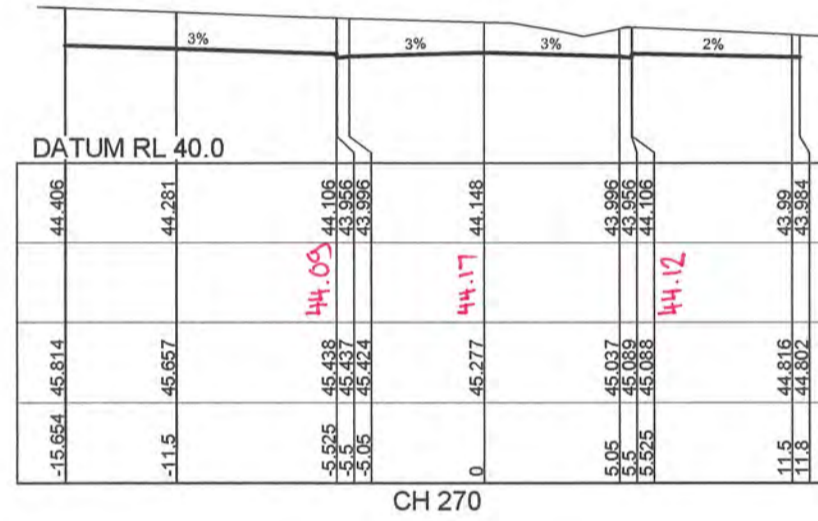
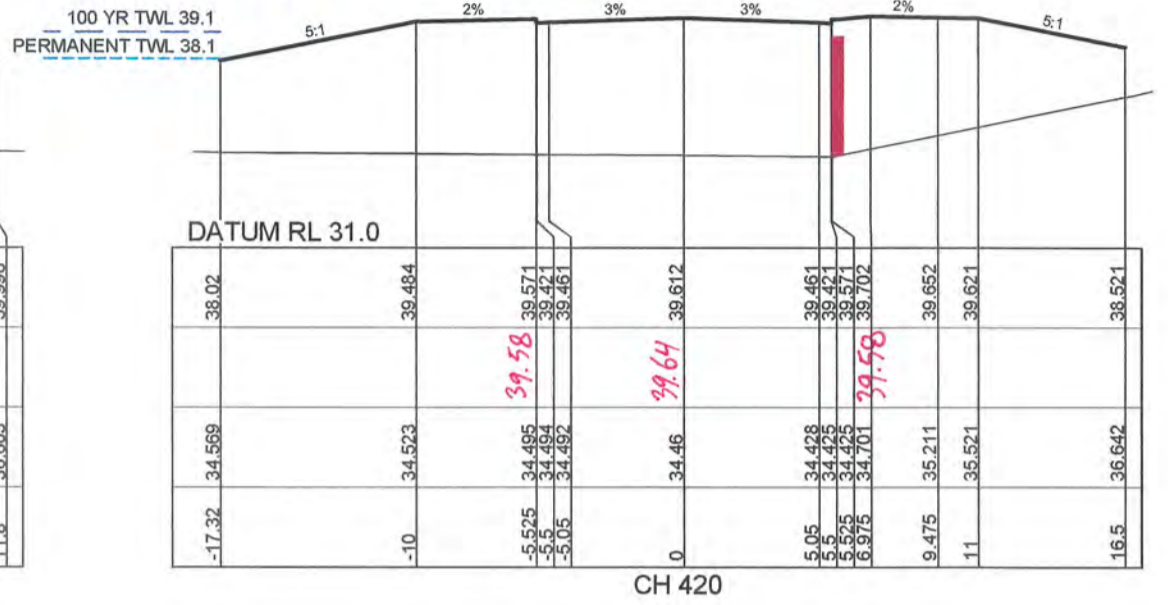
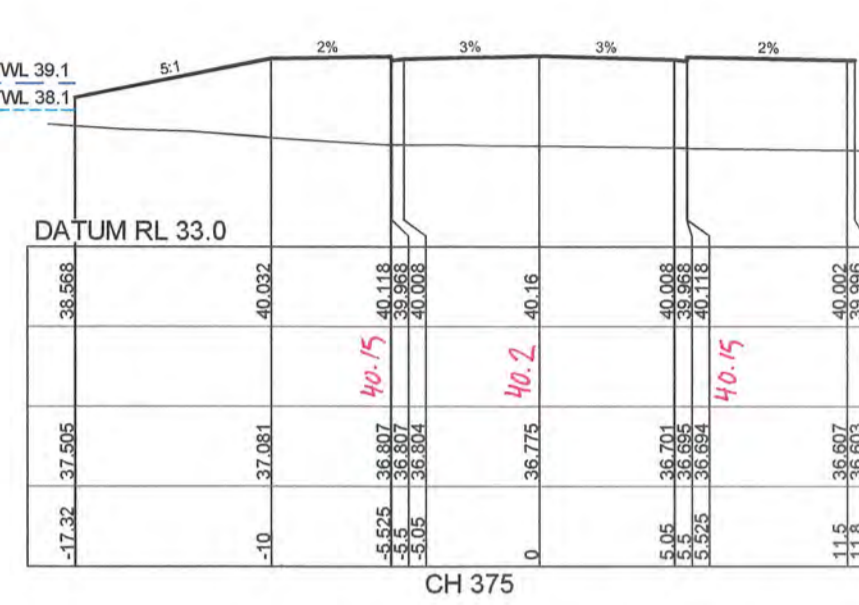
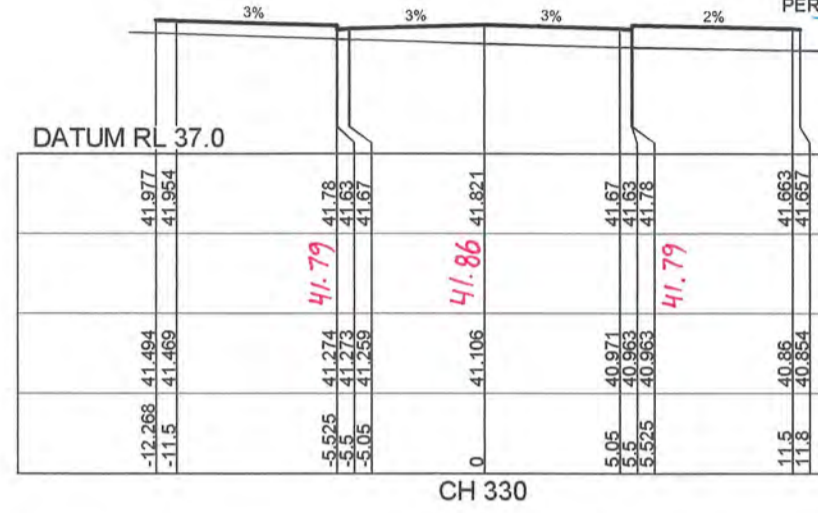
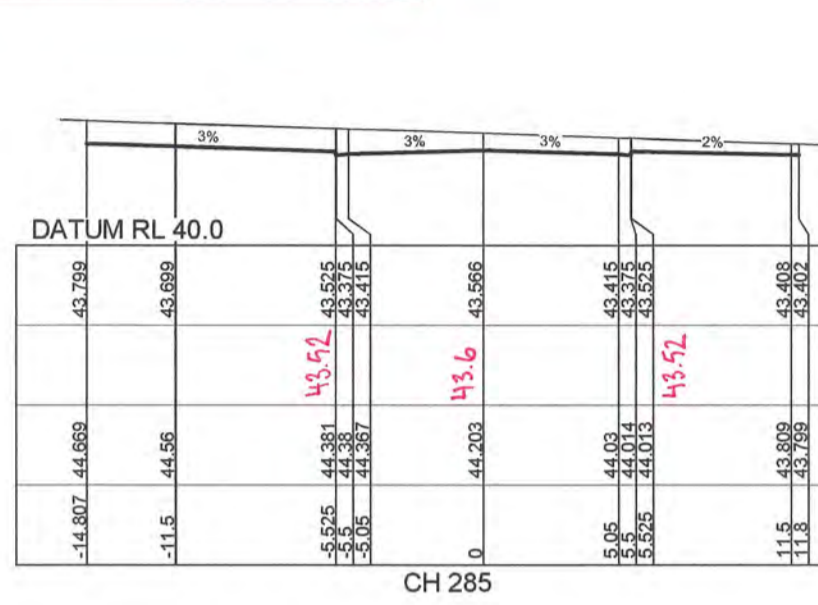
SIGNATURE: *I-Mpr*  
 IAN VINCENT MYERS  
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 13.12.18  
 27.2.19 REF: 16800-11

**LEGEND**

■ DENOTES CHIMNEY DRAIN FOR DAM 13 EMBANKMENT



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

PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 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  
 YEOMANS ENTRY  
 ROAD CROSS SECTIONS  
 SHEET 2

PLAN No: 11018511/CC514 3  
 FILE No: 11018511CC514  
 SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:40:34 AM File Name: J:\1101851 - Redbank North Richmond Residential Precinct\01 - Description\GD\CENTRY ROAD\1101851\CC514.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17











WORKS AS EXECUTED SHOWN IN RED

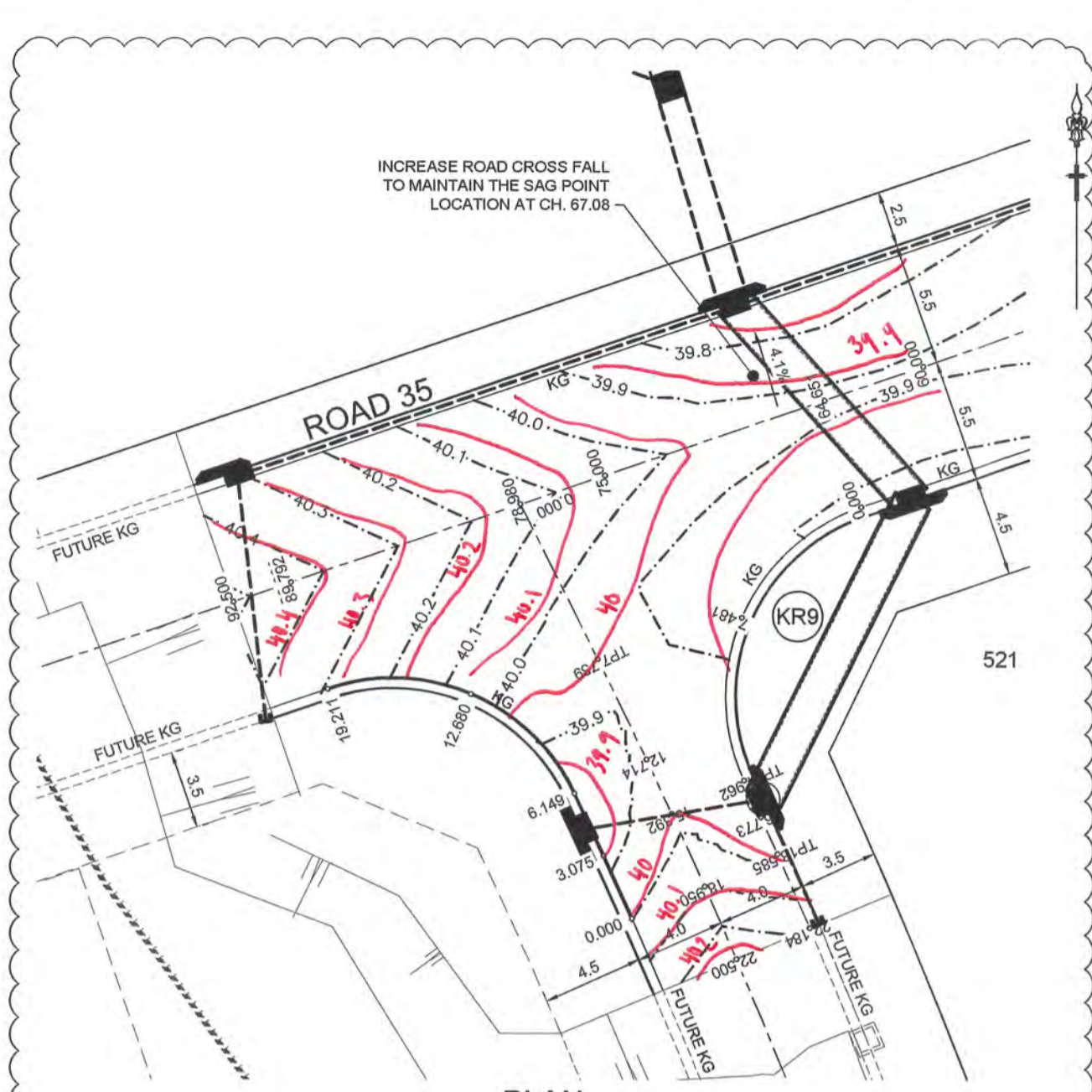
SIGNATURE: *J. Morgan*  
 AN VINCENT WYERS  
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
 531  
 DATE: 13.12.18 REF: 16800-11  
 8.2.19

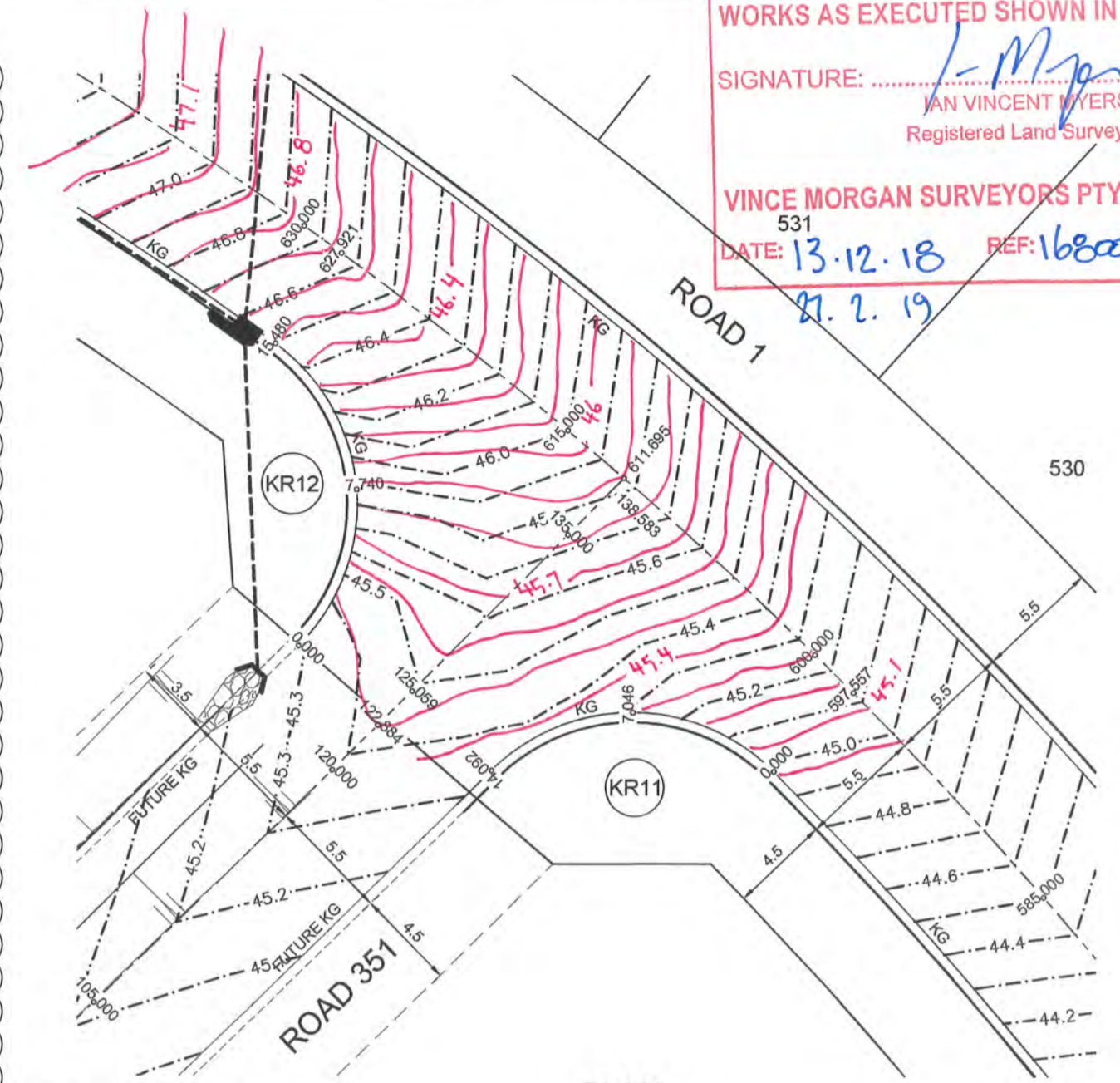
CONSTRUCTION CERTIFICATE

531  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer  
 Accreditation No. *Jerry P. BPP0565*

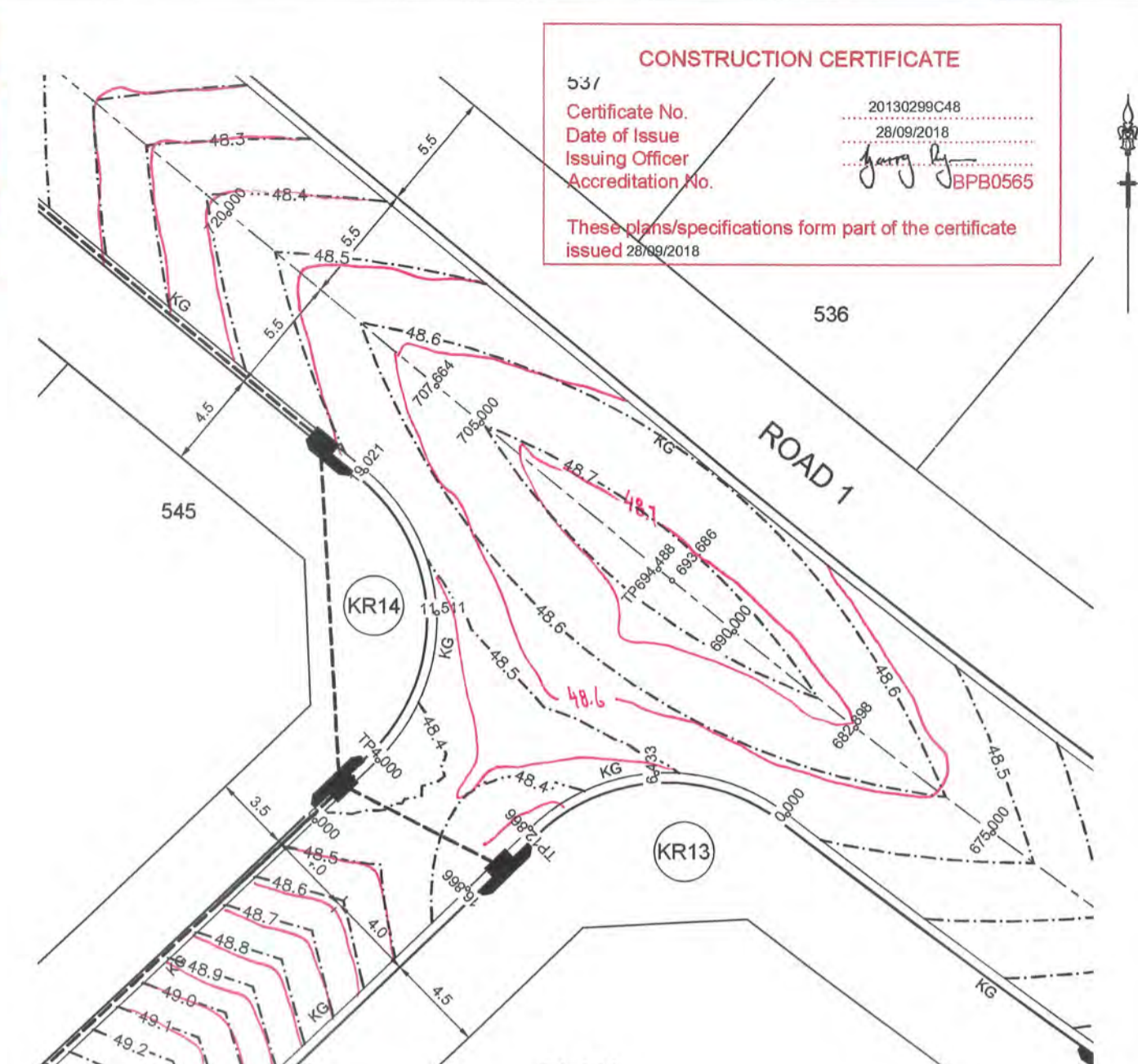
These plans/specifications form part of the certificate issued 28/09/2018



PLAN  
SCALE 1:200



PLAN  
SCALE 1:200



PLAN  
SCALE 1:200

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A. LENGTH
0	286684.06	6281488.91	251°02'36.13"		
7.48	286674.7	6281485.59		-8.95	14.96
14.96	286678.84	6281476.7			
16.77	286679.6	6281475.05		258.68	3.62
18.58	286680.33	6281473.4			
22.18	286681.77	6281470.1	156°27'50.31"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A. LENGTH
0	286673.84	6281470.52	336°03'55.20"		
3.07	286672.59	6281473.33		-251.58	6.15
6.15	286671.28	6281476.11	334°39'53.62"		
12.68	286667.85	6281483.34		-8.95	13.06
19.21	286660.28	6281480.74	251°02'36.11"		

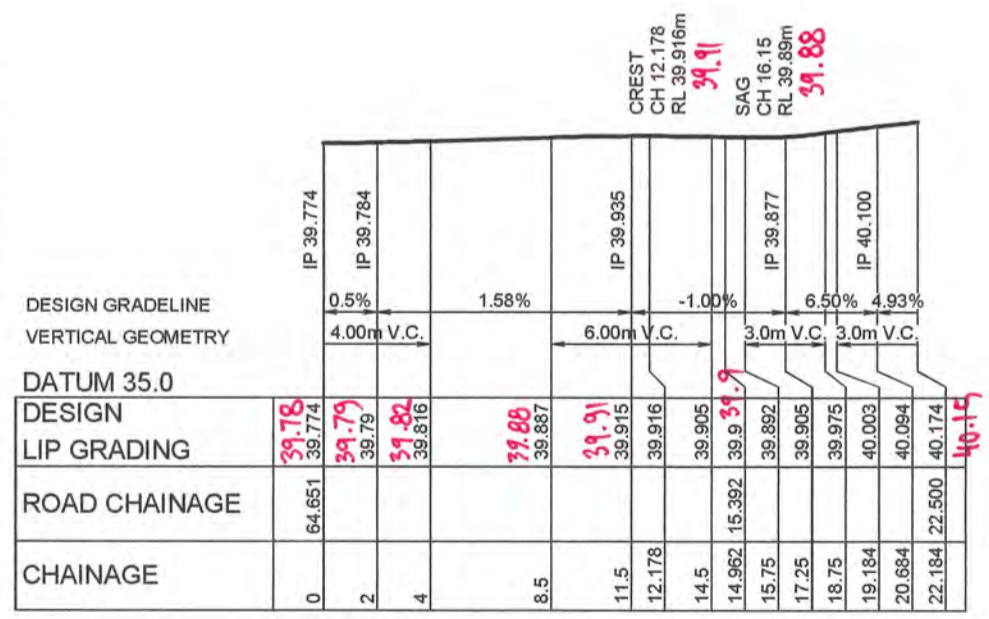
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A. LENGTH
0	286646.2	6281737.28	315°15'39.81"		
7.05	286639.87	6281743.66		-8.95	14.09
14.09	286633.52	6281737.32	225°03'00.02"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A. LENGTH
0	286624.85	6281742.93	45°09'10.39"		
7.74	286632.29	6281750.34		-8.95	15.48
15.48	286623.8	6281756.52	306°03'22.36"		

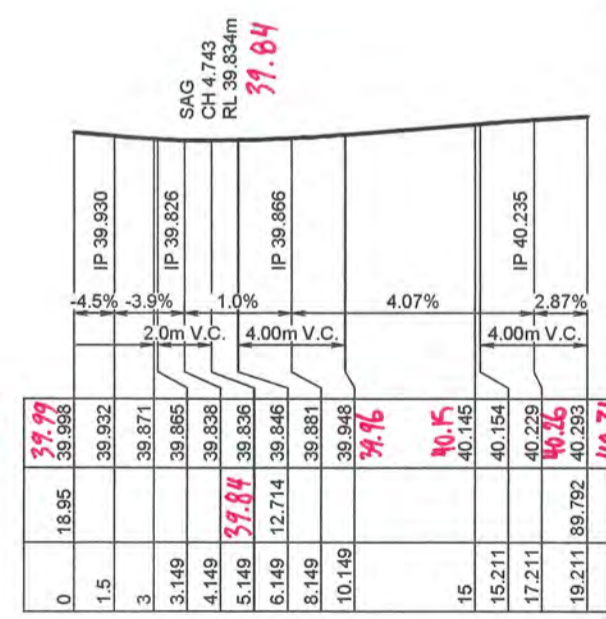
NOTE:  
KERB RETURN SETOUT AND LEVELS ARE LIP OF GUTTER UNLESS SHOWN OTHERWISE

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0	286578.57	6281788.02	308°00'54.40"		
6.43	286572.4	6281792.85		-8.95	12.87
12.87	286566.8	6281787.37			
16.87	286563.93	6281784.58	225°44'59.59"		

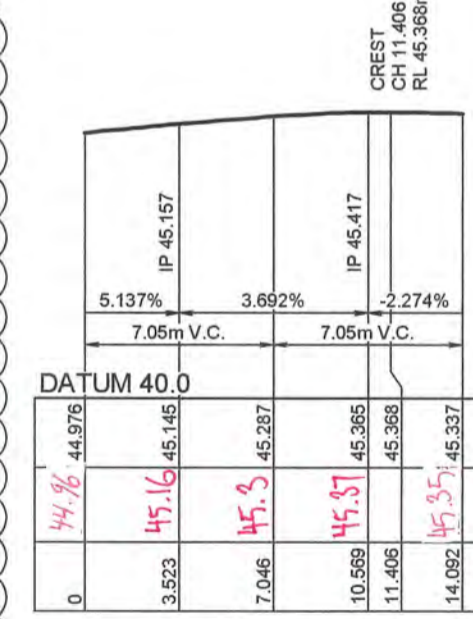
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0	286556.94	6281787.69	45°53'39.50"		
4	286559.81	6281790.47		-8.95	15.02
11.51	286566.95	6281797.43			
19.02	286559.28	6281803.78	309°37'49.69"		



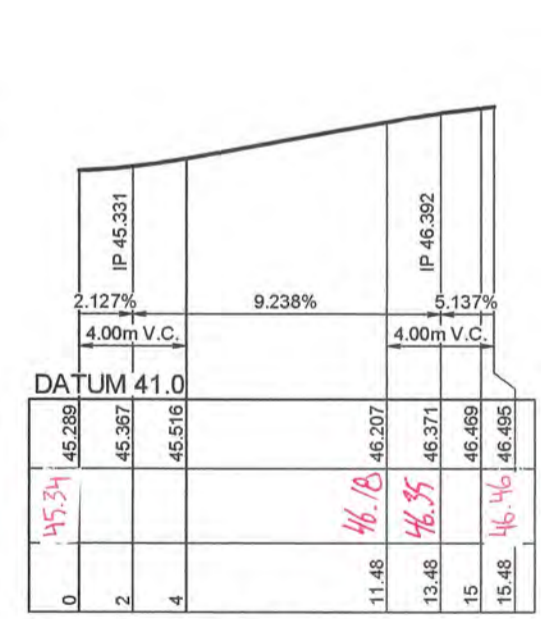
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HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



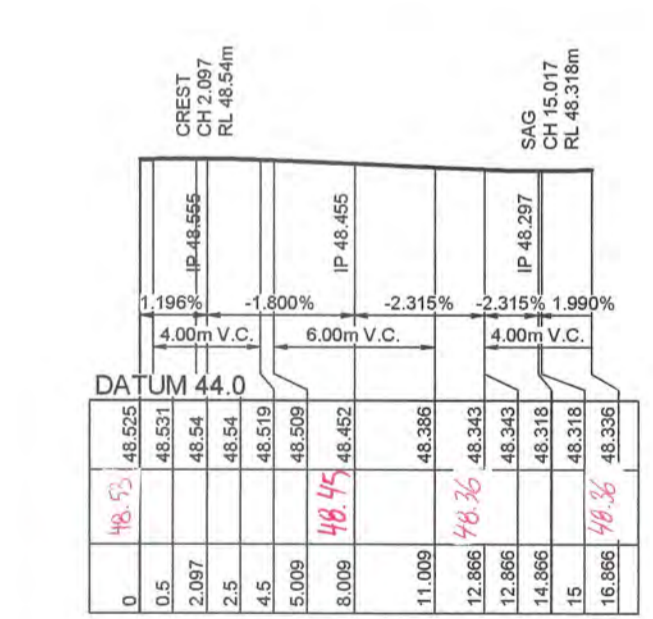
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VERTICAL SCALE 1:100



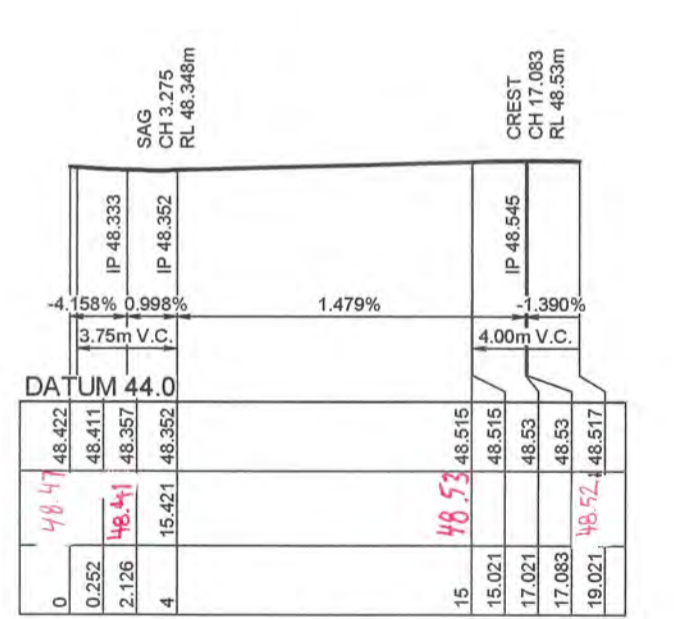
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VERTICAL SCALE 1:100



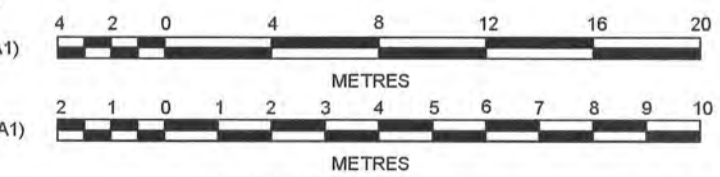
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HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR13  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR14  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

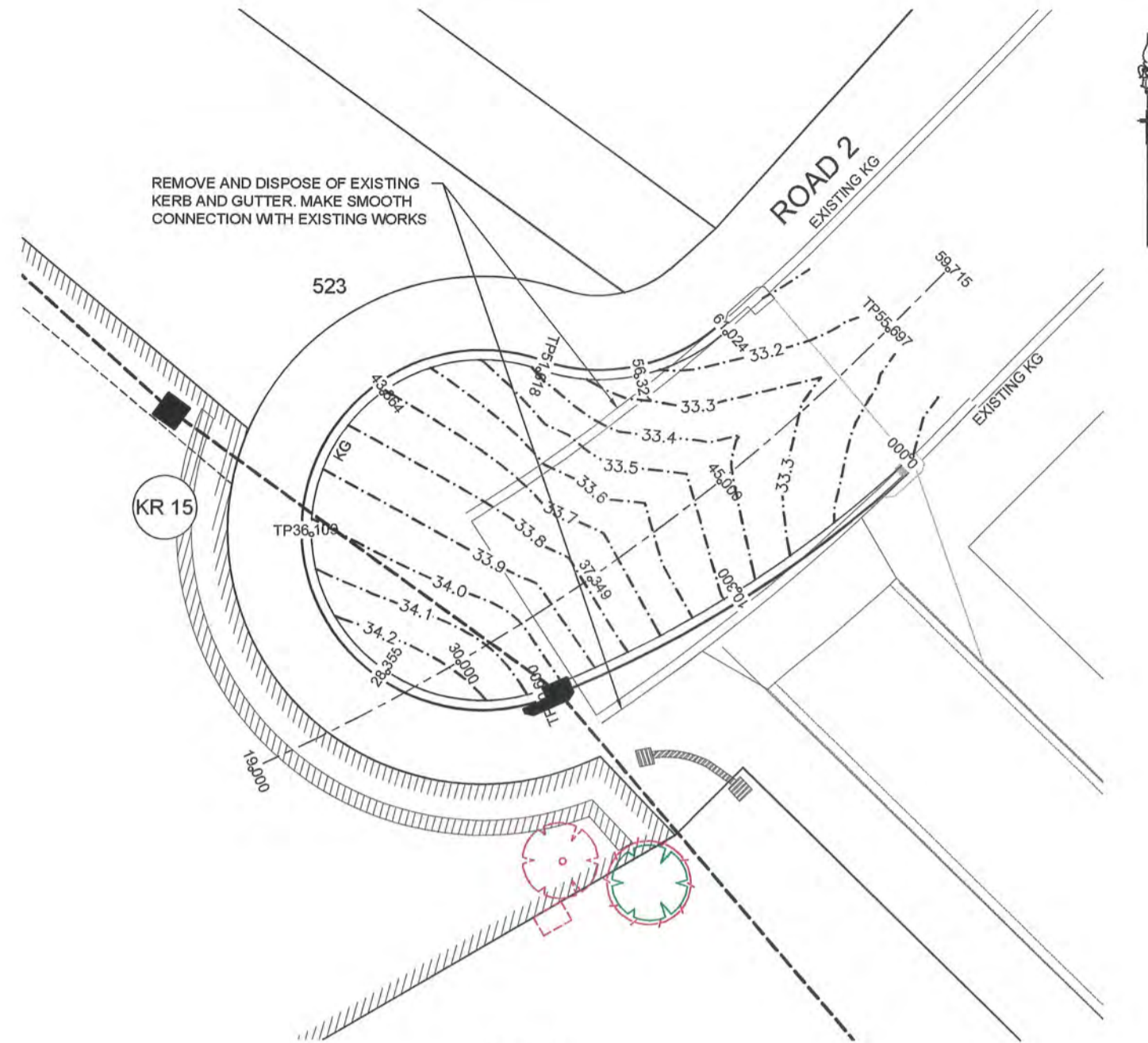
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 KERB RETURNS  
 KR 9, 10, 11, 12, 13 & 14

PLAN No:  
11018511/CC520 4  
 FILE No: 11018511CC520  
 SHEET SIZE: A1 ORIGINAL

**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

NO.	DESCRIPTION	MP	NAF	RO	MS	DATE
4	ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

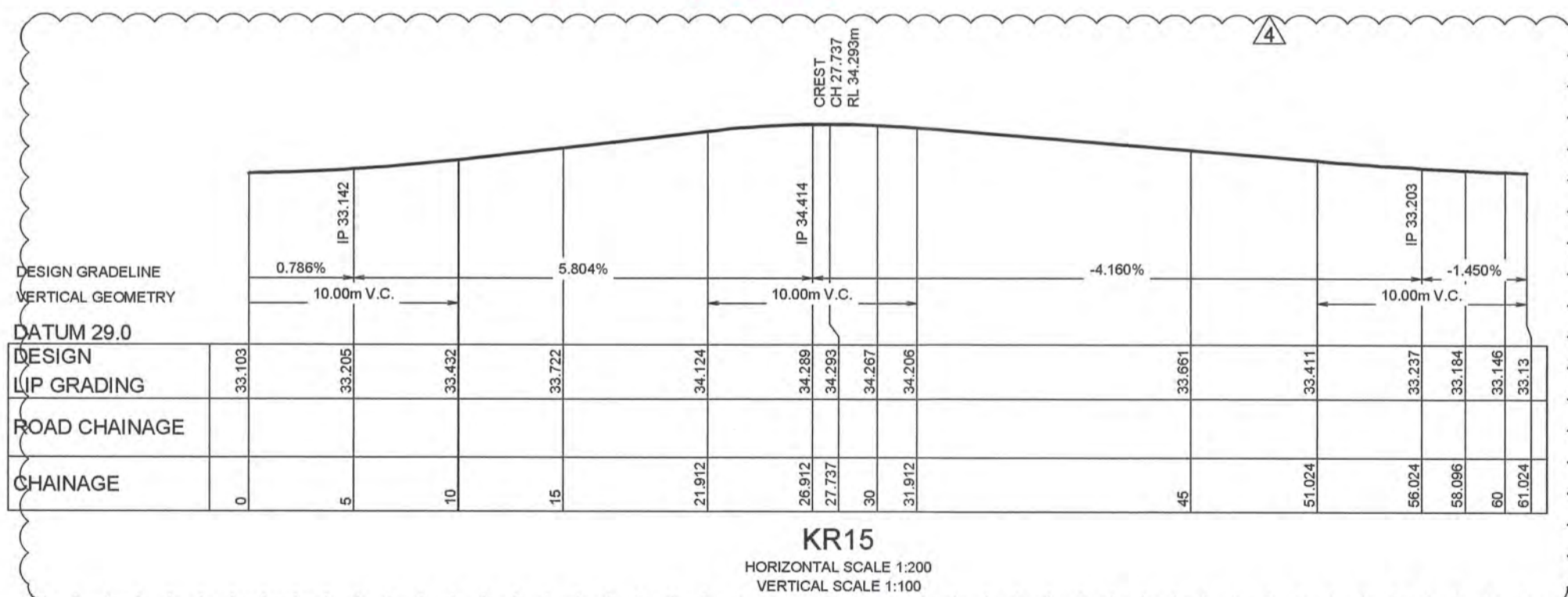


PLAN  
SCALE 1:200

KR 15					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A. LENGTH
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10.3	286773.48	6281661.52		54.55	20.6
20.6	286763.8	6281657.66	248°15'44.97"		
28.35	286753.05	6281653.37		8.05	15.51
36.11	286752.77	6281664.95	358°38'47.00"		
43.86	286752.5	6281676.52		8.05	15.51
51.62	286763.44	6281672.75	109°01'49.03"		
56.32	286768.35	6281671.06		-8.95	9.41
61.02	286772.26	6281674.47	48°48'58.42"		

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE

NOT CONSTRUCTED



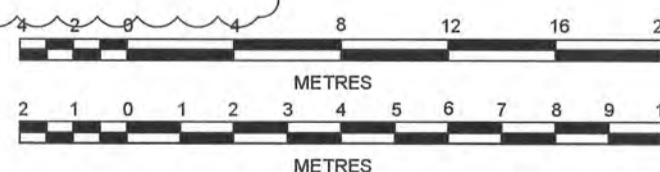
KR15  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

1:200 (AT A1)  
1:400 (AT A3)



H 1:200 (AT A1)

V 1:100 (AT A1)



WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 13.12.18 REF: 16800-11

27.2.19

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *Jerry B*  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
KERB RETURNS  
KR 15

PLAN No:  
11018511/CC521 4

FILE No: 11018511CC521

SHEET SIZE: A1 ORIGINAL

PRINCIPAL:



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APPROVED CONSTRUCTION CERTIFICATE.

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS  
& PROJECT MANAGERS

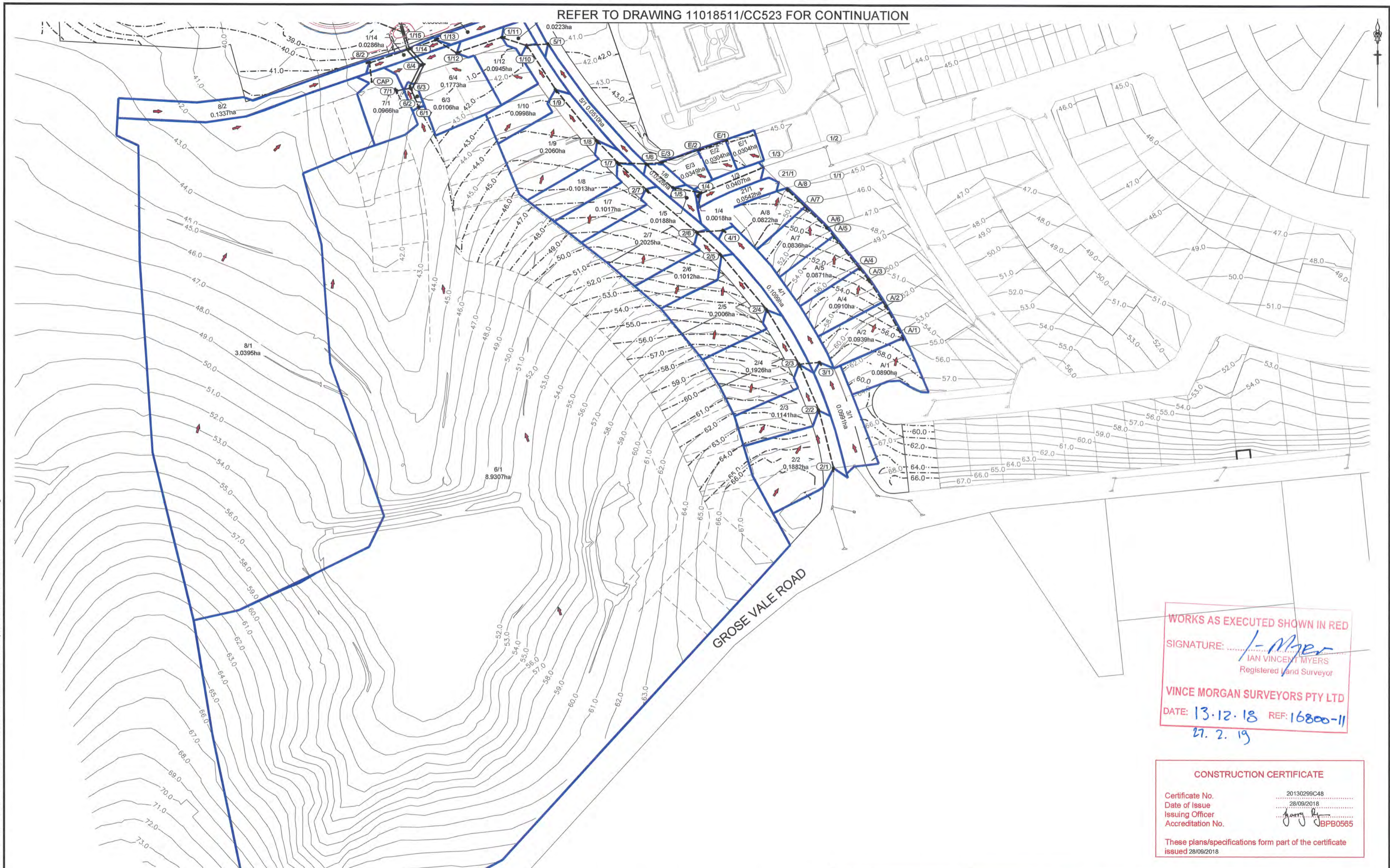
PO Box 4366 PENRITH WESTFIELD NSW 2750  
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH:  
MGA 56  
DATUM:  
AHD  
ORIGIN:

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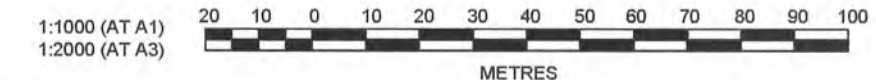
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3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17

REFER TO DRAWING 1101851/CC523 FOR CONTINUATION



WORKS AS EXECUTED SHOWN IN RED  
 SIGNATURE: *I. Myers*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27. 2. 19

CONSTRUCTION CERTIFICATE  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018



**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

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

**ISSUED FOR CONSTRUCTION APPROVAL**

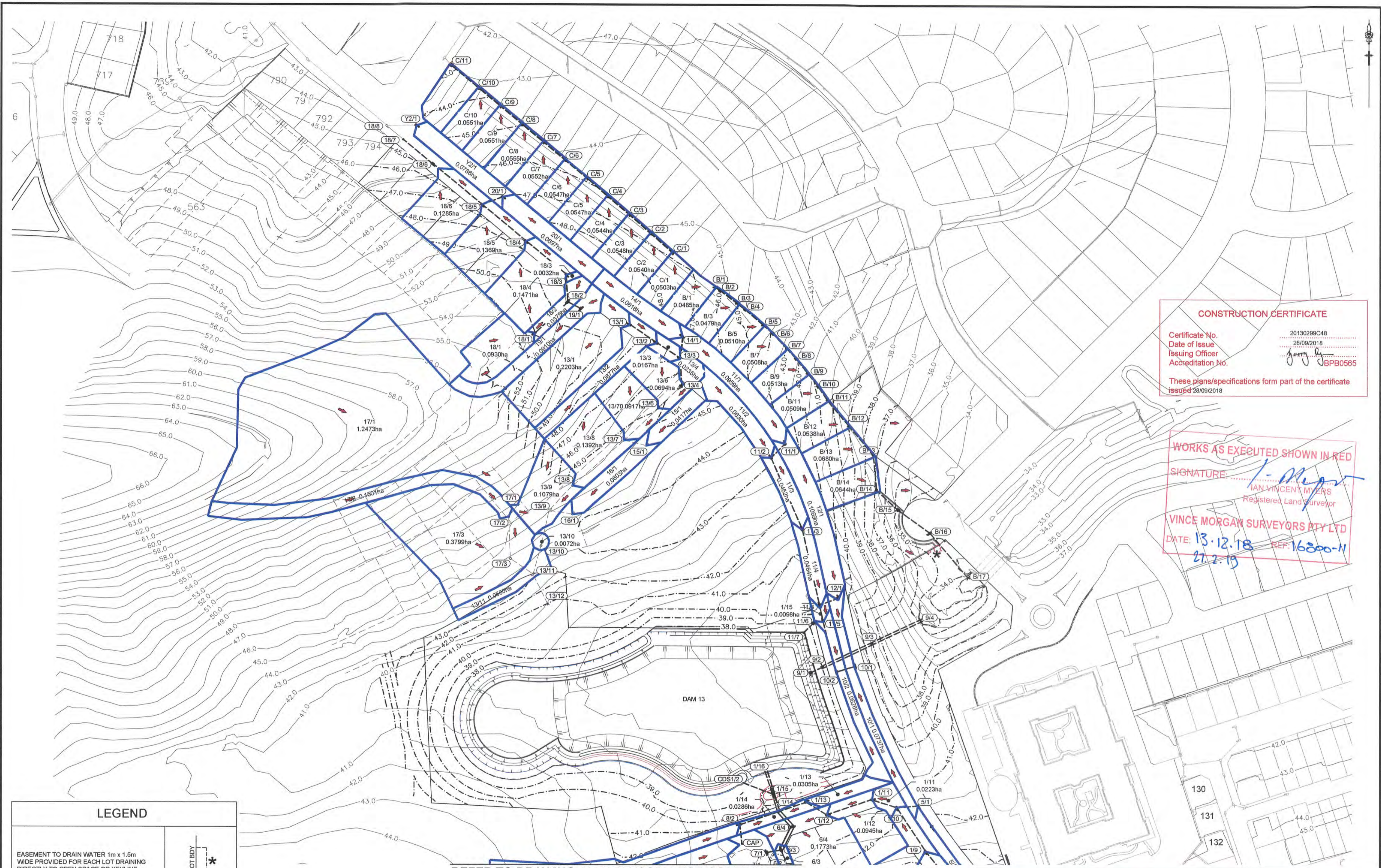
REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 CATCHMENT PLAN  
 SHEET 1

PLAN No:	1101851/CC522	4
FILE No:	1101851CC522	
SHEET SIZE:	A1 ORIGINAL	

Plotted: 13 September 2018 9:36:24 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC\CENTREY ROAD\1101851CC522.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
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3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17

Plotted: 13 September, 2018 10:02:37 AM File Name: \\110185 - Redbank North Richmond Residential Precincts\01 - Description\CC\CENTREY ROAD\11018511CC523.dwg



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 28/09/2018

**WORKS AS EXECUTED SHOWN IN RED**

SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor

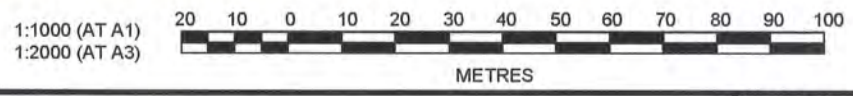
VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16200-11  
 27.2.19

**LEGEND**

EASEMENT TO DRAIN WATER 1m x 1.5m WIDE PROVIDED FOR EACH LOT DRAINING DIRECTLY TO OPEN SPACE OR KEYLINE

LOT B'DY \*

REFER TO DRAWING 11018511/CC522 FOR CONTINUATION



AMENDMENT	DES	DRN	CKD	APR	DATE
5 ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
4 STORMWATER PITS IN CDS RELOCATION	MP	TG	MS	RO	26/06/18
3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17

**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

PRINCIPAL: **REDBANK**

AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

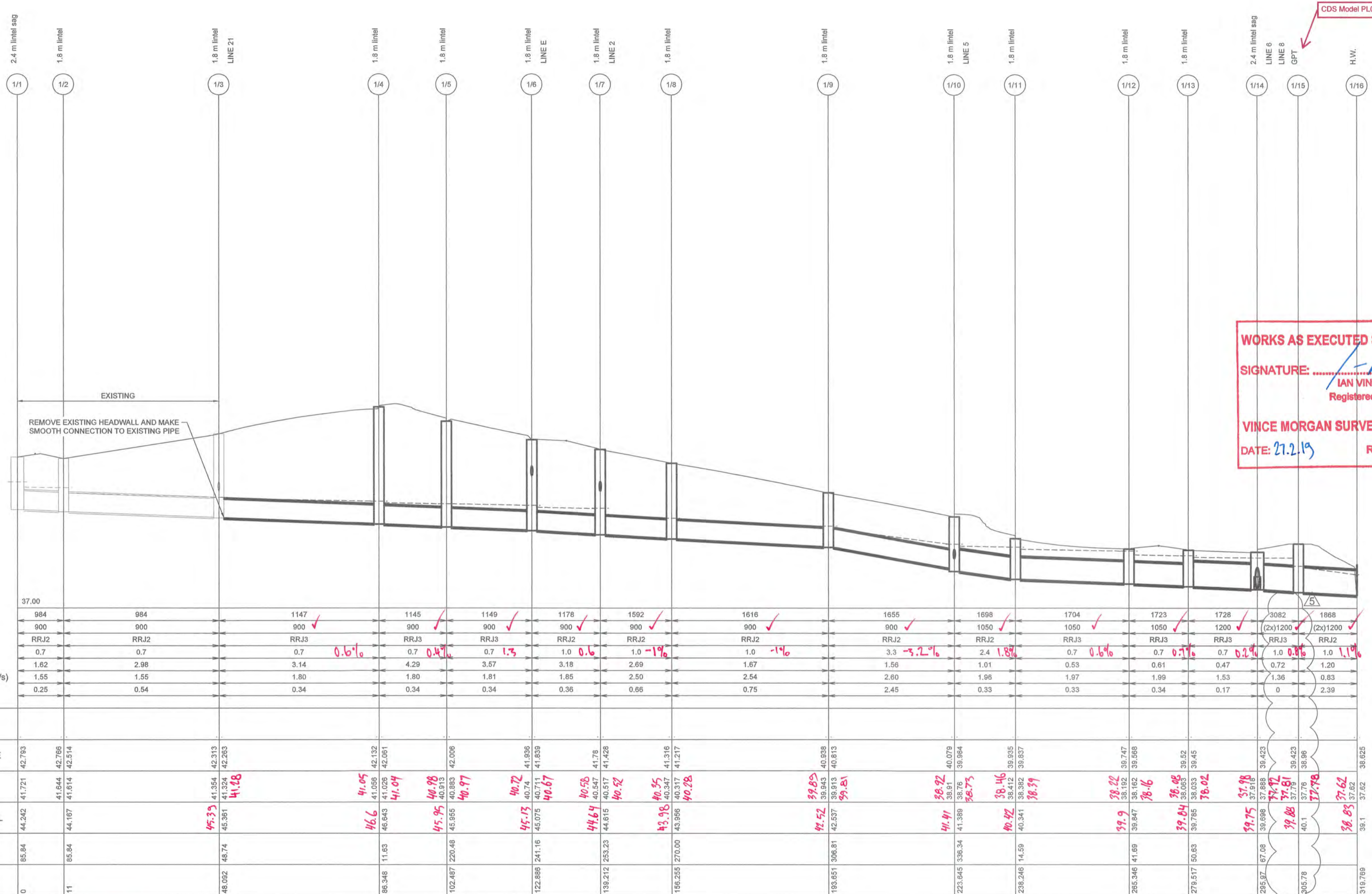
**REDBANK, NORTH RICHMOND YEOMANS ENTRY**  
 CATCHMENT PLAN SHEET 2

PLAN No: 11018511/CC523 **5**  
 FILE No: 11018511CC523  
 SHEET SIZE: A1 ORIGINAL



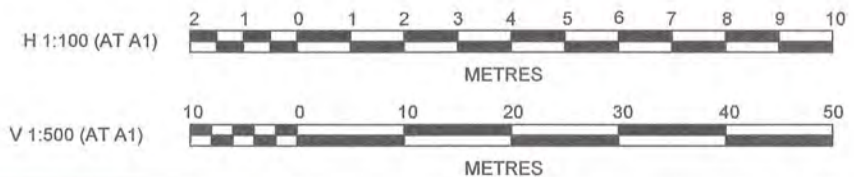


P:\13 September, 2018 9:59:24 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CDC\CENTRY ROAD\11018511CC525.dwg



