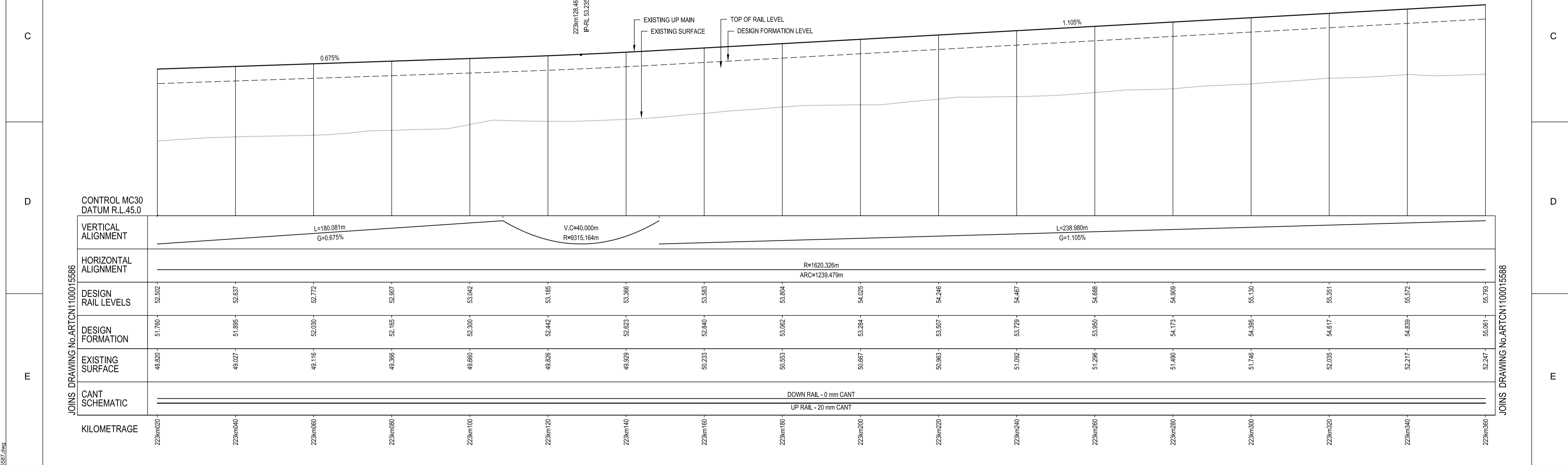


**PLAN**  
SCALE 1:500

CIRCULAR CURVE DETAILS	
RADIUS:	1620.326m
ARC:	1239.479m
V:	55km/h (HH)
Ea:	20mm
D:	2mm
E	325543.488
N	1383822.008

SCHEDULE OF COORDINATED ALIGNMENT POINTS					
RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
	CTP	222km862.636	PROPOSED UP RELIEF	325502.928	1385441.826
1620.326 LEFT	CENTRE			325543.488	1383822.008
	TRS	224km102.114	PROPOSED UP RELIEF	324992.494	1384962.477



**LONGITUDINAL SECTION**  
SCALE 1:500(H) 1:100(V)

**NOTES:**

- FOR GENERAL NOTES REFER TO DRG No. ARTCN1100015587.
- INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

**FOR CONSTRUCTION**

ARTC DWG NUMBER 0 **ARTCN1100015587**



MAITLAND TO MINIMBAH - THIRD TRACK  
**TRACK ALIGNMENT - UP RELIEF (PROP)**  
223km020 TO 223km360

Sheet No.  
**63 of 67**  
Scale (A1):  
1:500(H) 1:100(V)