WAE	1/1	1/2	1/3	1/4	1/5	1/6	1/7	1/8	1/9	1/10	1/11	1/12	1/13	1/14	1/15	1/16
DATUM (m)	37.00															
PEAK FLOW (L/s)	984	984	1147	1145	1149	1178	1592	1616	1655	1698	1704	1723	1728	3082	1868	
PIPE SIZE (mm)	900	900	900 ✓	900 ✓	900 ✓	900 ✓	900 ✓	900 ✓	900 ✓	1050 ✓	1050 ✓	1050 ✓	1200 ✓	(2x)1200 ✓	(2x)1200 ✓	
PIPE CLASS	RRJ2	RRJ2	RRJ3	RRJ3	RRJ3	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2	RRJ3	RRJ3	RRJ3	RRJ3	RRJ2	
PIPE GRADE (%)	0.7	0.7	0.7	0.6%	0.7	0.7	1.3	1.0	1.0	3.3	2.4	0.7	0.7	0.7	0.7	
PIPE COVER MINIMUM	1.62	2.98	3.14	3.14	4.29	3.57	3.18	2.69	1.56	1.01	0.53	0.61	0.47	0.72	1.20	
FULL PIPE VELOCITY (m/s)	1.55	1.55	1.80	1.80	1.81	1.85	2.50	2.54	2.60	1.96	1.97	1.99	1.53	1.36	0.83	
HGL GRADE (%)	0.25	0.54	0.34	0.34	0.34	0.36	0.66	0.75	2.45	0.33	0.33	0.34	0.17	0	2.39	
HYDRAULIC GRADE LINE	42.793	42.766	42.313	42.132	42.061	42.006	41.936	41.838	40.813	40.079	39.984	39.837	39.568	39.423	39.423	
INVERT LEVEL	41.721	41.644	41.354	41.324	41.283	41.217	41.071	40.985	40.813	40.791	40.766	40.739	40.712	40.685	40.658	
DESIGN SURFACE LEVEL	44.242	44.167	45.35	46.643	45.955	45.13	44.64	43.98	42.537	41.389	40.42	39.847	39.785	39.75	38.83	
ROAD CHAINAGE	85.84	85.84	48.74	11.83	220.48	241.16	253.23	270.00	306.81	336.34	341.59	361.69	383.03	397.08	401.00	
PIPE CHAINAGE	0	11	48.092	88.348	102.467	122.886	139.212	186.255	193.851	223.645	238.246	285.346	278.517	295.97	305.78	

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018



PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 1

PLAN No: 11018511/CC525 5  
 FILE No: 11018511CC525  
 SHEET SIZE: A1 ORIGINAL

J. WYNDHAM PRINCE

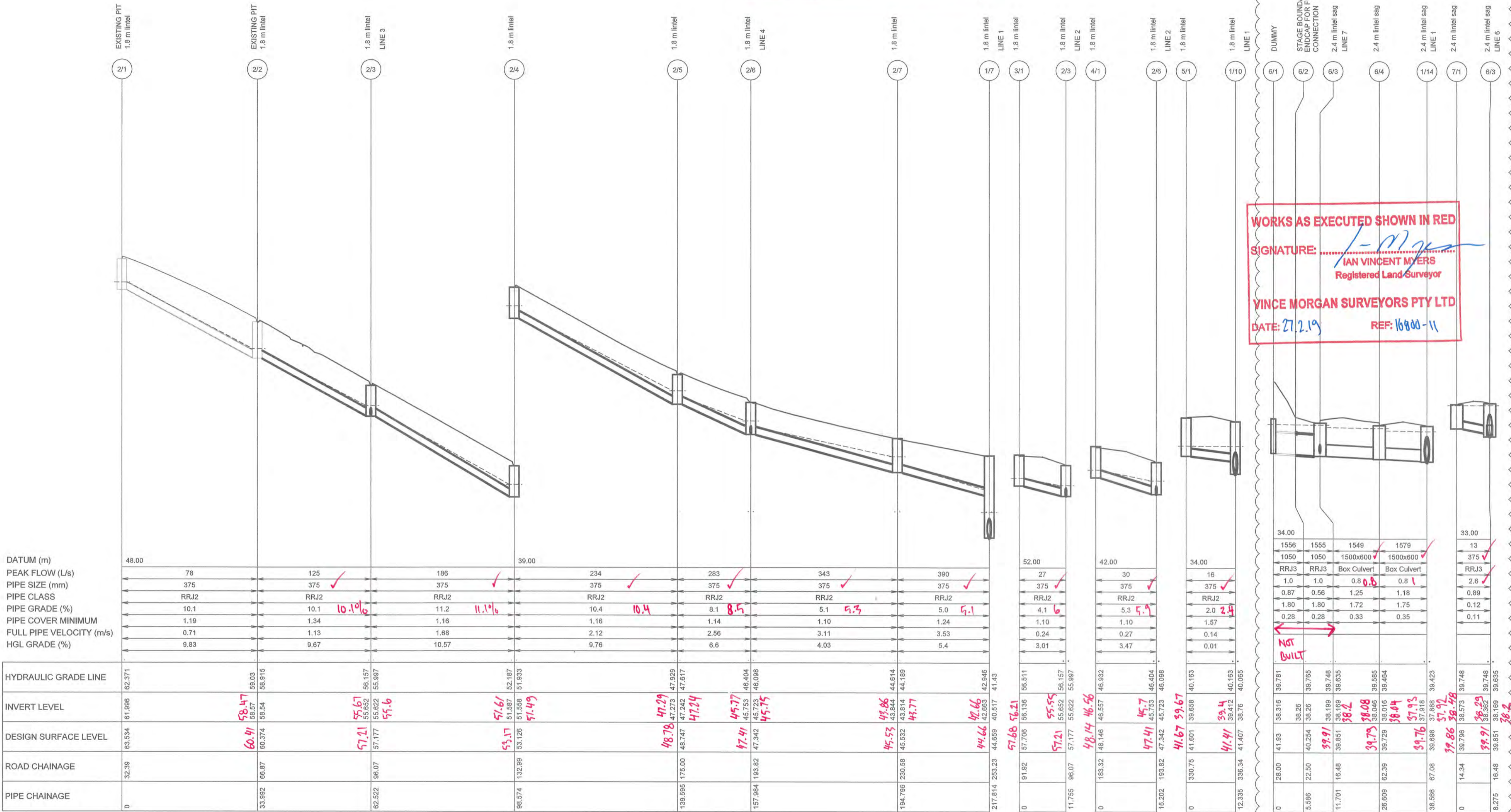
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS  
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AMENDMENT	DES	DRN	CKD	APR	DATE
5	MP	NAF	RO	MS	13/09/18
4	MP	TG	MS	RO	26/06/18
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

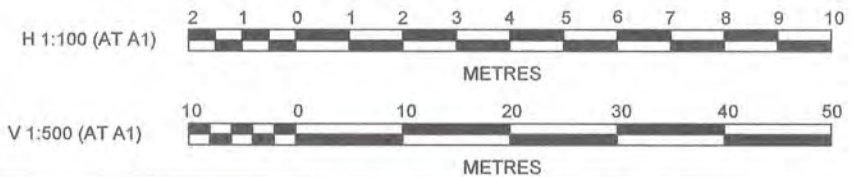
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0585

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**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: [Signature]  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 27.2.19 REF: 16800-11



PRINCIPAL:  
  
 REDBANK  
 NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 2

**ISSUED FOR CONSTRUCTION APPROVAL**

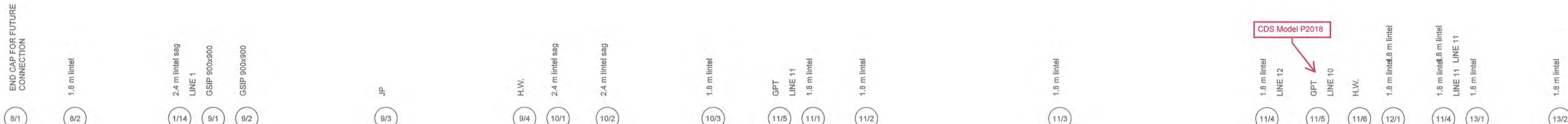
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 2

PLAN No: 11018511/CC526	4
FILE No: 11018511CC526	
SHEET SIZE:	A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
4 ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17

Plotted: 14 May, 2018 10:44:20 AM File Name: D:\1101851 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC527.dwg

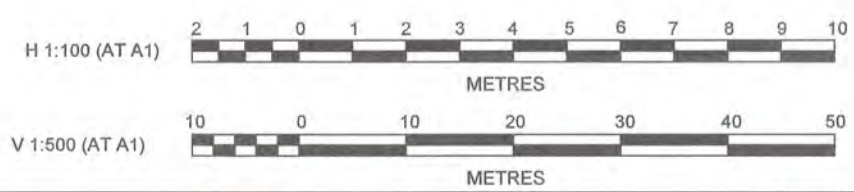


**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *I. Vincent Myers*  
**IAN VINCENT MYERS**  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 27.2.19 REF: 16900-4

DATUM (m)	33.00
PEAK FLOW (L/s)	572
PIPE SIZE (mm)	900
PIPE CLASS	RRJ2
PIPE GRADE (%)	2.0
PIPE COVER MINIMUM	0.90
FULL PIPE VELOCITY (m/s)	0.90
HGL GRADE (%)	0

LINE	PIPE CHAINAGE	ROAD CHAINAGE	DESIGN SURFACE LEVEL	INVERT LEVEL	HYDRAULIC GRADE LINE
LINE 8	0	87.88	39.423	38.523	39.466
	13.275	90.44	40.223	38.227	38.466
LINE 9	0	36.638	37.025	37.025	37.688
	7.494	39	36.575	37.775	37.688
LINE 10	0	420.00	38.42	38.729	39.104
	11	420.00	39.42	38.591	38.964
LINE 11	0	552.81	42.966	41.455	41.83
	11.898	548.27	42.796	41.3	41.675
LINE 12	0	458.63	36.793	38.995	38.896
	11.104	457.11	36.782	38.247	38.849
LINE 13	0	664.18	46.107	46.596	46.911
	18.535	645.88	47.377	45.765	46.188

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130209C48  
 Date of Issue 26/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. JBPB0565  
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REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 3

PLAN No:	11018511/CC527	3
FILE No:	11018511CC527	
SHEET SIZE:	A1 ORIGINAL	

NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

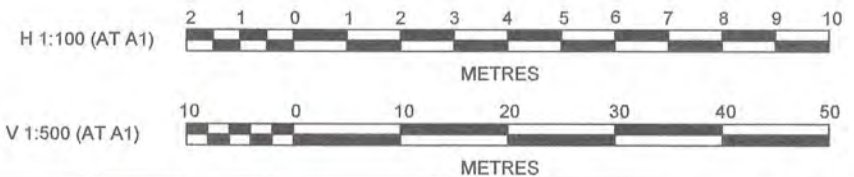
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**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 27.2.19 REF: 16800-11

LINE	13/2	13/3	13/4	13/5	13/6	13/7	13/8	13/9	13/10	13/11	13/12	14/1	13/3	15/1	13/7	16/1	13/9	17/1	17/2	17/3	13/11	18/1	18/2	
DATUM (m)	38.00																							
PEAK FLOW (L/s)	82	104	110	110	127				186	541														
PIPE SIZE (mm)	375	375	375	375	375				450	600														
PIPE CLASS	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2				RRJ2	RRJ2														
PIPE GRADE (%)	5.3	5.8	6.5	2.0	2.0				1.0	2.3														
PIPE COVER MINIMUM	1.21	0.99	0.92	0.94	1.10				1.02	0.60														
FULL PIPE VELOCITY (m/s)	0.74	0.94	0.99	0.99	1.15				1.20	1.91														
HGL GRADE (%)	5.27	6.36	2.05	1.87	0.75				1.25	1.17														
HYDRAULIC GRADE LINE	46.188	46.14							43.17	43.612														
INVERT LEVEL	45.8	44.88	44.88	44.88	44.88				42.71	43.188														
DESIGN SURFACE LEVEL	47.38	46.52	45.203	45.163	44.894				44.225	44.144														
ROAD CHAINAGE	645.88	629.37	120.73	118.72	101.83				35.93	17.43														
PIPE CHAINAGE	18.555	34.776	50.026	52.024	66.735				95.544	134.51														

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018



PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 4

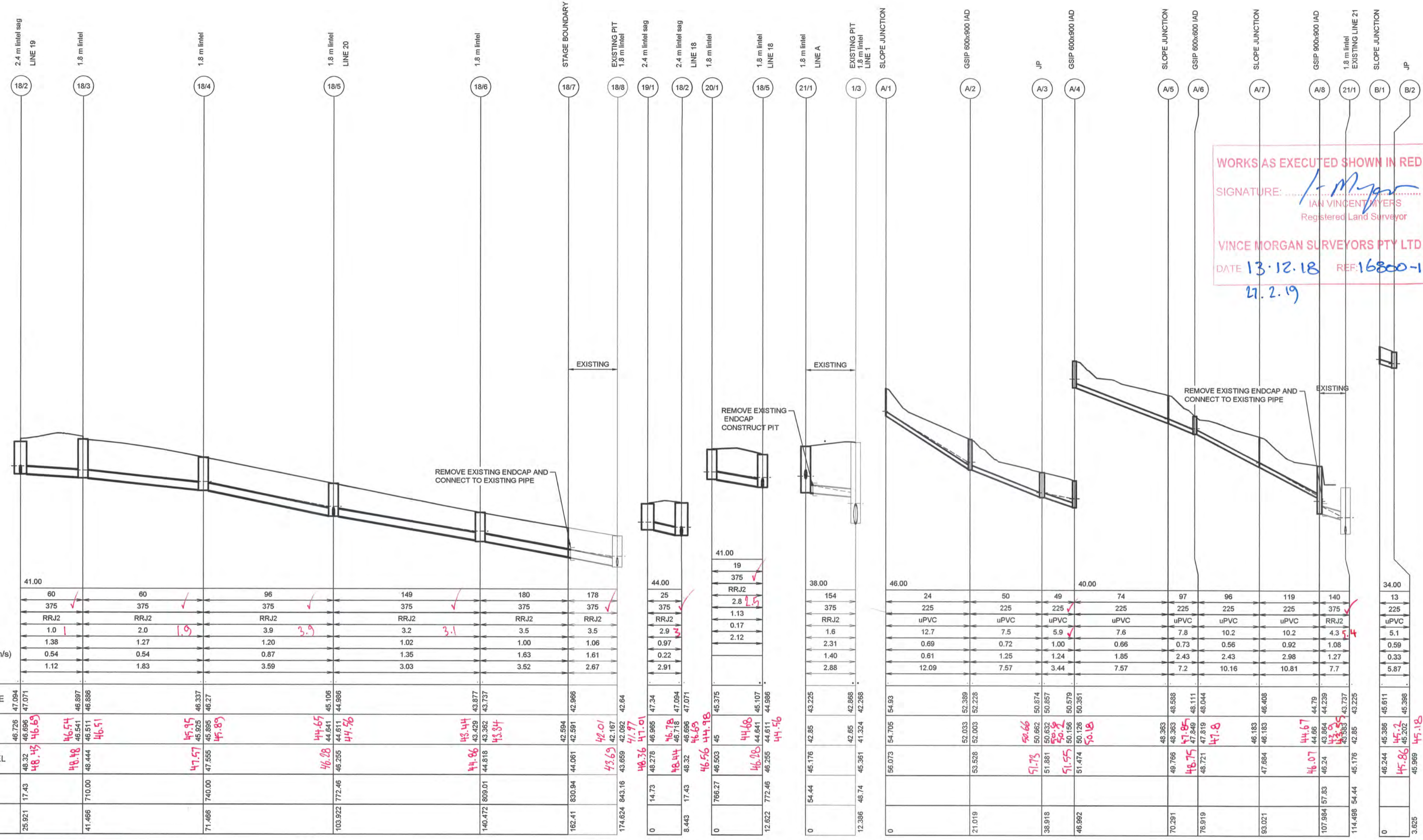
PLAN No: 1101851/CC528 3  
 FILE No: 1101851/CC528  
 SHEET SIZE: A1 ORIGINAL

J. WYNDHAM PRINCE

CONSULTING CIVIL INFRASTRUCTURE ENGINEERS  
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AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			28/02/18
1	MP	JG			19/12/17

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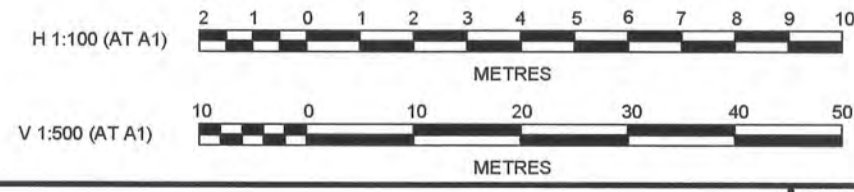


**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *I. Morgan*  
 IAN VINCENT MORGAN  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE 13.12.18 REF: 16800-11  
 27.2.19

DATUM (m)	41.00
PEAK FLOW (L/s)	60
PIPE SIZE (mm)	375
PIPE CLASS	RRJ2
PIPE GRADE (%)	1.0
PIPE COVER MINIMUM	1.38
FULL PIPE VELOCITY (m/s)	0.54
HGL GRADE (%)	1.12

LINE	CHAINAGE	HYDRAULIC GRADE LINE	INVERT LEVEL	DESIGN SURFACE LEVEL	ROAD CHAINAGE	PIPE CHAINAGE	PIPE SIZE (mm)	PIPE CLASS	PIPE GRADE (%)	PIPE COVER MINIMUM	FULL PIPE VELOCITY (m/s)	HGL GRADE (%)
LINE 18	25.921	46.756	46.688	46.32	17.43	25.921	375	RRJ2	1.0	1.38	0.54	1.12
LINE 18	41.466	46.541	46.511	46.44	710.00	41.466	375	RRJ2	2.0	1.27	0.54	1.83
LINE 18	71.466	45.925	45.895	47.55	740.00	71.466	375	RRJ2	1.9	1.20	0.87	3.59
LINE 18	103.922	44.641	44.611	46.28	772.46	103.922	375	RRJ2	3.9	1.02	1.35	3.03
LINE 18	140.472	43.429	43.399	44.81	809.01	140.472	375	RRJ2	3.1	1.00	1.63	2.67
LINE 18	174.922	42.167	42.137	43.69	843.16	174.922	375	RRJ2	3.5	1.06	1.61	2.67
LINE 19	0	44.00	43.970	44.36	14.73	0	25	RRJ2	2.9	0.97	0.22	2.91
LINE 19	8.443	43.718	43.688	44.44	17.43	8.443	375	RRJ2	1.13	0.17	0.97	2.12
LINE 20	0	45.375	45.345	46.50	766.27	0	375	RRJ2	0.17	0.17	1.40	2.88
LINE 20	12.622	45.107	45.077	46.26	772.46	12.622	375	RRJ2	1.6	2.31	1.40	2.88
LINE 21	0	38.00	37.970	42.85	54.44	0	154	RRJ2	1.6	2.31	1.40	2.88
LINE 21	12.386	42.268	42.238	42.65	48.74	12.386	375	RRJ2	1.6	2.31	1.40	2.88
LINE A	0	46.00	45.970	54.70	56.073	0	24	uPVC	7.5	0.69	0.81	12.09
LINE A	21.019	52.228	52.198	52.03	53.928	21.019	50	uPVC	7.5	0.72	1.25	7.57
LINE A	38.918	50.857	50.827	51.75	51.881	38.918	49	uPVC	5.9	1.00	1.24	3.44
LINE A	46.992	50.351	50.321	51.55	51.474	46.992	74	uPVC	7.6	0.66	1.85	7.57
LINE A	70.291	48.588	48.558	48.75	49.766	70.291	97	uPVC	7.8	0.73	2.43	7.2
LINE A	76.919	48.044	48.014	47.81	48.721	76.919	96	uPVC	10.2	0.56	2.43	10.16
LINE A	93.021	46.408	46.378	46.18	47.884	93.021	119	uPVC	10.2	0.92	2.98	10.81
LINE A	107.984	44.239	44.209	46.07	57.83	107.984	140	RRJ2	4.3	1.08	1.27	7.7
LINE B	0	34.00	33.970	45.36	46.244	0	13	uPVC	2.25	0.59	0.33	5.87
LINE B	3.625	45.398	45.368	45.86	45.969	3.625	225	RRJ2	5.1	1.08	0.33	5.87

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018



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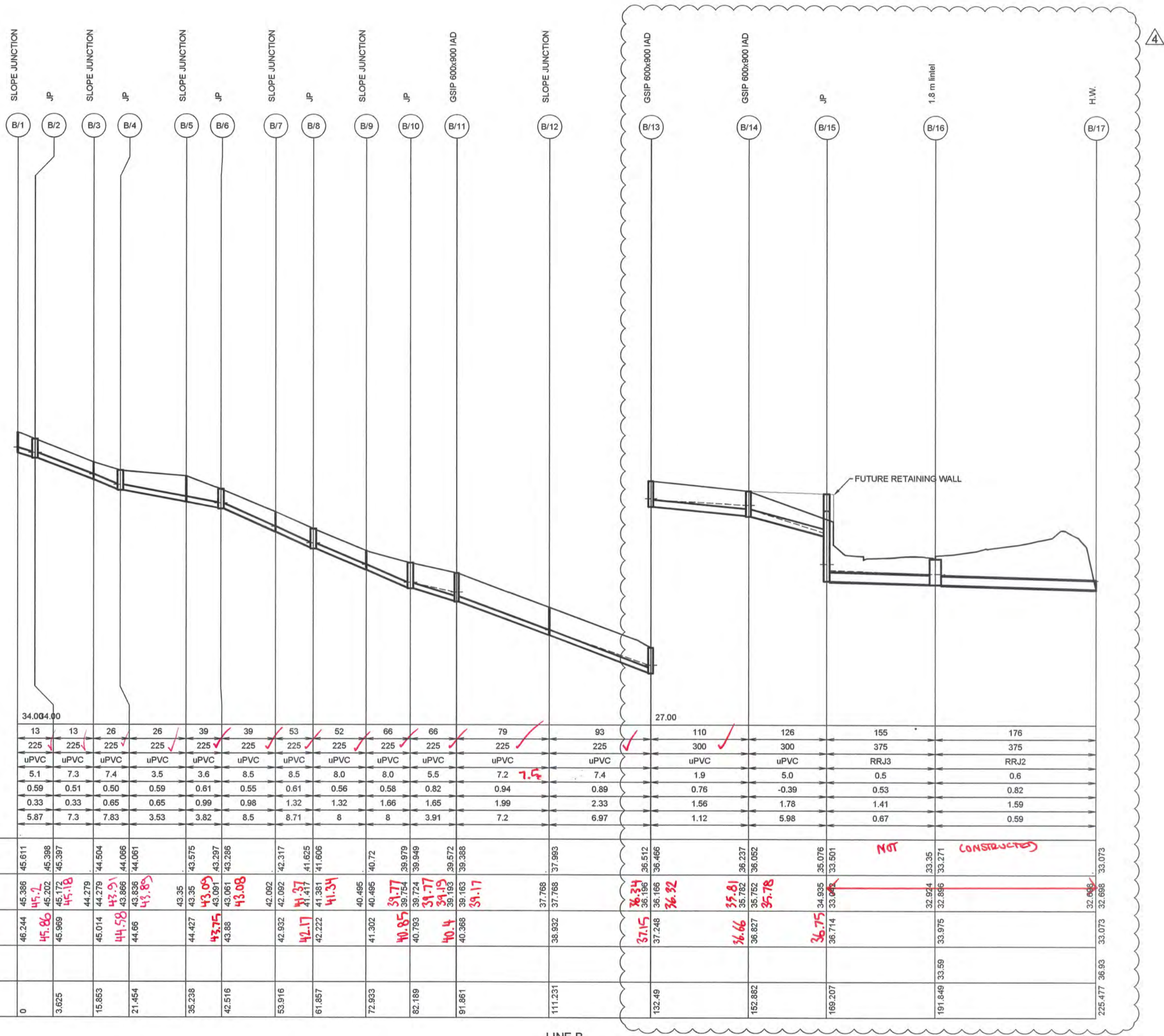
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**REDBANK, NORTH RICHMOND  
YEOMANS ENTRY**  
 DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 5

PLAN No: 11018511/CC529 3  
 FILE No: 11018511CC529  
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

Plotted: 13 September, 2018 9:37:44 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CENTRY ROAD\11018511CC530.dwg



	B/1	B/2	B/3	B/4	B/5	B/6	B/7	B/8	B/9	B/10	B/11	B/12	B/13	B/14	B/15	B/16	B/17		
DATUM (m)	34.004.00												27.00						
PEAK FLOW (L/s)	13	13	26	26	39	39	53	52	66	66	79	93	110	126	155	176			
PIPE SIZE (mm)	225	225	225	225	225	225	225	225	225	225	225	225	225	300	300	375	375		
PIPE CLASS	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	uPVC	RRJ3	RRJ2		
PIPE GRADE (%)	5.1	7.3	7.4	3.5	3.6	8.5	8.5	8.0	8.0	5.5	7.2	7.4	1.9	5.0	0.5	0.6			
PIPE COVER MINIMUM	0.59	0.51	0.50	0.59	0.61	0.55	0.61	0.56	0.58	0.82	0.94	0.89	0.76	-0.39	0.53	0.82			
FULL PIPE VELOCITY (m/s)	0.33	0.33	0.65	0.65	0.99	0.98	1.32	1.32	1.66	1.65	1.99	2.33	1.56	1.78	1.41	1.59			
HGL GRADE (%)	5.87	7.3	7.83	3.53	3.82	8.5	8.71	8	8	3.91	7.2	6.97	1.12	5.98	0.67	0.59			
HYDRAULIC GRADE LINE	45.611	45.386	45.611	44.504	43.575	42.317	41.625	41.606	40.495	39.979	39.572	37.768	36.512	36.237	35.076	33.501	32.974	32.666	
INVERT LEVEL	45.2	45.172	44.518	44.279	43.35	43.09	43.091	43.286	40.495	39.754	39.572	37.768	36.34	36.196	35.076	33.501	32.974	32.666	
DESIGN SURFACE LEVEL	46.244	45.86	45.999	45.014	44.427	43.75	43.88	42.932	41.302	40.85	40.793	38.932	37.15	37.248	36.66	36.75	36.714	33.975	33.073
ROAD CHAINAGE																		191.849	33.59
PIPE CHAINAGE	0	3.625	15.863	21.454	35.238	42.516	53.916	61.857	72.933	82.189	91.861	111.231	132.49	152.882	169.207			225.477	36.93

**WORKS AS EXECUTED SHOWN IN RED**

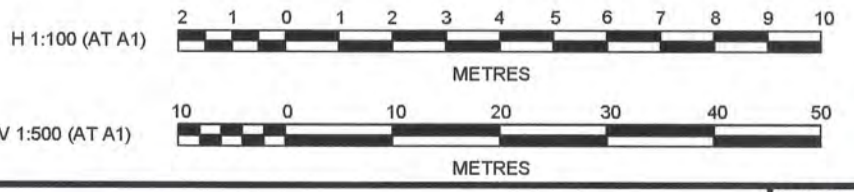
SIGNATURE: *I. Vincent Myers*  
 IAN VINCENT MYERS  
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27.2.19

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPB0565

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REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 6

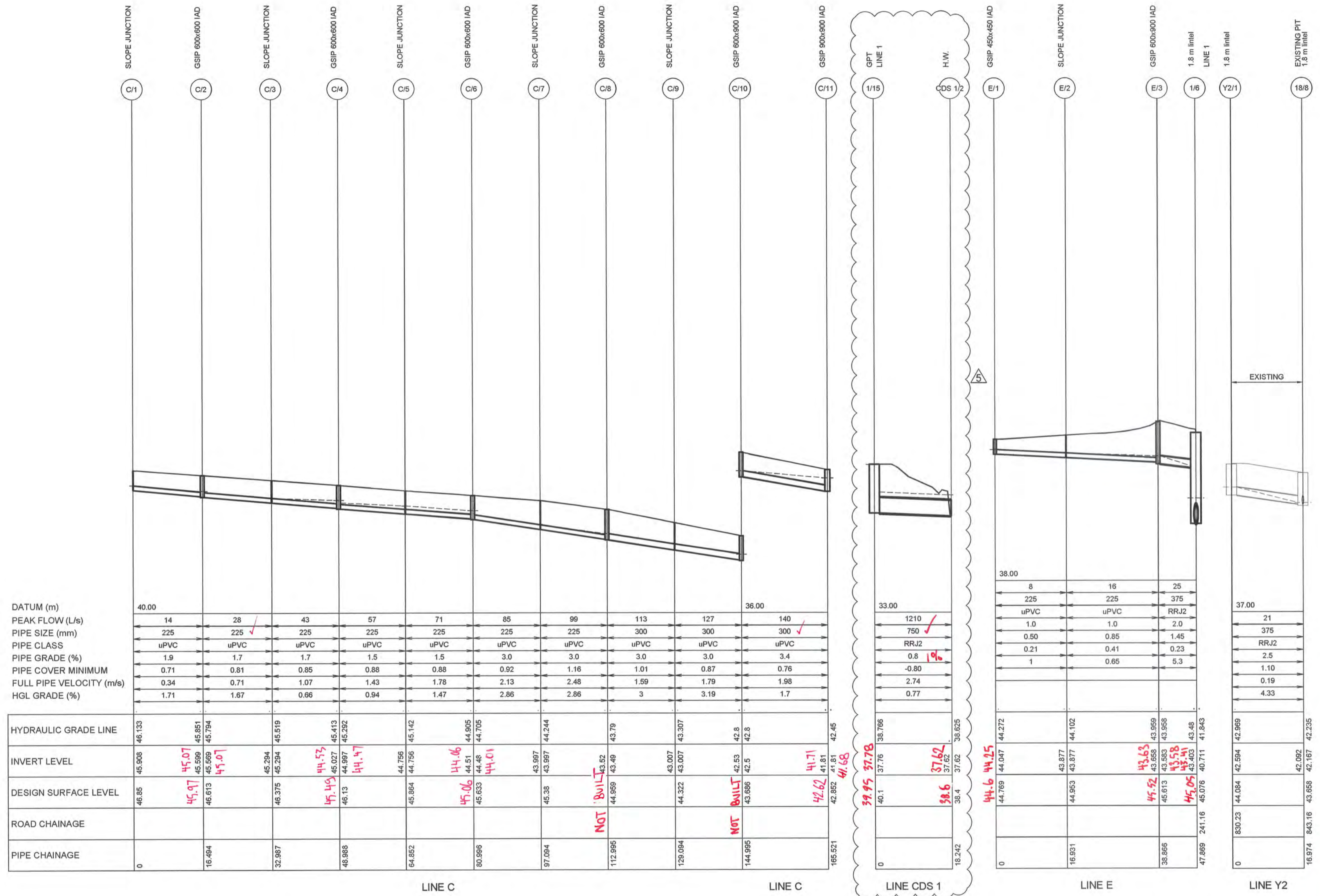
PLAN No: 11018511/CC530 4  
 FILE No: 11018511CC530  
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
4 ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17

**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 56  
 DATUM:  
 AHD  
 ORIGIN:



**WORKS AS EXECUTED SHOWN IN RED**

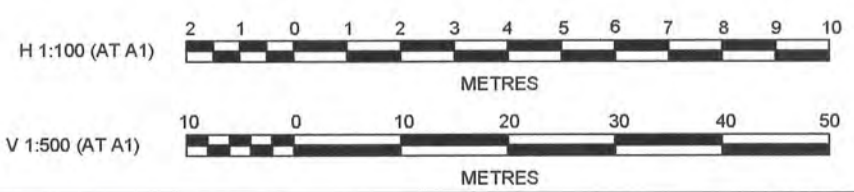
SIGNATURE: *I. Morgan*  
 IAN VINCENT MYERS  
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27.2.19

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *J. Prince*  
 Accreditation No. JPBP0565

These plans/specifications form part of the certificate issued 28/09/2018



AMENDMENT	DES	DRN	CKD	APR	DATE
5 ROAD 50 ALIGNMENT MOVED	MP	NAF	RO	MS	13/09/18
4 STORMWATER PITS IN CDS RELOCATION	MP	TG	MS	RO	26/06/18
3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17

**J. WYNTHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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PRINCIPAL: **REDBANK**  
 AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 7

PLAN No: 11018511/CC531 5  
 FILE No: 11018511CC531  
 SHEET SIZE: A1 ORIGINAL





REFER TO DRAWING 11018511/CC532 FOR CONTINUATION  
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 (vwd) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS
B/7	SLOPE JUNCTION	0.051	85	0.769	5	130.8	8	111.3	8	111.3	12	5	130.8	14	14	0	14							14	0		
B/8	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/9	SLOPE JUNCTION	0.051	85	0.769	5	130.8	8	111.3	8	111.3	12	5	130.8	14	14	0	14							14	0		
B/10	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/11	GSP 600x600 IAD	0.051	85	0.769	5	130.8	8	111.3	8	111.3	12	5	130.8	14	14	0	14							14	0		
B/12	SLOPE JUNCTION	0.054	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
B/13	GSP 600x600 IAD	0.068	85	0.769	5	130.8	8	111.3	8	111.3	16	5	130.8	19	19	0	19							19	0		
B/14	GSP 600x600 IAD	0.064	85	0.769	5	130.8	8	111.3	8	111.3	15	5	130.8	18	18	0	18							18	0		
B/15	JP	0.406	85	0.769	5	130.8	8	111.3	8	111.3	96	5	130.8	111	111	0	111							111	0		
B/16	GSP 600x900 IAD	0.114	85	0.769	5	130.8	8	111.3	8	111.3	27	5	130.8	31	31	0	31							31	0		
B/17	1.8 m lintel																										EXISTING PIT TO BE CONVERTED INTO "V" DRAIN
C/1	SLOPE JUNCTION	0.05	85	0.769	5	130.8	8	111.3	8	111.3	12	5	130.8	14	14	0	14							14	0		
C/2	GSP 600x600 IAD	0.054	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/3	SLOPE JUNCTION	0.055	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/4	GSP 600x600 IAD	0.054	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/5	SLOPE JUNCTION	0.055	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/6	GSP 600x600 IAD	0.055	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/7	SLOPE JUNCTION	0.055	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/8	GSP 600x600 IAD	0.056	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/9	SLOPE JUNCTION	0.055	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/10	GSP 600x900 IAD	0.055	85	0.769	5	130.8	8	111.3	8	111.3	13	5	130.8	15	15	0	15							15	0		
C/11	GSP 900x900 IAD																										EXISTING ENDCAP
CDS 1/2	H.W.																										
E/1	GSP 450x450 IAD	0.03	85	0.769	5	130.8	8	111.3	8	111.3	7	5	130.8	8	8	0	8							8	0		
E/2	SLOPE JUNCTION	0.03	85	0.769	5	130.8	8	111.3	8	111.3	7	5	130.8	8	8	0	8							8	0		
E/3	GSP 600x900 IAD	0.035	85	0.769	5	130.8	8	111.3	8	111.3	8	5	130.8	10	10	0	10							10	0		
Y2/1	1.8 m lintel	0.079	85	0.769	5	130.8	8	111.3	8	111.3	19	5	130.8	21	21	0	21	0.06	1.07	0.05				21	0		
Y2/2	1.8 m lintel																										

WORKS AS EXECUTED SHOWN IN RED  
SIGNATURE: *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor  
VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16800-11  
21.2.19

CONSTRUCTION CERTIFICATE  
Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *Harry*  
Accreditation No. BPB0565  
These plans/specifications form part of the certificate issued 28/09/2018

Plotted: 14 May 2018 12:00:01 PM File Name: J:\11018511 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\ENTRY ROAD\11018511CC533.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

**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 jwpr@jwprince.com.au

PRINCIPAL:  
  
AZIMUTH: MGA 56  
DATUM: AHD  
ORIGIN: AHD  
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

**ISSUED FOR CONSTRUCTION APPROVAL**  
REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
DRAINAGE CALCULATIONS  
5YR HYDROLOGICAL TABLE SHEET 2  
PLAN No: 11018511/CC533 3  
FILE No: 11018511CC533  
SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

PIPE NAME (-)	PIPE TYPE (-)	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA AF (sq.m)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA SUM CA (ha)	FULL AREA FLOW Qc (L/s)	PART-AREA TIME Tc (min)	PART-AREA INTENSITY I (mm/hr)	PART-AREA SUM CA (ha)	PART-AREA FLOW Qc (L/s)	DIRECT PIPE FLOW Qp (L/s)	PEAK FLOW Qrat (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 U/S PIT (m/s)	PIPE U/S I/L (m)	PIPE D/S I/L (m)	PIPE D/S DROP (m)	U/S PIT Ku (-)	U/S PIT Kw (-)	PIPE V'HEAD (m)	PIT LOSS (Ku.V'head) (m)	WSE LOSS (Kw.V'head) (m)	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
1/2 to 1/2	RRJ2	900	11	0.7	0.64	5	130.8	0	0	5	130.8	0	0	984	984	0	984	1641.5	0.6	1.55	2.7	2.24	44.242	41.721	41.644	0.03	2.05	0.12	0.25	0.25	0.03	43.043	42.793	42.766	0.25	1.62	1.2		
1/2 to 1/3	RRJ2	900	37.09	0.7	0.64	5.07	130.2	0	0	5.07	130.2	0	0	984	992	-8	984	1642	0.6	1.55	2.7	2.24	44.242	41.721	41.644	0.03	2.06	0.12	0.25	0.25	0.2	42.766	42.514	42.318	0.53	2.98	1.4		
1/3 to 1/4	RRJ3	900	38.26	0.7	0.64	8.58	108.1	0.478	143.5	5.35	127.9	0.46	164.2	984	1156.2	-8	1148.2	1642	0.7	1.8	2.79	2.39	45.361	41.324	41.056	0.03	0.3	0.17	0.05	0.05	0.13	42.318	42.268	42.137	0.34	3.14	3.04		
1/4 to 1/5	RRJ3	900	16.14	0.7	0.64	8.81	106.8	0.48	142.3	5.58	126	0.46	162.2	984	1154.2	-8	1146.2	1642	0.7	1.81	2.79	2.39	46.643	41.026	40.913	0.03	0.43	0.17	0.07	0.07	0.06	42.137	42.066	42.011	0.34	4.29	4.51		
1/5 to 1/6	RRJ3	900	20.4	0.7	0.64	8.9	106.2	0.494	145.8	5.68	125.2	0.48	166.1	984	1158.1	-8	1150.1	1642	0.7	1.81	2.79	2.4	45.955	40.883	40.74	0.03	0	0.17	0	0	0.07	42.011	42.011	41.941	0.34	3.57	3.94		
1/6 to 1/7	RRJ2	900	16.33	1	0.64	9.03	105.6	0.585	171.6	5.8	124.2	0.57	195.5	984	1187.5	-8	1179.5	1962	0.6	1.85	3.22	2.42	45.076	40.711	40.547	0.03	0.55	0.18	0.1	0.1	0.06	41.941	41.843	41.784	0.36	3.18	3.13		
1/7 to 1/8	RRJ2	900	17.04	1	0.64	9.11	105.1	1.593	464.9	5.65	125.4	1.54	536.1	1062	1606.1	-10.5	1595.7	1962	0.81	2.51	3.44	2.84	44.659	40.517	40.347	0.03	1.11	0.32	0.35	0.37	0.11	41.801	41.43	41.317	0.66	2.69	2.86		
1/8 to 1/9	RRJ2	900	37.4	1	0.64	9.19	104.6	1.67	485.5	5.74	124.7	1.62	559.7	1062	1629.7	-9	1620.7	1962	0.83	2.55	3.44	2.87	43.956	40.317	39.943	0.03	0.3	0.33	0.1	0.1	0.28	41.317	41.217	40.935	0.75	1.67	2.64		
1/9 to 1/10	RRJ2	900	29.99	3.34	0.64	9.37	103.6	1.829	526.4	5.92	123.2	1.77	606.3	1062	1676.3	-18.9	1657.4	3587	0.46	2.61	5.53	2.91	42.581	39.913	38.91	0.15	0.35	0.35	0.12	0.12	0.65	40.935	40.813	40.163	2.17	1.56	1.65		
1/10 to 1/11	RRJ2	1050	14.6	2.38	0.87	9.46	103.1	1.949	558.1	6.01	122.5	1.89	643.1	1062	1713.1	-10.6	1702.4	4570.4	0.37	1.97	4.89	2.6	41.407	38.76	38.412	0.03	0.5	0.2	0.1	0.1	0.05	40.163	40.065	40.017	0.33	1	1.24		
1/11 to 1/12	RRJ3	1050	27.1	0.7	0.87	9.51	102.8	1.966	561.5	6.06	122.2	1.91	647.3	1062	1717.3	-8	1709.3	2476.1	0.69	1.97	3.08	2.6	40.34	38.382	38.192	0.03	0.5	0.2	0.1	0.1	0.09	40.017	39.917	39.827	0.33	0.67	0.32		
1/12 to 1/13	RRJ3	1050	14.17	0.7	0.87	9.66	102	2.039	577.6	6.2	121.4	1.98	667.1	1062	1737.1	-8.6	1728.5	2476.1	0.7	2	3.09	2.61	39.993	38.162	38.063	0.03	0.88	0.9	0.2	0.18	0.18	0.05	39.832	39.648	39.6	0.34	0.76	0.16	
1/13 to 1/14	RRJ3	1200	16.45	0.7	1.13	9.74	101.6	2.062	581.8	6.28	120.9	2	672.6	1062	1742.6	-8.6	1734	3535.2	0.49	1.53	3.11	2.44	39.93	38.033	37.918	0.03	0.59	0.9	0.2	0.18	0.08	0.03	39.613	39.53	39.502	0.17	0.61	0.32	
1/14 to 1/15	RRJ3	(2x)1200	7.14	1	2.26	9.83	101.1	9.167	2574	5.19	129.2	8.61	3089.2	1062	4159.2	-8	4151.2	8450.2	0.49	1.84	3.72	2.62	39.831	37.888	37.817	0.03	1	1.04	0	0	0	39.502	39.502	39.502	0	0.69	0.33		
1/15 to 1/16	RRJ2	(2x)1200	16.66	1	2.26	9.86	100.9	9.167	2569.4	5.23	128.9	8.61	3082.8	1062	2942.8	-8	2934.8	8483.3	0.35	1.3	3.4	2.29	39.734	37.787	37.62	2	2	0.09	0.17	0.17	0.34	39.158	38.987	38.625	2.17	1.2	0.58		
2/1 to 2/2	RRJ2	375	33.99	10.08	0.11	5	130.8	0	0	5	130.8	0	0	78	78	0	78	603.2	0.13	0.71	3.76	1.27	63.534	61.996	58.57	0.03	0	0.03	0	0	0	3.34	62.371	62.371	59.03	9.83	1.19	1.16	
2/2 to 2/3	RRJ2	375	28.53	10.12	0.11	8	111.3	0.145	44.8	5	130.8	0.14	51.3	78	129.3	-4.4	124.9	604.6	0.21	1.13	4.31	1.52	60.374	58.54	55.652	0.03	1.75	0.07	0.11	0.11	2.76	59.03	58.915	56.157	9.67	1.34	1.34		
2/3 to 2/4	RRJ2	375	36.05	11.19	0.11	8.11	110.7	0.309	94.9	5.11	129.9	0.3	108.7	78	186.7	-1.1	185.6	635.7	0.29	1.68	4.99	1.88	57.177	55.622	51.587	0.03	1.11	0.14	0.16	0.16	3.81	56.157	55.997	52.187	10.57	1.16	1.02		
2/4 to 2/5	RRJ2	375	41.02	10.45	0.11	8.23	110	0.457	139.6	5.23	128.9	0.45	159.7	78	237.7	-3.7	234	614.2	0.38	2.12	5.18	2.21	53.126	51.558	47.273	0.03	1.11	0.23	0.25	0.25	4	52.187	51.933	47.929	9.76	1.16	0.94		
2/5 to 2/6	RRJ2	375	18.39	8.1	0.11	8.36	109.3	0.611	185.5	5.35	127.9	0.6	212	78	290	-7.4	282.6	540.8	0.52	2.56	4.95	2.6	48.747	47.242	45.753	0.03	0.93	0.33	0.31	0.31	1.21	47.929	47.617	46.404	6.6	1.14	0.82		
2/6 to 2/7	RRJ2	375	36.81	5.11	0.11	8.42	108.9	0.773	234	5.31	128.2	0.75	267.4	78	345.4	-2	343.4	429.4	0.8	3.11	4.32	3.13	47.342	45.723	43.844	0.03	0.62	0.49	0.31	0.31	1.48	46.404	46.098	44.614	4.03	1.1	0.94		
2/7 to 1/7	RRJ2	375	23.02	5	0.11	8.57	108.1	0.929	279.1	5.46	127	0.9	318.7	78	396.7	-7.2	389.6	424.9	0.92	3.53	4.36	3.54	45.532	43.814	42.663	2.146	0.67	0.63	0.42	0.42	0.91	44.614	44.189	42.946	5.4	1.24	0.92		
3/1 to 2/3	RRJ2	375	11.75	4.12	0.11	8	111.3	0.076	23.6	5	130.8	0.07	27	0	27	0	27	385.5	0.07	0.24	2.01	0.91	57.706	56.136	55.652	0.03	4.5	0	0.01	0.01	0.35	56.524	56.511	56.157	3.04	1.1	1.18		
4/1 to 2/6	RRJ2	375	15.2	5.28	0.11	8	111.3	0.085	26.1	5	130.8	0.08	30	0	30	0	30	436.8	0.07	0.27	2.26	0.94	48.146	46.557	45.753	0.03	4.5	0	0.02	0.02	0.53	46.949	46.932	46.404	3.47	1.1	1.2		
5/1 to 1/10	RRJ2	375	12.34	2	0.11	5	130.8	0.043	15.7	5	130.8	0.04	15.7	0	15.7	0	15.7	268.7	0.06	0.14	1.33	0.78	41.601	39.658	39.412	0.651	4.5	0	0	0	0	40.168	40.163	40.163	0.01	1.57	1.43		
6/1 to 6/2	RRJ3	1050	9.64	1	0.87	8	111.3	4.558	1409.2	5	130.8	4.45	1615.5	0	1615.5	0	1615.5	2959.5	0.55	1.87	3.49	2.54	40.284	38.312	38.215	0	0	0.18	0	0	0.03	39.741	39.741	39.713	0.3	0.5	0.54		
6/2 to 6/3	RRJ3	1050	3.19	1	0.87	8.05	111.1	4.558	1405.9	5.05	130.4	4.45	1610.8	0	1610.8	0	1610.8	2959.5	0.54	1.86	3.49	2.53	39.837	38.215	38.183	0.03	0	0.18	0	0	0.01	39.713	39.713	39.703	0.3	0.49	0.12		
6/3 to 6/4	RRJ3	1200	14.64	0.8	1.13	8.14	110.5	4.604	1413.7	5.06	130.3	4.49	1625.4	0	1625.4	0	1625.4	3779.3	0.43	1.44	3.21	2.38	39.788	38.153	38.036	0.03	0.73	0.8	0.11	0.08	0.08	0.02	39.71	39.626	39.604	0.15	0.55	0.08	
6/4 to 1/14	RRJ3	1200	11	0.8	1.13	8.21	110.1	4.755	1454.4	5.14	129.7	4.64	1670.7	0	1670.7	0.6	1670.7	3779.3	0.44	1.48	3.24	2.4	39.831	38.006	37.918	0.03	0.77	0.11	0.09	0.09	0.02	39.605	39.519	39.502	0.16	0.62	0.23		
7/1 to 6/3	RRJ3	375	8.04	1	0.11	8	11																																

**REFER TO DRAWING 11018511/CC534 FOR CONTINUATION  
DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS**

PIPE NAME (-)	PIPE TYPE (-)	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA Af (sq.m)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA SUM CA (ha)	FULL AREA FLOW Qc (L/s)	PART-AREA TIME Tc (min)	PART-AREA INTENSITY I (mm/hr)	PART-AREA SUM CA (ha)	PART-AREA FLOW Qc (L/s)	DIRECT PIPE FLOW Qp (L/s)	PEAK FLOW Qrat (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 (m)	PIPE U/S IL (m)	PIPE D/S IL (m)	PIPE D/S DROP (m)	U/S PIT Ku (-)	U/S PIT Kw (-)	PIPE V'HEAD (m)	PIT LOSS (Ku.V'head) (m)	WSE LOSS (Kw.V'head) (m)	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/12 to B/13	uPVC	225	21.84	7.2	0.04	8.6	107.9	0.272	81.7	5.36	127.9	0.26	93.5	0	93.5	0	93.5	156.7	0.6	2.35	4.11	2.37	38.933	37.768	36.196	0.03	0	0.28	0	0	1.02	37.993	37.993	36.975	4.66	0.79	0.94		
B/13 to B/14	uPVC	225	1.21	7.2	0.04	8.69	107.4	0.325	96.9	5.44	127.1	0.31	111.1	0	111.1	0	111.1	156.7	0.71	2.79	4.27	2.8	37.16	36.166	36.078	0.05	0.71	0.4	0.28	0.28	0.04	36.975	36.691	36.648	3.62	0.73	0.18		
B/14 to B/15	RRJ3	300	6.22	11.06	0.07	8.7	107.4	0.374	111.7	5.45	127.1	0.36	128.2	0	128.2	0	128.2	348.5	0.37	1.81	4.55	1.91	37.067	36.028	35.34	0.07	1.78	2.33	0.17	0.3	0.39	0.09	36.739	36.349	36.256	1.5	0.68	0.33	
B/15 to B/16	uPVC	300	39.52	6.55	0.07	8.72	107.3	0.686	204.5	5.2	129.2	0.66	236.6	0	236.6	0	236.6	322	0.73	3.35	4.98	3.35	36.544	35.27	32.68	0.368	1.2	0.57	0.69	0.69	2.4	36.256	35.57	33.167	6.08	0.52	0.29		
B/16 to B/17	RRJ2	375	4.49	1	0.11	8.85	106.5	0.774	229	5.33	128.1	0.74	265	0	265	0	265	190.2	1.39	2.4	2.4	2.46	33.445	32.312	32.267	0.57	0.59	0.29	0.17	0.17	0.09	33.174	33	32.913	1.95	0.59	0.27		
C/1 to C/2	uPVC	225	16.49	1.87	0.04	8	111.3	0.039	12	5	130.8	0.04	13.7	0	13.7	0	13.7	80	0.17	0.34	1.5	0.85	46.85	45.908	45.599	0.03	0	0.01	0	0	0.28	46.133	46.133	45.851	1.71	0.71	0.72		
C/2 to C/3	uPVC	225	16.49	1.67	0.04	8.18	110.3	0.08	24.6	5.18	129.3	0.08	28.1	0	28.1	0	28.1	75.4	0.37	0.71	1.76	1.08	46.613	45.569	45.294	0	2.22	0.03	0.06	0.06	0.27	45.851	45.794	45.519	1.67	0.81	0.76		
C/3 to C/4	uPVC	225	16	1.67	0.04	8.34	109.4	0.122	37.2	5.34	128	0.12	42.5	0	42.5	0	42.5	75.4	0.56	1.07	1.95	1.3	46.375	45.294	45.027	0.03	0	0.06	0	0	0.11	45.519	45.519	45.413	0.66	0.85	0.86		
C/4 to C/5	uPVC	225	15.86	1.52	0.04	8.48	108.6	0.164	49.6	5.29	128.4	0.16	56.7	0	56.7	0	56.7	72.1	0.79	1.43	2.01	1.54	46.13	44.997	44.756	0	1.17	0.1	0.12	0.12	0.15	45.413	45.292	45.142	0.94	0.88	0.72		
C/5 to C/6	uPVC	225	16.14	1.52	0.04	8.61	107.9	0.206	61.8	5.42	127.3	0.2	70.8	0	70.8	0	70.8	70.8	0.98	1.78	2.07	1.83	45.864	44.756	44.51	0.03	0	0.16	0	0	0.24	45.142	45.142	44.905	1.47	0.88	0.72		
C/6 to C/7	uPVC	225	16.1	3	0.04	8.74	107.2	0.248	73.9	5.56	126.2	0.24	84.6	0	84.6	0	84.6	101.1	0.84	2.13	2.85	2.15	45.633	44.48	43.997	0	0.87	0.23	0.2	0.2	0.46	44.905	44.705	44.244	2.86	0.92	0.73		
C/7 to C/8	uPVC	225	15.9	3	0.04	8.83	106.6	0.291	86.2	5.49	126.7	0.28	98.7	0	98.7	0	98.7	101.1	0.98	2.48	2.9	2.49	45.38	43.997	43.52	0.03	0	0.31	0	0	0.45	44.244	44.244	43.79	2.86	1.16	1.14		
C/8 to C/9	uPVC	300	16.1	3	0.07	8.92	106.1	0.334	98.3	5.58	126	0.32	112.7	0	112.7	0	112.7	217.8	0.52	1.59	3.11	1.74	44.959	43.49	43.007	0	0	0.13	0	0	0.48	43.79	43.79	43.307	3	1.01	1.17		
C/9 to C/10	uPVC	300	15.9	3	0.07	9.01	105.6	0.376	110.3	5.67	125.3	0.36	126.6	0	126.6	0	126.6	217.8	0.58	1.79	3.2	1.89	44.322	43.007	42.53	0.03	0	0.16	0	0	0.49	43.307	43.307	42.8	3.19	0.87	1.01		
C/10 to C/11	uPVC	300	20.53	3.36	0.07	9.09	105.2	0.418	122.2	5.62	125.7	0.4	140.3	0	140.3	0	140.3	230.6	0.61	1.98	3.42	2.06	43.686	42.5	41.81	0	0	0.2	0	0	0.35	42.8	42.8	42.45	1.7	0.76	0.89		
I/15 to CDS 1/2	RRJ2	750	20.42	1.06	0	5	130.8	0	0	5	130.8	0	0	0	1210	0	1210	0	1.05E+09	1.05E+09	1.05E+09	39.735	37.817	37.6		4.5	0	0	0	0	38.625	38.625	38.625	0	-0.8	1.11			
E/1 to E/2	uPVC	225	16.93	1	0.04	8	111.3	0.023	7.2	5	130.8	0.02	8.3	0	8.3	0	8.3	58.4	0.14	0.21	1.04	0.73	44.769	44.047	43.877	0	0	0	0	0	0.17	44.272	44.272	44.102	1	0.5	0.5		
E/2 to E/3	uPVC	225	21.93	1	0.04	8.27	109.8	0.047	14.3	5.27	128.6	0.05	16.3	0	16.3	0	16.3	58.4	0.28	0.41	1.26	0.89	44.953	43.877	43.658	0.075	0	0.01	0	0	0.14	44.102	44.102	43.959	0.65	0.85	0.85		
E/3 to 1/6	RRJ2	375	9	2	0.11	8.56	108.2	0.074	22.1	5.56	126.2	0.07	25.2	0	25.2	0	25.2	268.7	0.09	0.23	1.53	0.9	45.613	43.583	43.403	2.692	0.36	0	0	0	0.36	43.959	43.958	43.48	5.3	1.45	1.65		
Y2/1 to Y2/2	RRJ2	375	16.97	2.52	0.11	8	111.3	0.06	18.7	5	130.8	0.06	21.4	0	21.4	0	21.4	301.4	0.07	0.19	1.58	0.85	44.084	42.594	42.167		4.5	0	0.01	0.01	0.61	42.978	42.969	42.235	4.33	1.1	1.11		

**WORKS AS EXECUTED SHOWN IN RED**

SIGNATURE: *[Signature]*  
IAN VINCENT MYERS  
Registered Land Surveyor

**VINCE MORGAN SURVEYORS PTY LTD**

DATE: 13.12.18 REF: 16200-11  
21.2.19

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *[Signature]* BPB0565  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018

Plotted: 14 May 2018 12:00:47 PM File Name: J:\11018511 - Redbank North Richmond Residential Precincts01 - Description\CD\CENTRY ROAD\11018511CC535.dwg

NO	DESCRIPTION	MP	NM	MS	AM	DATE
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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PRINCIPAL: 

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

**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK, NORTH RICHMOND YEOMANS ENTRY DRAINAGE CALCULATIONS 5YR HYDRAULIC TABLE SHEET 2**

PLAN No: 11018511/CC535 **3**

FILE No: 11018511CC535

SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:20yr 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 (vxd) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS
1/1	2.4 m lintel sag	0	0						5	0	0	0	0	0	0	0	0	0	0				1	0	0	EXISTING	
1/2	1.8 m lintel	0	0						5	0	0	5	0	0	0	8	8	0	0				1	0	8	EXISTING	
1/3	1.8 m lintel	0.041	85	0.868	5	169	8	143.7	8	143.7	14	5	169	16	16	0	16				4.6	3		16	0	EXISTING	
1/4	1.8 m lintel	0.002	85	0.868	5	169	8	143.7	8	143.7	1	5	169	1	1	0	1							1	0		
1/5	1.8 m lintel	0.019	85	0.868	5	169	8	143.7	8	143.7	7	5	169	7	7	0	7							7	0		
1/6	1.8 m lintel	0.023	85	0.868	5	169	8	143.7	8	143.7	8	5	169	9	9	0	9							9	0		
1/7	1.8 m lintel	0.102	85	0.868	5	169	8	143.7	8	143.7	35	5	169	40	40	0	64	0.08	1.7	0.1	3.8	3	1	50	14	1/8	
1/8	1.8 m lintel	0.101	85	0.868	5	169	8	143.7	8	143.7	35	5	169	40	40	0	54	0.08	1.63	0.09	3.8	3.1	1	47	7	1/9	
1/9	1.8 m lintel	0.206	85	0.868	5	169	8	143.7	8	143.7	71	5	169	82	82	0	88	0.09	2.1	0.11	3.8	3	1	62	26	1/10	
1/10	1.8 m lintel	0.1	85	0.868	5	169	8	143.7	8	143.7	35	5	169	40	40	0	66	0.08	1.85	0.09	3.8	3	1	55	11	1/11	
1/11	1.8 m lintel	0.022	85	0.868	5	169	8	143.7	8	143.7	8	5	169	9	9	0	20	0.06	1	0.05	3.6	3	1	20	0	1/12	
1/12	1.8 m lintel	0.094	85	0.868	5	169	8	143.7	8	143.7	33	5	169	38	38	0	38	0.09	2.02	0.05	0.7	3	1	35	3	6/4	
1/13	1.8 m lintel	0.031	85	0.868	5	169	8	143.7	8	143.7	11	5	169	12	12	0	12	0.06	1.19	0.03	0.7	3	1	12	0	1/14	
1/14	2.4 m lintel sag	0.029	85	0.868	5	169	8	143.7	8	143.7	10	5	169	11	11	0	18	0.03			0.2	3	1	18	0	LOST	
1/15	GPT	0	0						5	0	0	5	0	0	0	-1210	-1210							-1210	0		
1/16	H.W.																										OUTLET TO DAM 13
2/1	1.8 m lintel	0	0						0	0	0	0	0	0	0	0	0				7.1		1	0	0	2/2	
2/2	1.8 m lintel	0.188	85	0.868	5	169	8	143.7	8	143.7	65	5	169	75	75	0	75	0.07	1.52	0.13	10.9	2.9	1	61	13	2/3	
2/3	1.8 m lintel	0.114	85	0.868	5	169	8	143.7	8	143.7	40	5	169	45	45	0	59	0.06	1.42	0.11	11.2	3	1	52	7	2/4	
2/4	1.8 m lintel	0.193	85	0.868	5	169	8	143.7	8	143.7	67	5	169	77	77	0	83	0.07	1.51	0.15	11.2	3.1	1	70	13	2/5	
2/5	1.8 m lintel	0.201	85	0.868	5	169	8	143.7	8	143.7	69	5	169	80	80	0	93	0.08	1.47	0.16	9.1	2.8	1	70	22	2/6	
2/6	1.8 m lintel	0.101	85	0.868	5	169	8	143.7	8	143.7	35	5	169	40	40	0	63	0.07	1.55	0.11	6.7	2.9	0.85146	44	19	2/7	
2/7	1.8 m lintel	0.203	85	0.868	5	169	8	143.7	8	143.7	70	5	169	80	80	0	99	0.09	2.1	0.12	4.3	3	1	76	24	1/7	
3/1	1.8 m lintel	0.099	85	0.868	5	169	8	143.7	8	143.7	34	5	169	39	39	0	39	0.06	0.97	0.11	10.7	2.9	1	37	2	4/1	
4/1	1.8 m lintel	0.11	85	0.868	5	169	8	143.7	8	143.7	38	5	169	44	44	0	46	0.06	1.45	0.09	7.5	2.9	1	42	4	21/1	
5/1	1.8 m lintel	0.051	100	0.954	5	169			5	169	23	5	169	23	23	0	23	0.06	1.07	0.06	3.9	3	1	23	0	LOST	
6/1	DUMMY	5.926	85	0.868	5	169	8	143.7	8	143.7	2053	5	169	2355	2355	0	2355						1	2355	0	6/3	
6/2	STAGE BOUNDARY	0	0						0	0	0	0	0	0	0	0	0							0	0		FUTURE PIT
6/3	2.4 m lintel sag	0.013	85	0.868	5	169	8	143.7	8	143.7	4	5	169	5	5	0	5	0.01			1.1	1.6	1	5	0	6/4	
6/4	2.4 m lintel sag	0.196	85	0.868	5	169	8	143.7	8	143.7	68	5	169	78	78	0	81	0.07			0.2	3	1	81	0	1/14	
7/1	2.4 m lintel sag	0.047	85	0.868	5	169	8	143.7	8	143.7	16	5	169	19	19	0	19	0.03					1	19	0		
8/1	DUMMY	2.893	85	0.868	5	169	8	143.7	8	143.7	1002	5	169	1150	1150	0	1150						1	1150	0	7/1	
8/2	1.8 m lintel	0.134	85	0.868	5	169	8	143.7	8	143.7	46	5	169	53	53	0	53	0.08	1.74	0.08	3	3	1	47	6	1/14	
9/1	GSIP 900x900	0	0						5	0	0	5	0	0	0	819	819							819	0		SPILLWAY 2YR ARI
9/2	GSIP 900x900	0	0						5	0	0	5	0	0	0	3986	3986							3986	0		SPILLWAY 100YR ARI
9/3	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
9/4	H.W.																										
10/1	2.4 m lintel sag	0.074	85	0.868	5	169	8	143.7	8	143.7	26	5	169	29	29	0	34	0.04			0.5	3	1	34	0	LOST	
10/2	2.4 m lintel sag	0.055	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22	0			0.1	3	1	0	21	LOST	
10/3	1.8 m lintel	0.019	85	0.868	5	169	8	143.7	8	143.7	6	5	169	7	7	0	7	0.05	0.8	0.02	1	3	1	7	0	10/2	
11/1	1.8 m lintel	0.096	85	0.868	5	169	8	143.7	8	143.7	33	5	169	38	38	0	39	0.07	1.43	0.07	3.5	3	1	36	3	12/1	
11/2	1.8 m lintel	0.065	85	0.868	5	169	8	143.7	8	143.7	23	5	169	26	26	0	26	0.06	1.15	0.06	3.6	3	1	25	1	11/3	
11/3	1.8 m lintel	0.045	85	0.868	5	169	8	143.7	8	143.7	16	5	169	18	18	0	18	0.06	0.96	0.05	3.6	3	1	18	0	11/4	
11/4	1.8 m lintel	0.046	85	0.868	5	169	8	143.7	8	143.7	16	5	169	18	18	0	18	0.06	1.13	0.04	2	3	1	18	0	10/3	
11/5	GPT	0	0						0	0	0	0	0	0	0	0	0							0	0		
11/6	H.W.																										OUTLET TO DAM 13
12/1	1.8 m lintel	0.107	85	0.868	5	169	8	143.7	8	143.7	37	5	169	42	42	0	45	0.08	1.75	0.07	2	3	1	41	5	10/1	
13/1	1.8 m lintel	0.22	85	0.868	5	169	8	143.7	8	143.7	76	5	169	88	88	0	88	0.09	2.04	0.11	2.7	3	1	68	20	13/2	
13/2	1.8 m lintel	0.088	85	0.868	5	169	8	143.7	8	143.7	30	5	169	35	35	0	55	0.07	1.58	0.09	4.7	3	1	48	6	13/3	
13/3	1.8 m lintel	0.017	85	0.868	5	169	8	143.7	8	143.7	6	5	169	7	7	0	13	0.05	0.63	0.05	5.2	3	1	13	0	13/4	
13/4	1.8 m lintel	0.024	85	0.868	5	169	8	143.7	8	143.7	8	5	169	9	9	0	9	0.05	0.72	0.03	2.1	3	1	9	0	13/5	
14/1	1.8 m lintel	0.062	85	0.868	5	169	8	143.7	8	143.7	21	5	169	24	24	0	24	0.06	0.96	0.07	4.9	3.1	1	24	0	11/1	
18/1	1.8 m lintel	0.093	85	0.868	5	169	8	143.7	8	143.7	32	5	169	37	37	0	37	0.06	1.16	0.09	8.2	3	1	36	1	18/2	
18/2	2.4 m lintel sag	0.037	85	0.868	5	169	8	143.7	8	143.7	13	5	169	15	15	0	16	0.03			3.5	3	1	16	0	18/3	
18/3	1.8 m lintel	0.003	85	0.868	5	169	8	143.7	8	143.7	1	5	169	1	1	0	1	0.02	0.28	0.01	1.4	3	1	1	0	18/4	
18/4	1.8 m lintel	0.147	85	0.868	5	169	8	143.7	8	143.7	51	5	169	58	58	0	58	0.08	1.68	0.09	4	3	1	51	8	18/5	
18/5	1.8 m lintel	0.137	85	0.868	5	169	8	143.7	8	143.7	47	5	169	54	54	0	62	0.08	1.72	0.1	4	3	1	53	9	18/6	
18/6	1.8 m lintel	0.129	85	0.868	5	169	8	143.7	8	143.7	45	5	169	51	51	0	60	0.08	1.69	0.09	3.7	3	1	51	9	LOST	
18/7	STAGE BOUNDARY	0	0						0	0	0	0	0	0	0	0	0							0	0		REMOVE EX ENDCAP
18/8	1.8 m lintel																										EXISTING
19/1	2.4 m lintel sag	0.091	85	0.868	5	169	8	143.7	8	143.7	32	5	169	36	36	0	36	0.05			1.4	2.6	1	36			

**REFER TO DRAWING 11018511/CC536 FOR CONTINUATION  
DESIGN STORM 1:20yr 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 (vxd) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS
B/1	SLOPE JUNCTION	0.049	85	0.868	5	169	8	143.7	8	143.7	17	5	169	19	19	0	19							19	0		
B/2	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/3	SLOPE JUNCTION	0.048	85	0.868	5	169	8	143.7	8	143.7	17	5	169	19	19	0	19							19	0		
B/4	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/5	SLOPE JUNCTION	0.051	85	0.868	5	169	8	143.7	8	143.7	18	5	169	20	20	0	20							20	0		
B/6	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/7	SLOPE JUNCTION	0.051	85	0.868	5	169	8	143.7	8	143.7	18	5	169	20	20	0	20							20	0		
B/8	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/9	SLOPE JUNCTION	0.051	85	0.868	5	169	8	143.7	8	143.7	18	5	169	20	20	0	20							20	0		
B/10	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/11	GSIP 600x600 IAD	0.051	85	0.868	5	169	8	143.7	8	143.7	18	5	169	20	20	0	20							20	0		
B/12	SLOPE JUNCTION	0.054	85	0.868	5	169	8	143.7	8	143.7	19	5	169	21	21	0	21							21	0		
B/13	GSIP 600x600 IAD	0.068	85	0.868	5	169	8	143.7	8	143.7	24	5	169	27	27	0	27							27	0		
B/14	GSIP 600x600 IAD	0.064	85	0.868	5	169	8	143.7	8	143.7	22	5	169	26	26	0	26							26	0		
B/15	JP	0.406	85	0.868	5	169	8	143.7	8	143.7	141	5	169	161	161	0	161							161	0		
B/16	GSIP 600x900 IAD	0.114	85	0.868	5	169	8	143.7	8	143.7	39	5	169	45	45	0	45							45	0		
B/17	1.8 m lintel																										EXISTING PIT TO BE CONVERTED INTO "V" DRAIN
C/1	SLOPE JUNCTION	0.05	85	0.868	5	169	8	143.7	8	143.7	17	5	169	20	20	0	20							20	0		
C/2	GSIP 600x600 IAD	0.054	85	0.868	5	169	8	143.7	8	143.7	19	5	169	21	21	0	21							21	0		
C/3	SLOPE JUNCTION	0.055	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22							22	0		
C/4	GSIP 600x600 IAD	0.054	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22							22	0		
C/5	SLOPE JUNCTION	0.055	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22							22	0		
C/6	GSIP 600x600 IAD	0.055	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22							22	0		
C/7	SLOPE JUNCTION	0.055	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22							22	0		
C/8	GSIP 600x600 IAD	0.056	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22							22	0		
C/9	SLOPE JUNCTION	0.055	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22							22	0		
C/10	GSIP 600x900 IAD	0.055	85	0.868	5	169	8	143.7	8	143.7	19	5	169	22	22	0	22							22	0		
C/11	GSIP 900x900 IAD																										EXISTING ENDCAP
CDS 1/2	H.W.																										
E/1	GSIP 450x450 IAD	0.03	85	0.868	5	169	8	143.7	8	143.7	11	5	169	12	12	0	12							12	0		
E/2	SLOPE JUNCTION	0.03	85	0.868	5	169	8	143.7	8	143.7	11	5	169	12	12	0	12							12	0		
E/3	GSIP 600x900 IAD	0.035	85	0.868	5	169	8	143.7	8	143.7	12	5	169	14	14	0	14							14	0		
Y2/1	1.8 m lintel	0.079	85	0.868	5	169	8	143.7	8	143.7	27	5	169	31	31	0	32	0.07	1.32	0.07				32	0		
Y2/2	1.8 m lintel																										

**WORKS AS EXECUTED SHOWN IN RED**  
SIGNATURE: *Ian Vincent Myers*  
IAN VINCENT MYERS  
Registered Land Surveyor  
VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16800-11  
27.2.19

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *[Signature]*  
Accreditation No. BPB0565  
These plans/specifications form part of the certificate issued 28/09/2018

Plotted: 14 May 2018 12:01:31 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CCENTRY ROAD\11018511\CC537.dwg

3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
AMENDMENT		DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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AZIMUTH: MGA 56  
DATUM: AHD  
ORIGIN:

PRINCIPAL:  
**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  
YEOMANS ENTRY  
DRAINAGE CALCULATIONS  
20YR HYDROLOGICAL TABLE SHEET 2

PLAN No: 11018511/CC537 **3**  
FILE No: 11018511CC537  
SHEET SIZE: A1 ORIGINAL

### DESIGN STORM 1:20yr ARI HYDRAULIC RESULTS

PIPE NAME (-)	PIPE TYPE (-)	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA AF (sq.m)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA SUM CA (ha)	FULL AREA FLOW Qc (L/s)	PART-AREA A TIME Tc (min)	PART-AREA A INTENSITY I (mm/hr)	PART-AREA A SUM CA (ha)	PART-AREA A FLOW Qc (L/s)	DIRECT PIPE FLOW Qp (L/s)	PEAK FLOW Qrat (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 (m)	PIPE U/S IL (m)	PIPE U/S D/S IL (m)	PIPE D/S DROP (m)	U/S PIT Ku (-)	U/S PIT Kw (-)	PIPE V/HEAD (m)	PIT LOSS (m)	WSE LOSS (m)	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
1/1 to 1/2	RRJ2	900	11	0.7	0.64	5.07	169.3	0	0	5.07	169.3	0	0	984	984	0	984	1641.5	0.6	1.55	2.7	2.24	44.242	41.721	41.644	0.03	2.05		0.12	0.25	0.25	0.03	43.35	43.1	43.073	0.25	1.62	0.89	
1/2 to 1/3	RRJ2	900	37.09	0.7	0.64	5.07	168.3	0	0	5.07	168.3	0	0	984	992	-8	984	1642	0.6	1.55	2.7	2.24	44.167	41.614	41.354	0.03	2.06		0.12	0.25	0.25	0.09	43.073	42.821	42.728	0.25	2.98	1.09	
1/3 to 1/4	RRJ3	900	38.26	0.7	0.64	8.53	139.9	0.539	209.6	5.33	165.5	0.52	239.9	984	1231.9	-4.3	1227.6	1642	0.75	1.93	2.83	2.47	45.361	41.324	41.056	0.03	0.33		0.19	0.06	0.06	0.15	42.728	42.665	42.515	0.39	3.14	2.63	
1/4 to 1/5	RRJ3	900	16.14	0.7	0.64	8.75	138.3	0.541	207.8	5.55	163.1	0.52	237.1	984	1229.1	-4.3	1224.8	1642	0.75	1.93	2.83	2.47	46.643	41.026	40.913	0.03	0.43		0.19	0.08	0.08	0.06	42.515	42.433	42.37	0.39	4.29	4.13	
1/5 to 1/6	RRJ3	900	20.4	0.7	0.64	8.85	137.6	0.557	213	5.65	162.1	0.54	242.8	984	1234.8	-4.3	1230.5	1642	0.75	1.93	2.83	2.47	45.955	40.883	40.74	0.03	0		0.19	0	0	0.08	42.37	42.37	42.29	0.39	3.57	3.58	
1/6 to 1/7	RRJ2	900	16.33	1	0.64	8.97	136.7	0.66	250.6	5.77	160.8	0.64	285.8	984	1277.8	-4.3	1273.5	1962	0.65	2	3.28	2.51	45.076	40.711	40.547	0.03	0.57		0.2	0.12	0.12	0.07	42.29	42.175	42.106	0.42	3.18	2.79	
1/7 to 1/8	RRJ2	900	17.04	1	0.64	9.05	136.1	1.797	679.2	5.62	162.3	1.74	783.1	1062	1853.1	-21.6	1831.5	1962	0.93	2.88	3.5	3.11	44.659	40.517	40.347	0.03	1.13	1.19	0.42	0.48	0.5	0.15	42.128	41.626	41.477	0.87	2.69	2.53	
1/8 to 1/9	RRJ2	900	37.4	1	0.64	9.13	135.5	1.884	709.3	5.71	161.4	1.82	817.6	1062	1887.6	-14.6	1873	1962	0.95	2.94	3.51	3.16	43.956	40.317	39.943	0.03	0.34		0.44	0.15	0.15	0.34	41.477	41.328	40.987	0.91	1.67	2.48	
1/9 to 1/10	RRJ2	900	29.99	3.34	0.64	9.31	134.2	2.063	769.2	5.88	159.5	2	885.7	1062	1955.7	-34.1	1921.7	3587	0.54	3.02	5.73	3.22	42.581	39.913	38.91	0.15	0.37		0.47	0.17	0.17	0.39	40.987	40.813	40.426	1.29	1.56	1.59	
1/10 to 1/11	RRJ2	1050	14.6	2.38	0.87	9.4	133.6	2.199	815.8	5.95	158.8	2.13	939.6	1062	2009.6	-19	1990.6	4570.4	0.44	2.3	5.09	2.8	41.407	38.76	38.412	0.03	0.52		0.27	0.14	0.14	0.07	40.426	40.285	40.219	0.45	1	0.98	
1/11 to 1/12	RRJ3	1050	27.1	0.7	0.87	9.45	133.2	2.218	820.8	6.03	158.1	2.15	945.3	1062	2015.3	-8.3	2007	2476.1	0.81	2.32	3.18	2.81	40.34	38.382	38.192	0.03	0.52		0.27	0.14	0.14	0.12	40.219	40.077	39.952	0.46	0.67	0.12	
1/12 to 1/13	RRJ3	1050	14.17	0.7	0.87	9.59	132.2	2.3	844.6	6.17	157	2.23	974.3	1062	2044.3	-10.8	2033.5	2476.1	0.82	2.35	3.19	2.83	39.993	38.162	38.063	0.03	0.88	0.9	0.28	0.25	0.25	0.07	39.959	39.705	39.639	0.47	0.76	0.03	
1/13 to 1/14	RRJ3	1200	16.45	0.7	1.13	9.66	131.7	2.326	850.8	6.25	156.5	2.26	982.3	1062	2052.3	-10.8	2041.6	3535.2	0.58	1.81	3.24	2.6	39.93	38.033	37.918	0.03	0.59	0.7	0.17	0.1	0.12	0.04	39.656	39.54	39.502	0.23	0.61	0.27	
1/14 to 1/15	RRJ3	(2x)1200	7.14	1	2.26	9.75	131	10.342	3764.7	5.18	167.1	9.72	4511.6	1062	5581.6	-8.3	5573.3	8450.2	0.66	2.46	3.99	3	39.831	37.888	37.817	0.03	0.88	0.91	0	0	0	0	39.502	39.502	39.502	0	0.69	0.33	
1/15 to 1/16	RRJ2	(2x)1200	16.66	1	2.26	9.78	130.8	10.342	3758.4	5.21	166.8	9.72	4502.9	1062	4362.9	-8.3	4354.6	8483.3	0.51	1.93	3.76	2.67	39.734	37.787	37.62				0.19	0.38	0.38	0.31	39.365	38.987	38.625	2.17	1.2	0.37	
2/1 to 2/2	RRJ2	375	33.99	10.08	0.11	8	143.7	0.163	65.2	5	169	0.16	74.8	78	78	0	78	603.2	0.13	0.71	3.76	1.27	63.534	61.996	58.57	0.03	0		0.03	0	0	3.3	62.371	62.371	59.073	9.7	1.19	1.16	
2/2 to 2/3	RRJ2	375	28.53	10.12	0.11	8	143.7	0.163	65.2	5	169	0.16	74.8	78	152.8	-13.4	139.4	604.6	0.23	1.26	4.45	1.6	60.374	58.54	55.652	0.03	1.94		0.08	0.16	0.16	2.65	59.073	58.915	56.262	9.3	1.34	1.3	
2/3 to 2/4	RRJ2	375	36.05	11.19	0.11	8.11	143	0.348	138.3	5.11	167.9	0.34	158.5	78	236.5	-8.5	228	635.7	0.36	2.06	5.28	2.17	57.177	55.622	51.587	0.03	1.22		0.22	0.26	0.26	3.68	56.262	55.997	52.322	10.2	1.16	0.92	
2/4 to 2/5	RRJ2	375	41.02	10.45	0.11	8.22	142.1	0.515	203.5	5.22	166.6	0.5	232.9	78	310.9	-15.1	295.8	614.2	0.48	2.68	5.51	2.71	53.126	51.558	47.273	0.03	1.06		0.37	0.39	0.39	3.52	52.322	51.933	48.415	8.58	1.16	0.8	
2/5 to 2/6	RRJ2	375	18.39	8.1	0.11	8.34	141.2	0.689	270.5	5.33	165.5	0.67	309.3	78	387.3	-24.4	362.9	540.8	0.67	3.29	5.25	3.3	48.747	47.242	45.753	0.03	0.76		0.55	0.42	0.42	0.67	48.415	47.997	47.326	3.65	1.14	0.33	
2/6 to 2/7	RRJ2	375	36.81	5.11	0.11	8.4	140.8	0.873	341.3	5.3	165.8	0.85	390.2	78	468.2	-22.4	445.8	429.4	1.04	4.04	4.41	4.04	47.342	45.723	43.844	0.03	0.49		0.83	0.4	0.4	2.03	47.326	46.921	44.895	5.5	1.1	0.02	
2/7 to 1/7	RRJ2	375	23.02	5	0.11	8.54	139.8	1.048	407.1	5.44	164.3	1.02	465.3	78	543.3	-27.3	515.9	424.9	1.21	4.67	4.67	4.67	45.532	43.814	42.663	2.146	0.63		1.13	0.1	0.71	1.15	44.895	44.189	43.036	5.01	1.24	0.64	
3/1 to 2/3	RRJ2	375	11.75	4.12	0.11	8	143.7	0.086	34.3	5	169	0.08	39.4	0	39.4	-1.9	37.5	385.5	0.1	0.34	2.21	1	57.706	56.136	55.652	0.03	4.5		0.01	0.03	0.03	0.25	56.537	56.511	56.262	2.12	1.1	1.17	
4/1 to 2/6	RRJ2	375	15.2	5.28	0.11	8	143.7	0.095	38.1	5	169	0.09	43.7	0	43.7	-1.8	41.9	436.8	0.1	0.38	2.5	1.04	48.146	46.557	45.753	0.03	4.5		0.01	0.03	0.03	0.01	47.367	47.334	47.326	0.05	1.1	0.78	
5/1 to 1/10	RRJ2	375	12.34	2	0.11	5	169	0.049	22.9	5	169	0.05	22.9	0	22.9	-0.3	22.6	268.7	0.08	0.2	1.48	0.87	41.601	39.658	39.412	0.651	4.5		0	0.01	0.01	0	40.437	40.428	40.426	0.01	1.57	1.16	
6/1 to 6/2	RRJ3	1050	9.64	1	0.87	8	143.7	5.142	2052.9	5	169	5.02	2354.8	0	2354.8	0	2354.8	2959.5	0.8	2.72	3.79	3.07	40.284	38.312	38.215	0	0		0.38	0	0	0.06	39.831	39.831	39.77	0.63	0.5	0.45	
6/2 to 6/3	RRJ3	1050	3.19	1	0.87	8.04	143.4	5.142	2048.5	5.04	168.6	5.02	2348.4	0	2348.4	0	2348.4	2959.5	0.79	2.71	3.79	3.07	39.837	38.215	38.183	0.03	0		0.38	0	0	0.02	39.77	39.77	39.75	0.63	0.49	0.07	
6/3 to 6/4	RRJ3	1200	14.64	0.8	1.13	8.12	142.9	5.194	2060.9	5.06	168.4	5.07	2369.9	0	2369.9	0	2369.9	3779.3	0.63	2.1	3.53	2.77	39.788	38.153	38.036	0.03	0.73	0.8	0.03	0.02	0.02	0.01	39.752	39.727	39.721	0.04	0.55	0.04	
6/4 to 1/14	RRJ3	1200	11	0.8	1.13	8.19	142.3	5.364	2121	5.13	167.7	5.23	2436.9	0	2436.9	2.5	2439.4	3779.3	0.65	2.16	3.55	2.81	39.831	38.006	37.918	0.03	0.77		0.24	0.18	0.18	0.04	39.722	39.539	39.502	0.33	0.62	0.11	
7/1 to 6/3	RRJ3	375	8.04	1	0.11	8	143.7	0.041	16.4	5	169	0.04	18.8	0	18.8	0	18.8	190	0.1	0.17	1.1	0.82	39.752	38.442	38.362	0.209	4.5		0	0	0	0	39.752	39.75	39.75	0	0.97	0	
8/1 to 8/2	RRJ2	900	13.27	2	0.64	8	143.7	2.511	1002.4	5	169	2.45	1149.8	0	1149.8	0	1149.8	2785.3	0.41	1.81	4.16	2.4	39.423	38.523	38.257	0.03	2		0	0	0	0	39.502	39.502	39.502	0	0.9	-0.08	
8/2 to 1/14	RRJ2	900	23.36	1	0.64	8.05	143.4	2.627	1045.9	5.05	168.4	2.56	1198.9	0	1198.9	-6.3	1192.6	1962	0.61	1.87	3.23	2.44	40.223	38.227	37.994	0.106	0		0	0	0	0	39.502	39.502	39.502	0	0.84	0.72	
9/1 to 9/2	RRJ2	750	7.																																				

REFER TO DRAWING 11018511/CC538 FOR CONTINUATION

DESIGN STORM 1:20yr ARI HYDRAULIC RESULTS

Table with 33 columns: PIPE NAME, PIPE TYPE, PIPE DIAMETER, PIPE LENGTH, PIPE SLOPE, PIPE AREA AF, FULL AREA TIME Tc, FULL AREA INTENSITY I, FULL AREA SUM CA, FULL AREA FLOW Qc, PART-AREA A TIME Tc, PART-AREA A INTENSITY I, PART-AREA A SUM CA, PART-AREA A FLOW Qc, DIRECT PIPE FLOW Qp, PEAK FLOW Qgrat, NET BYPASS FLOW Qb, PIPE FLOW Q, FLOW CAP. Qcap, Q/Ccap RATIO, 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 V'HEAD, PIT LOSS (Ku.V'head), WSE LOSS (Kw.V'head), TOTAL 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]
IAN VINCENT MYERS
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE 13.12.18 REF 16800-11
27.2.19

CONSTRUCTION CERTIFICATE
Certificate No. 20130299C48
Date of Issue 28/09/2018
Issuing Officer [Signature]
Accreditation No. BPPB0565
These plans/specifications form part of the certificate issued 28/09/2018



ISSUED FOR CONSTRUCTION APPROVAL
REDBANK, NORTH RICHMOND
YEOMANS ENTRY
DRAINAGE CALCULATIONS
20YR HYDRAULIC TABLE SHEET 2
PLAN No: 11018511/CC539 3
FILE No: 11018511CC539
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 jwp@jwprince.com.au

Table with 4 columns: ISSUE FOR CONSTRUCTION APPROVAL, ISSUE FOR TENDER, ISSUE FOR CLIENT COMMENTS, AMENDMENT. Includes revision numbers 1, 2, 3 and dates.

Plotted: 14 May, 2018 12:02:08 PM File Name: J:\11018511 - Redbank North Richmond Residential Precincts01 - Description\CD\CC\ENTRY ROAD\11018511CC538.dwg

Plotted: 14 May , 2018 12:02:27 PM File Name: \1101851 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\ENTRY ROAD\1101851\CC540.dwg

DESIGN STORM 1:100yr ARI HYDROLOGIC RESULTS

Table with 26 columns: PIT NAME, PIT TYPE, CATCHMENT AREA, IMPERVIOUS PERCENTAGE, RUNOFF, 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, FLOODED WIDTH, FLOODED (sq.m/s), ROAD GRADE, ROAD XFALL, CHOKER FACTOR, INLET FLOW Qg, BYPASS FLOW Qb, BYPASS PIT, COMMENTS

REFER TO DRAWING 1101851/CC541 FOR CONTINUATION

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: ... VIN VINCENT MORGAN Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 13-12-18 REF 16800-11 21.2.19

CONSTRUCTION CERTIFICATE Certificate No. 20130299C48 Date of Issue 28/09/2018 Issuing Officer Accreditation No. BPPB0565 These plans/specifications form part of the certificate issued 28/09/2018

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 56 DATUM: AHD ORIGIN:

REDBANK logo with tagline 'making it all possible' and a note: 'THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.'

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND YEOMANS ENTRY DRAINAGE CALCULATIONS 100YR HYDROLOGICAL TABLE SHEET 1

PLAN No: 1101851/CC540 3

FILE No: 1101851CC540

SHEET SIZE: A1 ORIGINAL

Table with 5 columns: ISSUE FOR CONSTRUCTION APPROVAL, ISSUE FOR TENDER, ISSUE FOR CLIENT COMMENTS, AMENDMENT, DATE



REFER TO DRAWING 1101851/CC540 FOR CONTINUATION  
 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)	PVIOUS TIME Tc (min)	PVIOUS 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
B/6	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/7	SLOPE JUNCTION	0.051	85	0.914	6	205.1	10	167.3	10	167.3	22	6	205.1	26	26	0	26							26	0		
B/8	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/9	SLOPE JUNCTION	0.051	85	0.914	6	205.1	10	167.3	10	167.3	22	6	205.1	26	26	0	26							26	0		
B/10	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		
B/11	GSIP 600x600 IAD	0.051	85	0.914	6	205.1	10	167.3	10	167.3	22	6	205.1	26	26	0	26							26	0		
B/12	SLOPE JUNCTION	0.054	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	27	27	0	27							27	0		
B/13	GSIP 600x600 IAD	0.068	85	0.914	6	205.1	10	167.3	10	167.3	29	6	205.1	34	34	0	34							34	0		
B/14	GSIP 600x600 IAD	0.064	85	0.914	6	205.1	10	167.3	10	167.3	27	6	205.1	33	33	0	33							33	0		
B/15	JP	0.406	85	0.914	6	205.1	10	167.3	10	167.3	172	6	205.1	205	205	0	205							205	0		
B/16	GSIP 600x900 IAD	0.114	85	0.914	6	205.1	10	167.3	10	167.3	48	6	205.1	58	58	0	58							58	0		
B/17	1.8 m lintel																										EXISTING PIT TO BE CONVERTED INTO "V" DRAIN
C/1	SLOPE JUNCTION	0.05	85	0.914	6	205.1	10	167.3	10	167.3	21	6	205.1	25	25	0	25							25	0		
C/2	GSIP 600x600 IAD	0.054	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	27	27	0	27							27	0		
C/3	SLOPE JUNCTION	0.055	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	28	28	0	28							28	0		
C/4	GSIP 600x600 IAD	0.054	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	28	28	0	28							28	0		
C/5	SLOPE JUNCTION	0.055	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	28	28	0	28							28	0		
C/6	GSIP 600x600 IAD	0.055	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	28	28	0	28							28	0		
C/7	SLOPE JUNCTION	0.055	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	28	28	0	28							28	0		
C/8	GSIP 600x600 IAD	0.056	85	0.914	6	205.1	10	167.3	10	167.3	24	6	205.1	28	28	0	28							28	0		
C/9	SLOPE JUNCTION	0.055	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	28	28	0	28							28	0		
C/10	GSIP 600x900 IAD	0.055	85	0.914	6	205.1	10	167.3	10	167.3	23	6	205.1	28	28	0	28							28	0		
C/11	GSIP 900x900 IAD																										EXISTING ENDCAP
CDS 1/2	H.W.																										
E/1	GSIP 450x450 IAD	0.03	85	0.914	6	205.1	10	167.3	10	167.3	13	6	205.1	15	15	0	15							15	0		
E/2	SLOPE JUNCTION	0.03	85	0.914	6	205.1	10	167.3	10	167.3	13	6	205.1	15	15	0	15							15	0		
E/3	GSIP 600x900 IAD	0.035	85	0.914	6	205.1	10	167.3	10	167.3	15	6	205.1	18	18	0	18							18	0		
Y2/1	1.8 m lintel	0.079	85	0.914	6	205.1	10	167.3	10	167.3	33	6	205.1	40	40	0	48	0.07	1.6	0.08				48	0		
Y2/2	1.8 m lintel																										

WORKS AS EXECUTED SHOWN IN RED  
 SIGNATURE: *I. Morgan*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27.2.19

CONSTRUCTION CERTIFICATE  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPP0565  
 These plans/specifications form part of the certificate issued 28/09/2018

Plotted: 14 May 2018 12:02:48 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\ENTRY ROAD\1101851\CC541.dwg

3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	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

PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**  
 REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE CALCULATIONS  
 100YR HYDROLOGICAL TABLE SHEET 2

PLAN No: 1101851/CC541 3  
 FILE No: 1101851CC541  
 SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

Table with multiple columns including PIPE NAME, DIAMETER, LENGTH, SLOPE, AREA, INTENSITY, FLOW, VELOCITY, DEPTH, LOSS, HGL, GRADE, COVER, and COMMENTS. It contains detailed hydraulic data for various pipe segments.

REFER TO DRAWING 11018511/CC541 FOR CONTINUATION

Professional stamps and signatures including 'WORKS AS EXECUTED SHOWN IN RED', 'VINCE MORGAN SURVEYORS PTY LTD', and a 'CONSTRUCTION CERTIFICATE' with issue date and accreditation details.

Plot: 14 May, 2018 12:03:05 PM File Name: J1101851 - Redbank North Richmond Residential Precincts01 - Description/CD/CCENTRY ROAD/1101851/CC542.dwg

Table with 4 columns: ISSUE, AMENDMENT, DES, DRN, CKD, APR, DATE. Includes entries for 'ISSUE FOR CONSTRUCTION APPROVAL' and 'ISSUE FOR TENDER'.

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS. Includes contact information like PO Box 4366 PENRITH WESTFIELD NSW 2750.

Redbank logo and principal information: AZIMUTH: MGA 56, DATUM: AHJ, ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL. REDBANK, NORTH RICHMOND YEOMANS ENTRY DRAINAGE CALCULATIONS 100YR HYDRAULIC TABLE SHEET 1. Includes PLAN No: 11018511/CC542 3 and SHEET SIZE: A1 ORIGINAL.

REFER TO DRAWING 11018511/CC540 FOR CONTINUATION  
 DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

PIPE NAME (-)	PIPE TYPE (-)	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA Af (sq.m)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA SUM CA (ha)	FULL AREA FLOW Qc (L/s)	PART-AREA TIME Tc (min)	PART-AREA INTENSITY I (mm/hr)	PART-AREA SUM CA (ha)	PART-AREA FLOW Qc (L/s)	DIRECT PIPE FLOW Qp (L/s)	PEAK FLOW Qrat (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 (m)	PIPE U/S IL (m)	PIPE D/S IL (m)	PIPE D/S DROP (m)	U/S PIT Ku (-)	U/S PIT Kw (-)	PIPE V'HEAD (m)	PIT LOSS (Ku.V'head) (m)	WSE LOSS (Kw.V'head) (m)	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/5 to B/6	uPVC	225	7.28	3.56	0.04	10.21	166	0.135	62.1	6.21	203.1	0.13	74	0	74	0	74	110.1	0.67	1.86	2.97	1.9	44.427	43.35	43.091	0.03	0	0.18	0	0	0.25	43.575	43.575	43.324	3.44	0.61	0.85		

**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *J. Morgan*  
 J. VINCENT BYERS  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 13.12.18 REF: 16800-11  
 27.1.19

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *Janet Byers*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018

NO	DESCRIPTION	MP	NM	MS	AM	DATE
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	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 56  
 DATUM: AHJ  
 ORIGIN:



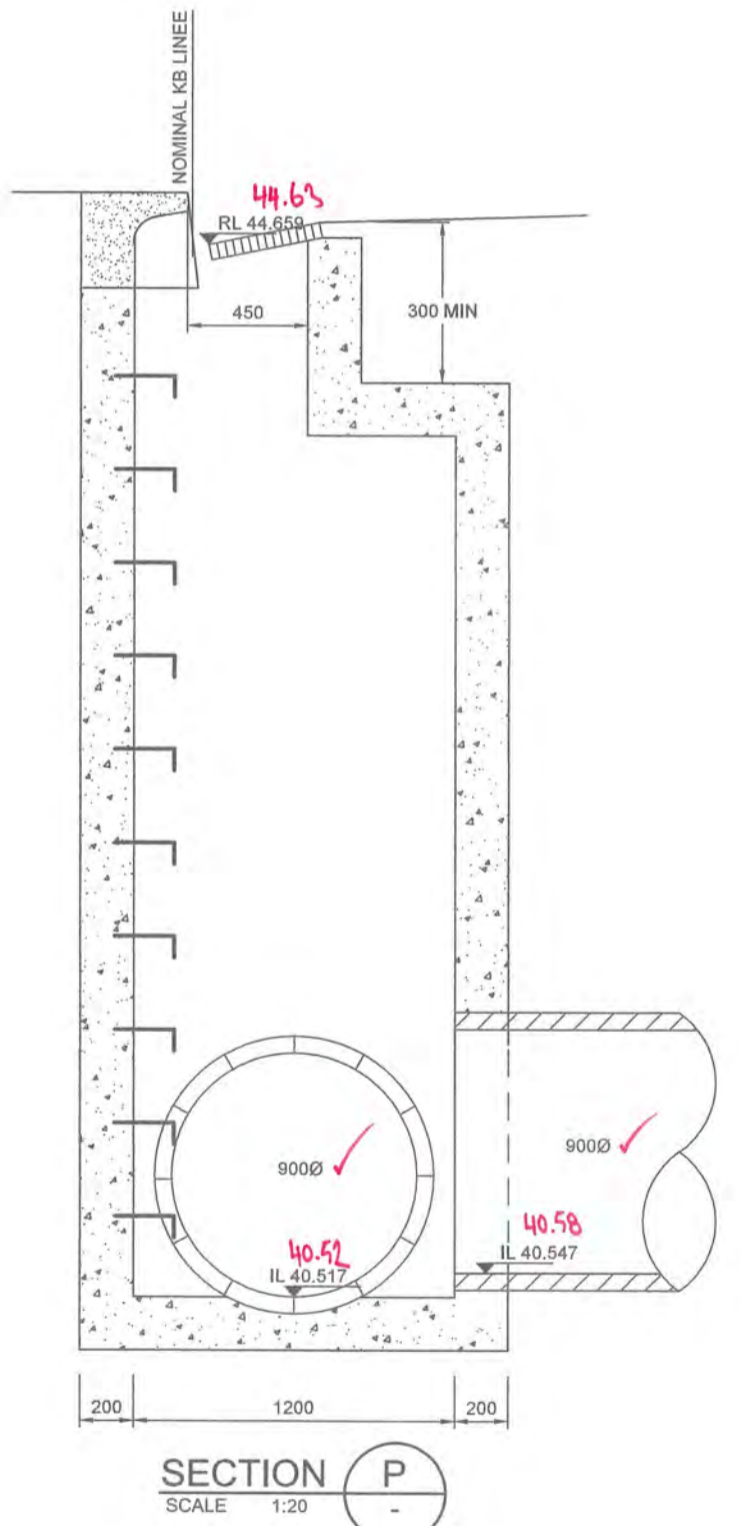
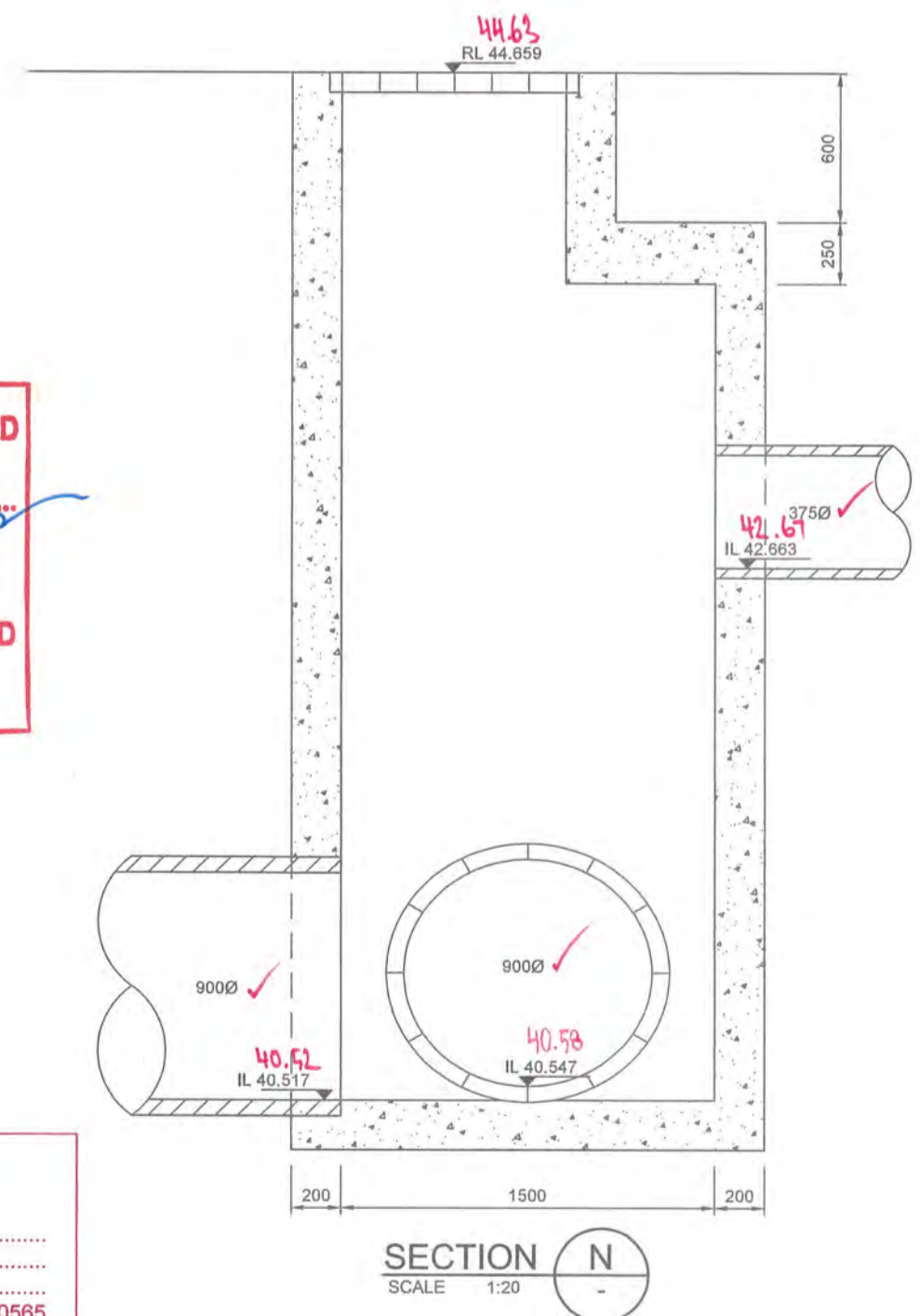
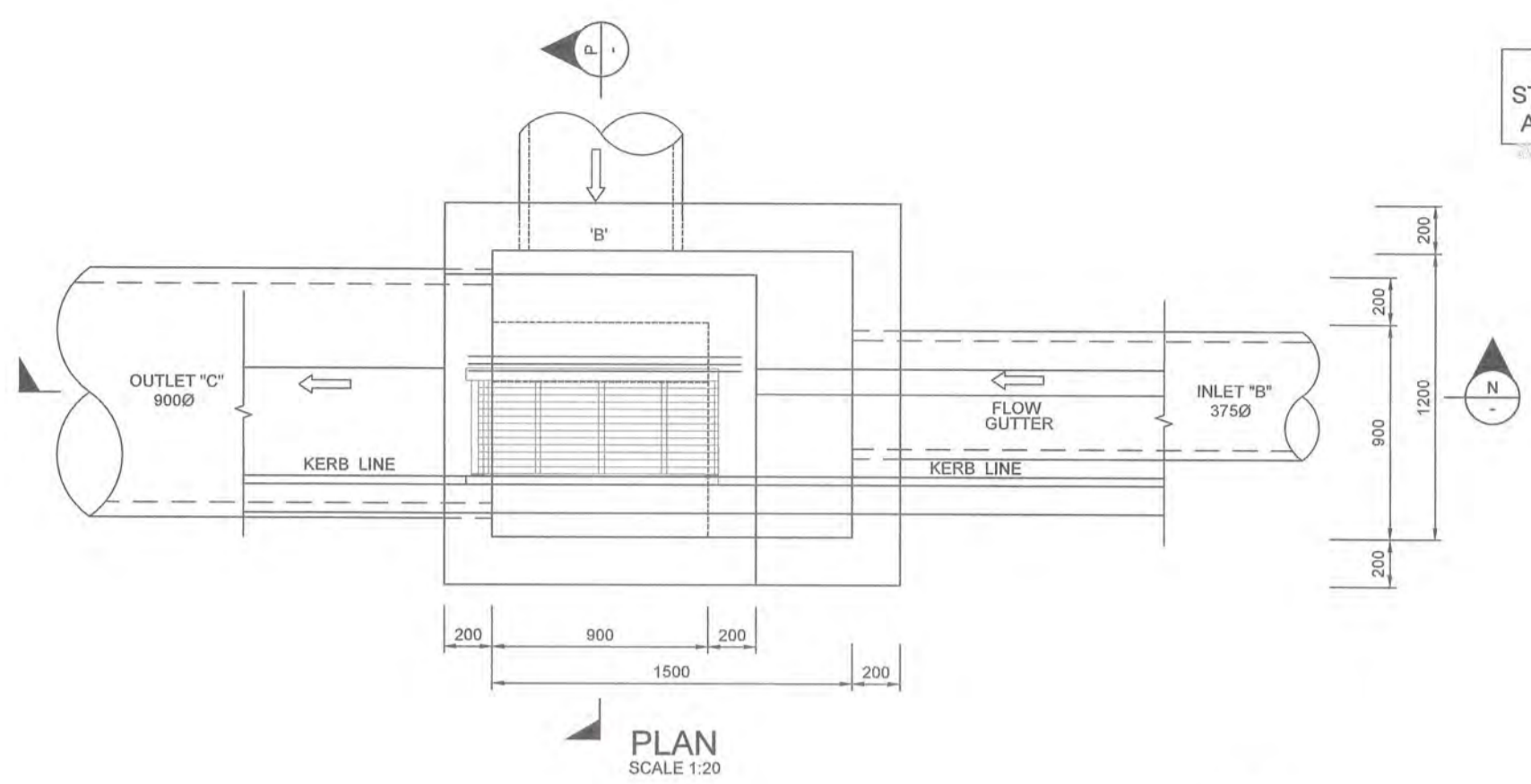
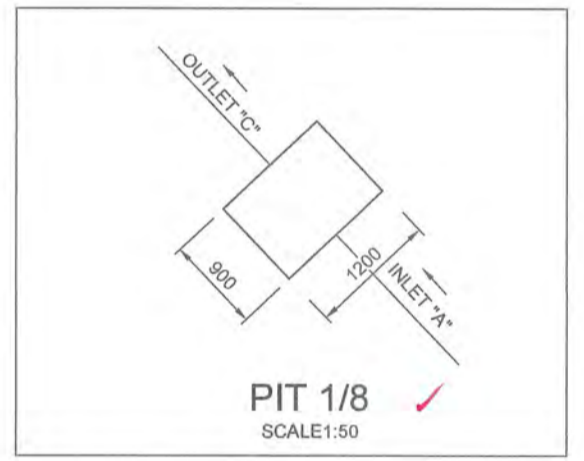
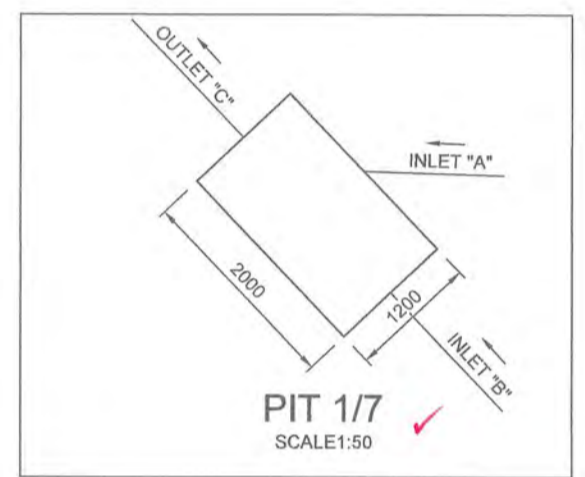
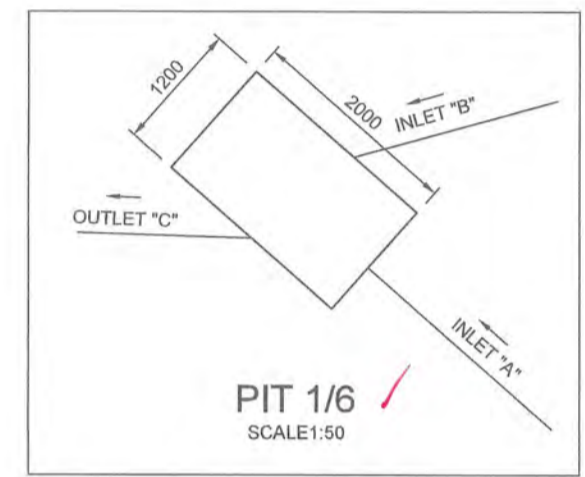
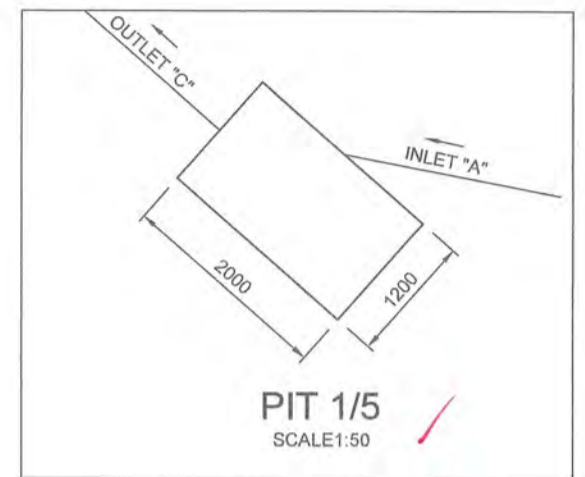
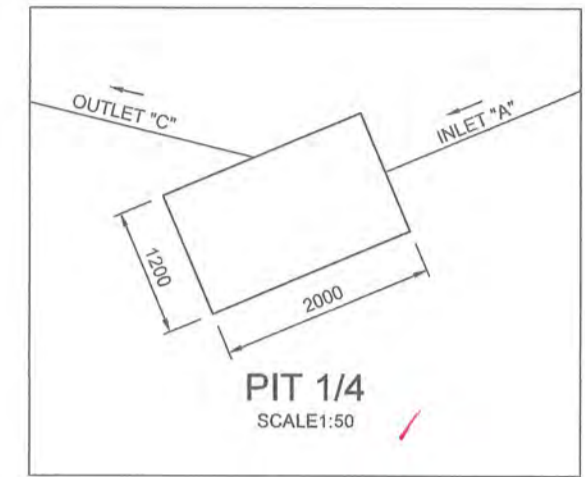
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE CALCULATIONS  
 100YR HYDRAULIC TABLE SHEET 2