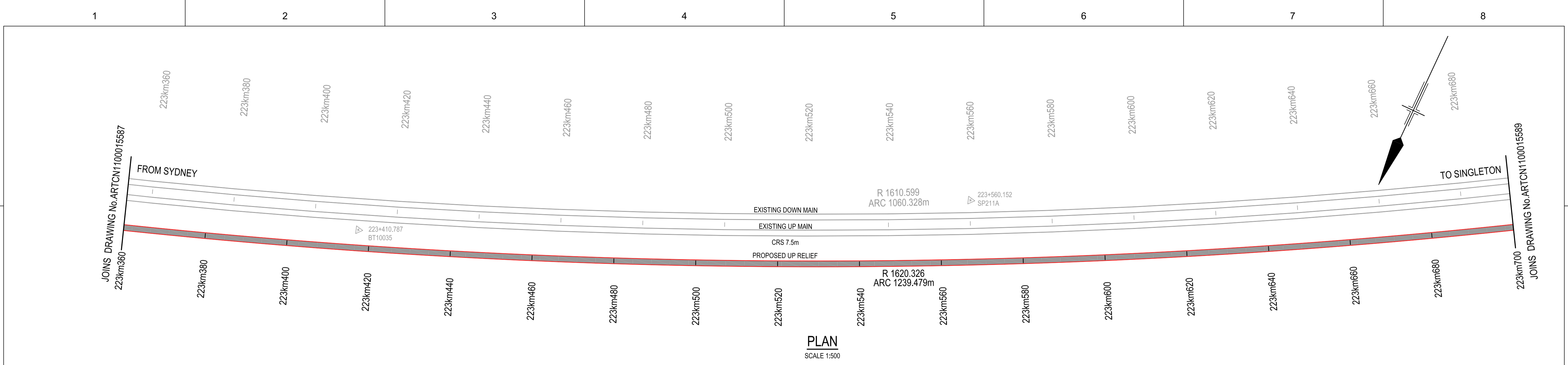
© 2010 Australian Rail Track Corporation Ltd. Drawing standard in accordance with Hunter 8 Alliance standards		ARTC APPROVAL Approved By	
Used on / Next higher assembly:	H8R DWG NUMBER <b>H8R-DWG-S2G-TRA-2587</b>	Signed:	
Alternate DMS number:		Approval Date	

Rev	Date	Revision Description	Drawn	Checked	Approved
0	06.08.10	ISSUED FOR CONSTRUCTION	D.J.C	T.L*	G.W*

Designing Company: GHD GHD Job Number: 22-14630	Address: Level 3 GHD Tower, 24 Honeysuckle Drive Newcastle NSW 2300 Australia F 61 2 4941 2796 W www.hunter8alliance.com.au
Drawn D.CRANE	Designed V.ALEX
Drafting Check P.TOBIN*	Design Check T.LYONS*
Approved G.WICKENS*	Date 06/08/2010

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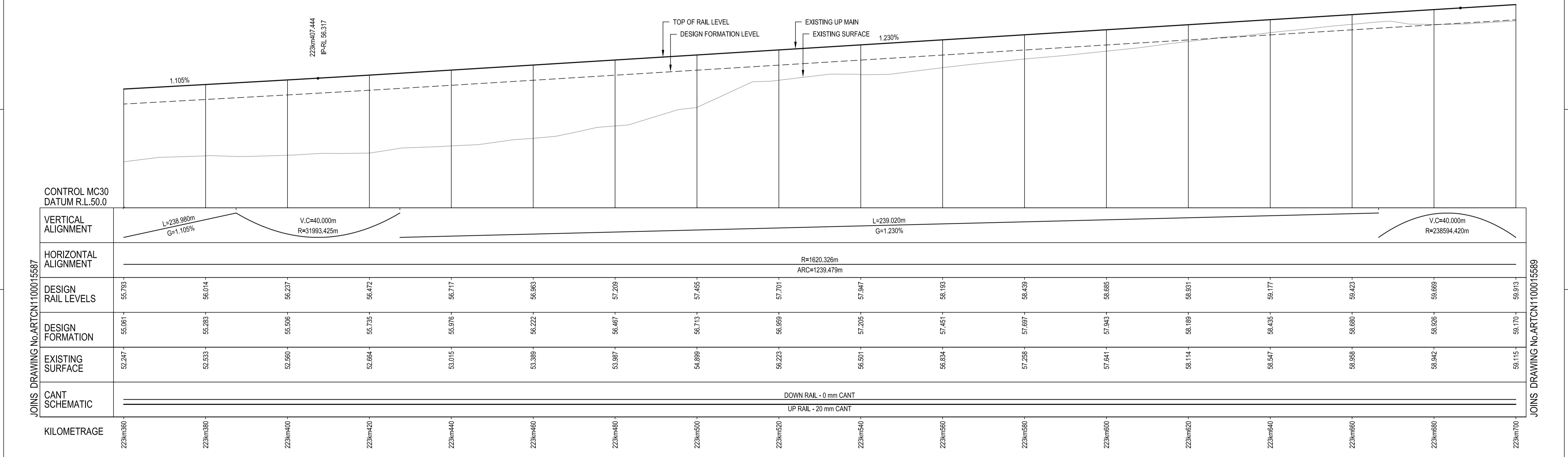
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PLAN  
SCALE 1:500