PLAN No: 11018511/CC543 3  
 FILE No: 11018511CC543  
 SHEET SIZE: A1 ORIGINAL

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

SUBJECT TO  
STRUCTURAL DESIGN  
AND CERTIFICATION



**WORKS AS EXECUTED SHOWN IN RED**  
SIGNATURE: *[Signature]*  
IAN VINCENT MYERS  
Registered Land Surveyor  
VINCE MORGAN SURVEYORS PTY LTD  
DATE: 27.2.19 REF: 16800-11

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *[Signature]*  
Accreditation No. BPB0565  
These plans/specifications form part of the certificate issued 28/09/2018

PIT NO.	COVER RL	INLET INV 'A'	INLET INV 'B'	OUTLET INV 'C'	INLET 'A' Ø (MM)	INLET 'B' Ø (MM)	OUTLET 'C' Ø (MM)	PIT TYPE
PIT 1/4	46.643	41.056	-	41.026	900	-	900	1.8M LINTEL
PIT 1/5	45.955	40.913	-	40.883	900	-	900	1.8M LINTEL
PIT 1/6	46.076	40.74	43.403	40.71	900	375	900	1.8M LINTEL
PIT 1/7	44.659	40.547	42.663	40.517	900	375	900	1.8M LINTEL
PIT 1/8	43.956	40.347	-	40.317	900	-	900	1.8M LINTEL

STRUCTURE 1/7



Plotted: 14 May, 2018 10:49:03 AM File Name: \\1101851 - Redbank North Richmond Residential Precincts01 - Description\CC544\ENTRY ROAD\1101851\CC544.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

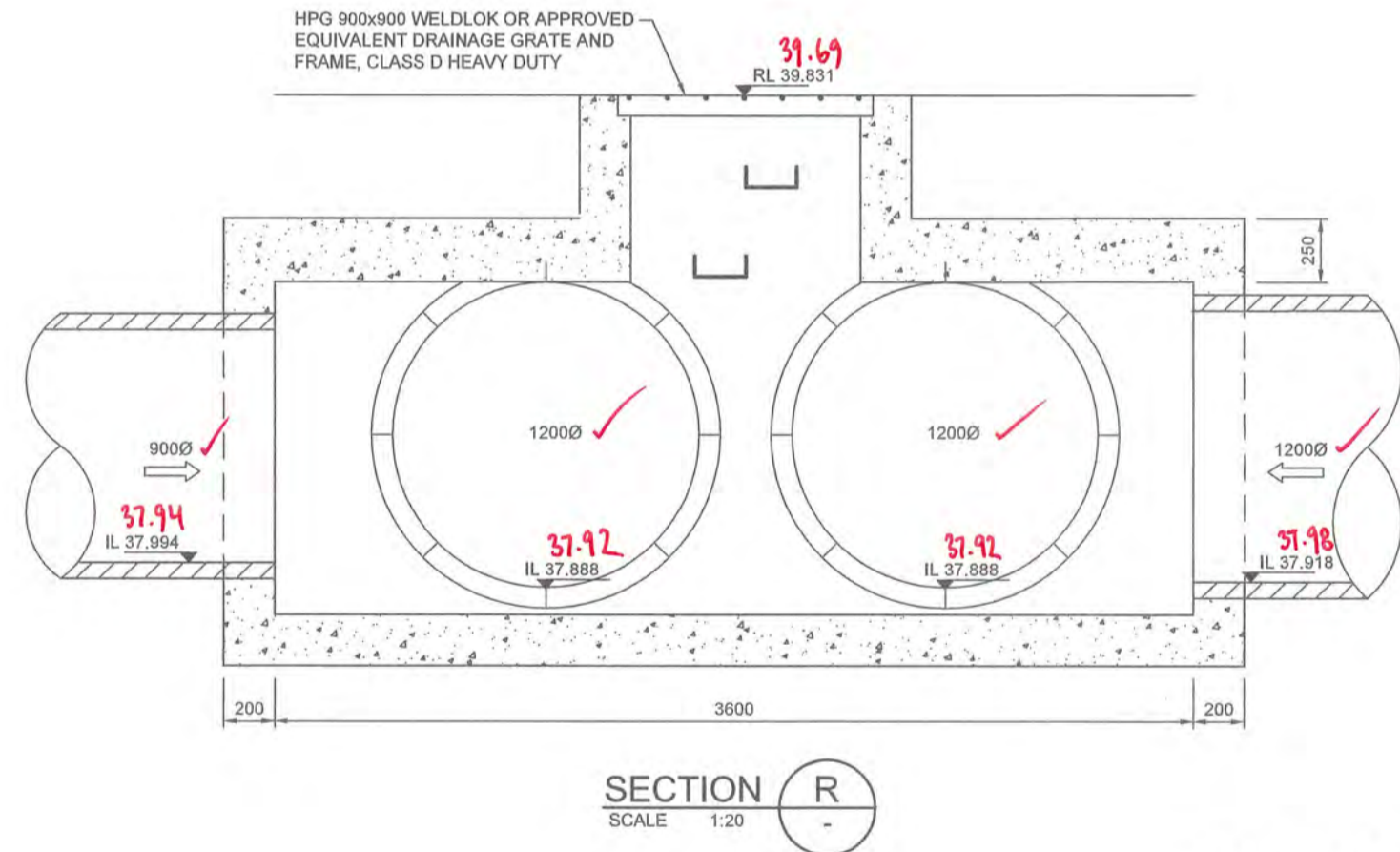
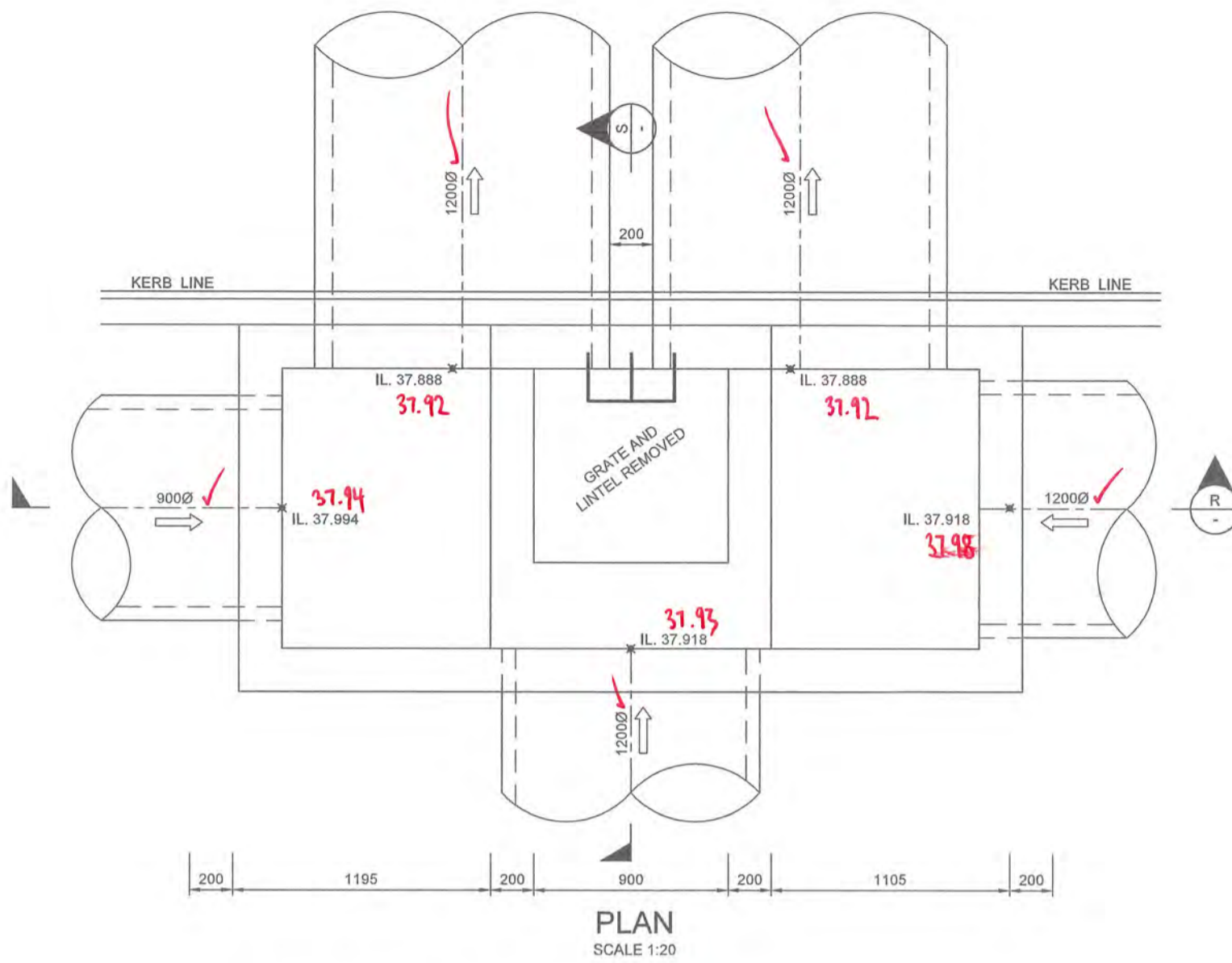
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
PO Box 4366 PENRITH WESTFIELD NSW 2750  
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL:  
**REDBANK**  
AZIMUTH: MGA 56  
DATUM: AHD  
ORIGIN:  
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

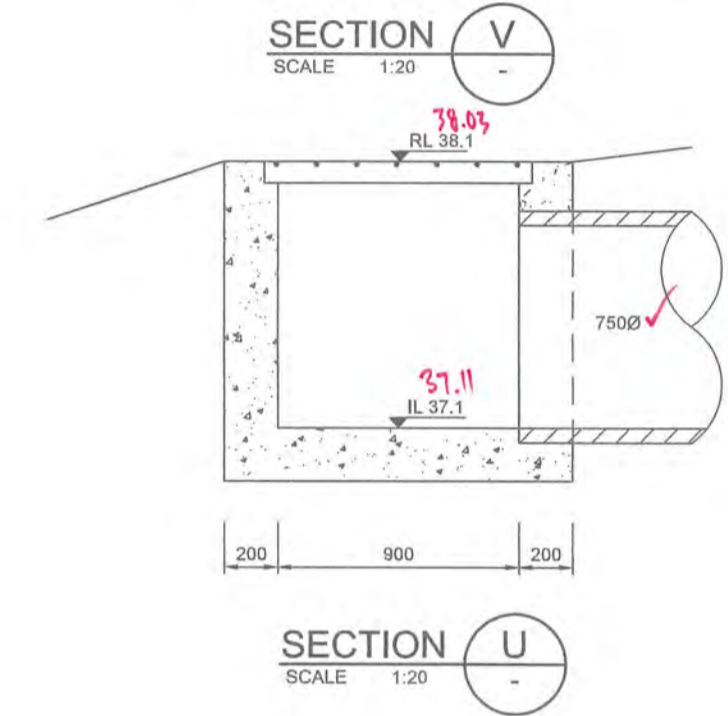
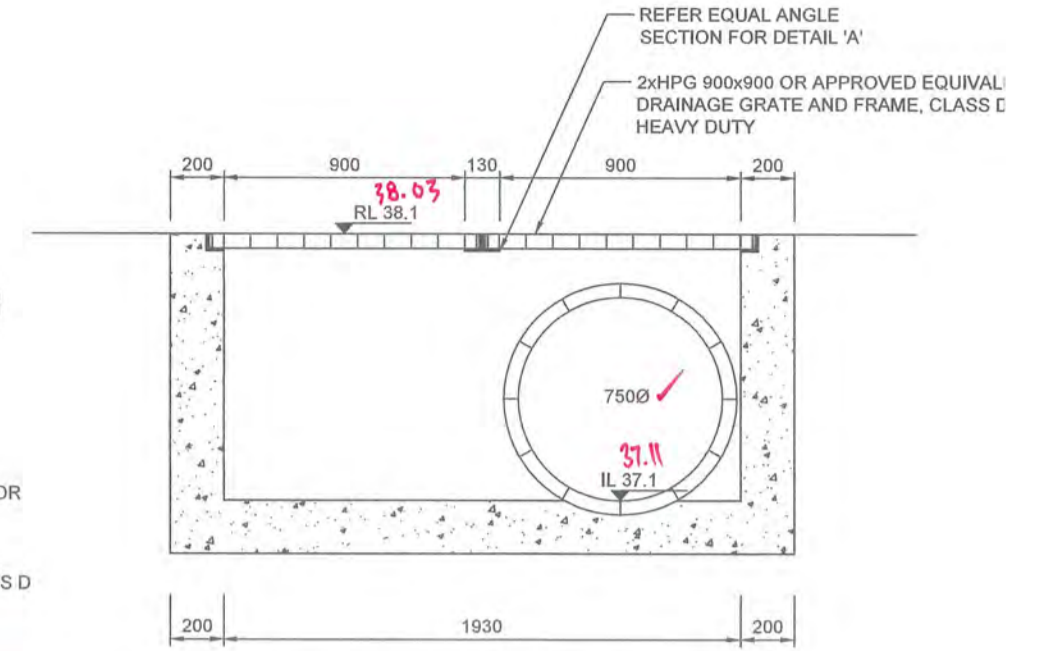
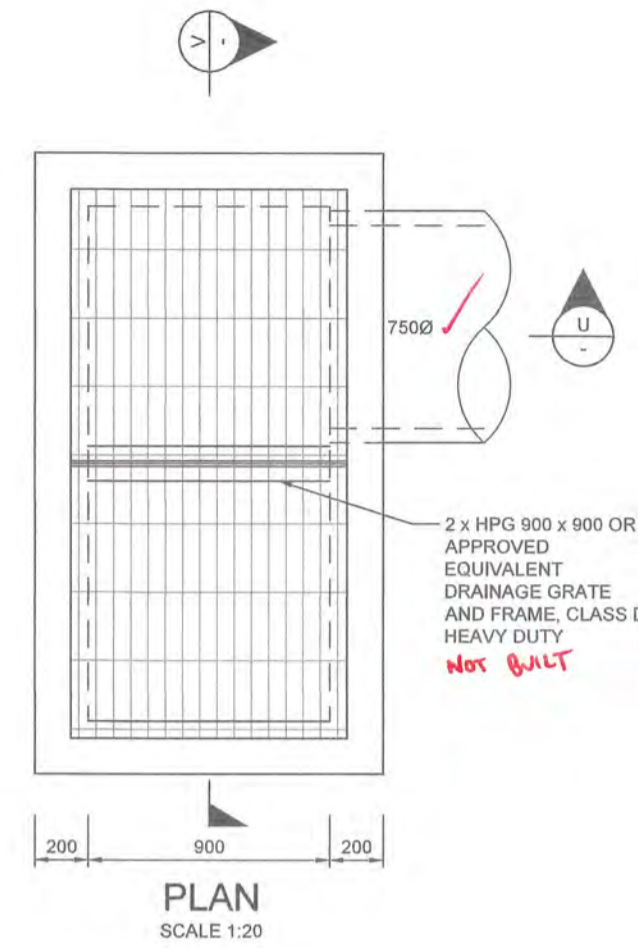
**ISSUED FOR CONSTRUCTION APPROVAL**  
REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
DRAINAGE DETAILS  
STRUCTURES 1/4, 1/5, 1/6, 1/7 AND 1/8

PLAN No: 1101851/CC544 3  
FILE No: 1101851CC544  
SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:49:18 AM File Name: \\1101851 - Redbank North Richmond Residential Precincts\01 - Description\CC545.dwg



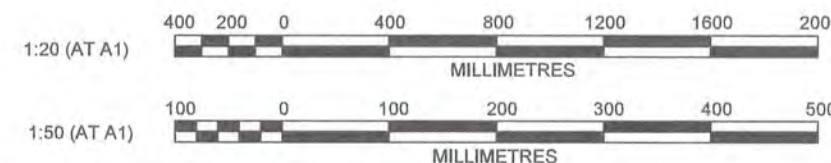
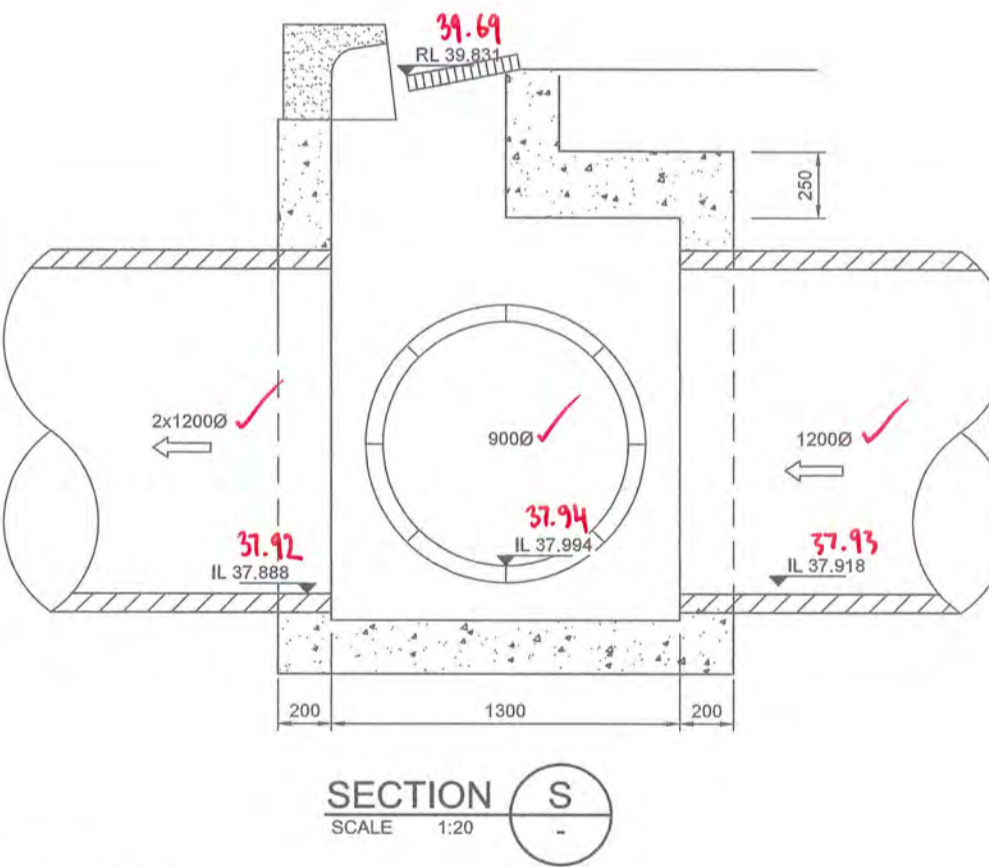
STRUCTURE 1/14



STRUCTURE 9/1

**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 27.2.19 REF: 16800-11

SUBJECT TO  
 STRUCTURAL DESIGN  
 AND CERTIFICATION



**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018

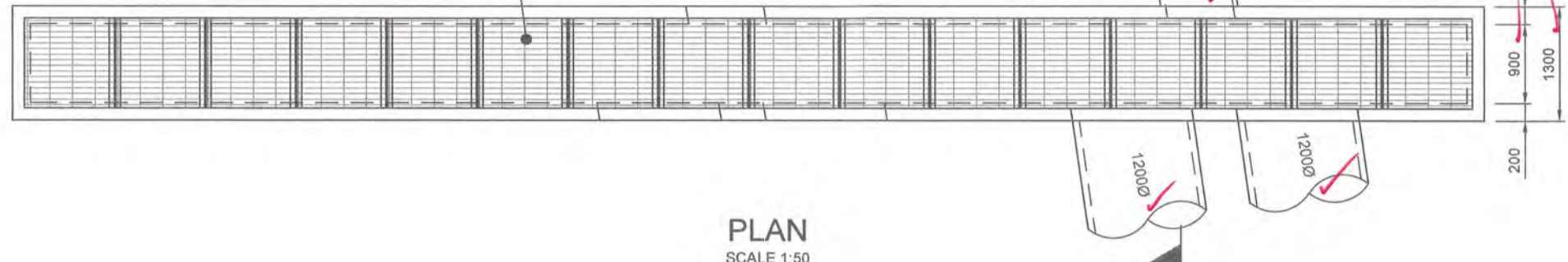
AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

**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

PRINCIPAL:  
  
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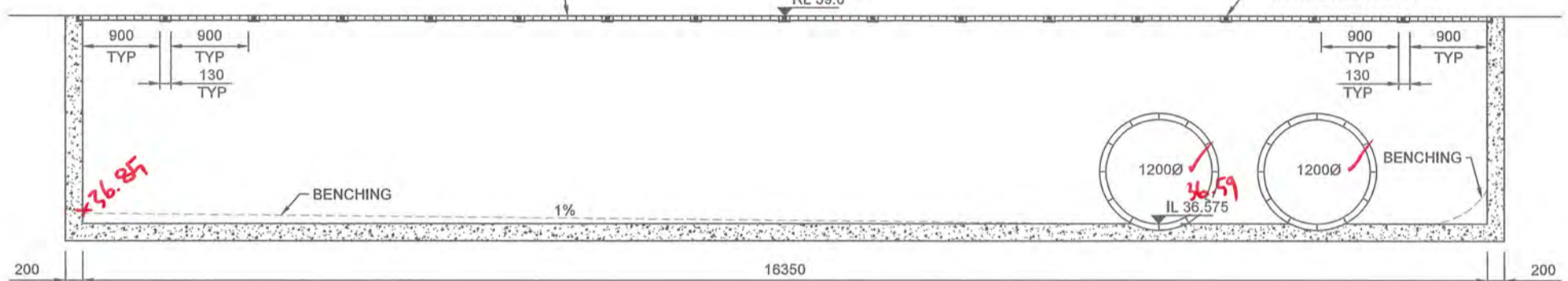
**ISSUED FOR CONSTRUCTION APPROVAL**  
 REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 DRAINAGE DETAILS  
 STRUCTURES 1/14 AND 9/1  
 PLAN No: 1101851/CC545 3  
 FILE No: 1101851CC545  
 SHEET SIZE: A1 ORIGINAL

16 x HPG 900x900 WELDLOK OR APPROVED EQUIVALENT DRAINAGE GRATE AND FRAME, CLASS D HEAVY DUTY



PLAN  
SCALE 1:50

16 x HPG 900x900 WELDLOK OR APPROVED EQUIVALENT DRAINAGE GRATE AND FRAME, CLASS D HEAVY DUTY

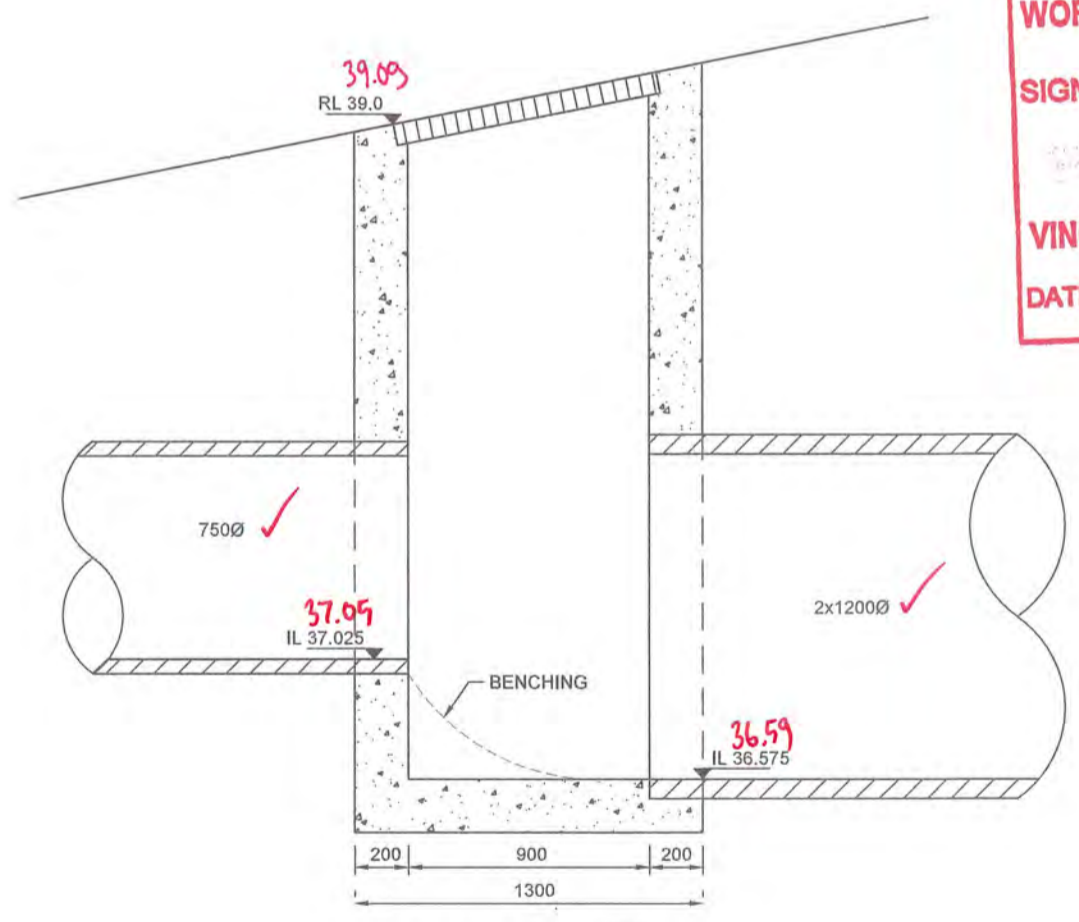


SECTION W  
SCALE 1:50

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018

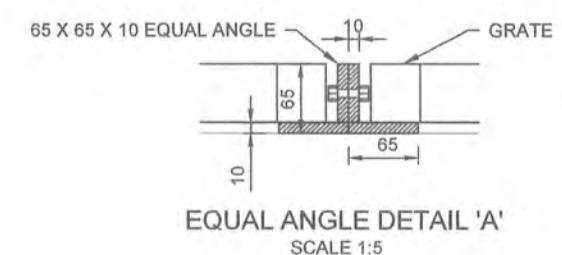
NOTE:  
PROVIDE BENCHING TO PITS INVERT.

**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: [Signature]  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 27.9.19 REF: 16800-11

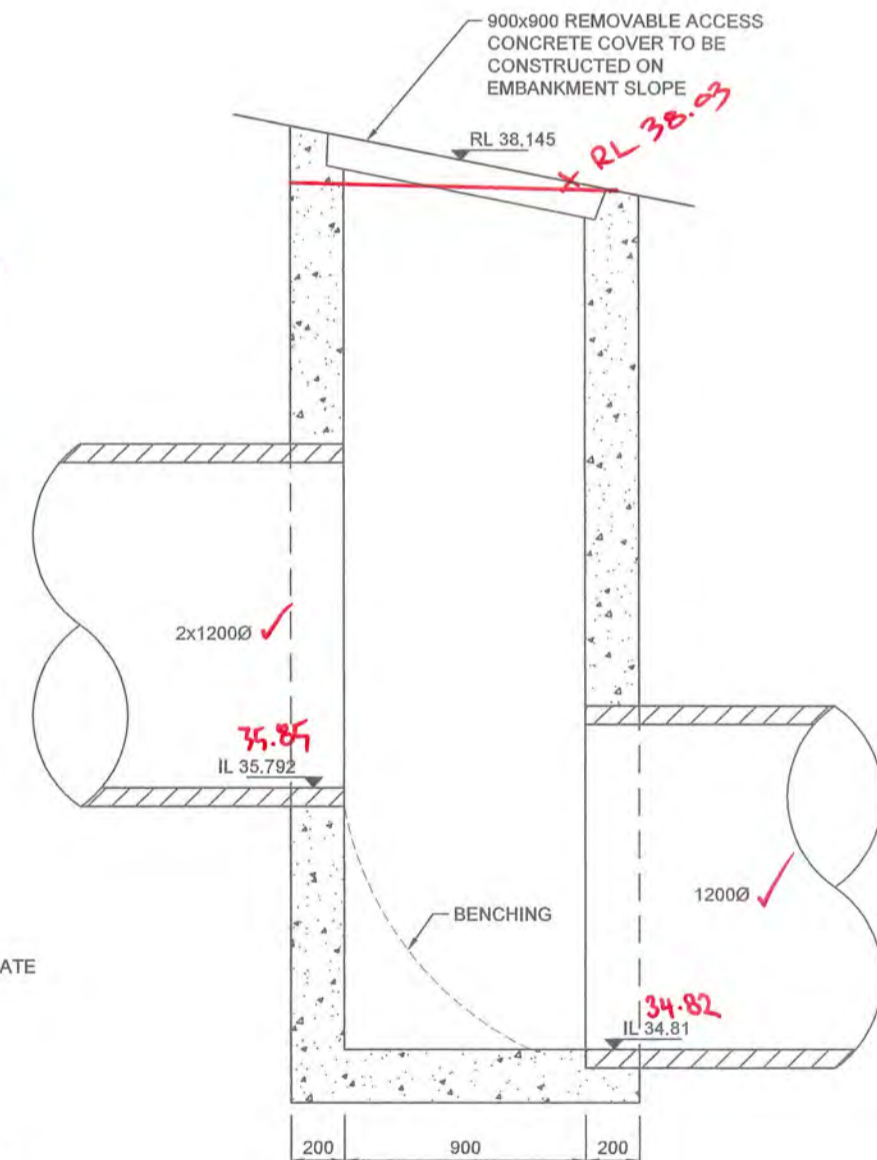


SECTION X  
SCALE 1:20

STRUCTURE 9/2

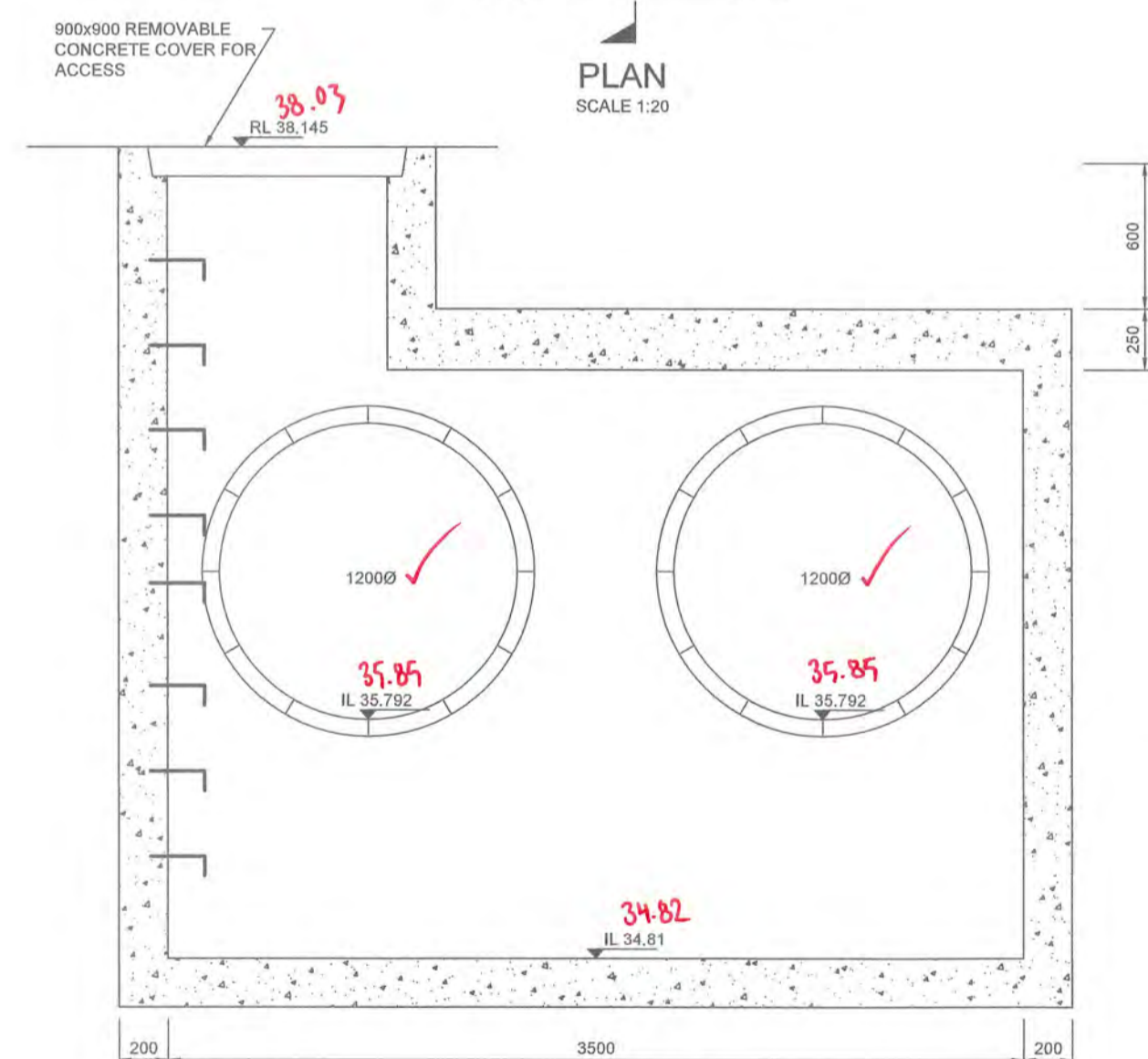


EQUAL ANGLE DETAIL 'A'  
SCALE 1:5

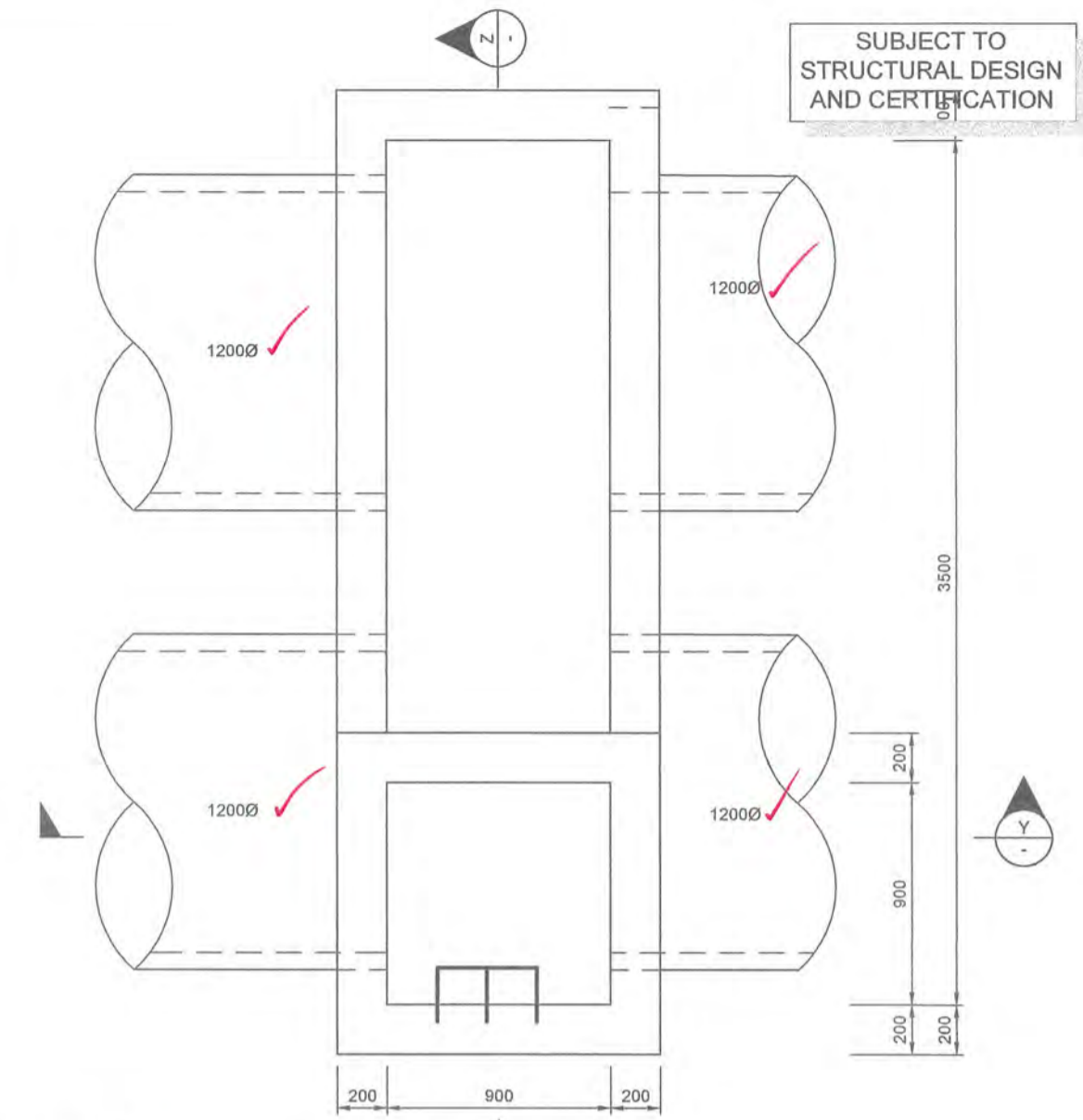


SECTION Y  
SCALE 1:20

STRUCTURE 9/3

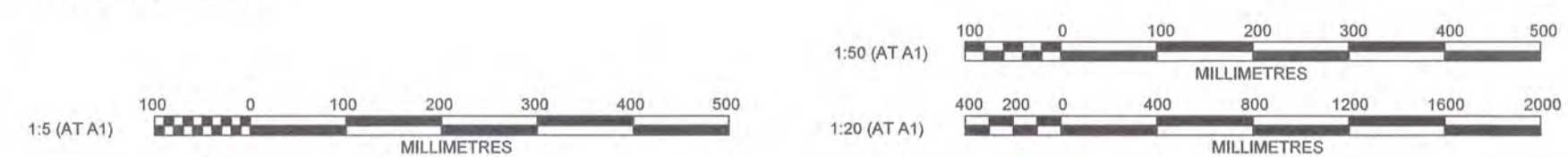


SECTION Z  
SCALE 1:20



PLAN  
SCALE 1:20

SUBJECT TO STRUCTURAL DESIGN AND CERTIFICATION



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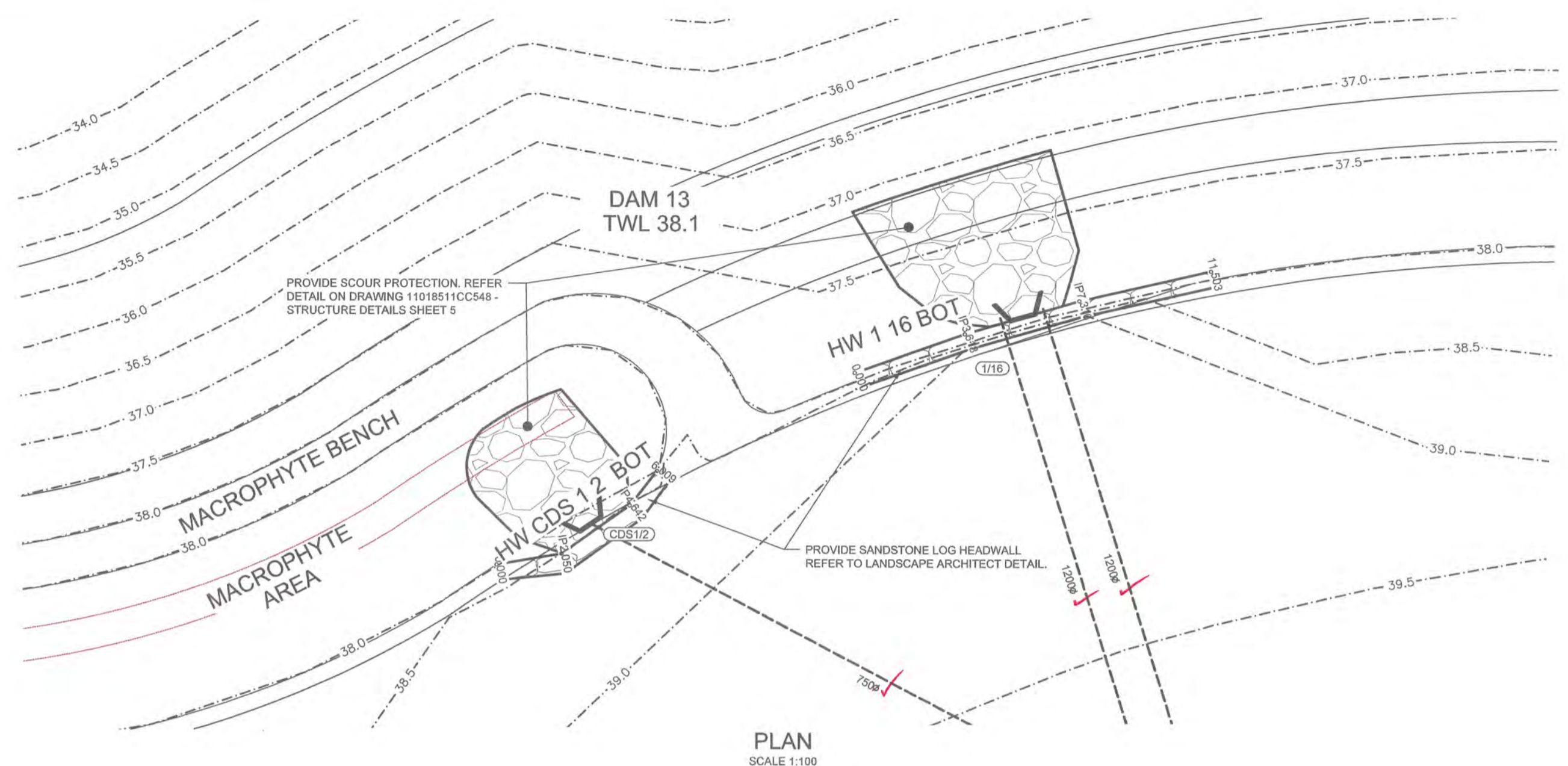
PRINCIPAL:  
**REDBANK**  
 AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**  
 REDBANK, NORTH RICHMOND YEOMANS ENTRY DRAINAGE DETAILS STRUCTURES 9/2 AND 9/3  
 PLAN No: 11018511/CC546 3  
 FILE No: 11018511CC546  
 SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:49:31 AM File Name: L:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CC546\ENTRY ROAD\11018511CC546.dwg

NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT					

SUBJECT TO  
STRUCTURAL DESIGN  
AND CERTIFICATION



PLAN  
SCALE 1:100

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *I. Vincent Myers*  
IAN VINCENT MYERS  
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 27.2.19 REF: 16800-11

DATUM 35.0	
TOE OF WALL	
GROUND LEVELS	38.000 37.800
TOP OF WALL	
GROUND LEVELS	38.65 38.56 38.75 38.000
CHAINAGE	0.000 2.050 4.642 6.009

LONGITUDINAL SECTION HW CDS 12 BOT  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DATUM 35.0	
TOE OF WALL	
GROUND LEVELS	37.3 37.800 37.620
TOP OF WALL	
GROUND LEVELS	38.67 38.054 38.85 38.62 38.45 37.73 37.800
CHAINAGE	0.000 3.818 7.316 11.503

LONGITUDINAL SECTION HW 1/16 BOT  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

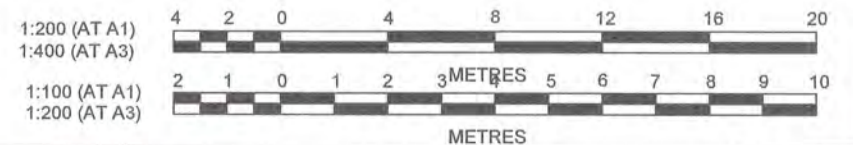
HW CDS 12 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0	286655.07	6281513.09	80°23'13.64"
2.05	286657.09	6281513.43	
4.64	286659.2	6281514.93	
6.01	286660.05	6281516.01	38°09'49.58"

HW 1 16 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0	286666.18	6281519.08	70°31'24.03"
3.62	286669.59	6281520.29	
7.32	286673.14	6281521.33	
11.5	286677.22	6281522.26	77°05'03.11"

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *[Signature]*  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018



PRINCIPAL:  
**REDBANK**  
400 H. THEODORE  
AZIMUTH: MGA 56  
DATUM: AHD  
ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

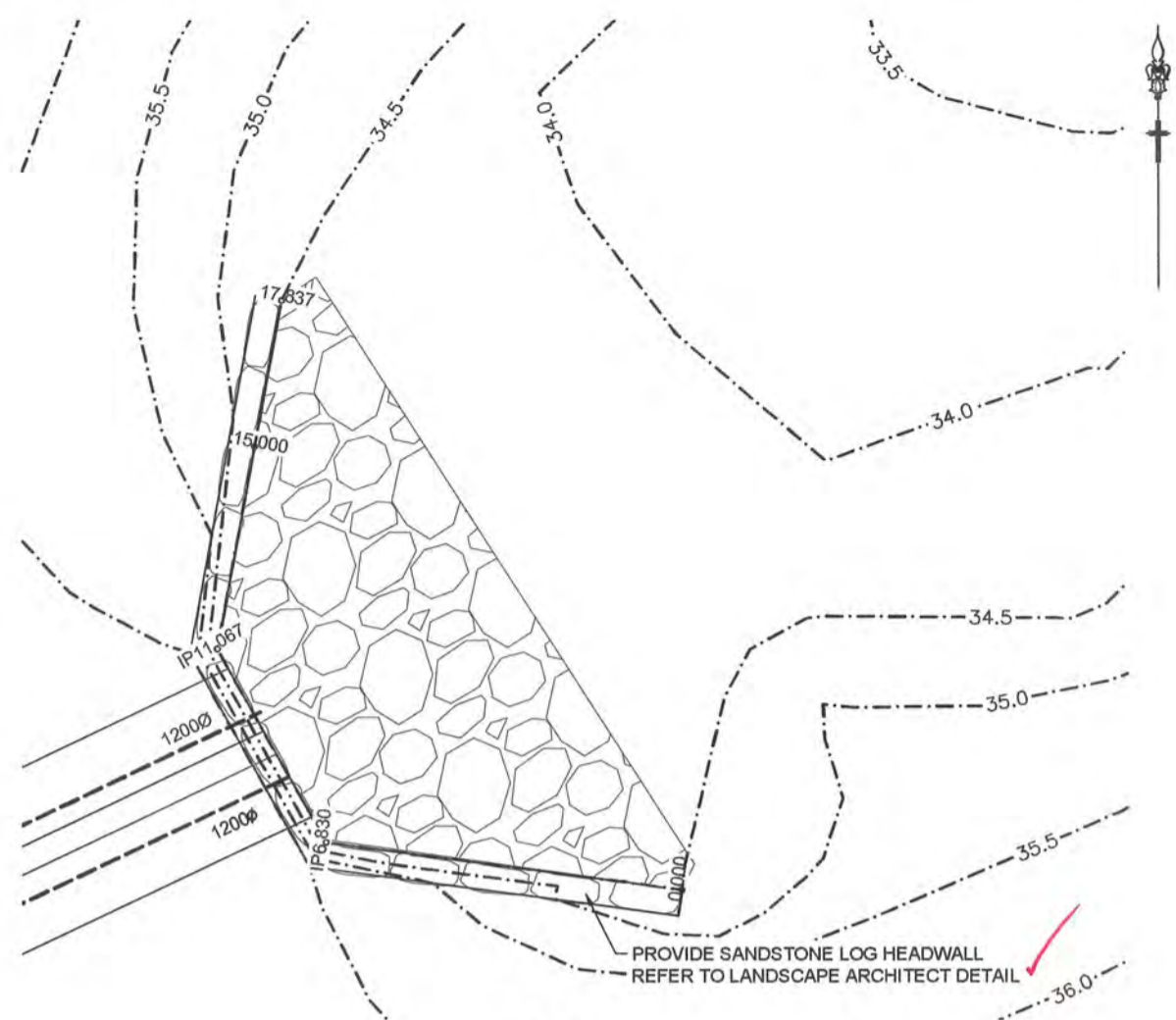
REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
DRAINAGE DETAILS  
HEADWALLS 1/16 AND CDS1/2

PLAN No:  
**11018511/CC547 3**  
FILE No: 11018511CC547  
SHEET SIZE: A1 ORIGINAL

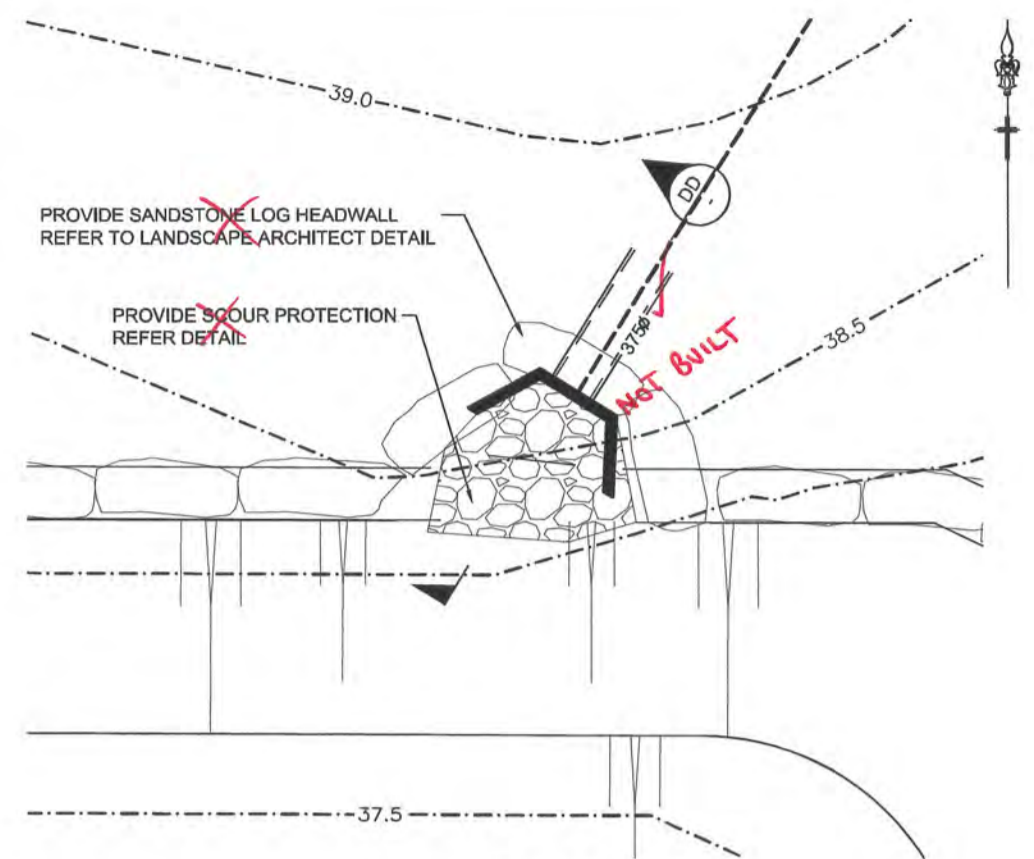
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

Plotted: 14 May, 2018 10:49:59 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CC547\ROAD\11018511CC547.dwg

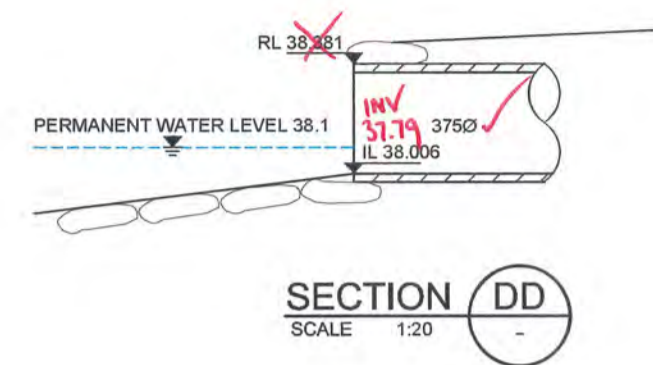
AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17



PLAN STRUCTURE 9/4  
SCALE 1:100



PLAN STRUCTURE 11/6  
SCALE 1:50



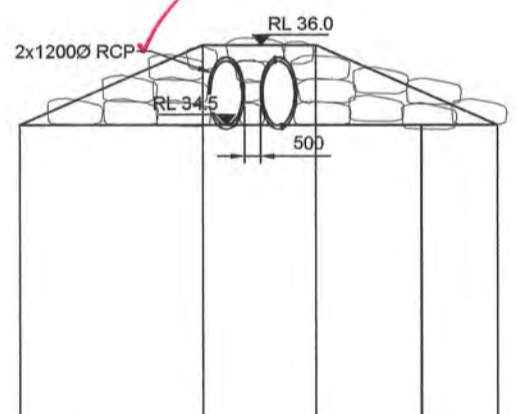
SECTION DD  
SCALE 1:20

- 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

Outlet	Culvert Diameter (mm)	No Off.	Velocity (m/s)	Design Velocity (m/s)	Mean Rock Rise (d50 mm)	L (mm)	W1 (mm)	W2 (mm)	Bed Thickness T (mm)
1/16	1200	2	3.58	3.75	400	4800	3600	4200	720
9/4	1200	2	6.26	5.5	400	4800	3600	4200	720
11/6	375	1	2.41	2.5	200	1125	975	975	360
CDS1/2	750	1	2.74	2.75	200	2250	1350	1650	360

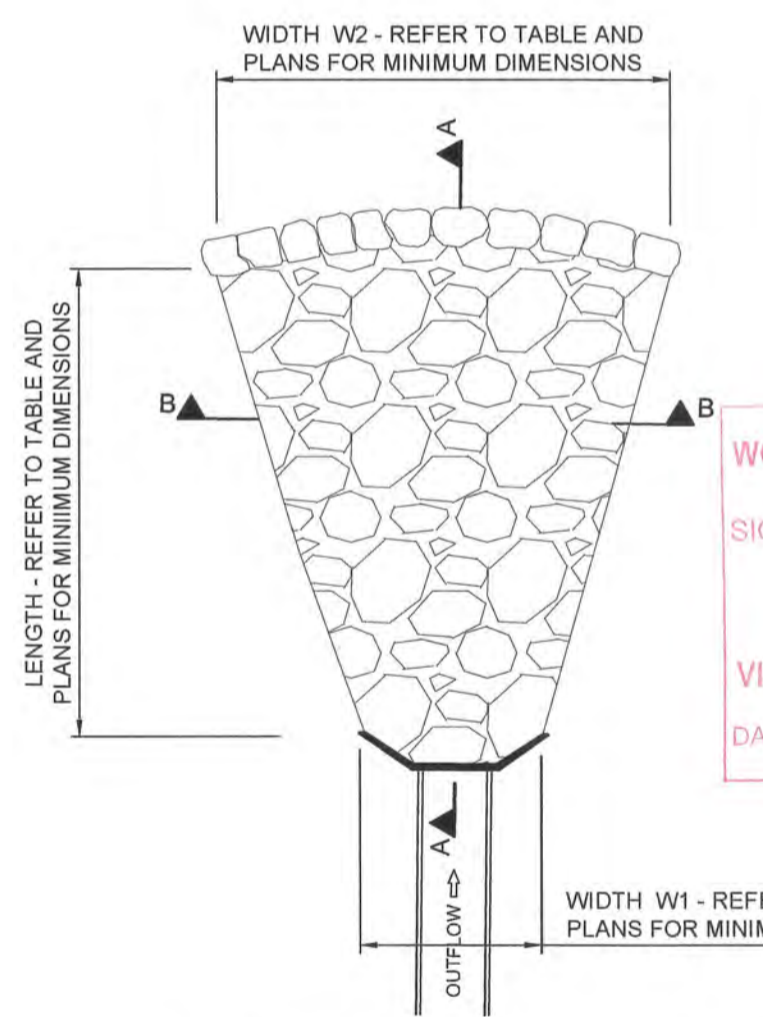
CHAINAGE	EASTING	NORTHING	BEARING
0	286767.21	6281604.62	277°37'40.76"
6.83	286760.44	6281605.53	
11.07	286758.37	6281609.23	
17.84	286759.6	6281615.89	10°26'57.81"

35.74 36.26 35.79  
35.15 00 35.33



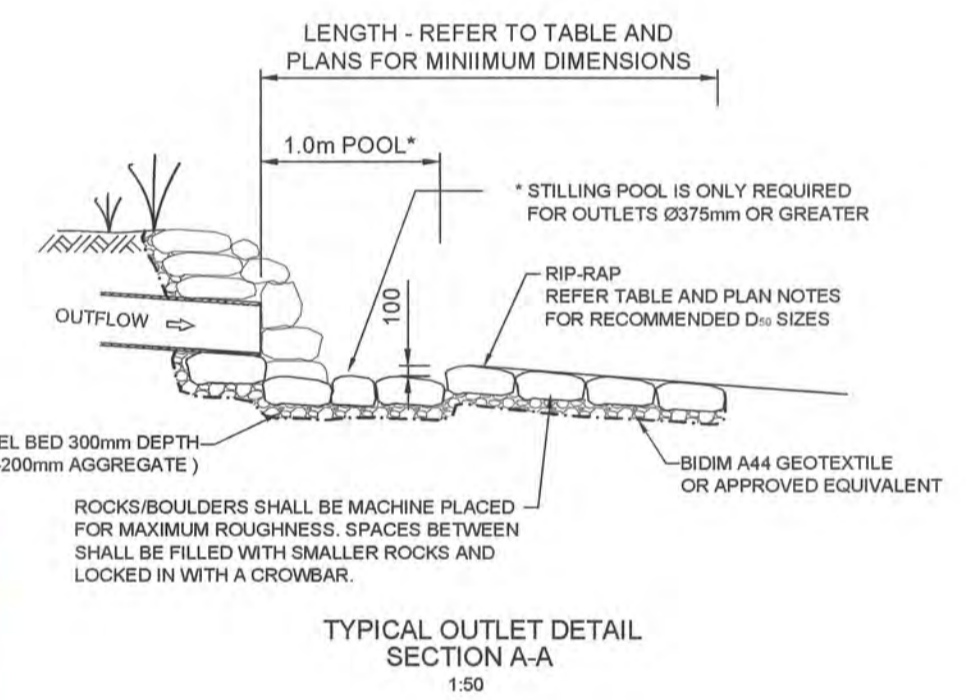
LONGITUDINAL SECTION HEADWALL 9/4  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DATUM 28.0				
TOE OF HEADWALL				
GROUND LEVELS	34.500	36.000	36.000	34.500
TOP OF HEADWALL				
GROUND LEVELS	34.500		35.112	34.500
CHAINAGE	0.000	6.830	11.066	17.837

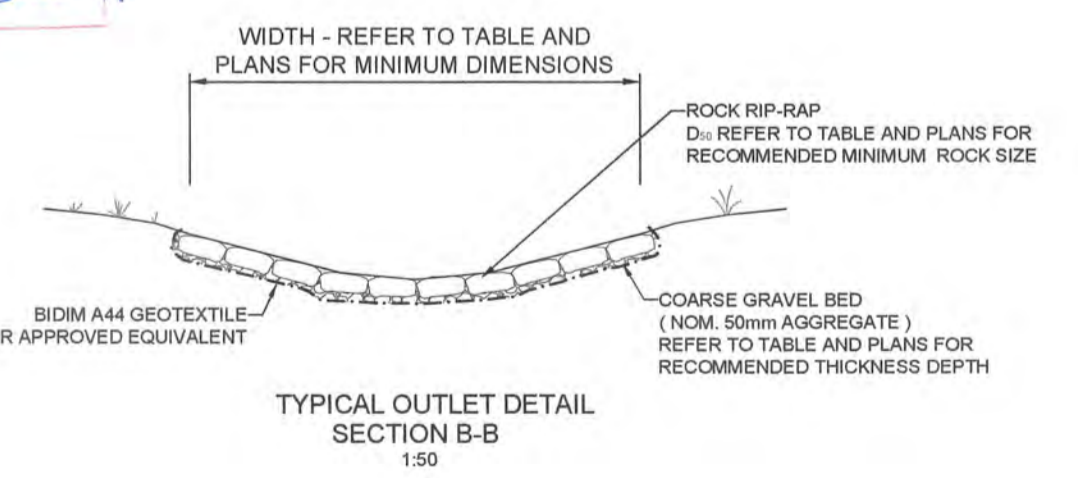


TYPICAL OUTLET SCOUR PROTECTION PLAN  
SCALE 1:50

WORKS AS EXECUTED SHOWN IN RED  
SIGNATURE: *I. Morgan*  
IAN VINCENT MORGAN  
Registered Land Surveyor  
VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 1680011  
27.1.19



TYPICAL OUTLET DETAIL SECTION A-A  
SCALE 1:50

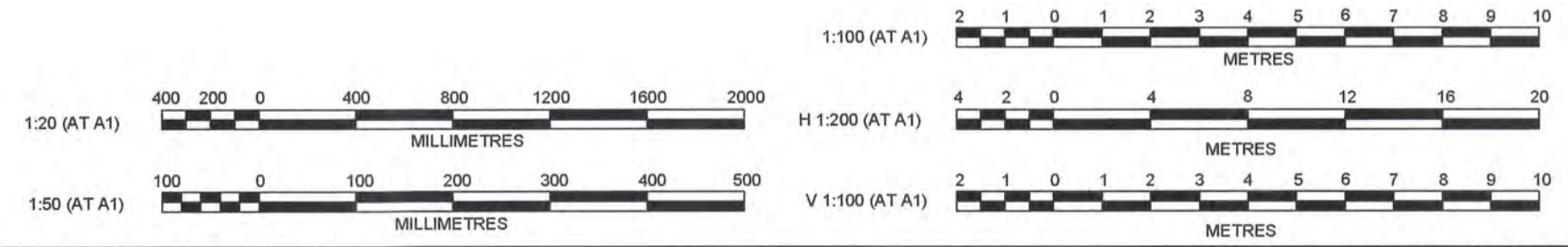


TYPICAL OUTLET DETAIL SECTION B-B  
SCALE 1:50

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *Jerry Prince*  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018



AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

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

AZIMUTH: MGA 56  
DATUM: AHD  
ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
DRAINAGE DETAILS  
STRUCTURE 9/4 AND 11/6 & SCOUR PROTECTION

PLAN No: 11018511/CC548 3  
FILE No: 11018511CC548  
SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:50:39 AM File Name: \\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CENTRY ROAD\11018511CC548.dwg



WORKS AS EXECUTED SHOWN IN RED

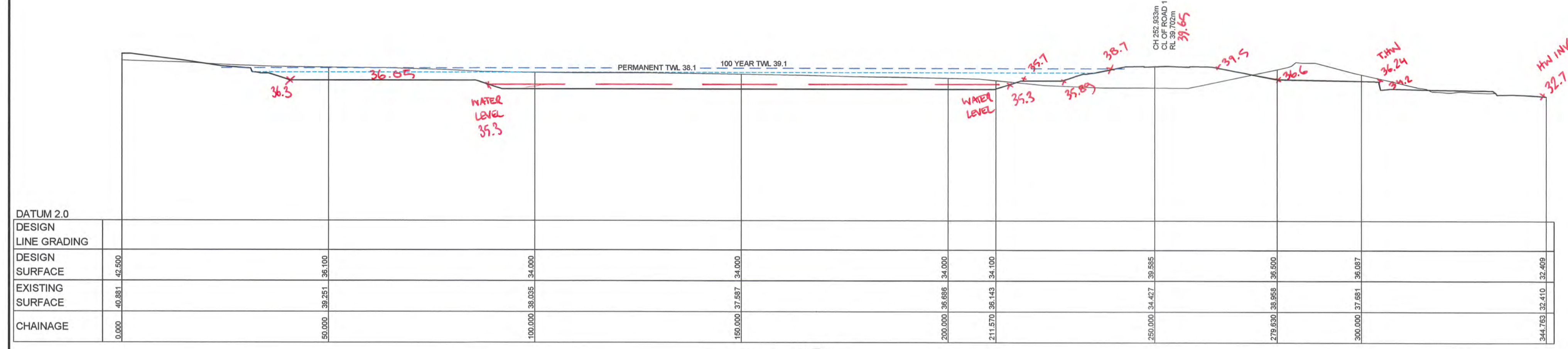
SIGNATURE *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
DATE 13.12.18 REF 16800-11  
27.2.19

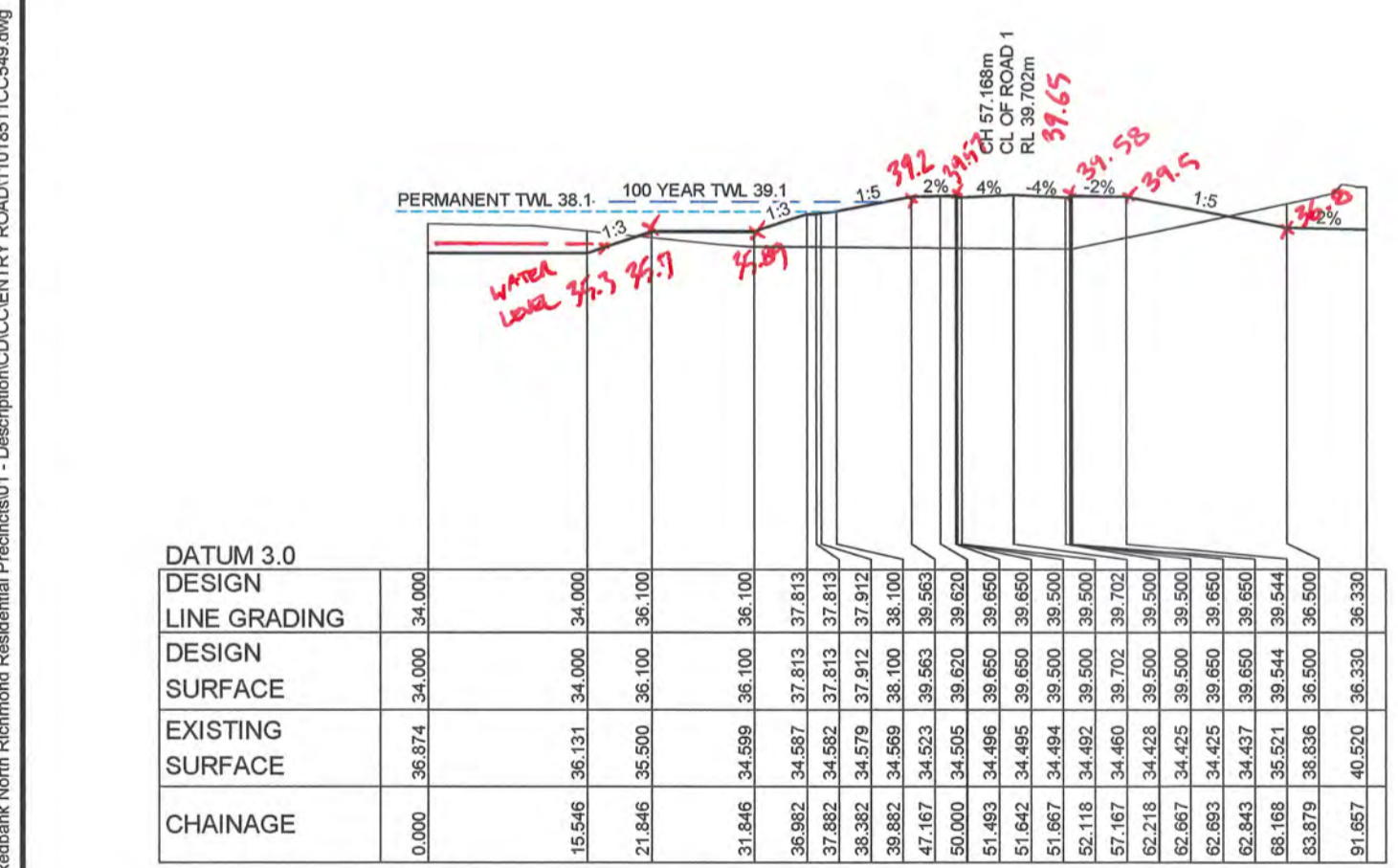
CONSTRUCTION CERTIFICATE

Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *Jerry By*  
Accreditation No. BPB0565

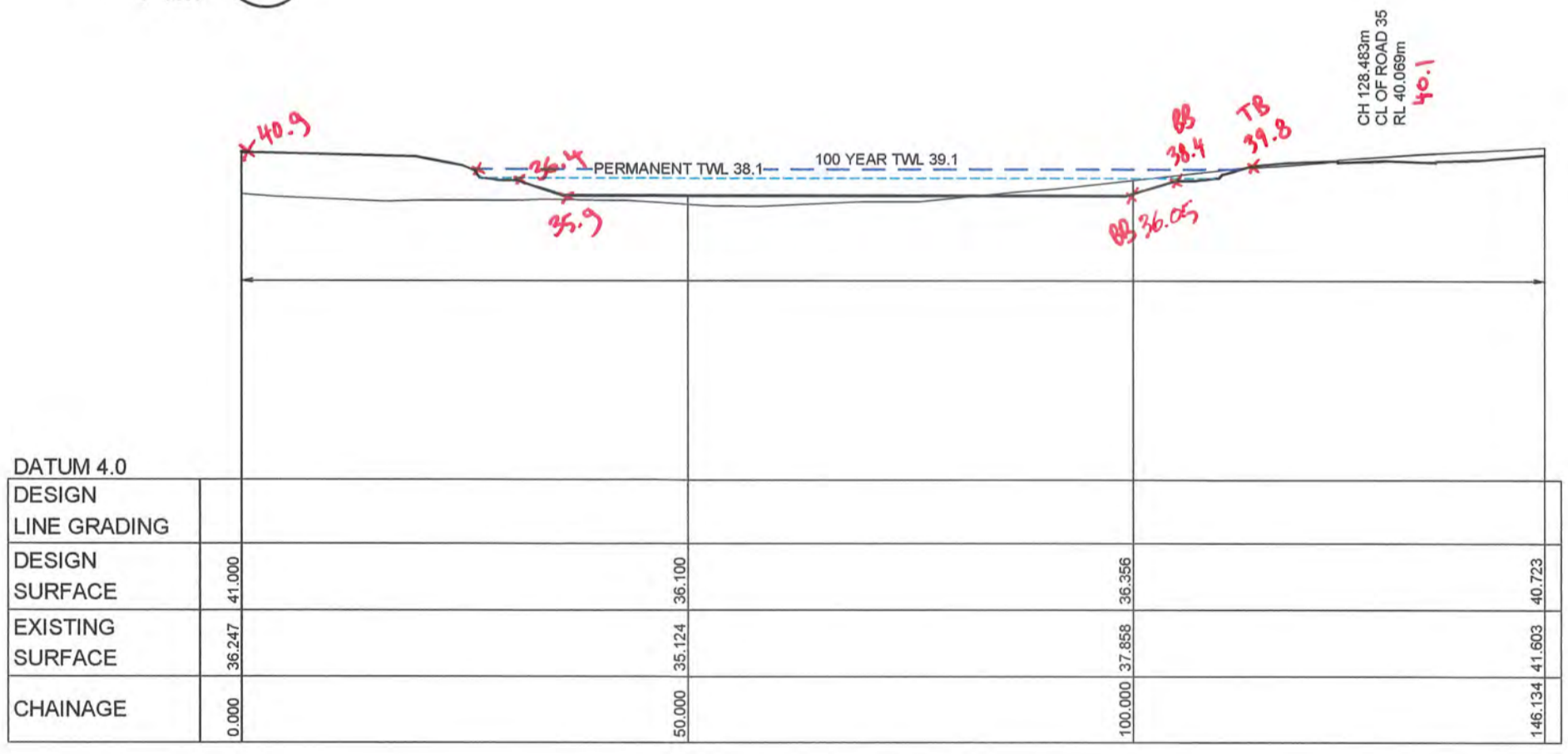
These plans/specifications form part of the certificate issued 28/09/2018



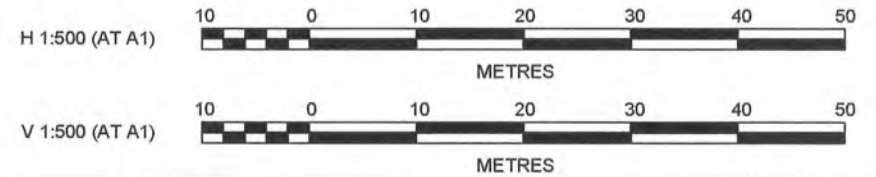
SECTION B  
SCALE H 1:500 V 1:500  
CC504



SECTION A  
SCALE H 1:500 V 1:500  
CC504



SECTION C  
SCALE H 1:500 V 1:500  
CC504



AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			

**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 56  
DATUM: AHD  
ORIGIN:



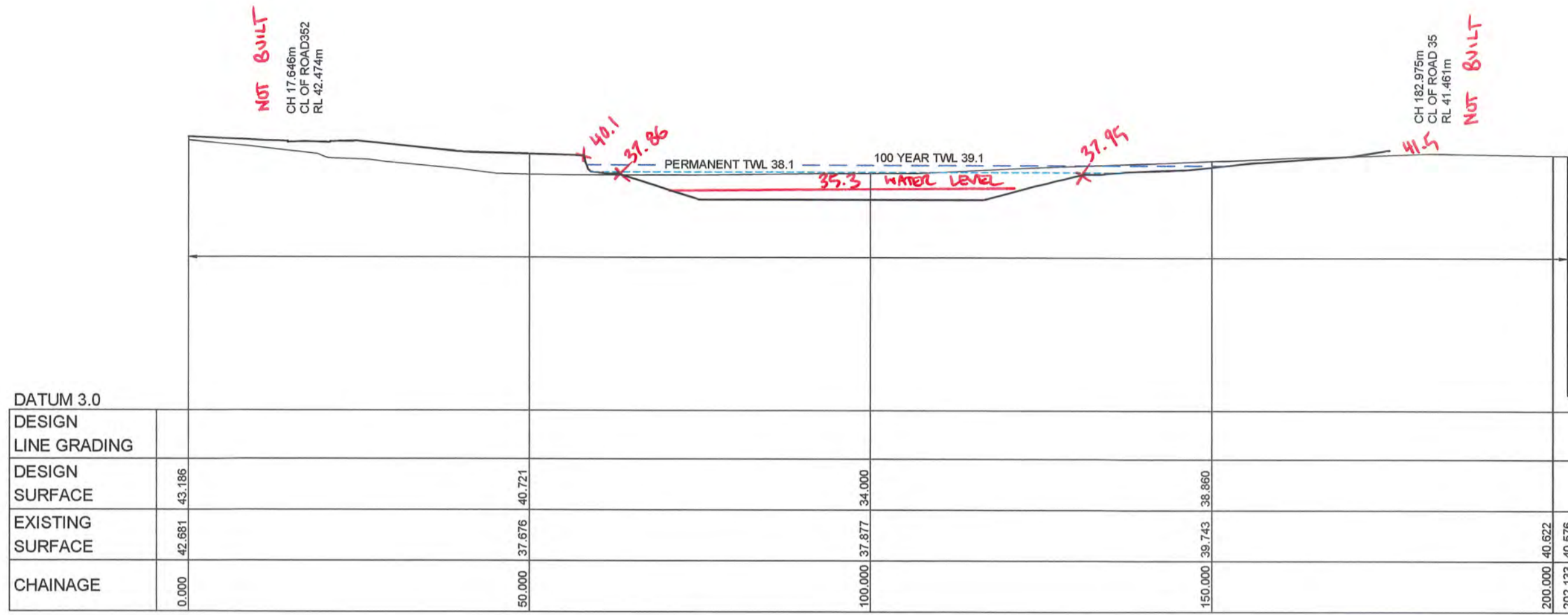
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
DAM 13  
SECTIONS A, B & C

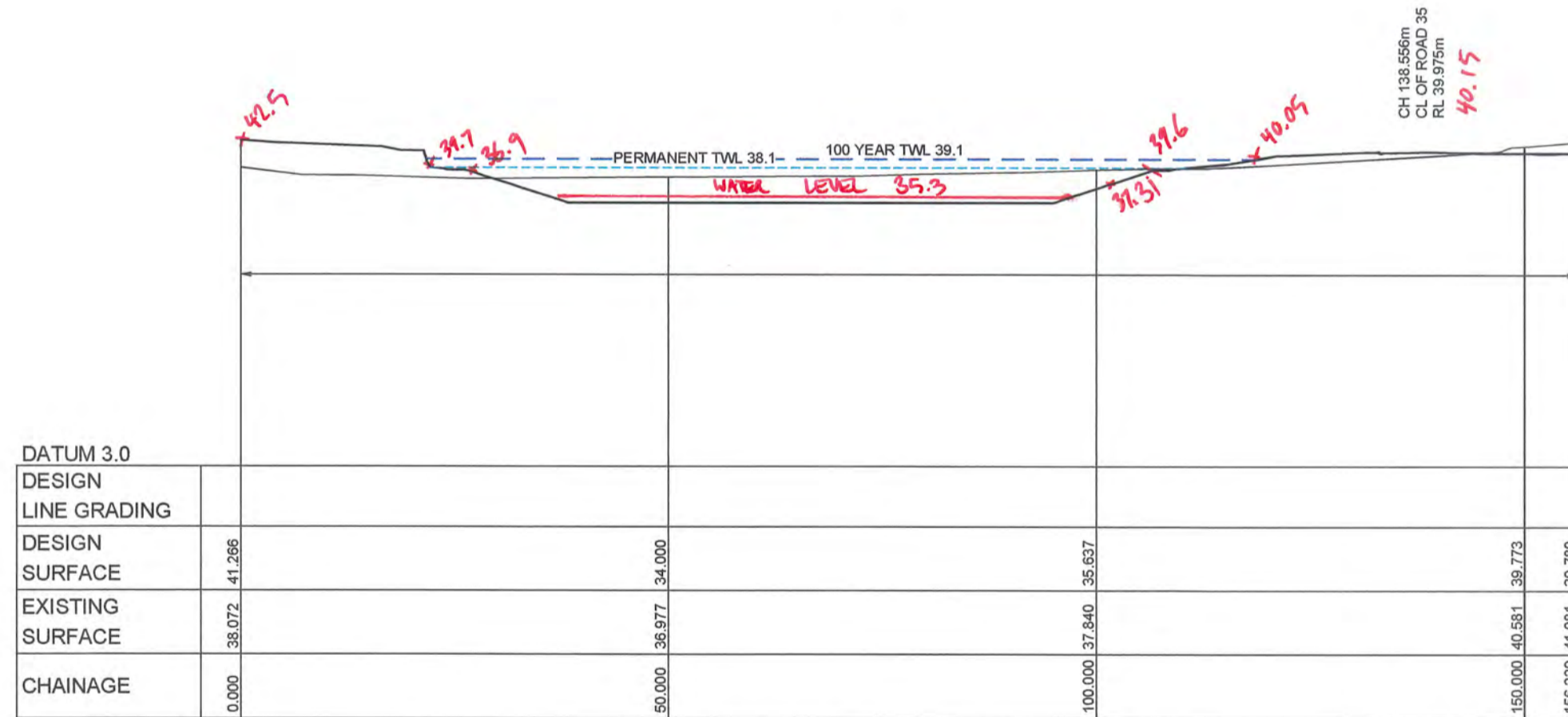
PLAN No: 11018511/CC549 3  
FILE No: 11018511CC549  
SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:50:49 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CCENTRY ROAD\11018511CC549.dwg

Plotted: 14 May, 2018 10:50:59 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\ENTRY ROAD\11018511CC550.dwg



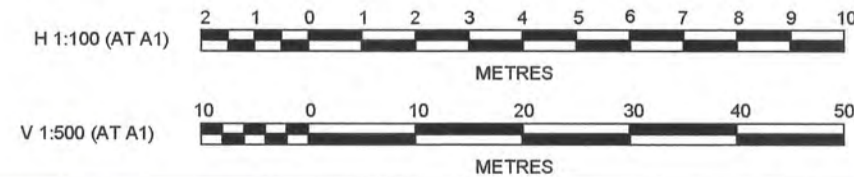
**SECTION E**  
SCALE H 1:500  
V 1:500  
CC504



**SECTION D**  
SCALE H 1:500  
V 1:500  
CC504

WORKS AS EXECUTED SHOWN IN RED  
SIGNATURE: *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor  
VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16000-11  
27.2.19

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *Jerry*  
Accreditation No. BFB0565  
These plans/specifications form part of the certificate issued 28/09/2018

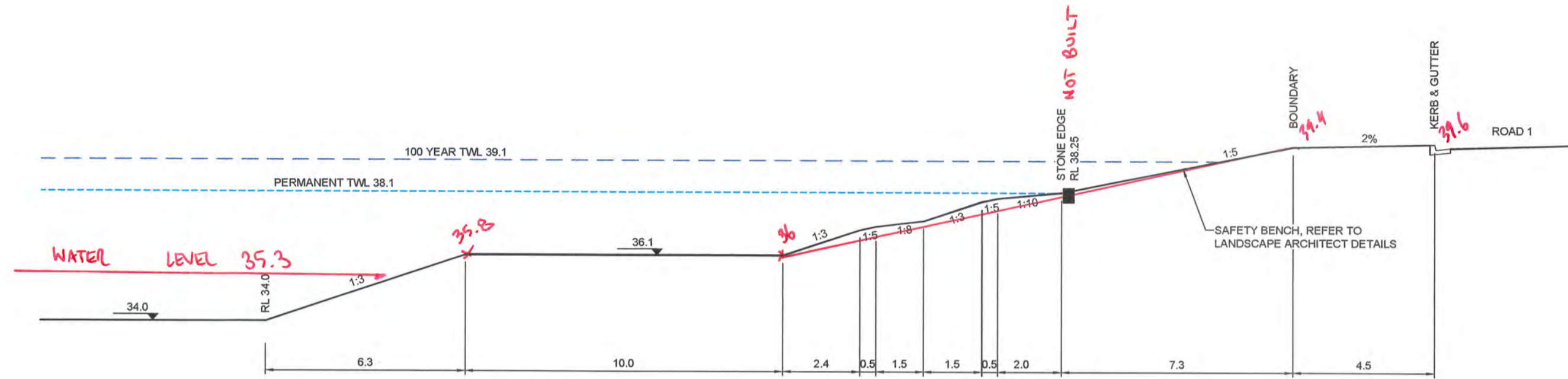


**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL:  
**REDBANK**  
MGA 56  
DATUM:  
AHD  
ORIGIN:  
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

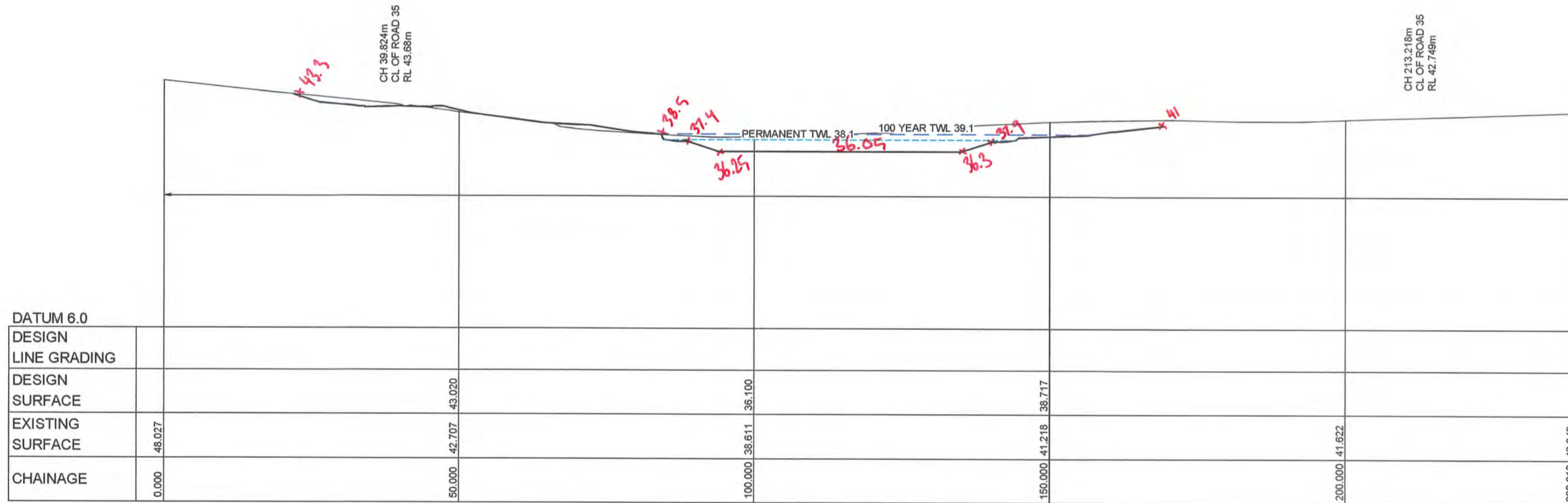
**ISSUED FOR CONSTRUCTION APPROVAL**  
REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
DAM 13  
SECTIONS D & E  
PLAN No: 11018511/CC550 3  
FILE No: 11018511CC550  
SHEET SIZE: A1 ORIGINAL

NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			
	AMENDMENT	DES	DRN	CKD	APR	DATE



**SAFETY BENCHING**

**SECTION G**  
SCALE H 1:100  
V 1:100



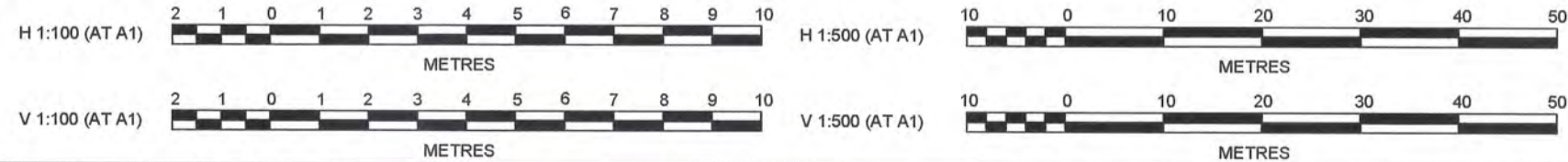
**SECTION F**  
SCALE H 1:500  
V 1:500

DATUM 6.0

DESIGN LINE GRADING						
DESIGN SURFACE		43.020	36.100	38.717		
EXISTING SURFACE	48.027	42.707	38.811	41.218	41.622	42.949
CHAINAGE	0.000	50.000	100.000	150.000	200.000	239.019

**WORKS AS EXECUTED SHOWN IN RED**  
SIGNATURE: *I. Vincent Myers*  
IAN VINCENT MYERS  
Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
DATE: 13.12.18 REF: 16800-11  
27.2.19

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *Jerry G*  
Accreditation No. BPB0565  
These plans/specifications form part of the certificate issued 28/09/2018



Plotted: 14 May, 2018 10:51:09 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CENTRY ROAD\1101851CC551.dwg

3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			
	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

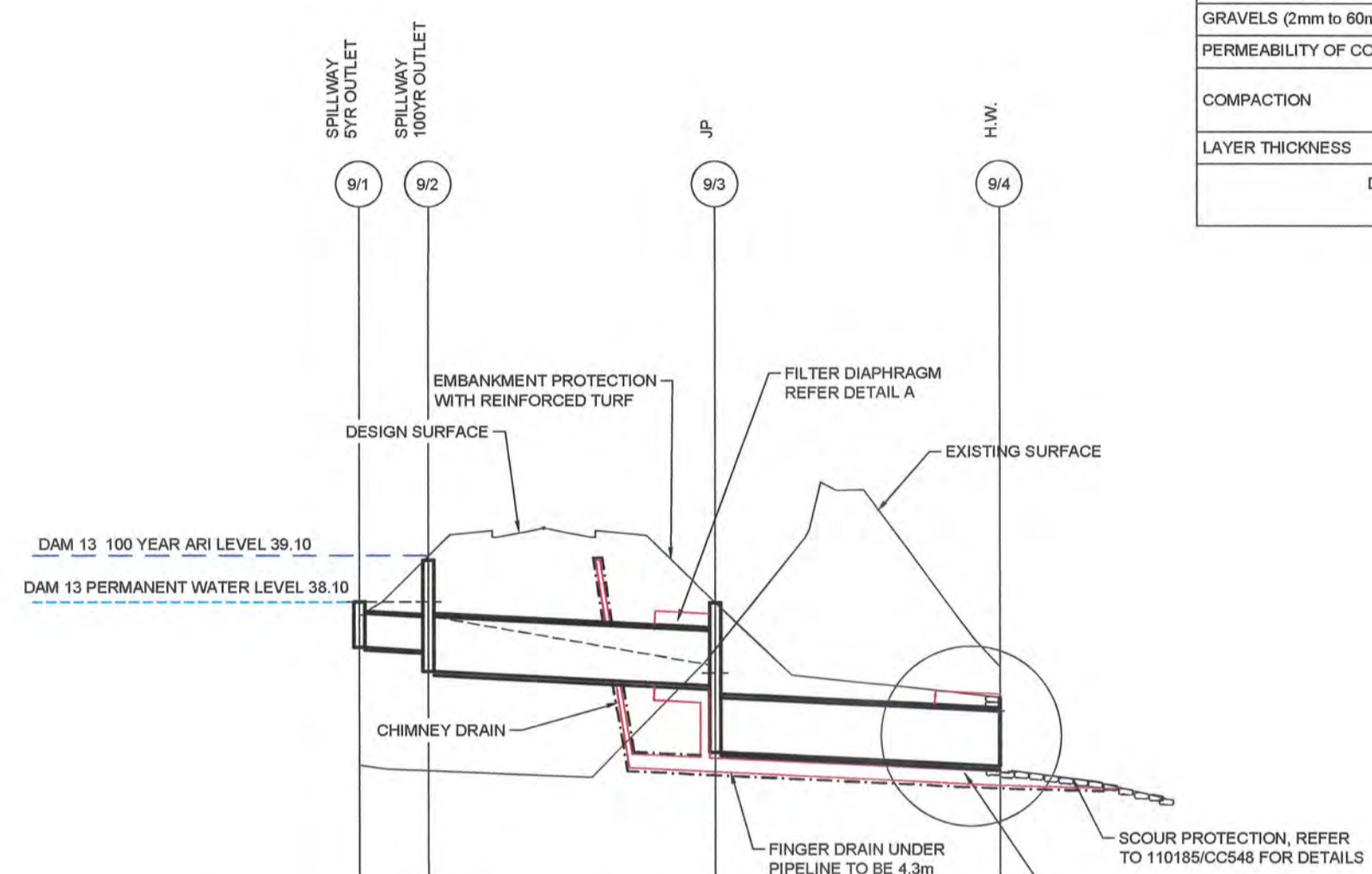
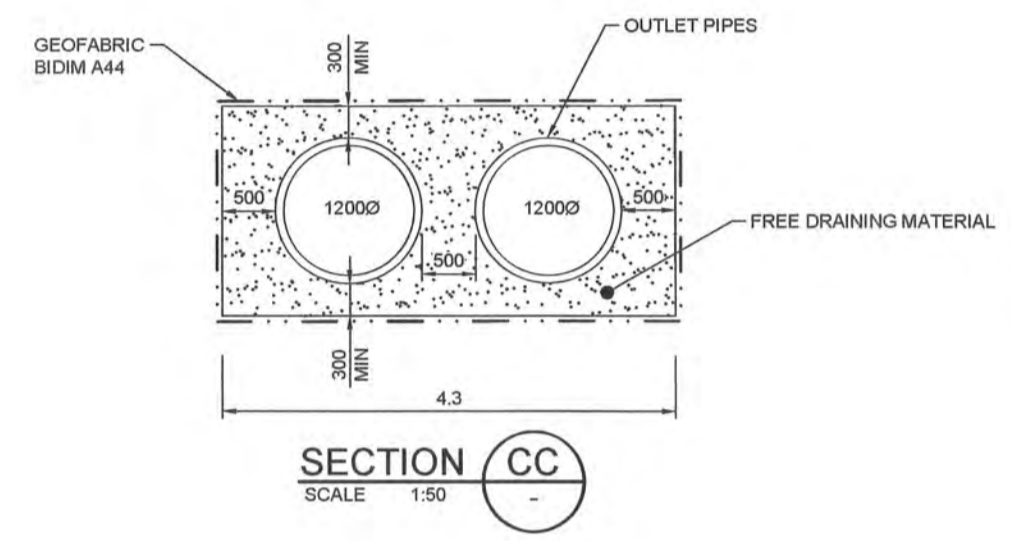
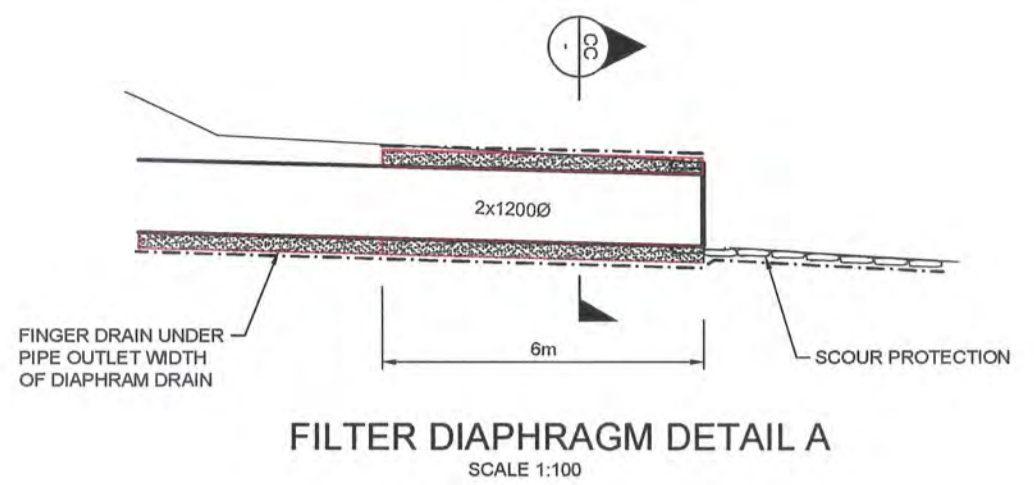
PRINCIPAL:  
**REDBANK**  
AZIMUTH: MGA 56  
DATUM:  
AHD  
ORIGIN:  
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

**ISSUED FOR CONSTRUCTION APPROVAL**  
REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
DAM 13  
SECTION F AND G

PLAN No: 11018511/CC551 3  
FILE No: 11018511CC551  
SHEET SIZE: A1 ORIGINAL

SPECIFICATIONS FOR DAM 13 (NORTH RICHMOND)	
EMBANKMENT MATERIAL	SPECIFICATIONS
MATERIAL TYPES	CLAY, SILTY SANDY CLAY, SILTY CLAY WITH SOME GRAVELS
PLASTICITY INDEX (%)	15 to 20%
EMERSON CLASS	4 OR HIGHER
PINHOLE CLASS	ND1 OR ND2
MAXIMUM PARTICLE SIZE (mm)	60mm
CLAY CONTENT (% PASSING 0.002mm)	20% OR MORE
GRAVELS (2mm to 60mm)	10 to 20%
PERMEABILITY OF COMPACTED MATERIAL (m/s)	1x10 <sup>-9</sup> m/s OR LESS
COMPACTION	98% STANDARD MAXIMUM DRY DENSITY MOISTURE CONTENT WITHIN 2% OF STANDARD OPTIMUM MOISTURE
LAYER THICKNESS	200mm to 250mm LOOSE

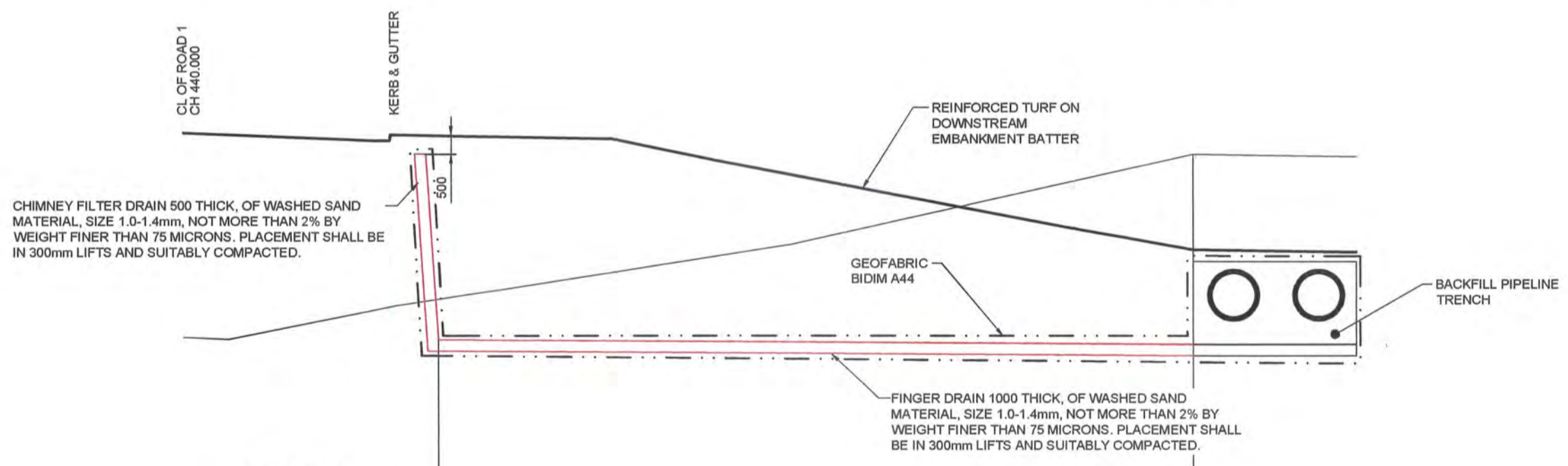
DAM 13 SPECIFICATIONS REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (REF: 122619-AF4) DATED 21st NOVEMBER 2017



DATUM (m)	31.00			
PEAK FLOW (L/s)	819	4805	4805	
PIPE SIZE (mm)	750	(2x)1200	(2x)1200	
PIPE CLASS	RRJ2	RRJ2	RRJ2	
PIPE GRADE (%)	1.0	1.0	1.0	0.5
PIPE COVER MINIMUM	-0.06	0.54	0.22	
FULL PIPE VELOCITY (m/s)	1.85	2.12	2.12	
HGL GRADE (%)	0	3.4	1	

WAE				
HYDRAULIC GRADE LINE	38.1		36.716	35.7
INVERT LEVEL	37.11	37.05	36.264	34.85
DESIGN SURFACE LEVEL	38.1	39	38.081	36.16
ROAD CHAINAGE			38.638	69.611
PIPE CHAINAGE	0	7.494		

LINE 9  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



DATUM 30.0			
FINGER DRAIN INVERT LEVELS	34.200		34.037
DESIGN SURFACE	39.650		36.557
EXISTING SURFACE	35.100		30.123
CHAINAGE	0.000		26.976

FINGER DRAIN DETAIL NOT BUILT  
SECTION M  
SCALE H 1:100  
CC504

**CONSTRUCTION CERTIFICATE**

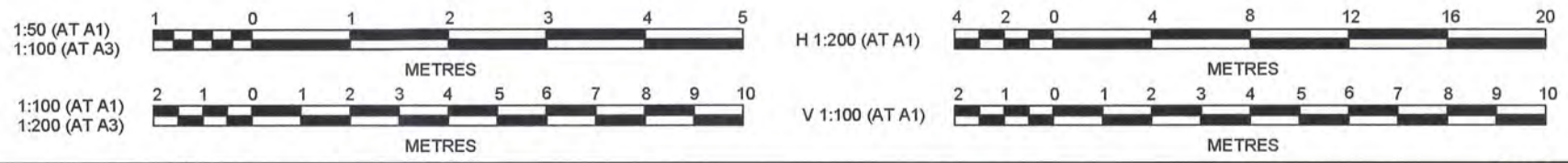
Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018

**WORKS AS EXECUTED SHOWN IN RED**

SIGNATURE: [Signature]  
IAN VINCENT MYERS  
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16800-11  
27.2.19