SCHEDULE OF COORDINATED ALIGNMENT POINTS					
RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
	CTP	222km862.636	PROPOSED UP RELIEF	325502.928	1385441.826
1620.326 LEFT	CENTRE			325543.488	1383822.008
	TRS	224km102.114	PROPOSED UP RELIEF	324392.494	1384962.477

CIRCULAR CURVE DETAILS	
RADIUS:	1620.326m
ARC:	1239.479m
V:	55km/h (HH)
Ea:	20mm
D:	2mm
⊙	E 325543.488
	N 1383822.008



LONGITUDINAL SECTION  
SCALE 1:500(H) 1:100(V)

WARNING: PUBLIC UTILITY SERVICES MAY EXIST ON OR ADJACENT TO THE SITE. THESE SERVICES MAY NOT BE SITUATED ALONG ROUTES INDICATED ON THIS DRAWING.

VERTICAL 1:100 AT ORIGINAL SIZE  
HORIZONTAL 1:500 AT ORIGINAL SIZE

LEGEND

PROPOSED TRACKWORK  
EXISTING TRACK  
EXISTING TRACK TO BE REMOVED  
PROPOSED TRACKWORK

- NOTES:
- FOR GENERAL NOTES REFER TO DRG No. ARTCN1100015587.
  - INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

FOR CONSTRUCTION

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ARTC APPROVAL Approved By

Used on / Next higher assembly: H8R-DWG-S2G-TRA-2588

Alternate DMS number:

Approval Date

Rev 0 Date 06.08.10 Description ISSUED FOR CONSTRUCTION

Designing Company: GHD  
GHD Job Number: 22-14630  
Drawn: D.CRANE  
Drafting Check: P.TOBIN\*  
Approved: G.WICKENS\*  
Date: 06/08/2010

Address: Level 3 GHD Tower, 24 Honeysuckle Drive Newcastle NSW 2300 Australia  
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Designed: V.ALEX  
Design Check: T.LYONS\*

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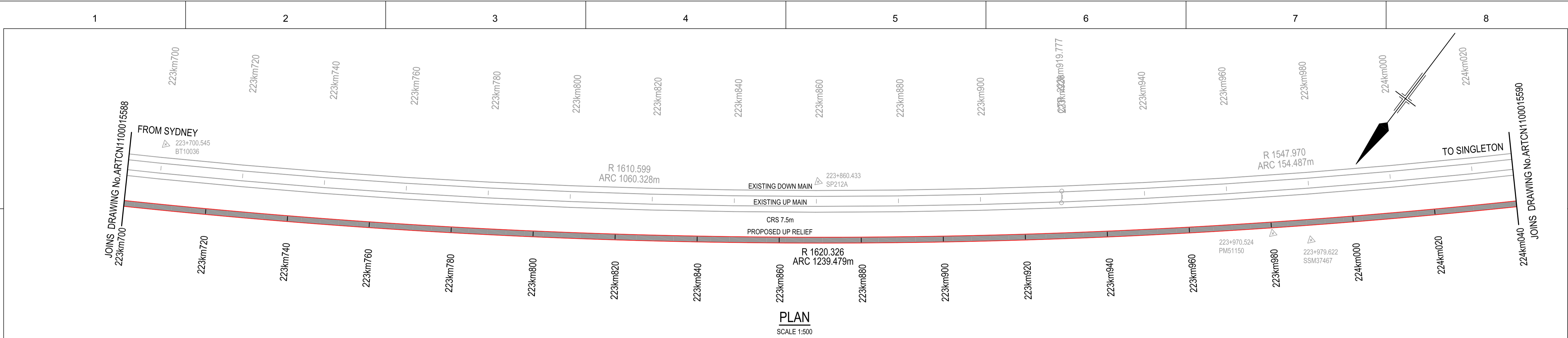
ARTC DWG NUMBER 0

ARTCN1100015588

MAITLAND TO MINIMBAH - THIRD TRACK TRACK ALIGNMENT - UP RELIEF (PROP) 223km360 TO 223km700

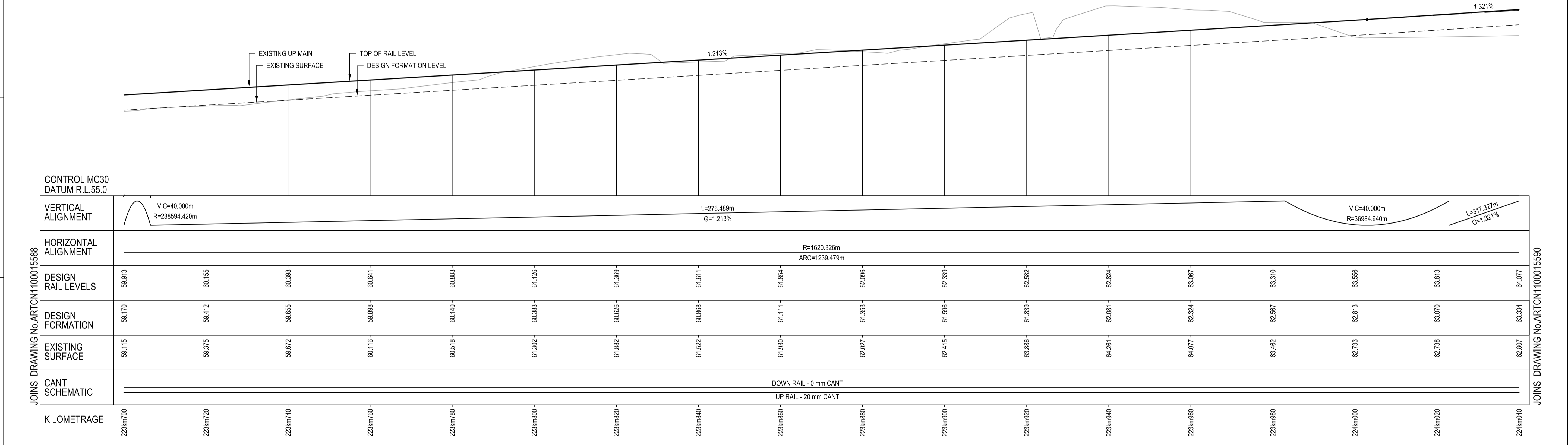
Sheet No. 64 of 67  
Scale (A1): 1:500(H) 1:100(V)

PLOT DATE: 06 August 2010 4:08 PM  
GHD FILE PATH: G:\2010\14630\Drawings\08\ARTCN1100015588.dwg



SCHEDULE OF COORDINATED ALIGNMENT POINTS					
RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
1620.326 LEFT	CTP	223km862.636	PROPOSED UP RELIEF	325502.928	1385441.826
	CENTRE			325543.488	1383822.008
	TRS	224km102.114	PROPOSED UP RELIEF	324392.494	1384962.477