Plotted: 14 May, 2018 10:51:19 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\CC552.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

**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

PRINCIPAL:

**REDBANK**

AZIMUTH: MGA 56  
DATUM: AHD  
ORIGIN:

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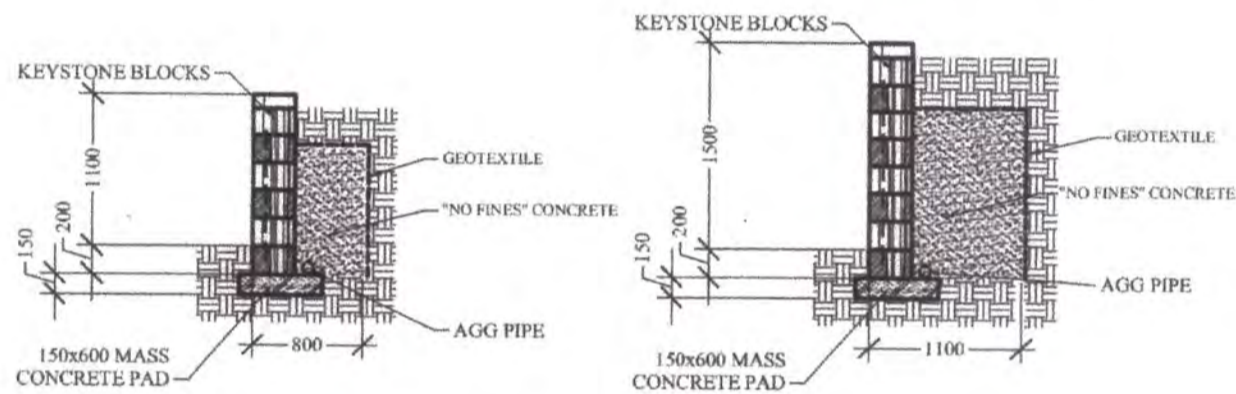
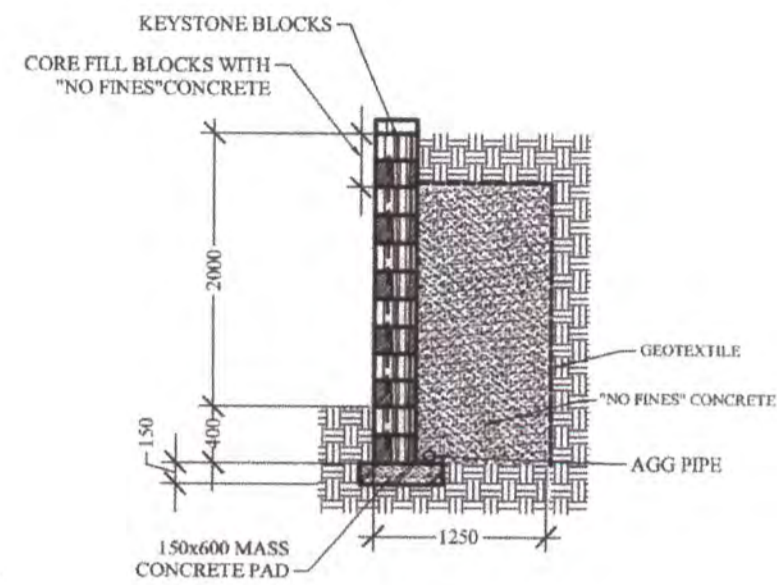
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
DAM 13  
DRAINAGE LONGITUDINAL SECTION AND DETAILS

PLAN No: 11018511/CC552 3  
FILE No: 11018511CC552  
SHEET SIZE: A1 ORIGINAL

I HEREBY CERTIFY THAT I HAVE CHECKED AND APPROVED THE STRUCTURAL ADEQUACY OF RETAINING WALL DETAILS ON THIS DRAWING

S. HASAN BE MIE AUST NPER 298695 FOR PETER CARTERS & ASSOCIATES PTY LTD  
DATE 15-05-2018



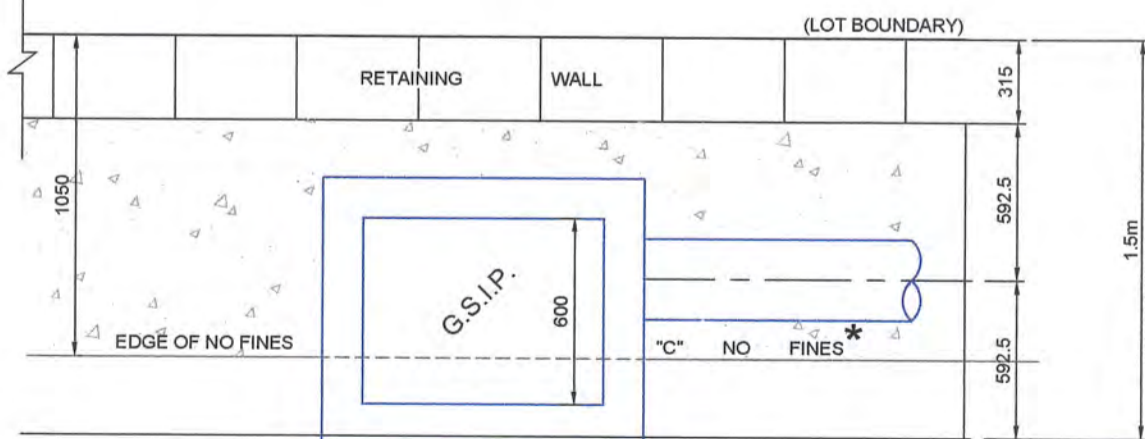
KEYSTONE WALL SECTIONS

NOTES

- DRAWING No 1811 SHALL BE READ IN CONJUNCTION WITH J. WYNDHAM PRINCE DRAWINGS
- MASS CONCRETE FOOTING PADS TO BE LOW SLUMP 25 MPa KERB MIX
- FOR SLOPING WALL TOE, BLOCKWORK KEY TO BE ONE ADDITIONAL BLOCK BELOW FINISHED GROUND LEVEL
- SURCHARGE LOADING TO WALLS SHALL NOT EXCEED 5KPa LIVE

TYPICAL KEYSTONE RETAINING WALL CROSS SECTIONS FOR NORTH RICHMOND YEOMANS ENTRY ROAD

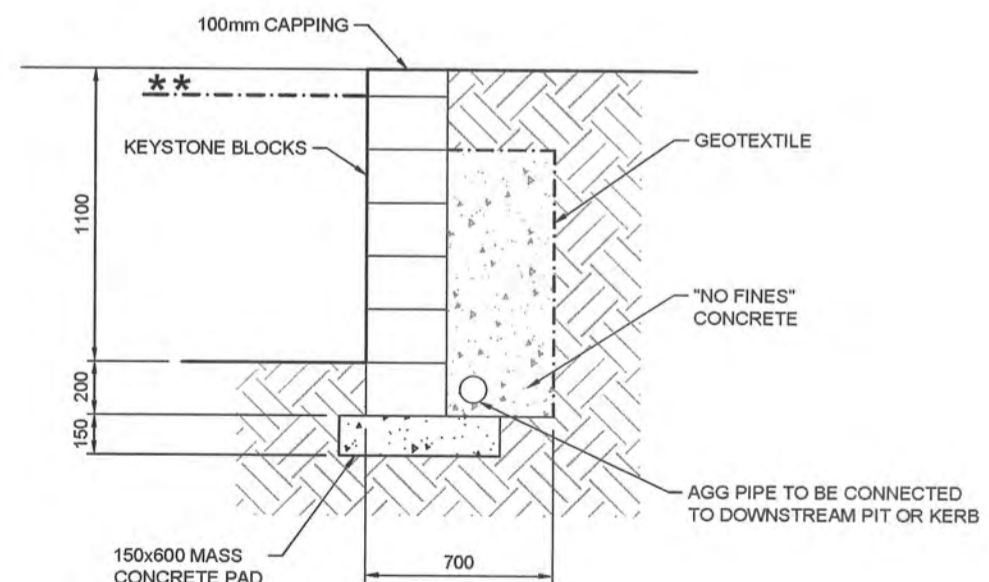
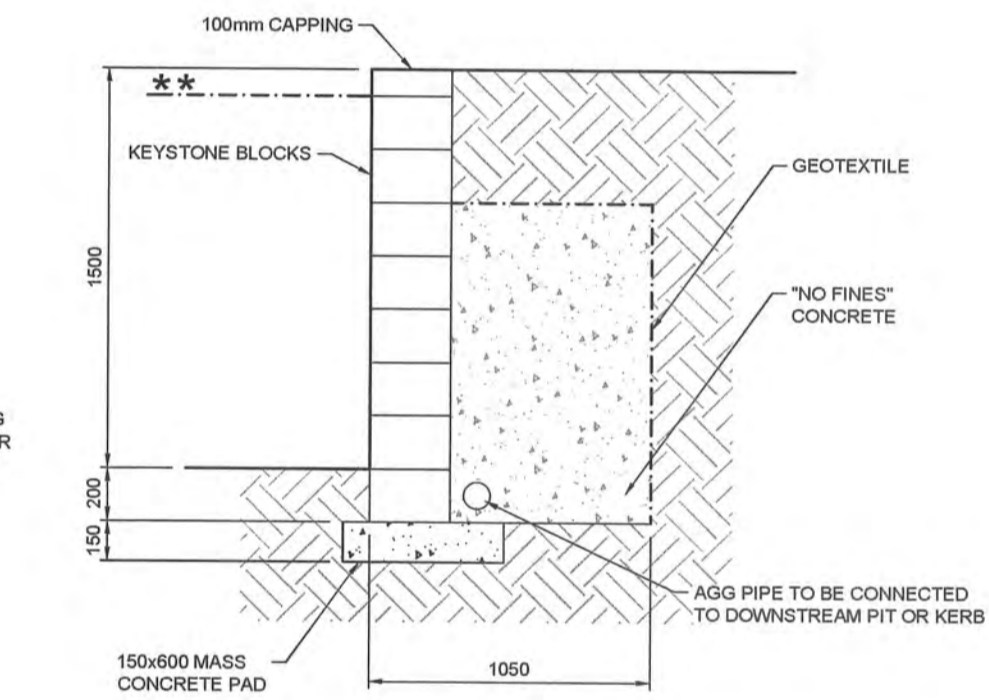
<b>PETER CARTERS &amp; ASSOCIATES PTY LTD</b> CONSULTING ENGINEERS ABN 76 054 146 155 49 Milroy Ave, Kensington NSW 3033 Phone : 0438 663 524 Fax : 02 9663 5253 Email : petercarters@gmail.com	SCALES	1:50	STRUCTURAL ENGINEER <b>N. KAPAROS</b>	DRAWING No <b>1811</b>
	DATE	15-05-2018		
	DRAFTED			



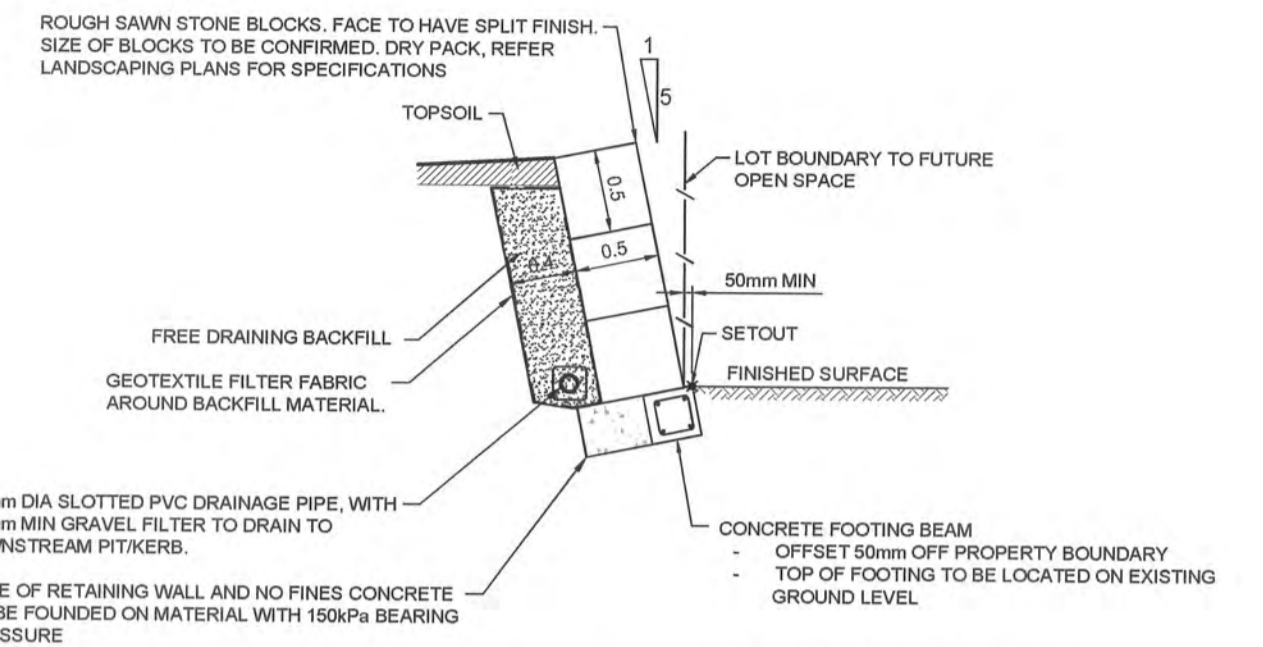
\* "NO FINES" TO BE LOWERED TO ACCOMMODATE STORMWATER IAD PITS, WITH PITS AND PIPE INSTALLED PRIOR TO PLACEMENT OF "NO FINES"

NOTE : STORMWATER DRAINAGE PIPE TO BE CONSTRUCTED WITH THE RETAINING WALL - NO FINES CONCRETE - TO MINIMISE THE DISTANCE BETWEEN PIPE AND BACK OF WALL, SO THAT PIPE SITS CENTRALLY WITHIN THE SPACE. STARTING DIRECTLY AT THE BACK OF THE RETAINING WALL CAPPING BLOCK AND EASEMENT LINE.

\*\* WALL HEIGHT WITHOUT CAPPING IS THE DETERMINING HEIGHT FOR STRUCTURAL DETAIL REQUIRED TO BE SELECTED.



KEYSTONE WALL SECTIONS (UCBC)  
N.T.S



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

SUBJECT TO STRUCTURAL DESIGN AND CERTIFICATION

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16800-11  
27.2.19

CONSTRUCTION CERTIFICATE

Certificate No. 20130298C48  
Date of Issue 28/09/2018  
Issuing Officer *Jerry J. BPB0565*  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018

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 56  
DATUM: AHD  
ORIGIN:



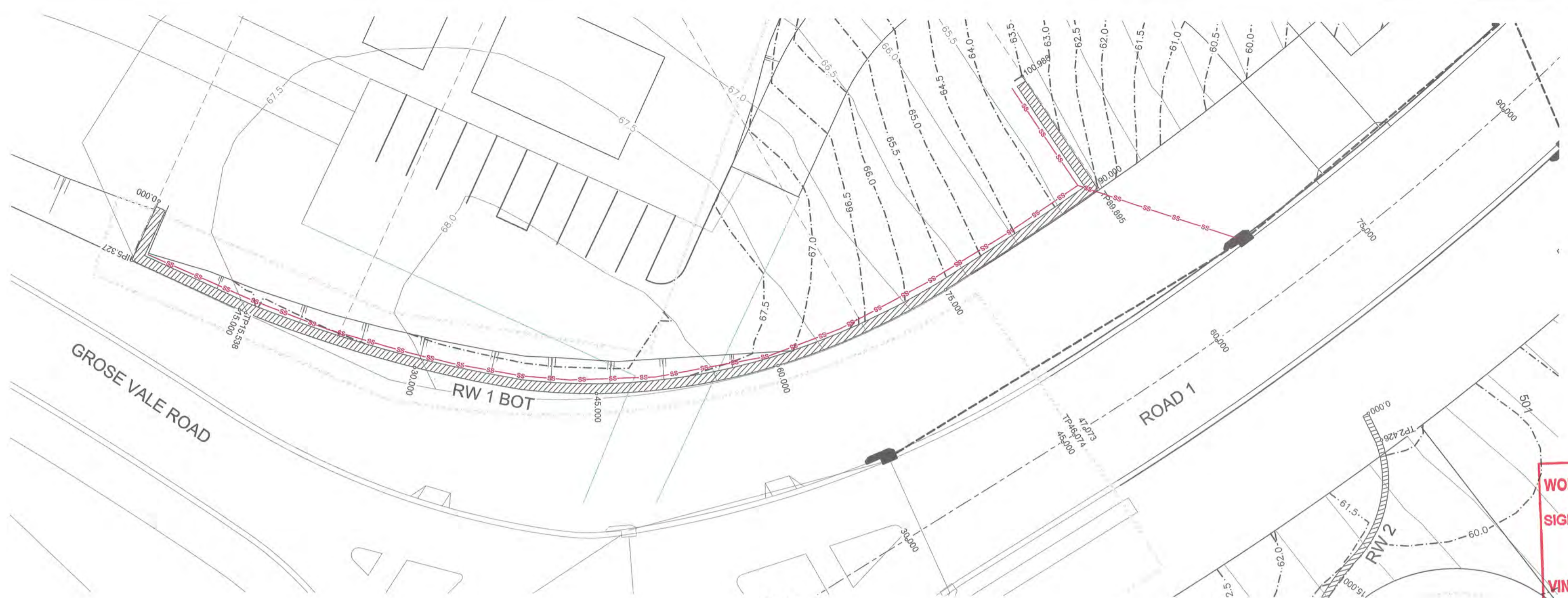
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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK, NORTH RICHMOND YEOMANS ENTRY  
RETAINING WALLS  
SHEET 1

PLAN No: 11018511/CC553 3  
FILE No: 11018511CC553  
SHEET SIZE: A1 ORIGINAL

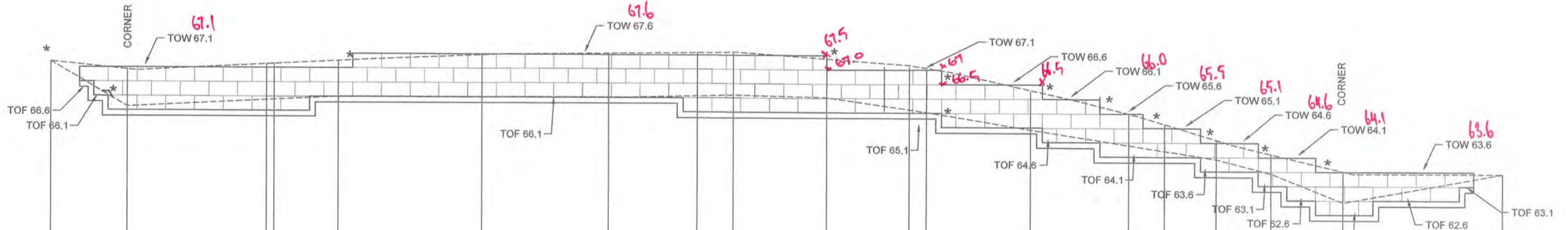
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3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



SUBJECT TO STRUCTURAL DESIGN AND CERTIFICATION

**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 27.2.19 REF: 16800-11

PLAN  
SCALE 1:200



RW 1 BOT					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A.LENGTH
0	286882.08	6281209.59	132°15'44.18"		
5.33	286886.02	6281206			
15.94	286892.88	6281213.57			
27.18	286900.28	6281222.81			
38.82	286905.58	6281233.04	28°50'31.18"	-106.81	23.29
38.84	286905.57	6281233.06			
38.86	286905.58	6281233.07			
49.3	286909.89	6281242.75			
59.75	286909.96	6281253.35	0°23'28.94"	-50.7	20.89
68.62	286910.02	6281262.29			
77.5	286907.48	6281270.86			
85.7	286905.89	6281276.85			
89.9	286903.99	6281282.76			
100.99	286893.35	6281279.82	253°35'43.60"	-227	12.4

DATUM 56.0	
TOE OF WALL	67.300
GROUND LEVELS	67.300
TOP OF WALL	67.300
GROUND LEVELS	67.300
CHAINAGE	0.000

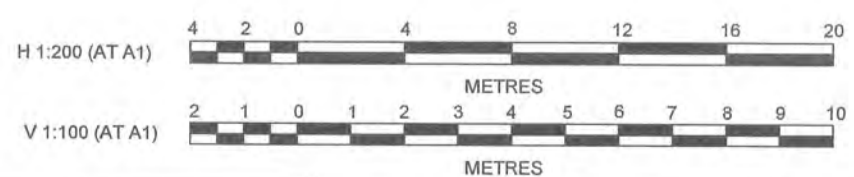
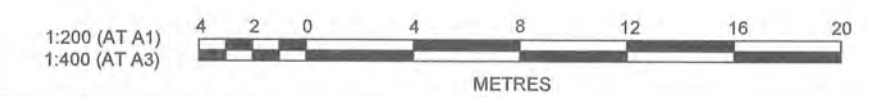
LONGITUDINAL SECTION RW 1  
 HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100

**LEGEND**  
 TYPE 2 - SANDSTONE LOGS

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer [Signature]  
 Accreditation No. JBPB0565

These plans/specifications form part of the certificate issued 28/09/2018



PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 RETAINING WALLS  
 SHEET 2

PLAN No: 11018511/CC554 3  
 FILE No: 11018511CC554  
 SHEET SIZE: A1 ORIGINAL

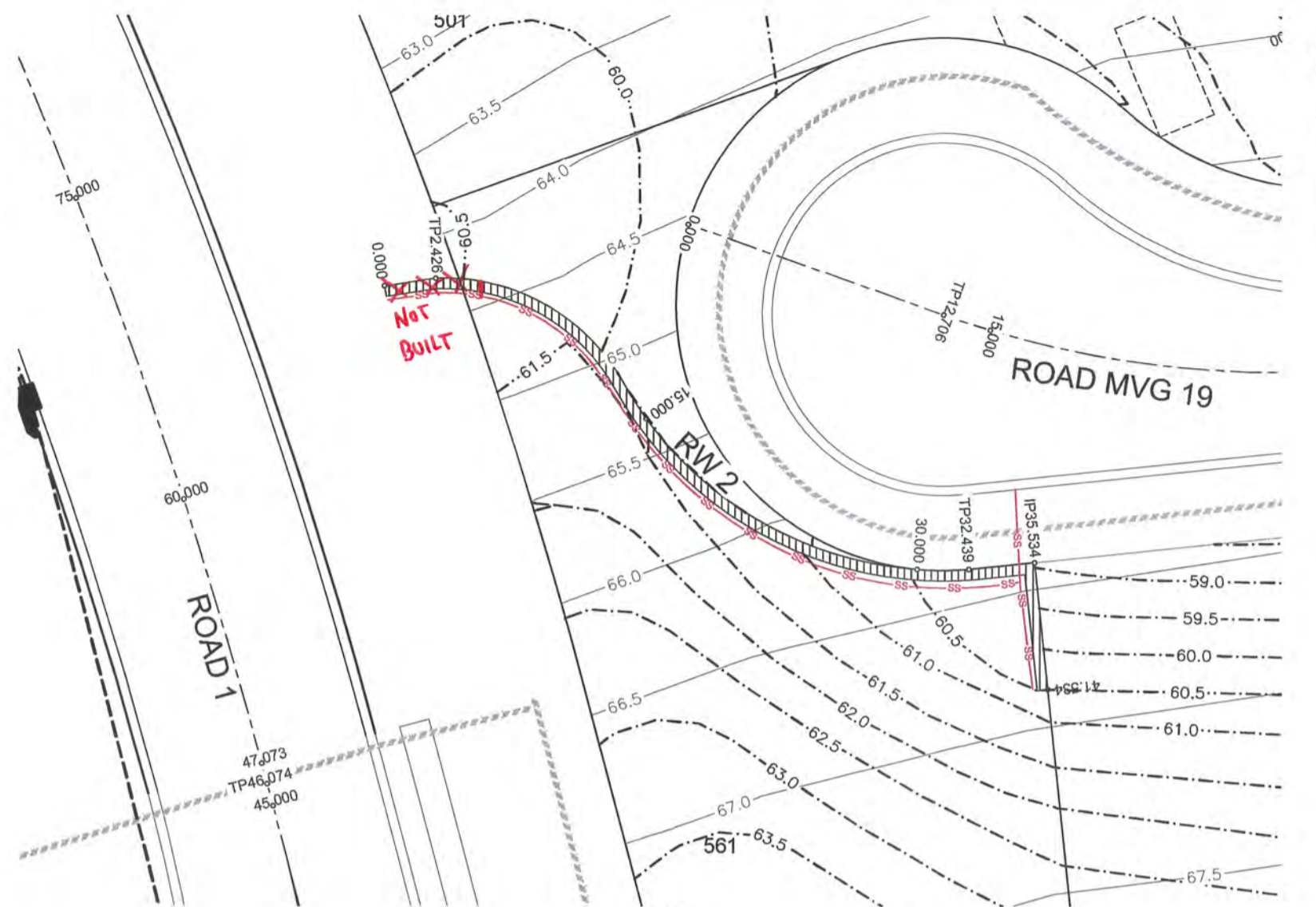
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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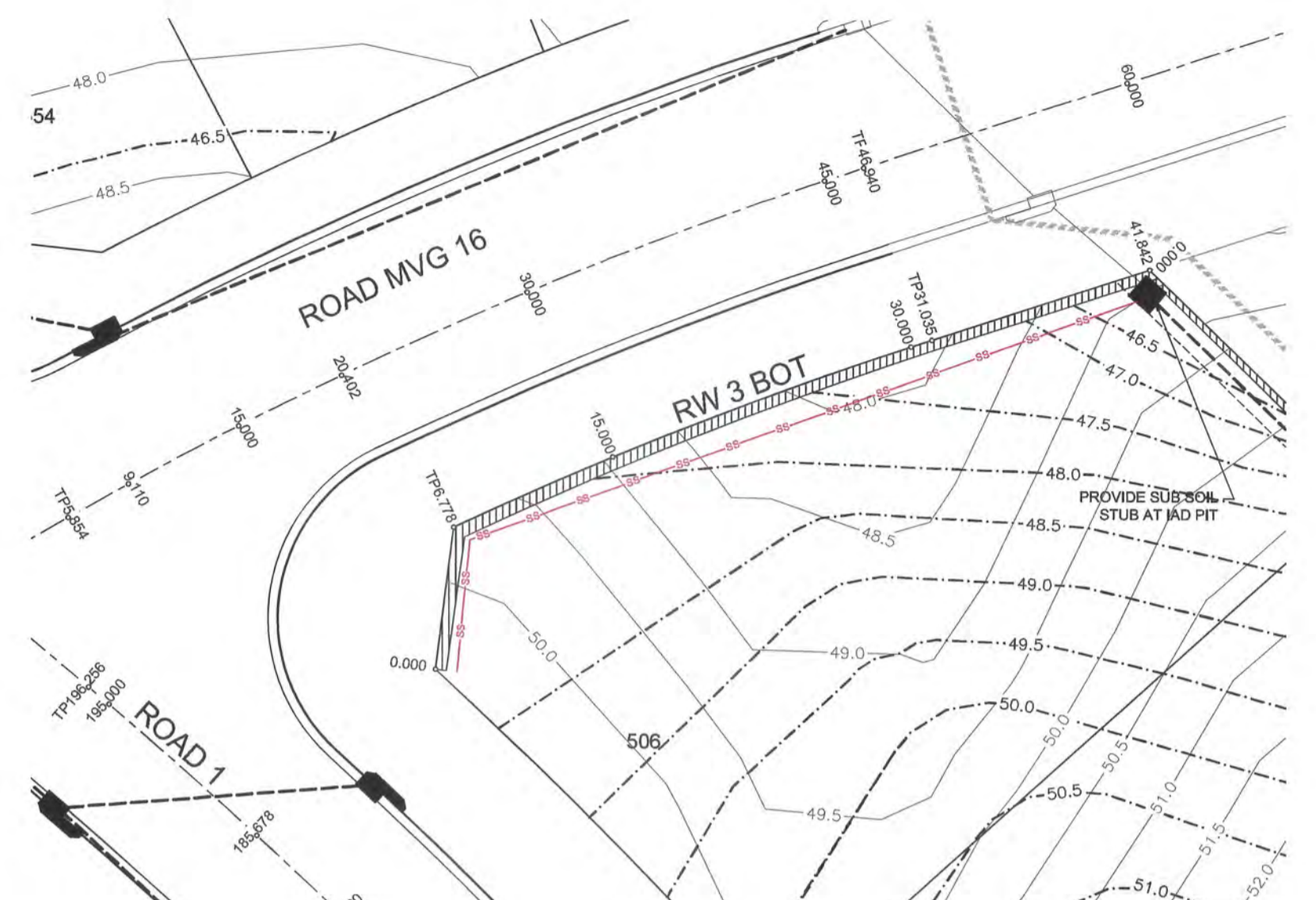
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AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

Plotted: 14 May, 2018 10:52:30 AM File Name: \\1110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CENTRITY ROAD\1101851\CC555.dwg



PLAN  
SCALE 1:200



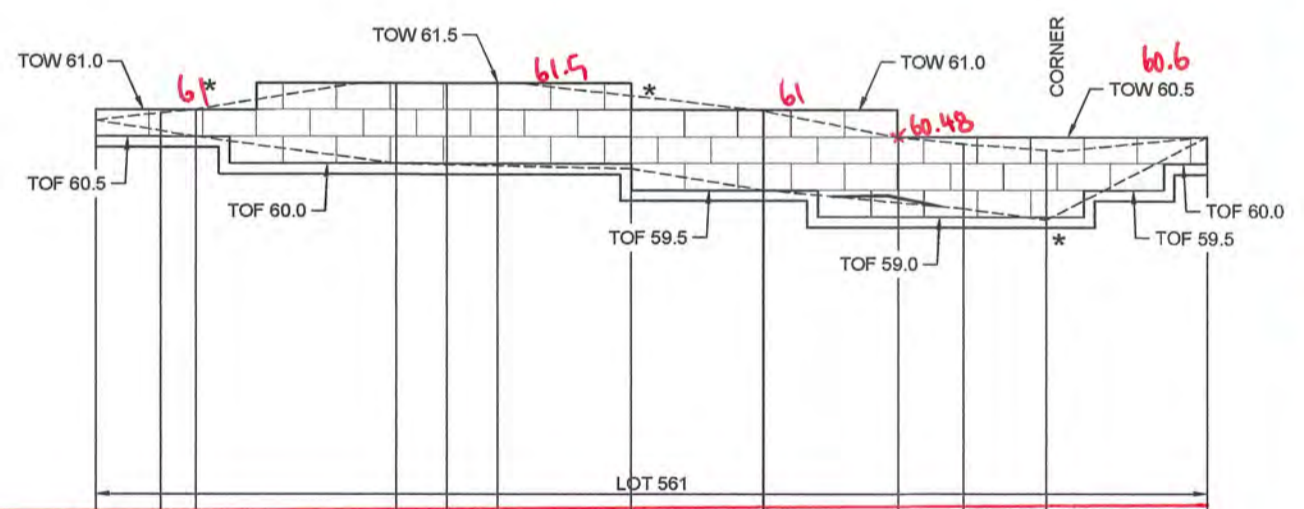
PLAN  
SCALE 1:200

SUBJECT TO STRUCTURAL DESIGN AND CERTIFICATION

RW 2 BOT					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286928.02	6281298.2	81°27'42.22"		
2.43	286930.42	6281298.56			
7.76	286936.38	6281298.82		9.6	10.68
13.1	286939.26	6281293.6			
22.77	286944.59	6281284.15		-17.13	19.34
32.44	286955.4	6281284.93			
35.53	286958.48	6281285.25			
41.53	286959.1	6281279.28	174°06'52.76"		

**LEGEND**  
TYPE 2 - SANDSTONE LOGS ✓

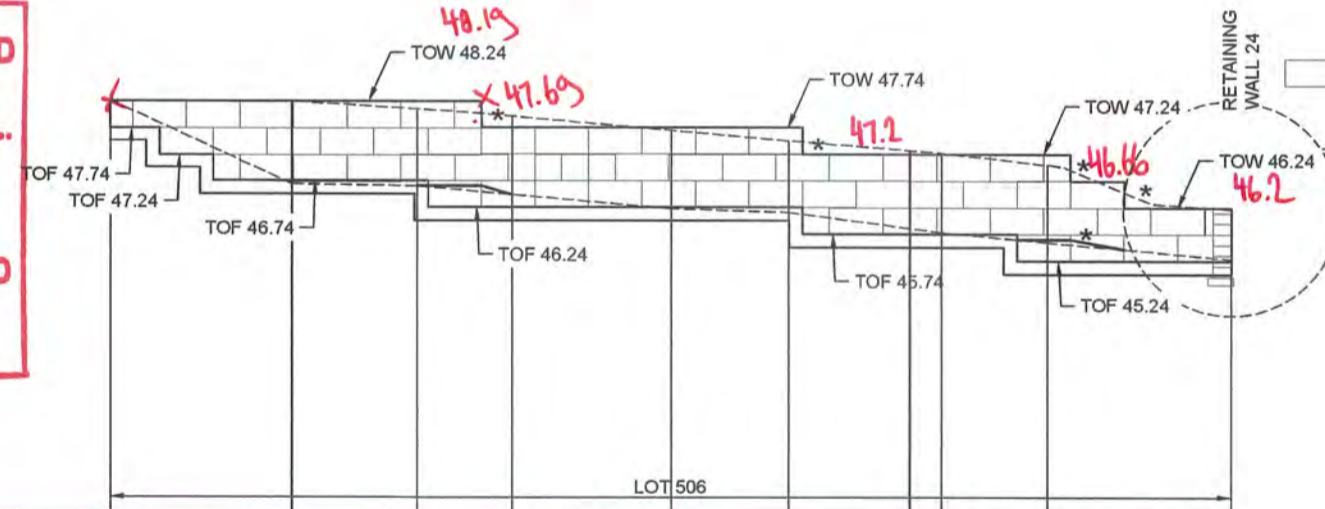
RW 3 BOT					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286899.98	6281400.73	71°11'03.26"		
6.78	286890.83	6281407.46			
18.91	286871.82	6281412.63		187.84	24.26
31.04	286883.38	6281416.35			
41.84	286893.66	6281419.7	71°57'09.16"		



LONGITUDINAL SECTION RW 2  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

WAE		LOT 561																											
TOE OF WALL	GROUND LEVELS	0.000	2.426	3.734	11.224	61.488	60.000	59.979	61.500	59.957	20.000	61.286	59.900	24.941	60.981	59.500	30.000	60.492	59.264	32.439	60.386	59.150	35.534	60.598	58.939	41.534	60.500	60.500	
TOP OF WALL	GROUND LEVELS																												
CHAINAGE		0.000	2.426	3.734	11.224	61.488	60.000	59.979	61.500	59.957	20.000	61.286	59.900	24.941	60.981	59.500	30.000	60.492	59.264	32.439	60.386	59.150	35.534	60.598	58.939	41.534	60.500	60.500	

**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *[Signature]*  
**IAN VINCENT MYERS**  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 21.2.19 REF: 16800-11

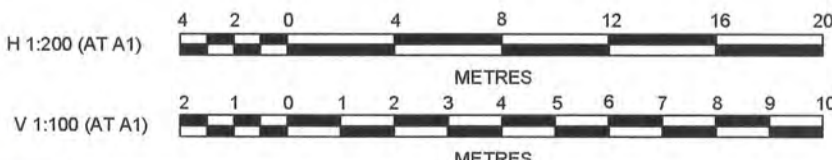
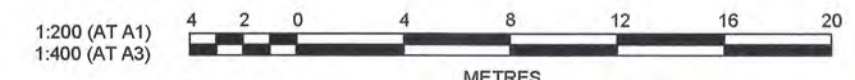


LONGITUDINAL SECTION RW 3  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

WAE		LOT 506																													
TOE OF WALL	GROUND LEVELS	0.000	6.778	6.778	11.434	48.084	46.540	46.478	47.946	46.478	20.942	47.679	46.209	25.917	47.485	46.140	30.000	47.298	45.828	31.025	47.257	45.750	31.035	47.257	45.759	34.978	47.033	45.580	41.542	46.202	45.286
TOP OF WALL	GROUND LEVELS																														
CHAINAGE		0.000	6.778	6.778	11.434	48.084	46.540	46.478	47.946	46.478	20.942	47.679	46.209	25.917	47.485	46.140	30.000	47.298	45.828	31.025	47.257	45.750	31.035	47.257	45.759	34.978	47.033	45.580	41.542	46.202	45.286

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 SIGNATURE: *[Signature]*  
**IAN VINCENT MYERS**  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 13.12.18 REF: 16800-11

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130298C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 28/09/2018



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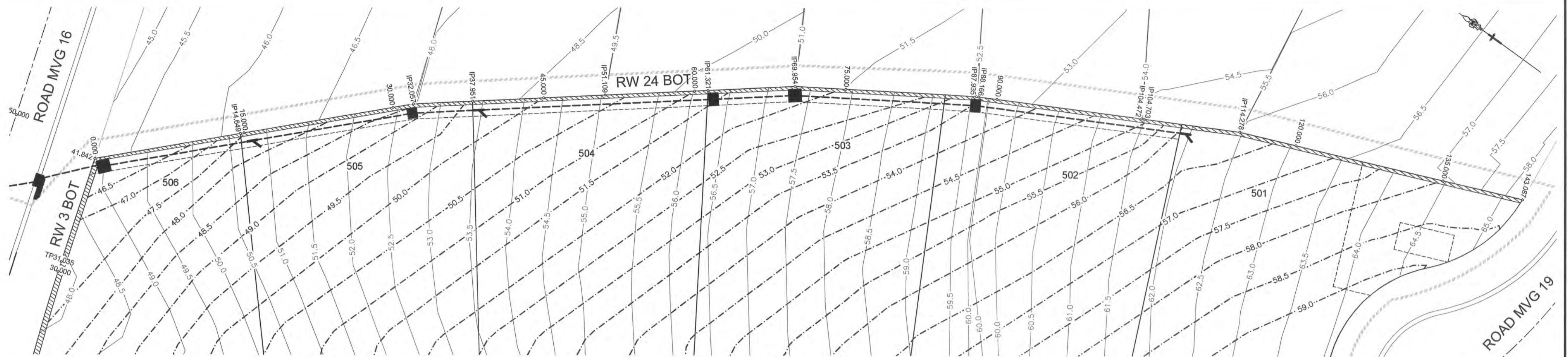
PRINCIPAL:  
**REDBANK**  
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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK, NORTH RICHMOND YEOMANS ENTRY**  
 RETAINING WALLS  
 SHEET 3

PLAN No: 1101851/CC555 3  
 FILE No: 1101851CC555  
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17



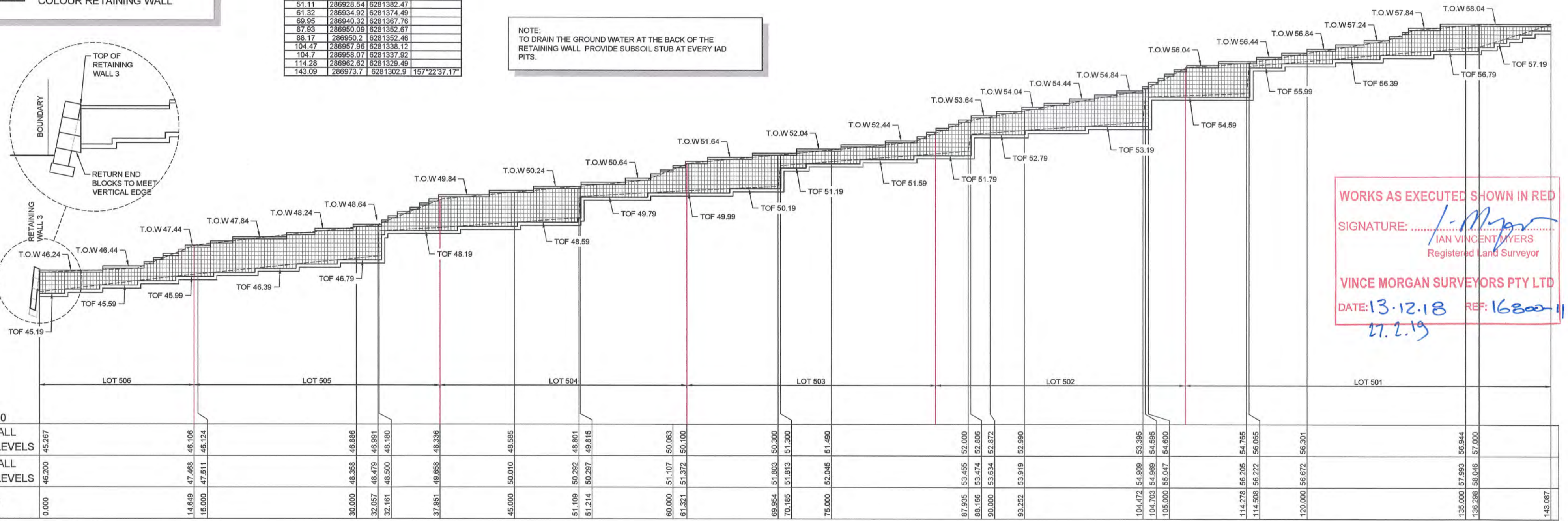
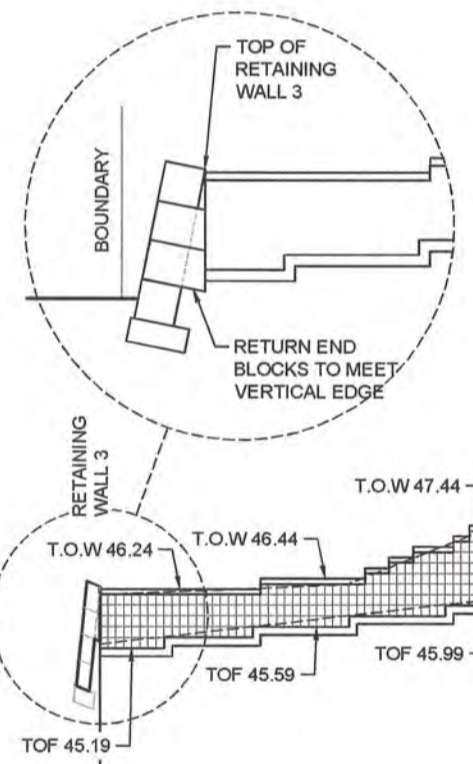
PLAN  
SCALE 1:200

**LEGEND**  

 TYPE 1 - AUSTRAL FLUSHFACE  
 KEYSTONE CHARCOAL  
 COLOUR RETAINING WALL

RW 24 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0	286893.66	6281419.7	134°10'48.79"
14.65	286904.16	6281409.49	
32.06	286916.63	6281397.34	
37.95	286920.31	6281392.73	
51.11	286928.54	6281382.47	
61.32	286934.92	6281374.49	
69.95	286940.32	6281367.76	
87.93	286950.09	6281352.67	
88.17	286950.2	6281352.46	
104.47	286957.96	6281338.12	
104.7	286958.07	6281337.92	
114.28	286962.62	6281329.49	
143.09	286973.7	6281302.9	157°22'37.17"

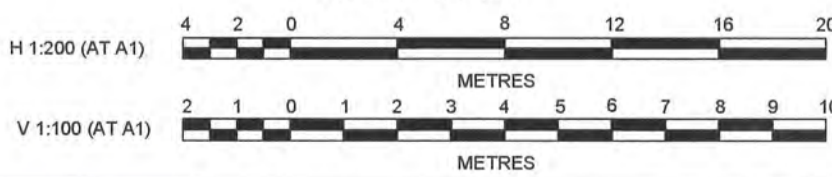
NOTE:  
 TO DRAIN THE GROUND WATER AT THE BACK OF THE  
 RETAINING WALL PROVIDE SUBSOIL STUB AT EVERY IAD  
 PITS.



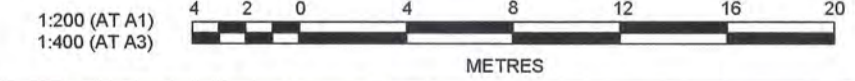
WORKS AS EXECUTED SHOWN IN RED  
 SIGNATURE: *I. Morgan*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27.2.19

DATUM 39.0	
TOE OF WALL	45.267
GROUND LEVELS	45.267
TOP OF WALL	46.200
GROUND LEVELS	46.200
CHAINAGE	0.000

LONGITUDINAL SECTION RW 24 BOT  
 HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100



**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
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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 jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM:  
 AHD  
 ORIGIN:

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

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 RETAINING WALLS  
 SHEET 4

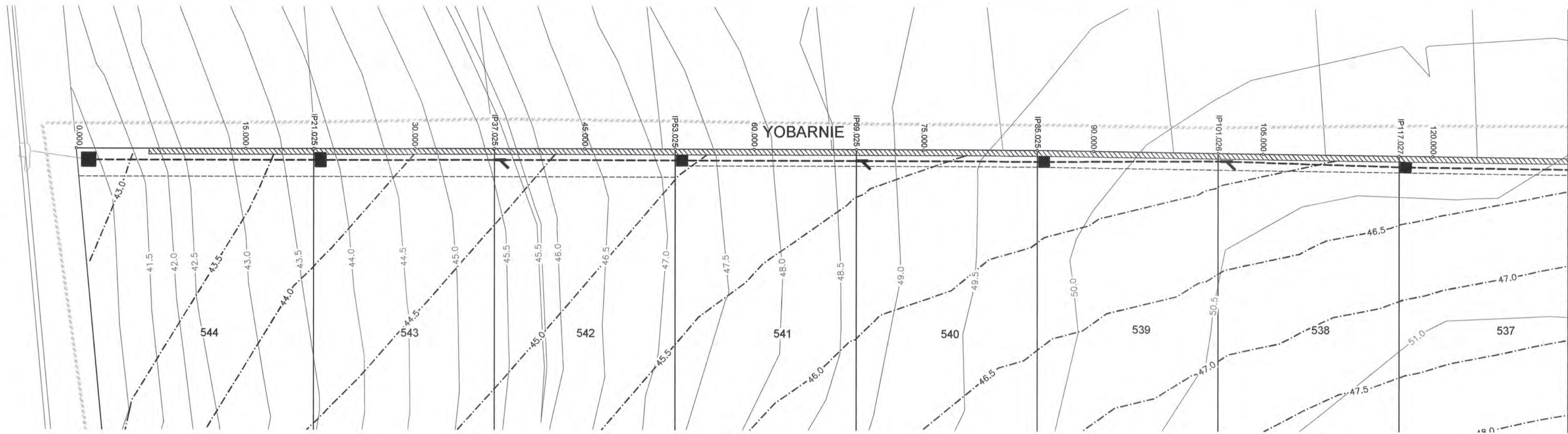
PLAN No: 1101851/CC556 3  
 FILE No: 1101851/CC556  
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17



ROAD Y02

REFER TO DRAWING BELOW FOR CONTINUATION

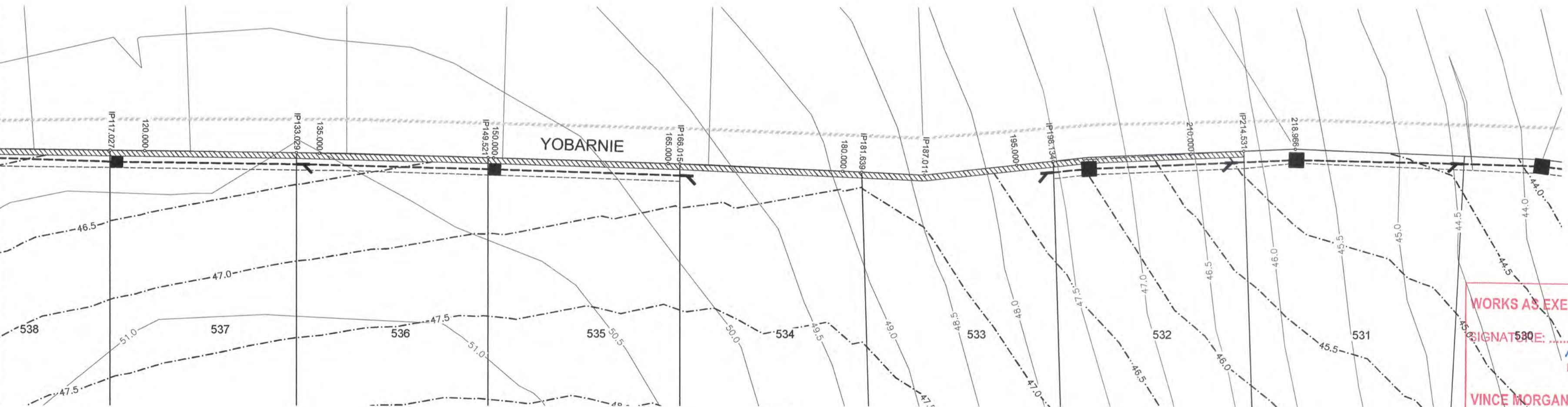


PLAN  
SCALE 1:200

NOTE:  
TO DRAIN THE GROUND WATER AT THE BACK OF THE  
RETAINING WALL. PROVIDE SUBSOIL STUB AT EVERY IAD  
PITS.

YOBARNIE			
CHAINAGE	EASTING	NORTHING	BEARING
0	286491.28	6281925.78	129°42'56.38"
21.02	286507.45	6281912.34	
37.02	286519.77	6281902.14	
53.02	286532.1	6281891.93	
69.02	286544.42	6281881.72	
85.02	286556.74	6281871.52	
101.03	286568.92	6281861.14	
117.03	286581.12	6281850.78	
133.03	286593.32	6281840.43	
149.52	286605.74	6281829.58	
166.02	286618.11	6281818.67	
181.64	286629.7	6281808.19	
187.01	286633.67	6281804.58	
198.13	286642.97	6281798.48	
214.53	286656.15	6281788.72	
218.97	286659.68	6281786.04	127°13'25.12"

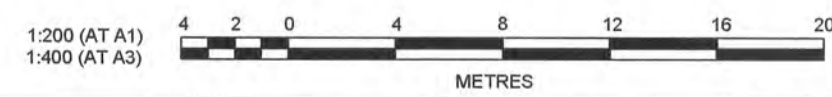
REFER TO DRAWING ABOVE FOR CONTINUATION



PLAN  
SCALE 1:200

WORKS AS EXECUTED SHOWN IN RED  
SIGNATURE: *I-M Myers*  
IAN VINCENT MYERS  
Registered Land Surveyor  
VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16800-11  
21.2.19

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *[Signature]*  
Accreditation No. BPB0565  
These plans/specifications form part of the certificate  
Issued 28/09/2018



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AZIMUTH: MGA 56  
DATUM:  
AHD  
ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
RETAINING WALLS  
SHEET 5

PLAN No: 11018511/CC557 3  
FILE No: 11018511CC557  
SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:53:25 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\ENTRY ROAD\11018511CC557.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
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2	MP	LS			26/02/18
1	MP	JG			19/12/17

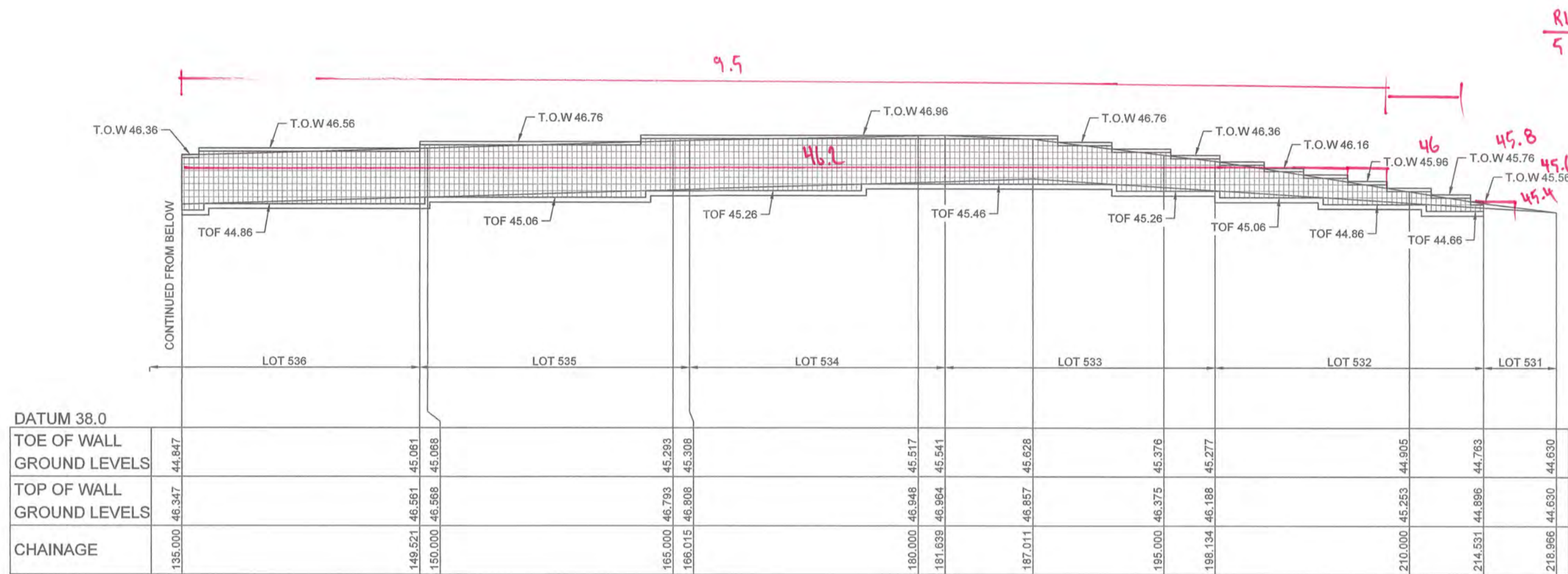
CONSTRUCTION CERTIFICATE

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

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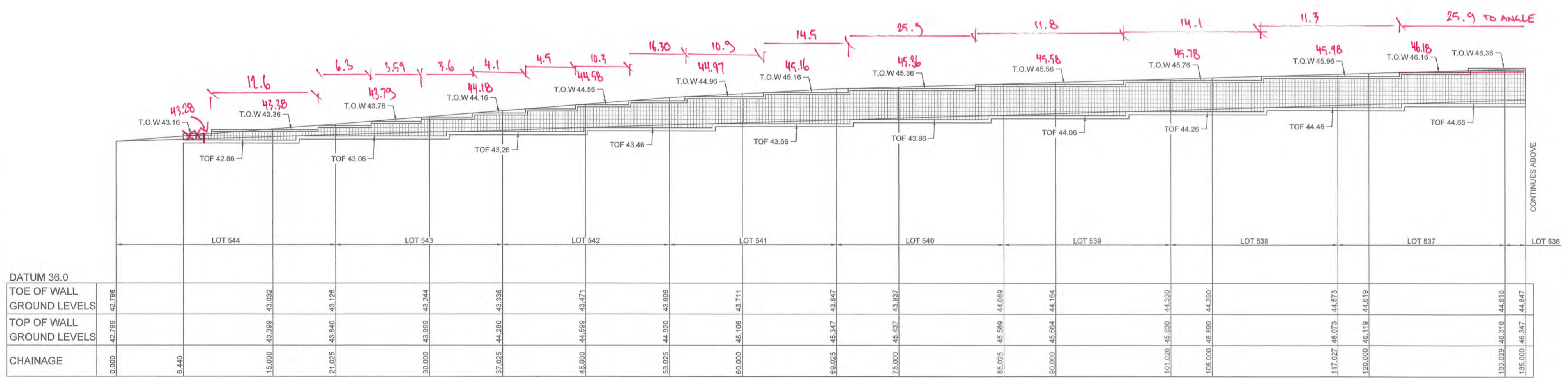
**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: [Signature]  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 27.2.19 REF: 16800-11

**LEGEND**  
 TYPE 1 - AUSTRAL FLUSHFACE  
 KEYSTONE CHARCOAL  
 COLOUR RETAINING WALL



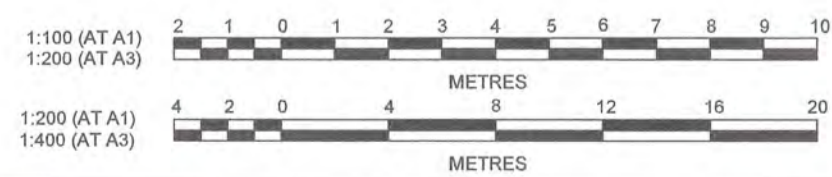
DATUM 38.0	
TOE OF WALL GROUND LEVELS	44.847
TOP OF WALL GROUND LEVELS	45.347
CHAINAGE	135.000
	149.521
	150.000
	165.000
	166.015
	180.000
	181.639
	187.011
	195.000
	198.134
	210.000
	214.531
	218.986

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



DATUM 36.0	
TOE OF WALL GROUND LEVELS	42.788
TOP OF WALL GROUND LEVELS	42.789
CHAINAGE	0.000
	6.440
	15.000
	21.025
	30.000
	37.025
	45.000
	53.025
	60.000
	69.025
	75.000
	85.025
	90.000
	101.026
	105.000
	117.027
	120.000
	133.029
	135.000

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



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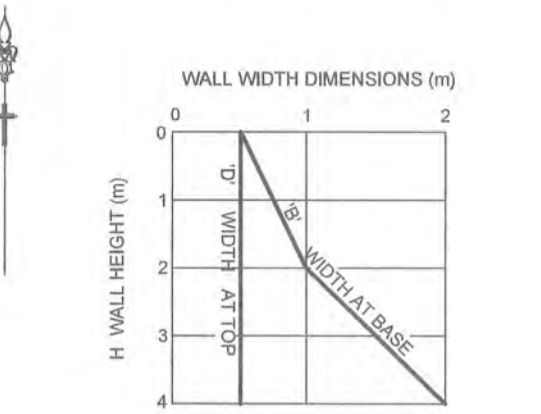
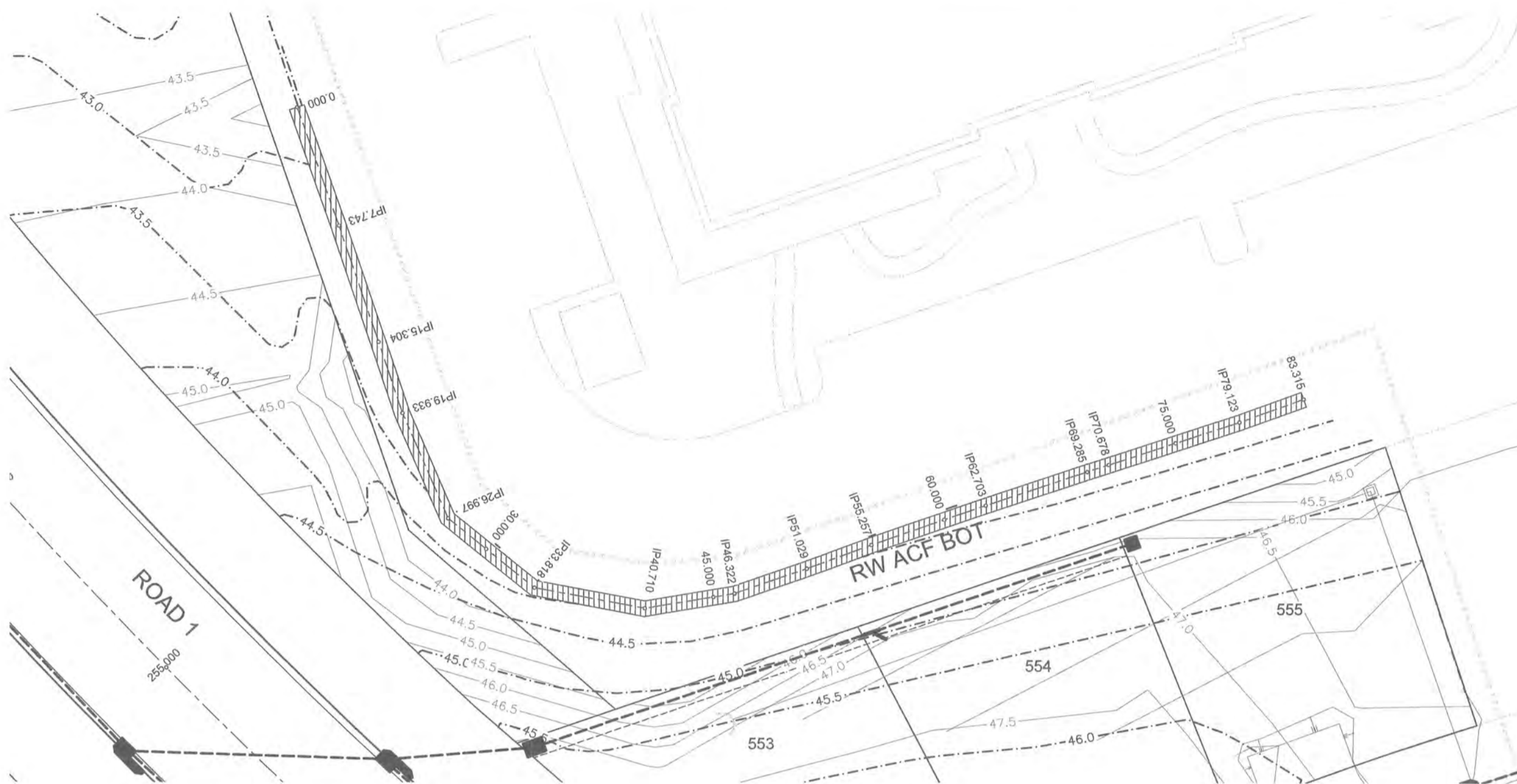
REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY

RETAINING WALLS  
 SHEET 6

PLAN No:  
**11018511/CC558** 3  
 FILE No: 11018511CC558  
 SHEET SIZE: A1 ORIGINAL

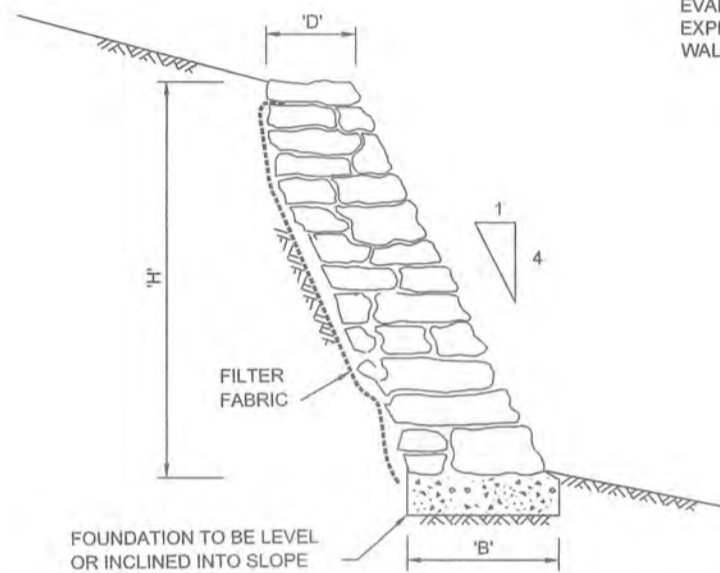
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AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17



- ROCK WALL NOTES.**
- MATERIALS:** MATERIALS USED FOR CONSTRUCTION OF THE WALL SHALL BE LARGE, COMPETENT BOULDERS, IN GENERAL AT LEAST 0.5 SQUARE METRES IN AREA.
  - 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. ALL VERTICAL JOINTS BETWEEN BLOCKS SHALL BE BROKEN.
  - 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 COMPACTION 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.
  - 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.

ROCK WALL DESIGN CHART  
N.T.S.

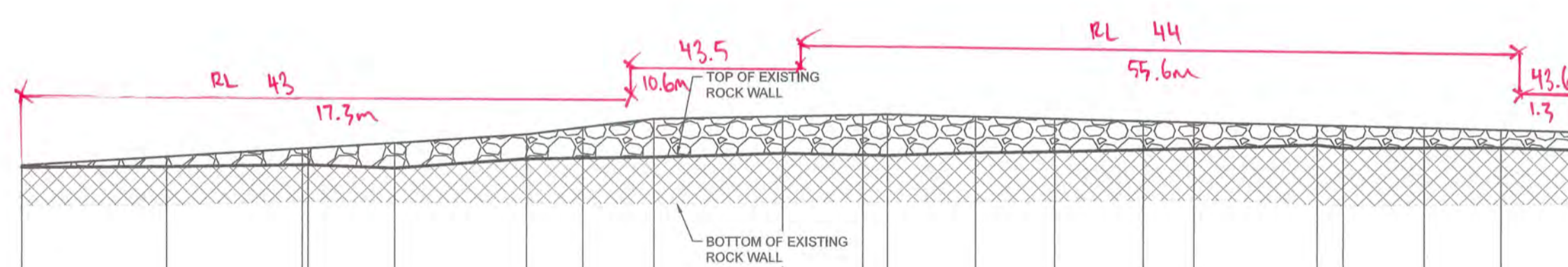


TYPICAL ROCK WALL GEOMETRY  
N.T.S.

SUBJECT TO STRUCTURAL DESIGN AND CERTIFICATION

**WORKS AS EXECUTED SHOWN IN RED**  
**SIGNATURE:** *[Signature]*  
**IAN VINCENT MYERS**  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
**DATE:** 27.2.19 **REF:** 16800-11

CHAINAGE	EASTING	NORTHING	BEARING
0	286807.74	6281473.38	160°33'40.31"
7.74	286810.32	6281466.08	
15.3	286812.75	6281458.92	
19.93	286814.23	6281454.53	
27	286817.04	6281448.05	
33.92	286822.35	6281443.78	
40.71	286829.12	6281442.49	
46.32	286834.65	6281443.42	
51.03	286839.1	6281444.96	
55.26	286843.07	6281446.42	
62.7	286850.1	6281448.87	
69.29	286856.34	6281450.97	
70.68	286857.67	6281451.4	
79.12	286865.69	6281454.04	
83.32	286869.63	6281455.46	70°04'58.24"



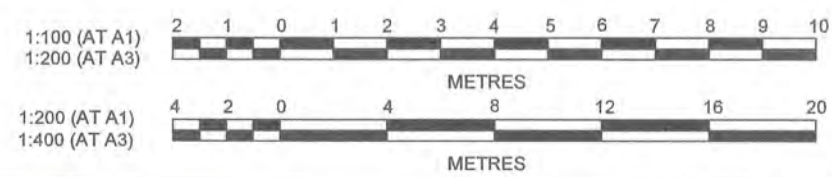
**LEGEND**

TYPE 3 - ROCK WALL

EXISTING ROCK WALL

CHAINAGE	0.000	7.743	15.000	15.304	18.933	26.997	30.000	33.818	40.710	45.000	46.322	51.029	55.258	60.000	62.703	69.295	70.678	75.000	79.123	83.315
TOP OF EXIST ROCK WALL	42.652	42.660	42.730	42.732	42.644	42.901	42.922	42.946	43.057	43.014	43.001	43.081	43.110	43.168	43.201	43.292	43.219	43.226	43.232	43.173
RW ACF EX BOT	41.644	41.659	41.745	41.749	41.731	41.719	41.708	41.695	41.737	41.749	41.750	41.760	41.780	41.789	41.810	41.693	41.662	41.685	41.712	41.723
TOP OF WALL	42.710	42.649	43.174	43.183	43.326	43.558	43.743	43.954	44.041	44.088	44.099	44.042	43.991	43.935	43.902	43.824	43.808	43.757	43.708	43.658
GROUND LEVELS	42.710	42.649	43.174	43.183	43.326	43.558	43.743	43.954	44.041	44.088	44.099	44.042	43.991	43.935	43.902	43.824	43.808	43.757	43.708	43.658

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



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
 Accreditation No. JBP0565

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PRINCIPAL:

**REDBANK**  
BY APPOINTMENT

AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 RETAINING WALLS  
 SHEET 7

PLAN No: 11018511/CC559 3  
 FILE No: 11018511CC559  
 SHEET SIZE: A1 ORIGINAL

Plotted: 14 May, 2018 10:54:00 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CCENTRY ROAD\11018511CC559.dwg

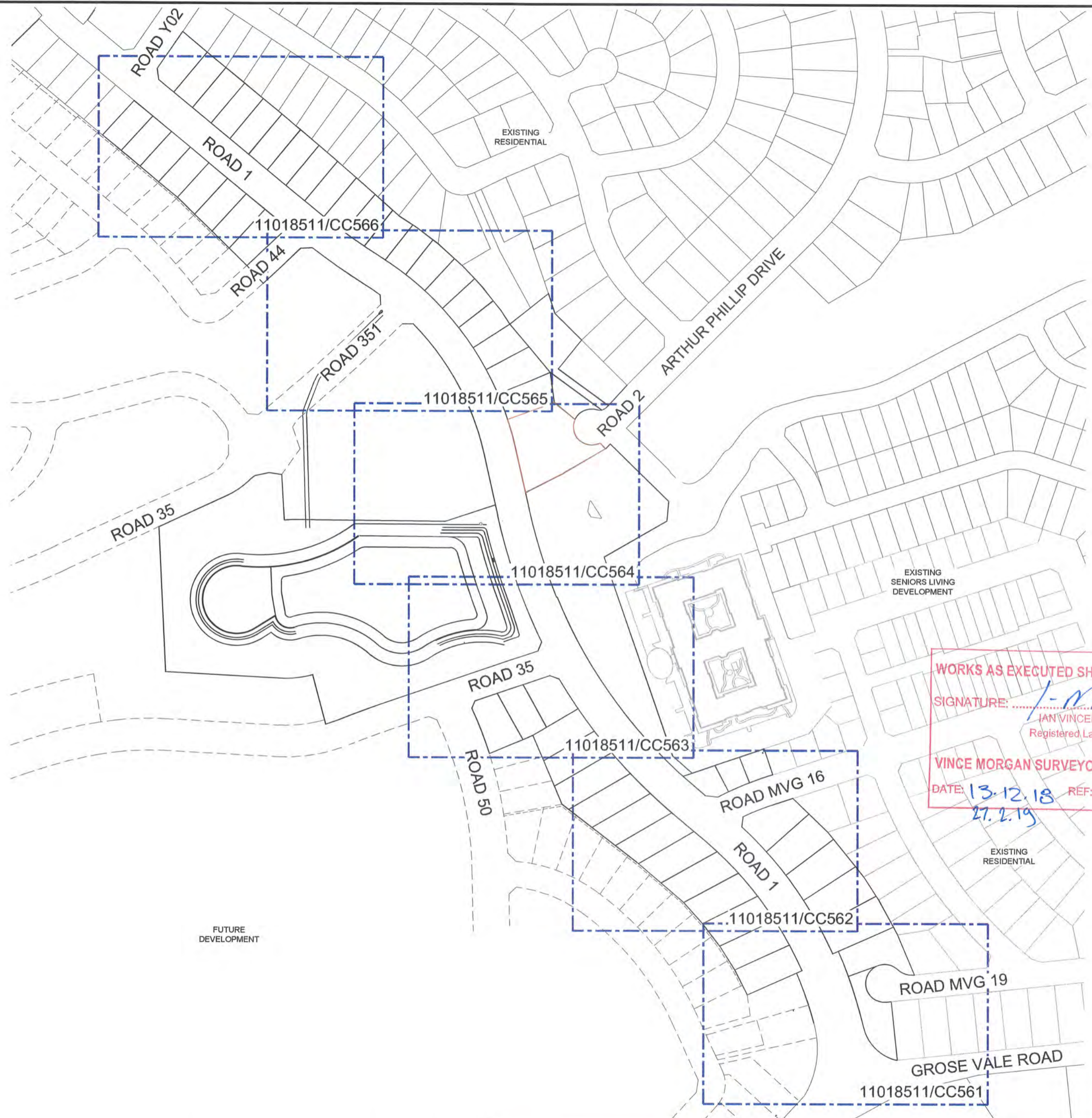
AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

**PAVEMENT MARKING & SIGNPOSTING NOTES**

1. ALL PAVEMENT MARKINGS, CHEVRONS AND REFLECTORS ARE TO BE IN ACCORDANCE WITH AUST ROAD GUIDE (GUIDE TO TRAFFIC MANAGEMENT) AND AUSTRALIAN STANDARD AS1742, AS1743 AND AS2890.
2. ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD AS 1743 - ROAD SIGNS, RMS SUPPLEMENTS AND COUNCIL'S SPECIFICATIONS UNLESS STATED OTHERWISE.
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. RETRO-REFLECTIVE RAISED PAVEMENT MARKERS (RRPMs) ARE TO BE USED TO SUPPLEMENT PAVEMENT MARKINGS FOR INCREASED EFFECTIVENESS.
6. ALL MEASUREMENTS ARE IN METRES UNLESS SHOWN OTHERWISE. KERBSIDE LANE WIDTH MEASURED FROM FACE OF KERB. NO INFORMATION IS TO BE SCALED FROM THESE DRAWINGS.
7. REFER TO RD-001 FOR SAFETY BARRIER MODEL DRAWINGS.

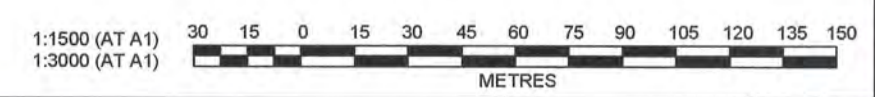
**PAVEMENT MARKING SCHEDULE**

CODE	USE	STYLE	COLOUR & TYPE
TB	Give way line (Used with Signs)		Reflectorised white
TB1	Give way line (Used on right side of side)		Reflectorised white
TF	Stop line at traffic signals		Reflectorised white
E1	Left hand edge line on general purpose road		Reflectorised white type 'R' pavement markers mono-directional reflective red
E5	Outline of painted median		Reflectorised white type 'YY' pavement markers bi-directional reflective yellow
BB	Barrier line where sight is restricted in both directions or approach to median island		Reflectorised white type 'YY' pavement markers bi-directional reflective yellow
S1	Dividing (separation) line in 2 lane road		Reflectorised white
YY	Bi-directional raised reflective pavement marker		Reflectorised white pavement markers bi-directional reflective yellow
RPG	Reflective guide posts		



**WORKS AS EXECUTED SHOWN IN RED**  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
**VINCE MORGAN SURVEYORS PTY LTD**  
 DATE: 13.12.18 REF: 16800-11  
 27.2.19

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *[Signature]*  
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PRINCIPAL:  
  
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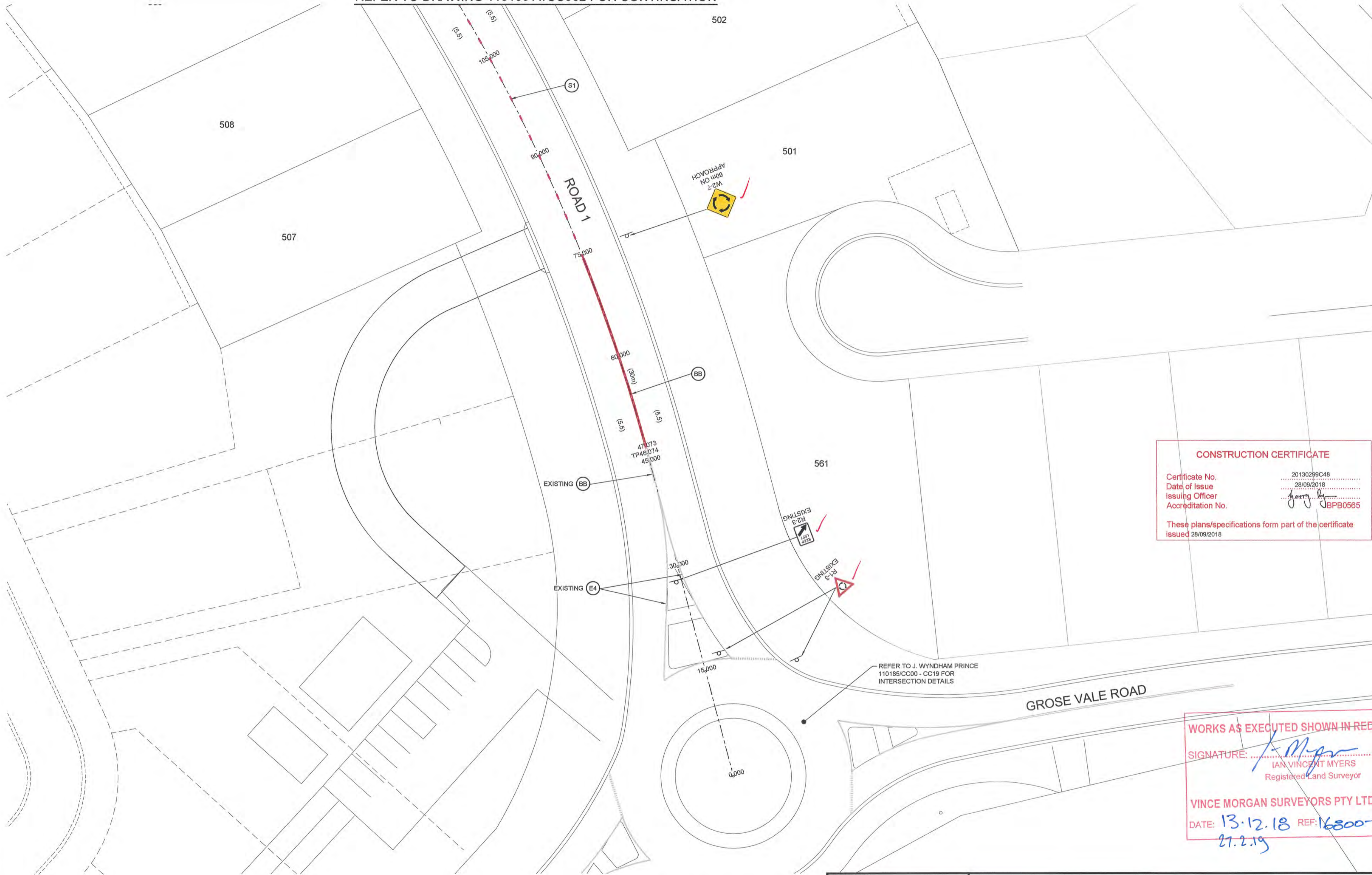
REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 SIGNAGE AND LINEMARKING  
 LAYOUT PLAN

PLAN No: 11018511/CC560 3  
 FILE No: 11018511CC560  
 SHEET SIZE: A1 ORIGINAL

Plotted: 14 May 2018 10:54:13 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC\CENTREY ROAD\11018511CC560.dwg

NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
1	ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

REFER TO DRAWING 11018511/CC562 FOR CONTINUATION



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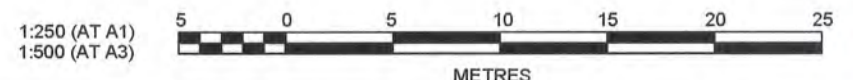
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SIGNATURE: *[Signature]*  
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 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
 27.2.19

REFER TO J. WYNDHAM PRINCE 110185/CC00 - CC19 FOR INTERSECTION DETAILS



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 SIGNAGE AND LINEMARKING  
 SHEET 1

PLAN No: 11018511/CC561 3  
 FILE No: 11018511CC561  
 SHEET SIZE: A1 ORIGINAL

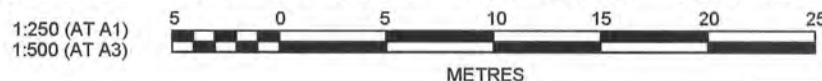
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AMENDMENT	DES	DRN	CKD	APR	DATE
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2	MP	LS			26/02/18
1	MP	JG			19/12/17

REFER TO DRAWING 11018511/CC563 FOR CONTINUATION



REFER TO DRAWING 11018511/CC561 FOR CONTINUATION



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IAN VINCENT MYERS  
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
DATE: 27.2.19 REF: 16800-11

Plotted: 14 May, 2018 10:54:43 AM File Name: J1101851 - Redbank North Richmond Residential Precincts01 - Description\CD\CENTREY ROAD\1101851\CC562.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
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1	MP	JG			19/12/17

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PRINCIPAL:

**REDBANK**

AZIMUTH: MGA 56  
DATUM:  
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
SIGNAGE AND LINEMARKING  
SHEET 2

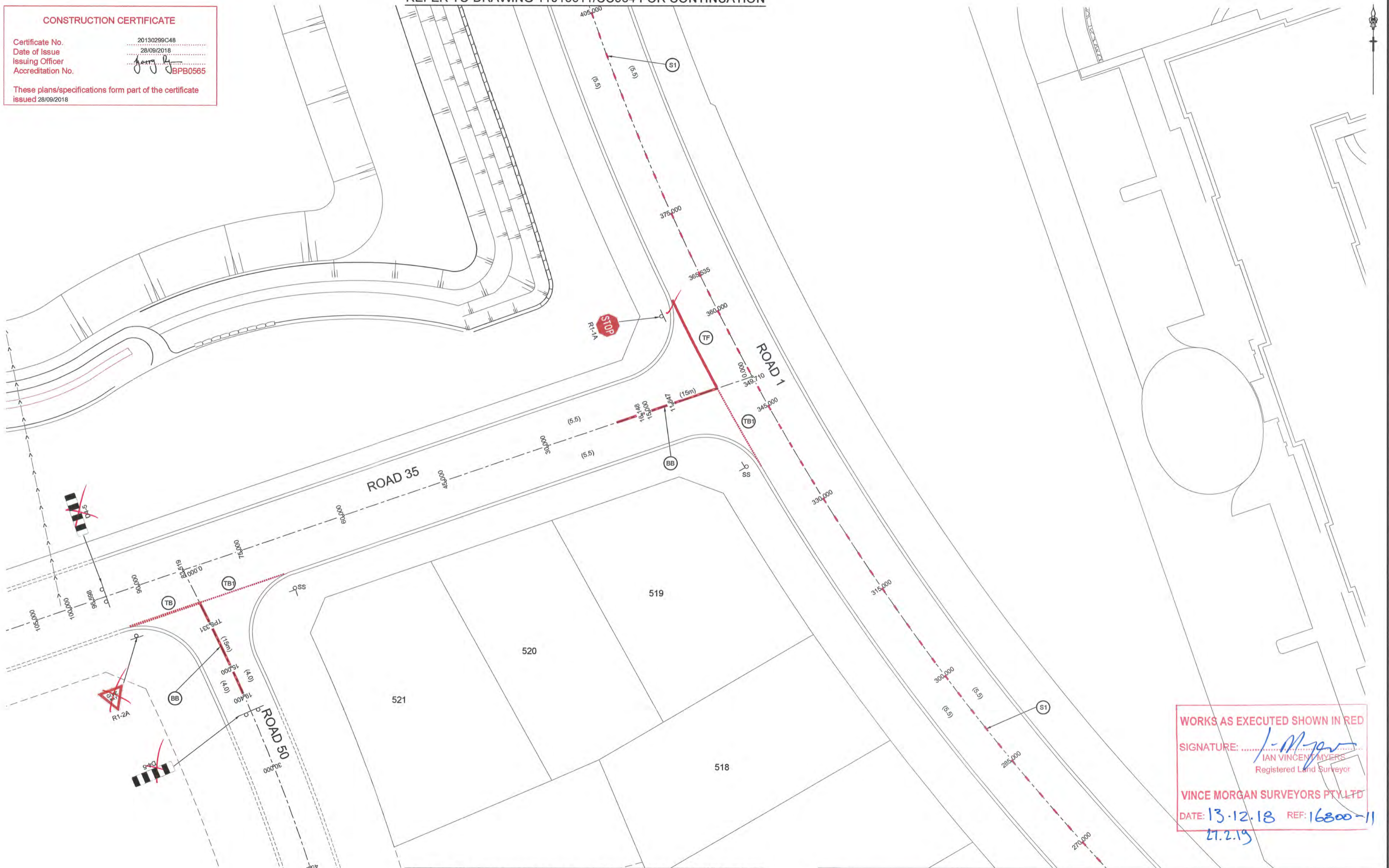
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FILE No: 11018511CC562  
SHEET SIZE: A1 ORIGINAL

REFER TO DRAWING 11018511/CC564 FOR CONTINUATION

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REFER TO DRAWING 11018511/CC562 FOR CONTINUATION

WORKS AS EXECUTED SHOWN IN RED  
 SIGNATURE: *[Signature]*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE: 13.12.18 REF: 16800-11  
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Plotted: 14 May, 2018 10:54:59 AM File Name: J:\11018511 - Redbank North Richmond Residential Precincts\01 - Description\CC\CENTREY ROAD\11018511CC563.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
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PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: AHD  
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REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 SIGNAGE AND LINEMARKING  
 SHEET 3

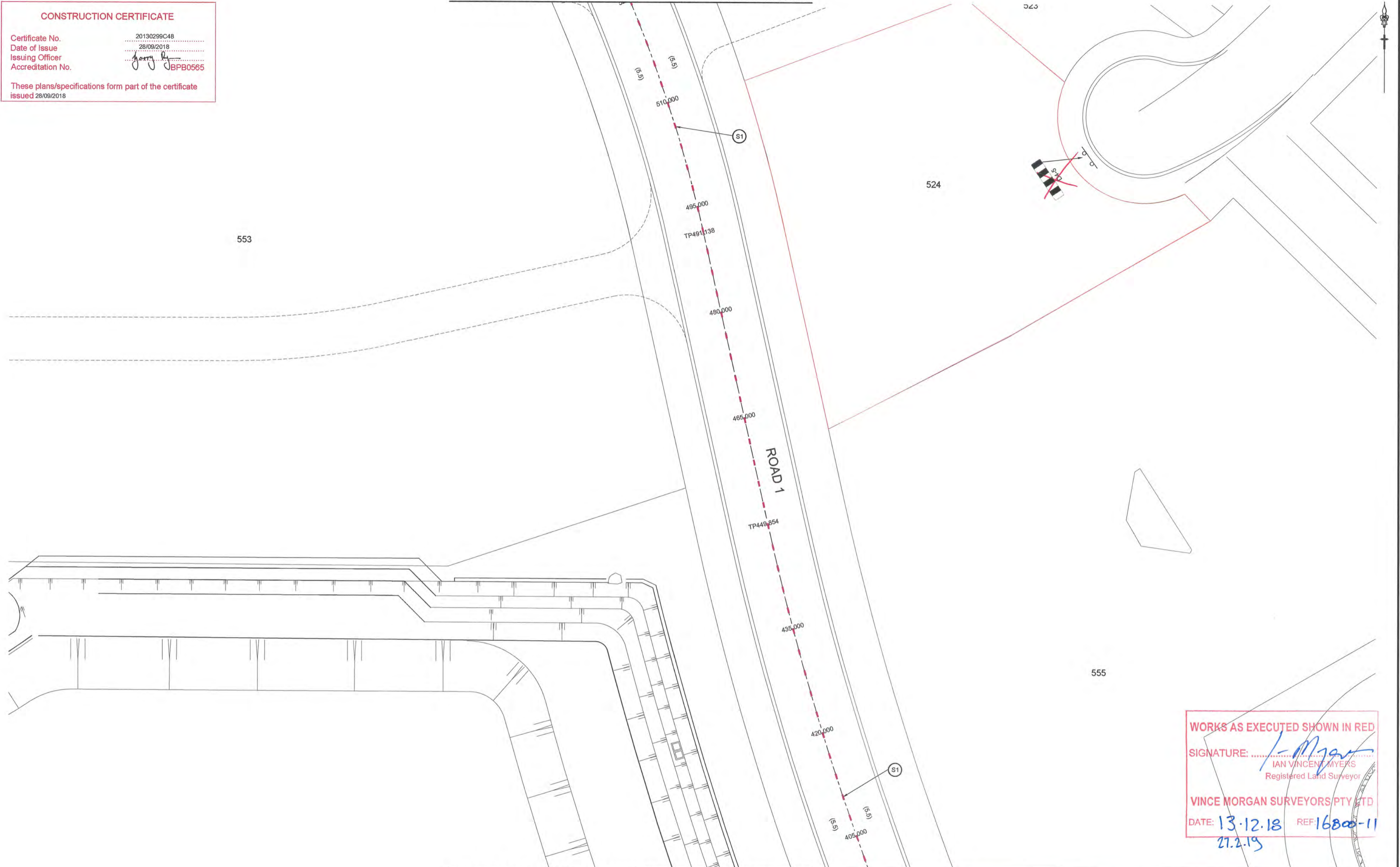
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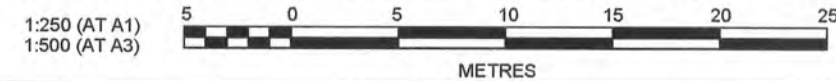
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3	MP	NM	MS	AM	10/05/18
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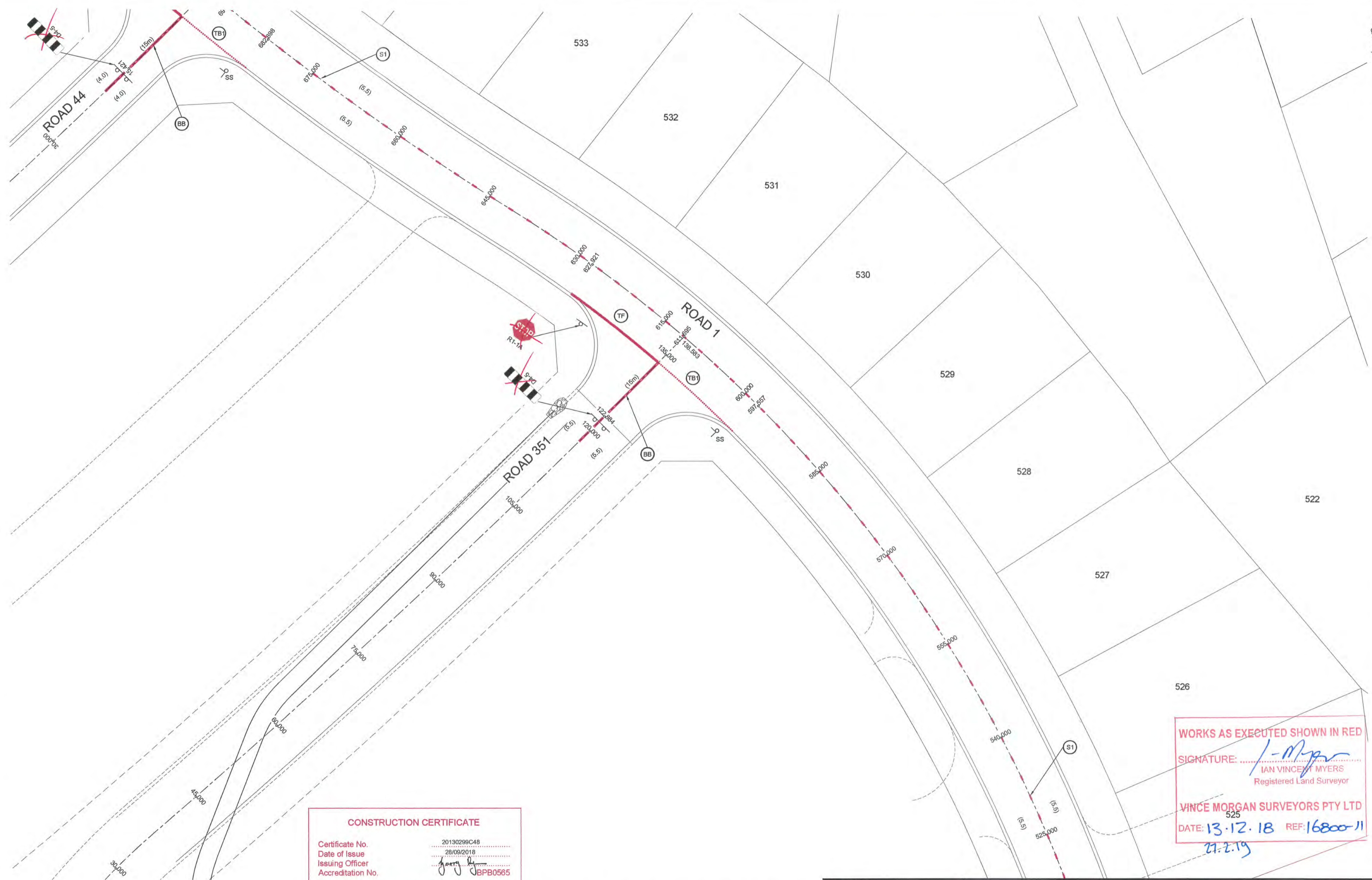
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PLAN No:	11018511/CC564	3
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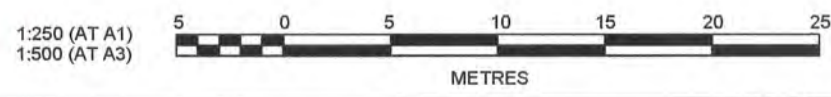
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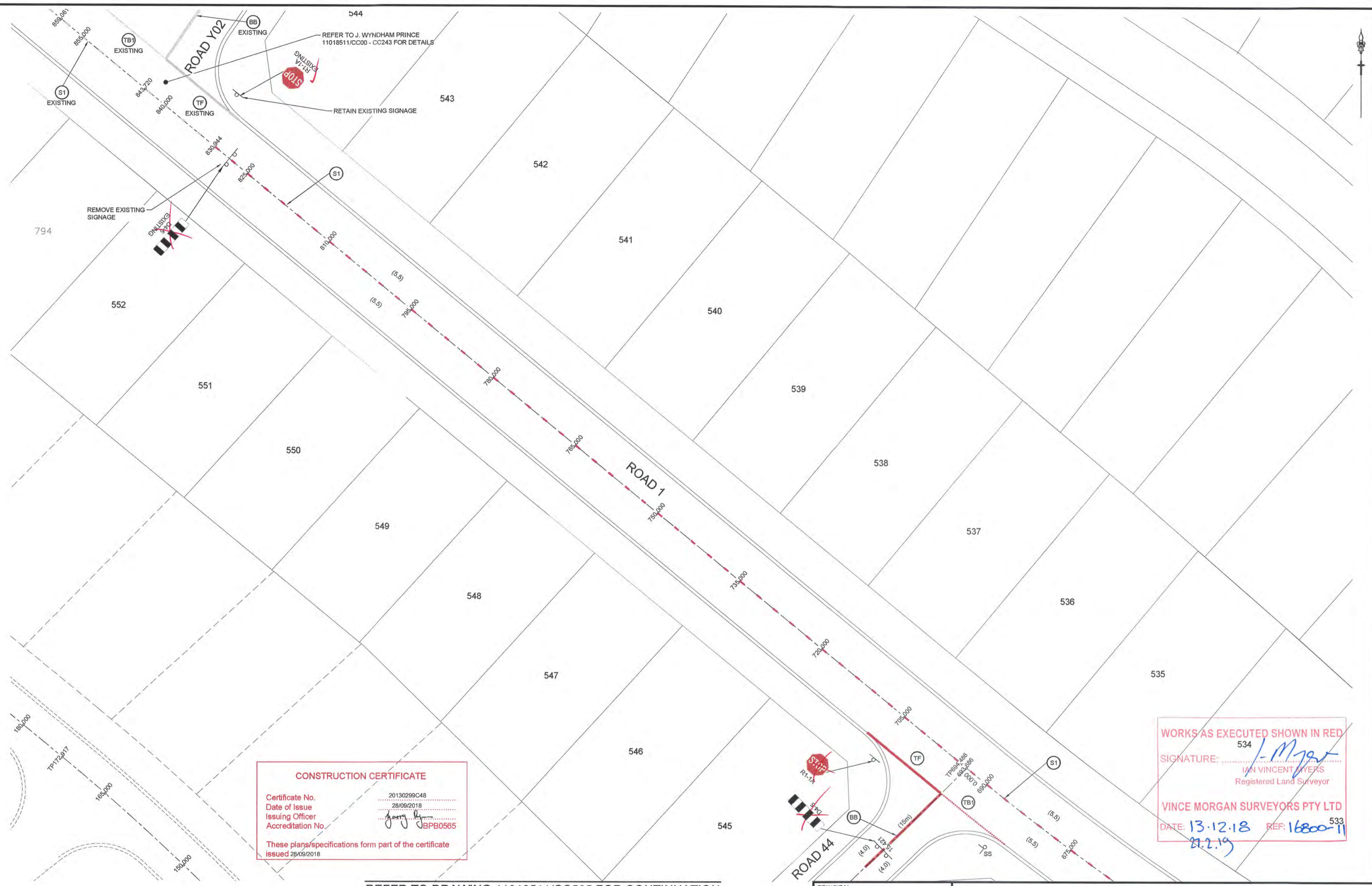
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 DATUM: AHD  
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 YEOMANS ENTRY  
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 SHEET 5

PLAN No:	11018511/CC565	3
FILE No:	11018511CC565	
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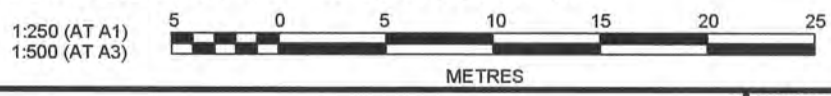
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 IAN VINCENT MYERS  
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 SIGNAGE AND LINEMARKING  
 SHEET 6**

PLAN No: 11018511/CC566 **3**  
 FILE No: 11018511CC566  
 SHEET SIZE: A1 ORIGINAL

# PHASE 1 - SITE ESTABLISHMENT

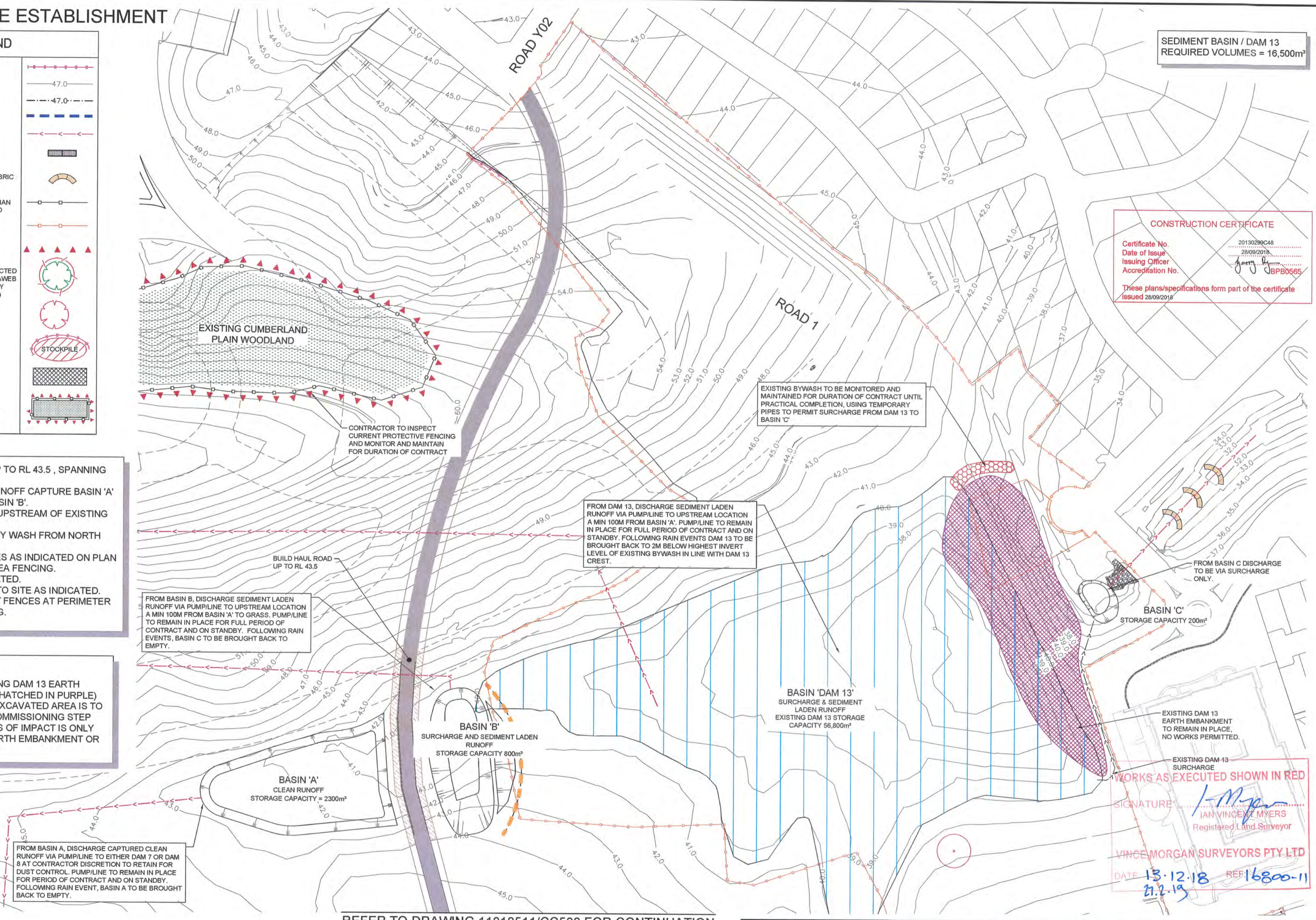
### LEGEND

- SEDIMENT FENCE
- EXISTING CONTOURS
- DESIGN CONTOURS
- ATF FENCE
- CATCH DRAIN
- STABILISED SITE ACCESS
- STRAW BALES WRAPPED IN GEOFABRIC AND STAKED TO GROUND
- PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND
- TEMPORARY PERIMETER FENCING FITTED WITH SEDIMENT FENCE
- STAR PICKET / FLAGGING
- TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)
- TREES TO BE REMOVED
- STOCKPILE
- SITE COMPOUND
- CUMBERLAND PLAIN WOODS (CPW)

- ### PHASE 1
1. BUILD HAUL ROAD UP TO RL 43.5, SPANNING RIPARIAN CORRIDOR.
  2. EXCAVATE CLEAN RUNOFF CAPTURE BASIN 'A' AND SURCHARGE BASIN 'B'.
  3. EXCAVATE BASIN 'C' UPSTREAM OF EXISTING BOX CULVERT.
  4. MAINTAIN EXISTING BY WASH FROM NORTH EDGE OF DAM 13.
  5. INSTALL STRAW BALES AS INDICATED ON PLAN
  6. PLACE FLAGGING AREA FENCING.
  7. PLACE ATF AS INDICATED.
  8. CONSTRUCT ENTRY TO SITE AS INDICATED.
  9. PLACE ALL SEDIMENT FENCES AT PERIMETER FITTED WITH FENCING.

### NOTE

WHENEVER THE EXISTING DAM 13 EARTH EMBANKMENT (SHOWN HATCHED IN PURPLE) IS BEING EXCAVATED, EXCAVATED AREA IS TO FOLLOW THE DAM DECOMMISSIONING STEP PROCESS, REGARDLESS OF IMPACT IS ONLY ON PART OF DAM 13 EARTH EMBANKMENT OR ALL OF FORMATION.



SEDIMENT BASIN / DAM 13  
REQUIRED VOLUMES = 16,500m<sup>3</sup>

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REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
SOIL AND WATER MANAGEMENT  
PHASE 1 SITE ESTABLISHMENT SHEET 1

PLAN No: 11018511/CC567 3  
FILE No: 11018511CC567  
SHEET SIZE: A1 ORIGINAL

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# PHASE 1 - SITE ESTABLISHMENT

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LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAW BALES WRAPPED IN GEOFABRIC AND STAKED TO GROUND	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAVES UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (i.e. CPW)	
TREES TO BE REMOVED	
STOCKPILE	
SITE COMPOUND	

## PHASE 1

- BUILD HAUL ROAD UP TO RL 43.5, SPANNING RIPARIAN CORRIDOR.
- EXCAVATE CLEAN RUNOFF CAPTURE BASIN 'A' AND SURCHARGE BASIN 'B'.
- EXCAVATE BASIN 'C' UPSTREAM OF EXISTING BOX CULVERT.
- MAINTAIN EXISTING BY WASH FROM NORTH EDGE OF DAM 13.
- INSTALL STRAW BALES AS INDICATED ON PLAN
- PLACE FLAGGING AREA FENCING.
- PLACE ATF AS INDICATED.
- CONSTRUCT ENTRY TO SITE AS INDICATED.
- PLACE ALL SEDIMENT FENCES AT PERIMETER FITTED WITH FENCING.