CIRCULAR CURVE DETAILS	
RADIUS:	1620.326m
ARC:	1239.479m
V:	55km/h (HH)
Ea:	20mm
D:	2mm
E	325543.488
N	1383822.008



VERTICAL ALIGNMENT	V.C.=40.000m R=238594.420m		L=276.489m G=1.213%		V.C.=40.000m R=36984.940m		L=317.327m G=1.321%											
HORIZONTAL ALIGNMENT	R=1620.326m ARC=1239.479m																	
DESIGN RAIL LEVELS	59.913	60.155	60.398	60.641	60.883	61.126	61.369	61.611	61.854	62.096	62.339	62.582	62.824	63.067	63.310	63.556	63.813	64.077
DESIGN FORMATION	58.170	58.412	58.655	58.899	60.140	60.383	60.626	60.868	61.111	61.353	61.596	61.839	62.081	62.324	62.567	62.813	63.070	63.334
EXISTING SURFACE	59.115	59.375	59.672	60.116	60.518	61.302	61.882	61.522	61.530	62.027	62.415	63.886	64.261	64.077	63.462	62.733	62.738	62.807
CANT SCHEMATIC	DOWN RAIL - 0 mm CANT UP RAIL - 20 mm CANT																	
KILOMETRAGE	223km700	223km720	223km740	223km760	223km780	223km800	223km820	223km840	223km860	223km880	223km900	223km920	223km940	223km960	223km980	224km000	224km020	224km040

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VERTICAL 1:100 AT ORIGINAL SIZE  
HORIZONTAL 1:500 AT ORIGINAL SIZE

**LEGEND**

PROPOSED TRACKWORK (solid line)  
EXISTING TRACK (dashed line)  
EXISTING TRACK TO BE REMOVED (dotted line)  
PROPOSED TRACKWORK (thick solid line)

**LONGITUDINAL SECTION**  
SCALE 1:500(H) 1:100(V)

- NOTES:**
- FOR GENERAL NOTES REFER TO DRG No. ARTCN11000155507.
  - INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

**FOR CONSTRUCTION**

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Used on / Next higher assembly: <b>H8R-DWG-S2G-TRA-2589</b>		H8R DWG NUMBER <b>H8R-DWG-S2G-TRA-2589</b>		Drawn <b>D.CRANE</b>		Designed <b>V.ALEX</b>		Conditions of Use: This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.		<b>ARTCN1100015589</b>	
Alternate DMS number: _____		Signed: _____		Drafting Check <b>P.TOBIN*</b>		Design Check <b>T.LYONS*</b>		MAITLAND TO MINIMBAH - THIRD TRACK <b>TRACK ALIGNMENT - UP RELIEF (PROP)</b> 223km700 TO 224km040		Sheet No. <b>65 of 67</b> Scale (A1): 1:500(H) 1:100(V)	
Approval Date: _____		Rev: _____ Date: _____ Revision Description: _____		Approved <b>G.WICKENS*</b> Date: 06/08/2010		This Drawing must not be used for Construction unless signed as Approved		1		2	
1		2		3		4		5		6	
7		8		9		10		11		12	

PLOT DATE: 06 August 2010 4:08 PM PLOTTED BY: DCR42 GHD FILE PATH: G:\2010\14630\Drawings\08\ARTCN1100015589.dwg

JOINS DRAWING No.ARTCNT1100015589  
224km040

JOINS DRAWING No.ARTCNT1100015591  
224km380

SCHEDULE OF COORDINATED ALIGNMENT POINTS					
RADIUS	POINT	KM	CENTRELINE	EASTING	NORTHING
	CTP	222km862.636	PROPOSED UP RELIEF	325502.928	1385441.826
1620.326 LEFT	CENTRE			325543.488	1383822.008
	TRS	224km102.114	PROPOSED UP RELIEF	324392.494	1384962.477
	TP	224km152.114	PROPOSED UP RELIEF	324357.669	1384926.600
	TP	224km310.720	PROPOSED UP RELIEF	324247.787	1384812.225
	TRS	224km385.720	PROPOSED UP RELIEF	324195.154	1384758.801
997.000 RIGHT	CENTRE			323502.716	1385476.115
	TP	225km395.787	PROPOSED UP RELIEF	323247.764	1384512.264