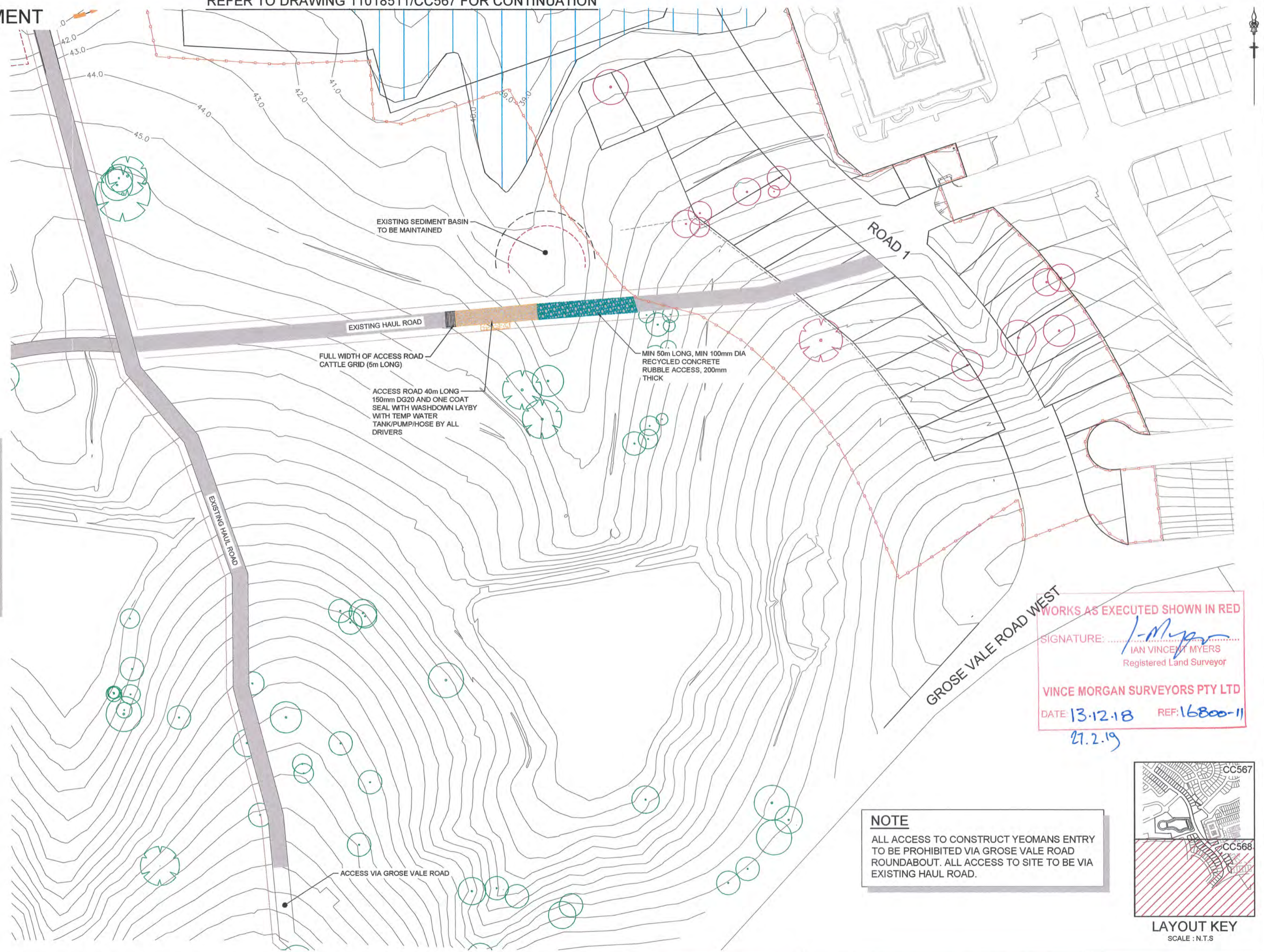
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**NOTE**

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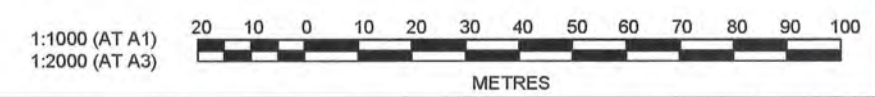
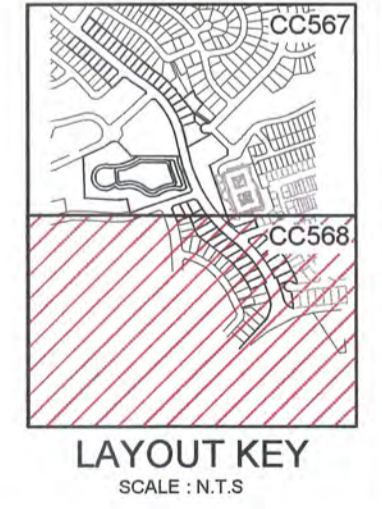
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**NOTE**

ALL ACCESS TO CONSTRUCT YEOMANS ENTRY TO BE PROHIBITED VIA GROSE VALE ROAD ROUNDABOUT. ALL ACCESS TO SITE TO BE VIA EXISTING HAUL ROAD.



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 YEOMANS ENTRY  
 SOIL AND WATER MANAGEMENT  
 PHASE 1 SITE ESTABLISHMENT SHEET 2

PLAN No:	11018511/CC568	3
FILE No:	11018511CC568	
SHEET SIZE:	A1 ORIGINAL	

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# PHASE 2 - DAM 13 DECOMMISSIONING & MODIFICATION

## DAM DECOMMISSIONING - DAM 13 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 DOWNSTREAM FACE WITH OUTLET TO CAGE WRAPPED IN SILT 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 TO BE PRESENT FOR IDENTIFYING AND RELOCATION FAUNA.
- ALL SOIL AND EROSION CONTROLS TO BE CHECKED IN PLACE AND FUNCTIONAL BY CONTRACTOR / SUPERINTENDENT AND PRINCIPAL. 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 / PRINCIPLE / CONSULTANT TO INSPECT SAME DAY AND IF NECESSARY FIND RECOVERED AND RELOCATED.
  - IF HERITAGE SUPERINTENDENT / 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.

LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAW BALES WRAPPED IN GEOFABRIC AND STAKED TO GROUND	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
TEMPORARY PERIMETER FENCING FITTED WITH SEDIMENT FENCE	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
TREES TO BE REMOVED	
STOCKPILE	
SITE COMPOUND	
CUMBERLAND PLAIN WOODS (CPW)	

## PHASE 2

- MAINTAIN PROTECTIVE FENCING AROUND THE TREES AND CPW.
- MAINTAIN FLAGGING AREA FENCING.
- MAINTAIN ATF INSTALLED AT PHASE 1.
- MAINTAIN SEDIMENT FENCE AT PERIMETER FITTED WITH FENCING.
- INSTALL PROTECTIVE FENCING AT THE EXTENT OF DAM 13 EARTHWORKS.
- MAINTAIN SEDIMENT FENCE AT DAM LOW SIDE COORDINATE WITH PROTECTIVE FENCING.

## NOTES

- DAM 13 MODIFICATION SHOULD BE UNDERTAKEN FOLLOWING THE TASKS AS PER "NORTH RICHMOND - IMPACT ASSESSMENT PROPOSED DAM No. 13 REMOVAL" REPORT PREPARED BY BIO ENGINEERED SOLUTIONS, DATED 25TH FEBRUARY 2015, REFERENCE 1573 DAM 13 D.

## NOTE

WHENEVER THE EXISTING DAM 13 EARTH EMBANKMENT IS BEING EXCAVATED, EXCAVATED AREA IS TO FOLLOW THE DAM DECOMMISSIONING STEP PROCESS, REGARDLESS OF IMPACT IS ONLY ON PART OF DAM 13 EARTH EMBANKMENT OR ALL OF FORMATION.

CHARGE SEDIMENT LADEN LINE TO UPSTREAM LOCATION BASIN 'A', TO GRASS. PUMP/LINE TO REMAIN IN PLACE FOR FULL PERIOD OF STANDBY. FOLLOWING RAIN BE BROUGHT BACK TO

FROM BASIN A, DISCHARGE CAPTURED CLEAN RUNOFF VIA PUMP/LINE TO EITHER DAM 7 OR DAM 8 AT CONTRACTOR DISCRETION TO RETAIN FOR DUST CONTROL. PUMP/LINE TO REMAIN IN PLACE FOR FULL PERIOD OF CONTRACT AND ON STANDBY. FOLLOWING RAIN EVENT BASIN A TO BE BROUGHT BACK TO EMPTY.

FROM DAM 13, DISCHARGE SEDIMENT LADEN RUNOFF VIA PUMP/LINE TO UPSTREAM LOCATION A MIN 100M FROM BASIN 'A'. PUMP/LINE TO REMAIN IN PLACE FOR FULL PERIOD OF CONTRACT AND ON STANDBY FOLLOWING RAIN EVENTS. DAM 13 TO BE BROUGHT BACK TO 2M BELOW HIGHEST INVERT LEVEL OF EXISTING BYWASH IN LINE WITH DAM 13 CREST.

EXISTING BYWASH TO BE MONITORED AND MAINTAINED FOR DURATION OF CONTRACT UNTIL PRACTICAL COMPLETION, USING TEMPORARY PIPES TO PERMIT SURCHARGE FROM DAM 13 TO BASIN 'C'

SEDIMENT BASIN / DAM 13 REQUIRED VOLUMES = 16,500m<sup>3</sup>

FROM BASIN C DISCHARGE TO BE VIA SURCHARGE ONLY.

EXISTING DAM 13 EARTH EMBANKMENT TO REMAIN IN PLACE. NO WORKS PERMITTED

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 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
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 Issuing Officer Gary J Prince  
 Accreditation No. BPB0565

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1:1000 (AT A1)  
 1:2000 (AT A3)  
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 METRES

AZIMUTH: MGA 56  
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 ORIGIN:

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 YEOMANS ENTRY  
 SOIL AND WATER MANAGEMENT  
 PHASE 2 DAM 13 MODIFICATION

PLAN No: 11018511/CC569 3  
 FILE No: 11018511CC569  
 SHEET SIZE: A1 ORIGINAL

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# PHASE 3-BULK EARTHWORKS COMMENCEMENT

## SEDIMENT BASIN VOLUME CALCULATIONS (TYPE F 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:

$$V = 10 \cdot C_v \cdot A \cdot R(85th \%ile, 5day) m^3$$

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 75 PERCENT OF RAINFALL EVENTS (SEE TABLE IN SEC.6.3.3 "MANAGING URBAN STORMWATER SOILS & CONSTRUCTION" 4th edition).

DAM 13

A = 74ha = AREA OF CATCHMENT (ha)

$$V = (10 \times 0.5 \times 74 \times 29.5)$$

$$= 11,000m^3$$

### 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):

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

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  $L_s$  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 = 11ha = THE DISTURBED AREA (ha)

$L_s = 4$

$$V = 0.12 \times 11 \times (2500 \times 0.059 \times 4 \times 1.3 \times 1) / 1.3$$

$$= 780m^3$$

SEDIMENT BASIN VOLUME REQUIRED = 11,000m<sup>3</sup> + 780m<sup>3</sup>

$$V = 11,780m^3$$

OR

$$50\% \text{ SETTLING ZONE} = 11,000m^3 + 11000/2m^3$$

$$V = 16,500m^3$$

AVAILABLE VOLUME DAM 13 = 37,000m<sup>3</sup>

APPENDIX A "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION" 4th edition.

## CONSTRUCTION CERTIFICATE

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SIGNATURE: *I-M P...*

IAN VINCENT MILES  
 Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 13.12.18 REF: 16800-11

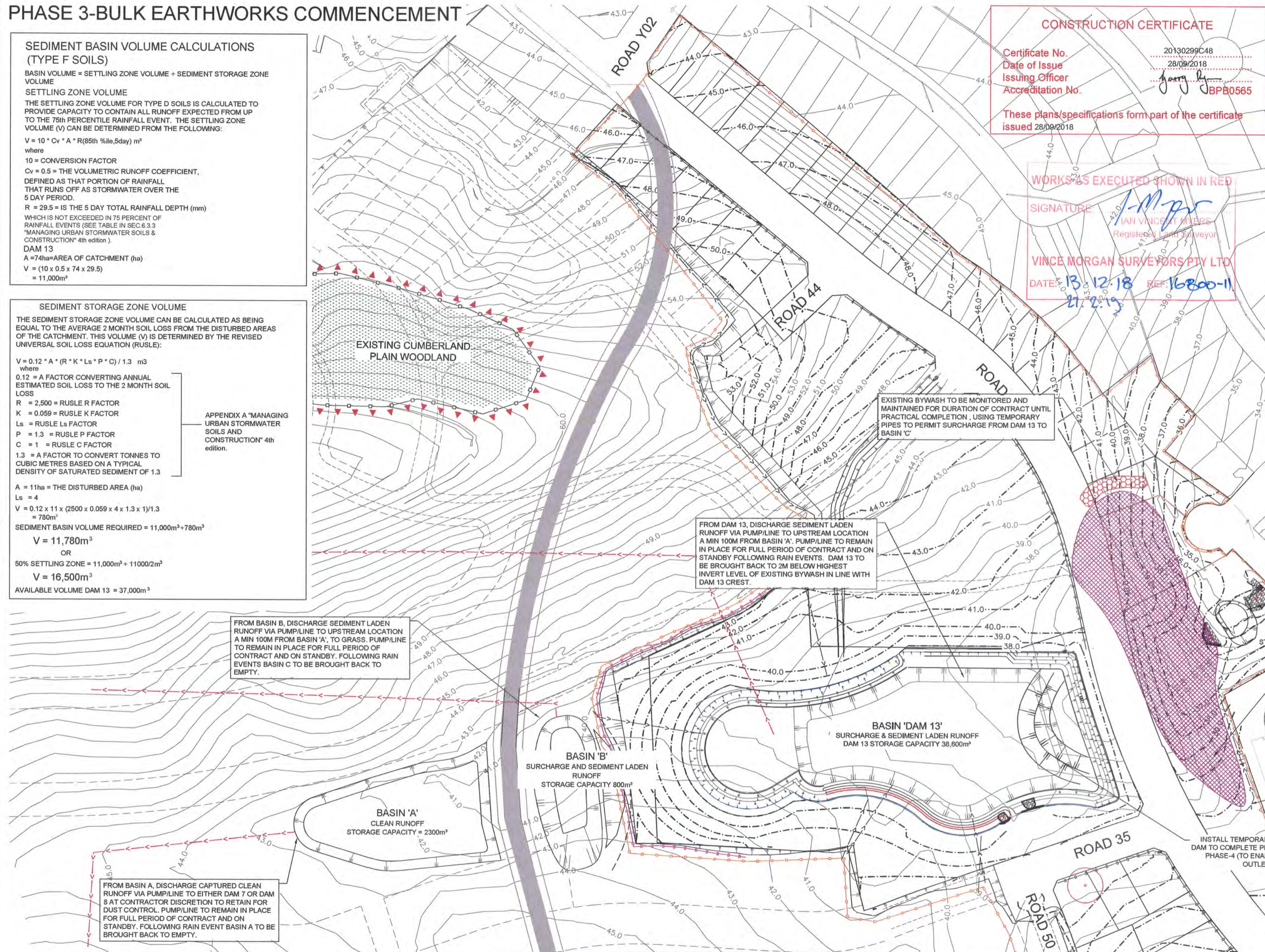
## LEGEND

SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAW BALES WRAPPED IN GEOFABRIC AND STAKED TO GROUND	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
TREES TO BE REMOVED	
STOCKPILE	
SITE COMPOUND	

## PHASE 3

1. MAINTAIN PROTECTIVE FENCING AROUND THE TREES AND CPW.
2. MAINTAIN FLAGGING AREA FENCING.
3. MAINTAIN ATF AS INDICATED.
4. MAINTAIN ENTRY TO SITE AS INDICATED.
5. MAINTAIN ALL SEDIMENT FENCE AT PERIMETER FITTED WITH FENCING.

Plotted: 14 May, 2018 2:57:21 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts 01 - Description\CD\CENTREY ROAD\11018511CC570.dwg



REFER TO DRAWING 11018511/CC571 FOR CONTINUATION



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

AZIMUTH: MGA 56  
 DATUM: AHD  
 ORIGIN:



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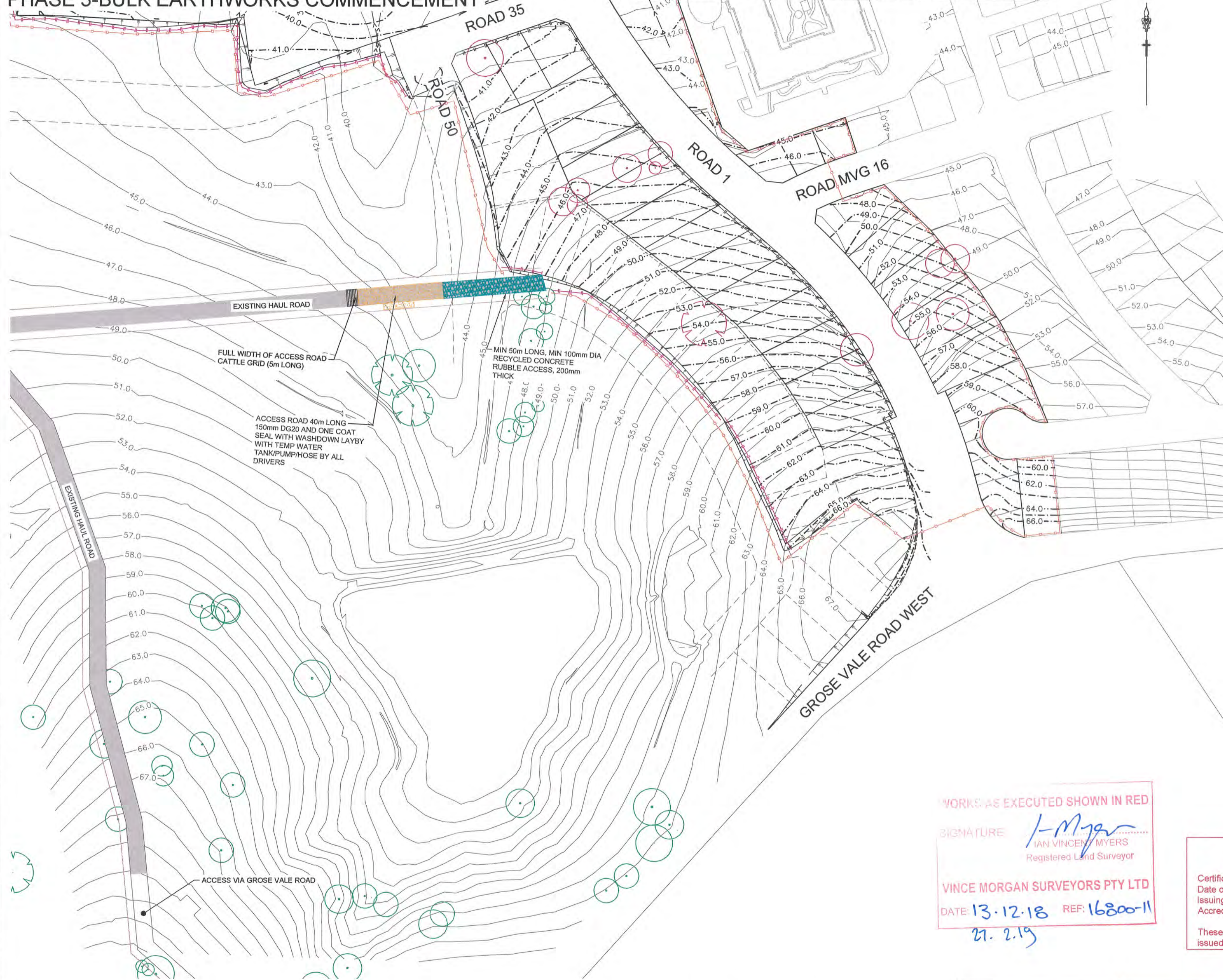
REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 SOIL AND WATER MANAGEMENT  
 PHASE 3 BULK EARTHWORKS COMMENCEMENT SHEET 1

PLAN No: 11018511/CC570 3  
 FILE No: 11018511CC570  
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
3 ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2 ISSUE FOR TENDER	MP	LS			26/02/18
1 ISSUE FOR CLIENT COMMENTS	MP	JG			19/12/17

**PHASE 3-BULK EARTHWORKS COMMENCEMENT**

REFER TO DRAWING 11018511/CC570 FOR CONTINUATION



**PHASE 3**

1. MAINTAIN PROTECTIVE FENCING AROUND THE TREES AND CPW.
2. MAINTAIN FLAGGING AREA FENCING.
3. MAINTAIN ATF AS INDICATED.
4. MAINTAIN ENTRY TO SITE AS INDICATED.
5. MAINTAIN ALL SEDIMENT FENCE AT PERIMETER FITTED WITH FENCING.

**LEGEND**

SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAW BALES WRAPPED IN GEOFABRIC AND STAKED TO GROUND	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
TREES TO BE REMOVED	
STOCKPILE	
SITE COMPOUND	

**NOTE**

ALL ACCESS TO CONSTRUCT YEOMANS ENTRY TO BE PROHIBITED VIA GROSE VALE ROAD ROUNDABOUT. ALL ACCESS TO SITE TO BE VIA EXISTING HAUL ROAD.

WORKS AS EXECUTED SHOWN IN RED

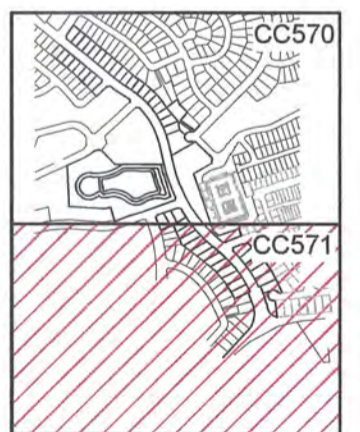
SIGNATURE *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16800-11  
27. 2.19

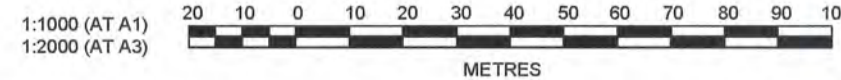
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *Jerry B*  
Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 28/09/2018



LAYOUT KEY  
SCALE : N.T.S



**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

PRINCIPAL:  
MGA 56  
DATUM:  
AHD  
ORIGIN:



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK, NORTH RICHMOND  
YEOMANS ENTRY  
SOIL AND WATER MANAGEMENT  
PHASE 3 BULK EARTHWORKS COMMENCEMENT SHEET 2

PLAN No: 11018511/CC571 3  
FILE No: 11018511CC571  
SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17

# PHASE-4 POST STORMWATER CONSTRUCTION

SEDIMENT BASIN / DAM 13  
REQUIRED VOLUMES = 16,500m<sup>3</sup>

## PHASE 4 SOIL AND WATER MANAGEMENT

1. MAINTAIN ALL SEDIMENT FENCES AND STAKED HAY BALES.
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

WORKS AS EXECUTED TO SEDIMENT BASIN 13  
SIGNATURE: *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor  
VINCE MORGAN SURVEYORS PTY LTD  
DATE: 13.12.18 REF: 16800-11  
21.2.19

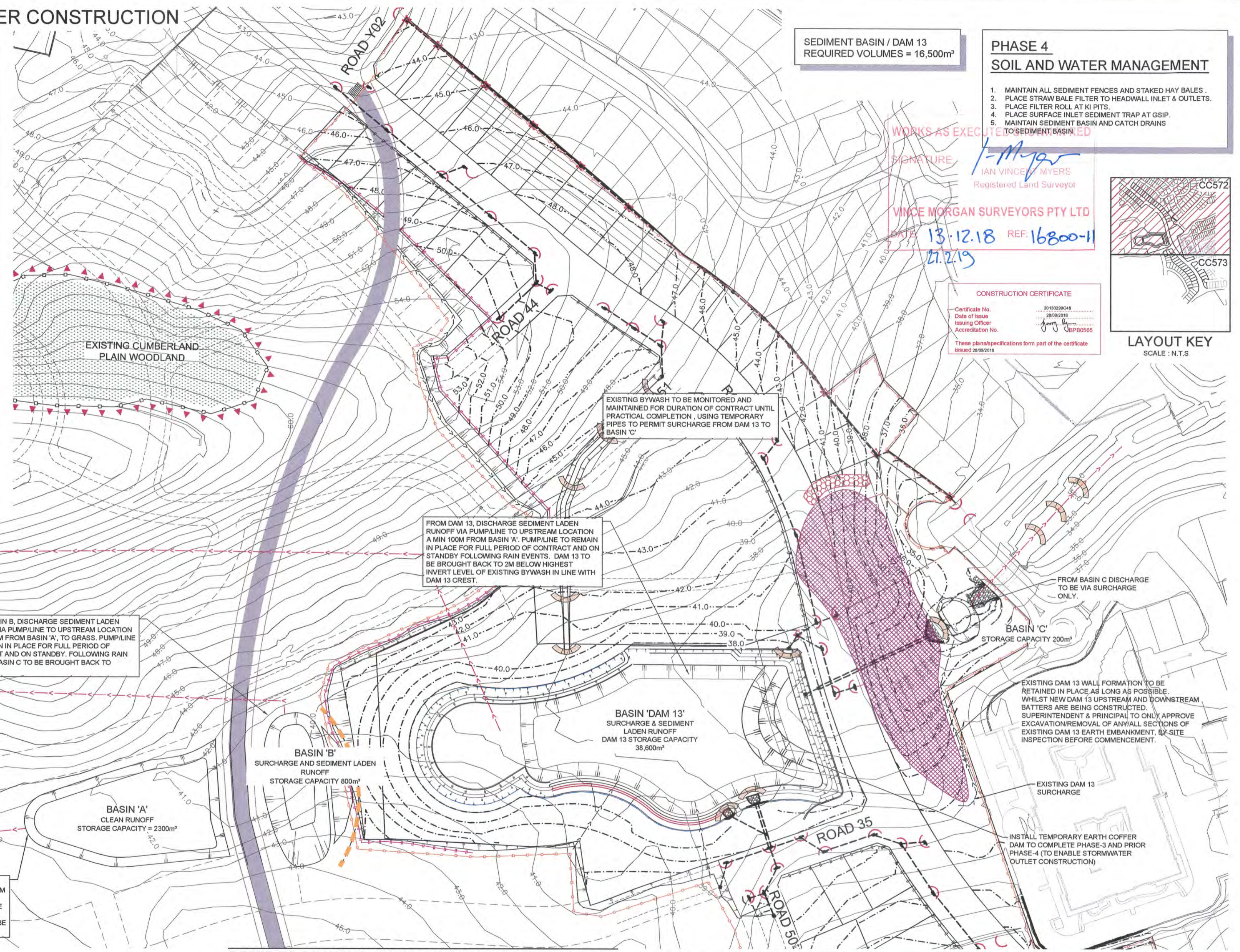
CC572  
CC573

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20190295C48  
Date of Issue 20/02/2019  
Issuing Officer *Angie*  
Accreditation No. JBP0505  
These plans/specifications form part of the certificate issued 20/02/2019

LAYOUT KEY  
SCALE: N.T.S

### LEGEND

- SEDIMENT FENCE
- EXISTING CONTOURS
- DESIGN CONTOURS
- ATF FENCE
- CATCH DRAIN
- STABILISED SITE ACCESS
- STRAW BALES WRAPPED IN GEOFABRIC AND STAKED TO GROUND
- PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND
- STAR PICKET / FLAGGING
- TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)
- TREES TO BE REMOVED
- STOCKPILE
- SITE COMPOUND
- CUMBERLAND PLAIN WOODS (CPW)
- FILTER ROLLS (AT KERB INLET PIT)
- SURFACE INLET SEDIMENT TRAP



FROM BASIN B, DISCHARGE SEDIMENT LADEN RUNOFF VIA PUMP/LINE TO UPSTREAM LOCATION A MIN 100M FROM BASIN 'A'. PUMP/LINE TO REMAIN IN PLACE FOR FULL PERIOD OF CONTRACT AND ON STANDBY FOLLOWING RAIN EVENTS. DAM 13 TO BE BROUGHT BACK TO 2M BELOW HIGHEST INVERT LEVEL OF EXISTING BYWASH IN LINE WITH DAM 13 CREST.

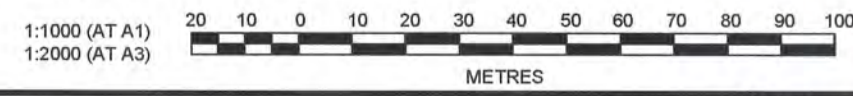
FROM DAM 13, DISCHARGE SEDIMENT LADEN RUNOFF VIA PUMP/LINE TO UPSTREAM LOCATION A MIN 100M FROM BASIN 'A'. PUMP/LINE TO REMAIN IN PLACE FOR FULL PERIOD OF CONTRACT AND ON STANDBY FOLLOWING RAIN EVENTS. DAM 13 TO BE BROUGHT BACK TO 2M BELOW HIGHEST INVERT LEVEL OF EXISTING BYWASH IN LINE WITH DAM 13 CREST.

FROM BASIN A, DISCHARGE CAPTURED CLEAN RUNOFF VIA PUMP/LINE TO EITHER DAM 7 OR DAM 8 AT CONTRACTOR DISCRETION TO RETAIN FOR DUST CONTROL. PUMP/LINE TO REMAIN IN PLACE FOR FULL PERIOD OF CONTRACT AND ON STANDBY. FOLLOWING RAIN EVENT BASIN A TO BE BROUGHT BACK TO EMPTY.

EXISTING DAM 13 WALL FORMATION TO BE RETAINED IN PLACE AS LONG AS POSSIBLE. WHILST NEW DAM 13 UPSTREAM AND DOWNSTREAM BATTERS ARE BEING CONSTRUCTED. SUPERINTENDENT & PRINCIPAL TO ONLY APPROVE EXCAVATION/REMOVAL OF ANY/ALL SECTIONS OF EXISTING DAM 13 EARTH EMBANKMENT. BY SITE INSPECTION BEFORE COMMENCEMENT.

INSTALL TEMPORARY EARTH COFFER DAM TO COMPLETE PHASE-3 AND PRIOR PHASE-4 (TO ENABLE STORMWATER OUTLET CONSTRUCTION)

REFER TO DRAWING 11018511/CC572 FOR CONTINUATION



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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PRINCIPAL:  
**REDBANK**  
AZIMUTH: MGA 56  
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  
YEOMANS ENTRY  
SOIL AND WATER MANAGEMENT  
PHASE 4 POST STORMWATER CONSTRUCTION SHEET 1

PLAN No: 11018511/CC572 3  
FILE No: 11018511CC572  
SHEET SIZE: A1 ORIGINAL

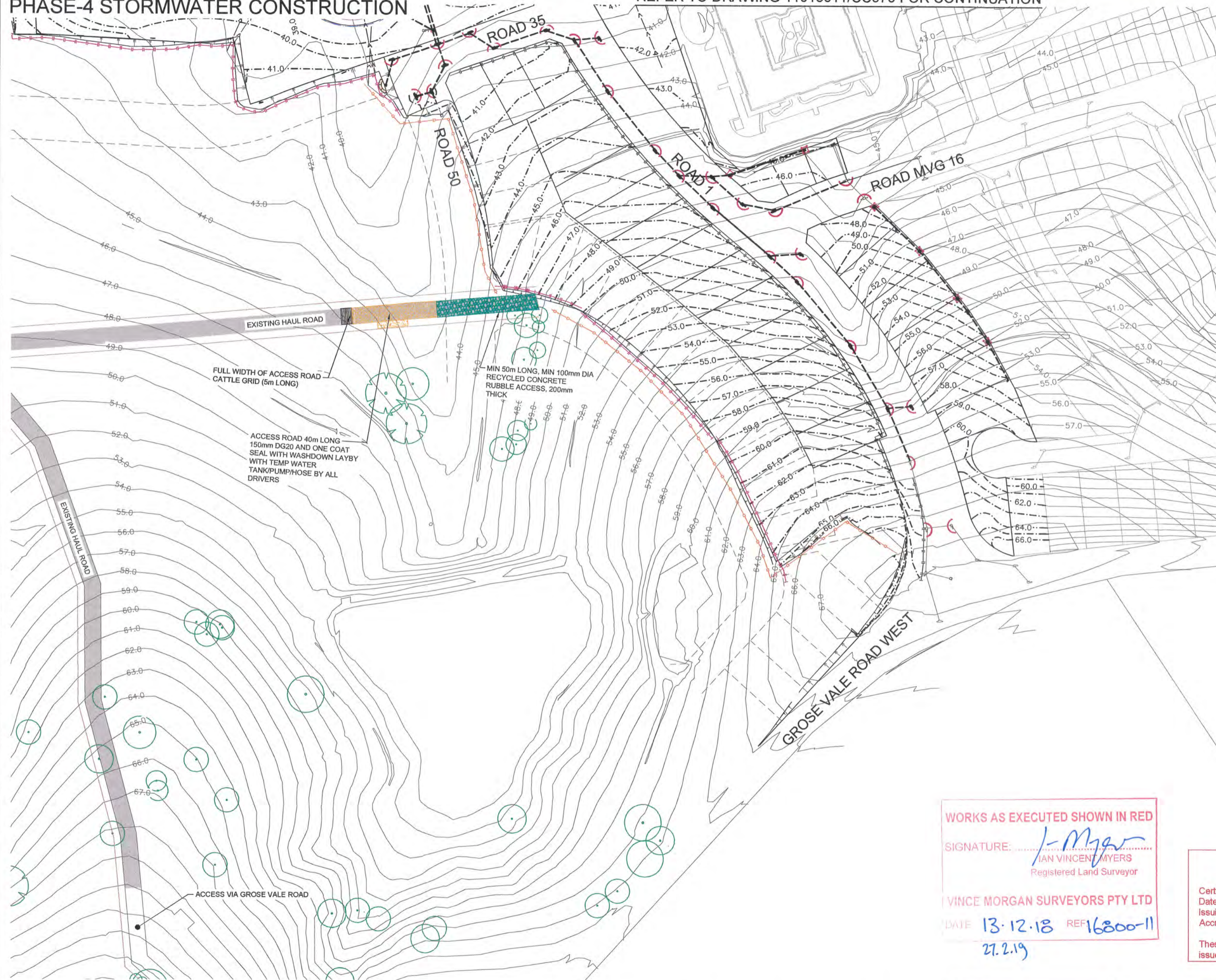
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AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17



**PHASE-4 STORMWATER CONSTRUCTION**

REFER TO DRAWING 11018511/CC573 FOR CONTINUATION



LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	47.0
DESIGN CONTOURS	47.0
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAWBALES WRAPPED IN GEOFABRIC AND STAKED TO GROUND	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
STOCKPILE	
SITE COMPOUND	
FILTER ROLLS (AT KERB INLET PIT)	
SURFACE INLET SEDIMENT TRAP	

**PHASE 4  
SOIL AND WATER MANAGEMENT**

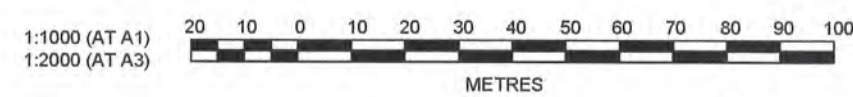
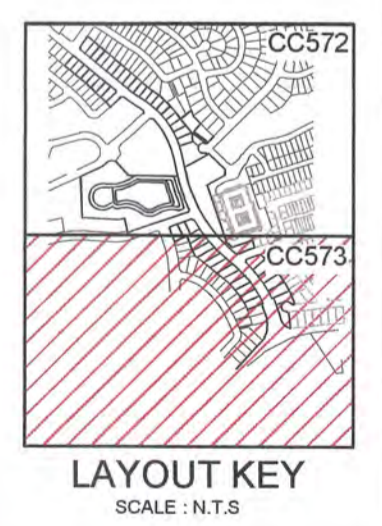
1. MAINTAIN ALL SEDIMENT FENCES AND STAKED HAY BALES.
2. PLACE STRAW BALE FILTER TO HEADWALL INLET & OUTLETS.
3. PLACE FILTER ROLL AT KI PITS.
4. PLACE SURFACE INLET SEDIMENT TRAP AT GSIP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN

**NOTE**

ALL ACCESS TO CONSTRUCT YEOMANS ENTRY TO BE PROHIBITED VIA GROSE VALE ROAD ROUNDABOUT. ALL ACCESS TO SITE TO BE VIA EXISTING HAUL ROAD.

WORKS AS EXECUTED SHOWN IN RED  
 SIGNATURE: *I. Morgan*  
 IAN VINCENT MYERS  
 Registered Land Surveyor  
 VINCE MORGAN SURVEYORS PTY LTD  
 DATE 13.12.18 REF 16200-11  
 27.2.19

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C48  
 Date of Issue 28/09/2018  
 Issuing Officer *Jerry B*  
 Accreditation No. BPP0565  
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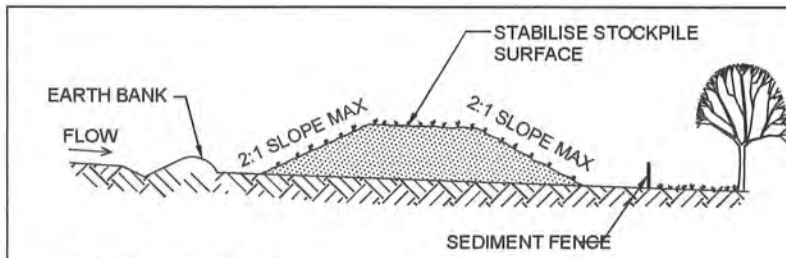
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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PRINCIPAL:  
  
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**ISSUED FOR CONSTRUCTION APPROVAL**  
 REDBANK, NORTH RICHMOND  
 YEOMANS ENTRY  
 SOIL AND WATER MANAGEMENT  
 PHASE 4 POST STORMWATER CONSTRUCTION SHEET 2  
 PLAN No: 11018511/CC573 3  
 FILE No: 11018511CC573  
 SHEET SIZE: A1 ORIGINAL

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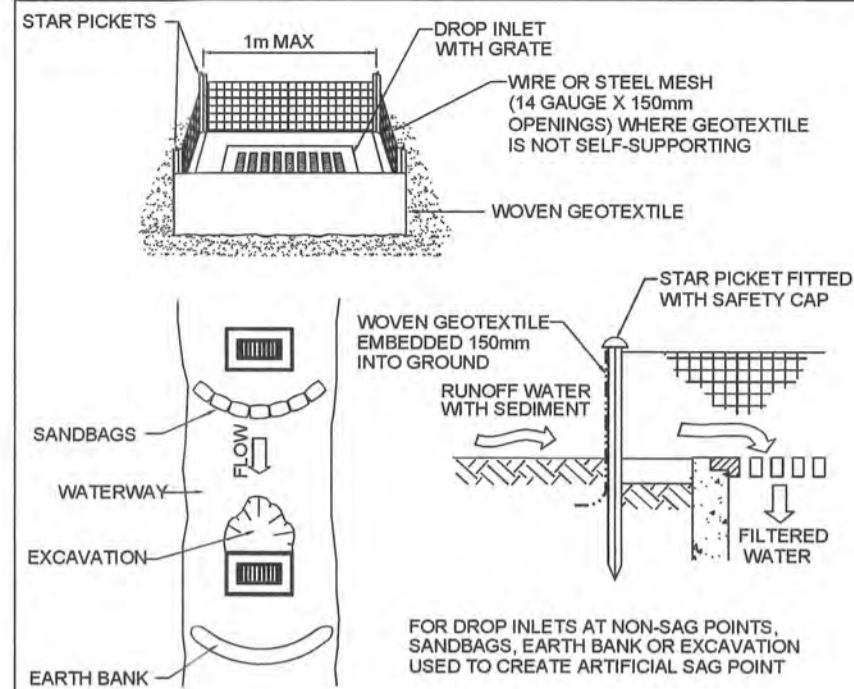
AMENDMENT	DES	DRN	CKD	APR	DATE
3	MP	NM	MS	AM	10/05/18
2	MP	LS			26/02/18
1	MP	JG			19/12/17



**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. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10, EQUALS 60% GROUND COVER.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

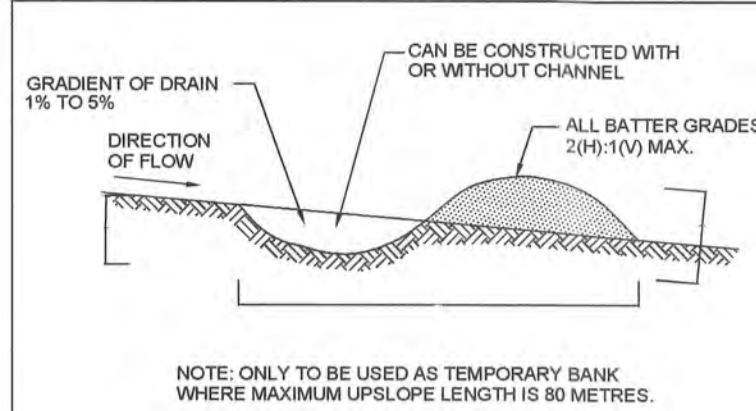
**STOCKPILE SD4-1**  
N.T.S.



**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 GEOTEXTILE. 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.

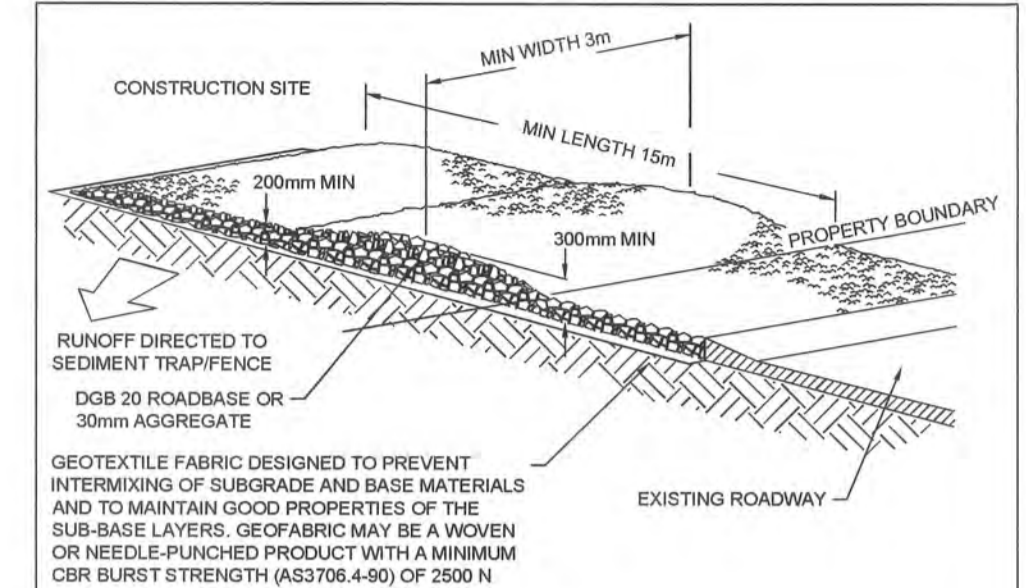
**GEOTEXTILE INLET FILTER SD6-12**  
N.T.S.



**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, LINE WITH TURF OR GEOTEXTILE.

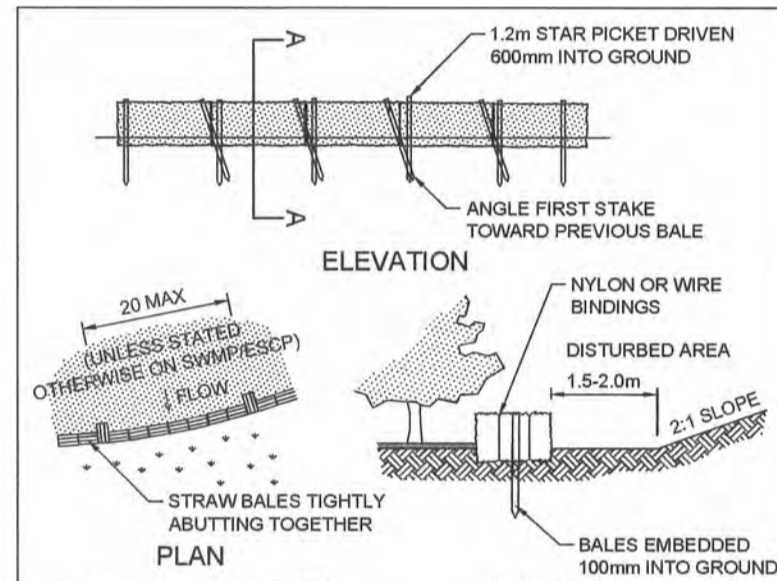
**EARTH BANK (LOW FLOW) SD5-5**  
N.T.S.



**CONSTRUCTION NOTES**

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE

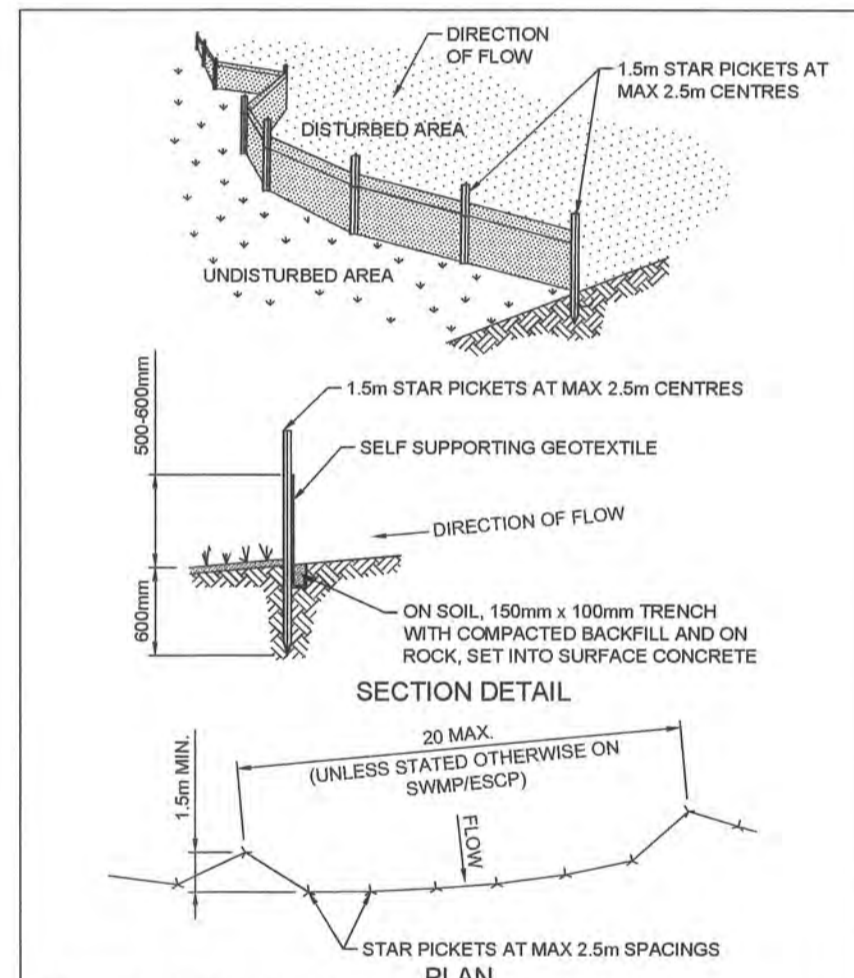
**STABILISED SITE ACCESS SD6-14**  
N.T.S.



**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.

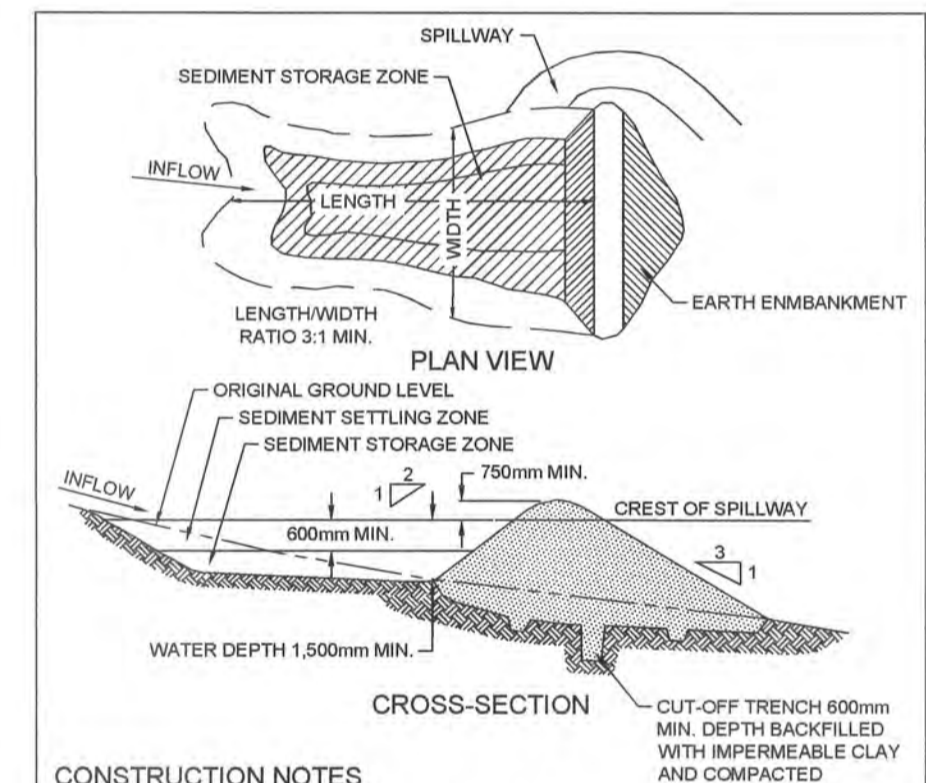
**STRAW BALE FILTER SD6-7**  
SCALE N.T.S.



**CONSTRUCTION NOTES**

1. 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. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BY-PASSING THE FILTER.
5. 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.



**CONSTRUCTION NOTES**

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1,200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

**EARTH BASIN - WET SD6-4**  
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)  
SCALE N.T.S.

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C48  
Date of issue 28/09/2018  
Issuing Officer [Signature]  
Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 28/09/2018

**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.
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.

**WORKS AS EXECUTED SHOWN IN RED**

SIGNATURE: [Signature]  
IAN VINCE MYERS  
Registered Land Surveyor

**VINCE MORGAN SURVEYORS PTY LTD**

DATE: 13.12.18 REF: 16800-1  
27.2.19

PRINCIPAL:

**REDBANK**  
JOHN WYNDHAM PRINCE

AZIMUTH: MGA 56  
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  
YEOMANS ENTRY**  
SOIL AND WATER MANAGEMENT DETAILS

PLAN No:  
**11018511/CC574** 3

FILE No: 11018511CC574

SHEET SIZE: A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
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NO	DESCRIPTION	DES	DRN	CKD	APR	DATE
3	ISSUE FOR CONSTRUCTION APPROVAL	MP	NM	MS	AM	10/05/18
2	ISSUE FOR TENDER	MP	LS			26/02/18
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	AMENDMENT	DES	DRN	CKD	APR	DATE

# 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 BLUE BOOK (CHECK DENOTE & DATE)
- 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 STABILISED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
- ALL TAIL-OUT DRAINS SHALL BE COUCH GRASSED AND TRAPEZOIDAL IN SECTION. STAKED 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 SITE SUPERINTENDENT.
- 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 ONSITE. THEY CAN VARY IN POSITION TO BEST CONSERVE THE EXISTING VEGETATION AND PROTECT DOWNSTREAM 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 A GROUND COVER MORE THAN 70%, USING MATERIALS THAT CAN CATER FOR CONCENTRATED FLOWS.

- 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) 6-14.
  - CONSTRUCT LOW FLOW EARTH BANKS WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 4-1.
  - PROVIDE TEMP. ACCESS TO THE SEDIMENT BASIN(S) AND PROTECT THIS WITH SEDIMENT FENCING (SD) 6-8 OR BARRIER FENCING AND EARTH BANKS (SD) 5-5.
  - PLACE SEDIMENT FENCING (SD) 6-8 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:-
  - 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.

## 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 SUPERVISOR / PROJECT MANAGER, CONTRACTORS DAILY SITE INSPECTION TO INCLUDE MINIMUM TASKS AS IN 'BLUE BOOK':-
  - 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.

### 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 EMPTIED AS NECESSARY, DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT
  - PROPER DRAINAGE OF THE SITE SHALL BE MAINTAINED. DRAINS (INCLUDING INLET AND OUTLET WORKS) SHALL BE CHECKED TO ENSURE THAT THEY ARE OPERATING AS INTENDED, ESPECIALLY THAT:-
    - AREAS OF EROSION ARE REPAIRED (e.g 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 INSTALLED 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 SUBJECTED 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.

## STOCKPILE NOTES:

- SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.
- FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATED.

## 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 2.5m 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

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE *I. Morgan*  
IAN VINCENT MYERS  
Registered Land Surveyor

IAN VINCENT MORGAN SURVEYORS PTY LTD

DATE 13.12.18 REF 16800-11

27.2.19

## CONSTRUCTION CERTIFICATE

Certificate No. 20130299C48  
Date of Issue 28/09/2018  
Issuing Officer *Jerry J*  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 28/09/2018

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH:  
MGA 56  
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  
YEOMANS ENTRY  
SOIL AND WATER MANAGEMENT NOTES

PLAN No:  
11018511/CC575 3

FILE No: 11018511CC575

SHEET SIZE: A1 ORIGINAL

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