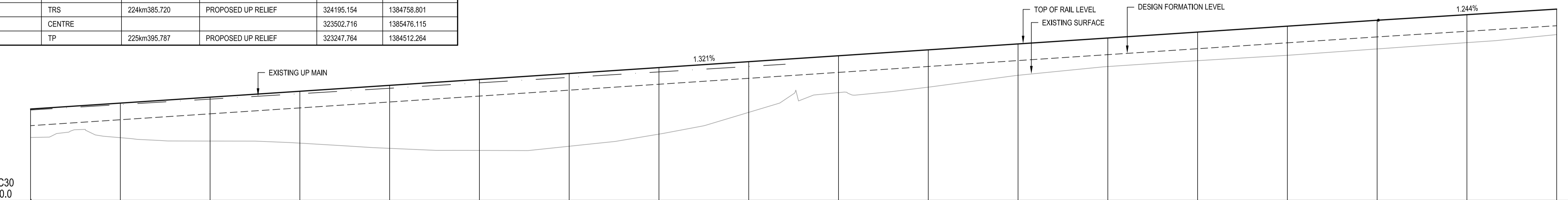
CIRCULAR CURVE DETAILS	
RADIUS:	1620.326m
ARC:	1239.479m
V:	55km/h (HH)
Ea:	20mm
D:	2mm
	E 325543.488
	N 1383822.008

TRANSITION DETAILS	
RADIUS:	1620.326m
LENGTH:	50.000m
V:	55km/h (HH)
Xc:	49.999m
Droc:	1mm/sec
M:	2.058 x 10 <sup>-3</sup>

TRANSITION DETAILS	
RADIUS:	997.000m
LENGTH:	75.000m
V:	55km/h (HH)
Xc:	74.989m
Droc:	2mm/sec
M:	2.234 x 10 <sup>-3</sup>

CIRCULAR CURVE DETAILS	
RADIUS:	997.000m
ARC:	1023.268m
V:	60km/h (HH)
Ea:	35mm
D:	8mm
	E 323502.716
	N 1385476.115

PLAN  
SCALE 1:500



LONGITUDINAL SECTION  
SCALE 1:500(H) 1:100(V)

NOTES:

- FOR GENERAL NOTES REFER TO DRG No. ARTCNT1100015589.
- INDICATED TRAIN SPEEDS USED IN CALCULATIONS REFER TO MODELLED TRAIN SPEEDS. FREIGHT, PASSENGER AND XPT MAXIMUM SPEEDS COMPLY AT HIGHER RATES OF CHANGE.

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Used on / Next higher assembly:  
H8R-DWG-S2G-TRA-2590

Alternate DMS number:

Rev	Date	Revision Description	Drawn	Checked	Approved
0	06.08.10	ISSUED FOR CONSTRUCTION	D.J.C	T.L*	G.W*

Designing Company:  
GHD  
GHD Job Number:  
22-14630

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Drawn:  
D.CRANE

Designed:  
V.ALEX

Drafting Check:  
P.TOBIN\*

Design Check:  
T.LYONS\*

Approved:  
G.WICKENS\*

Date:  
06/08/2010

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ARTC DWG NUMBER: 0

ARTCN1100015590

Maitland to Minimbah - Third Track  
TRACK ALIGNMENT - UP RELIEF (PROP)  
224km040 TO 224km380

Sheet No.  
66 of 67  
Scale (A1):  
1:500(H) 1:100(V)

PLOT DATE: 06 August 2010 4:09 PM  
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