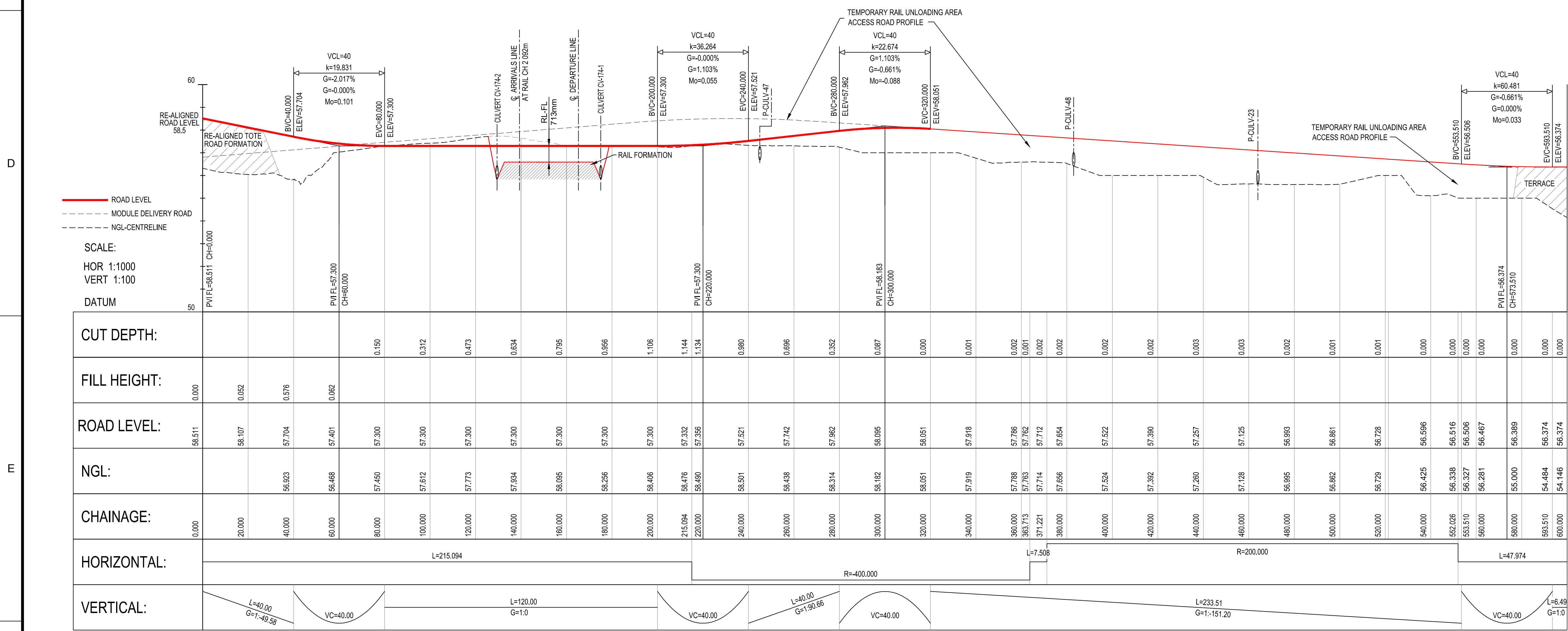


- GENERAL NOTES:
1. LIDAR SURVEY PROVIDED BY PHOTOSAT (2016)
 2. CO-ORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METERS
 3. CONTOURS ARE IN METERS. CONTOUR INTERVAL IS 5m.
 4. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
 5. TIMBER CROSSING INSERTS SHALL BE 178mm HIGH AND 228mm WIDE. INSERTS ARE TO BE FASTENED TO TIMBER TIES USING 35mm LONG LAG SCREWS. A MINIMUM DISTANCE OF 76mm SHALL BE MAINTAINED ON GAUGE SIDE THE RAIL HEAD AND THE NEAREST CROSSING INSERT.
 6. GATES TO BE SUPPLIED AND INSTALLED AS INDICATED.

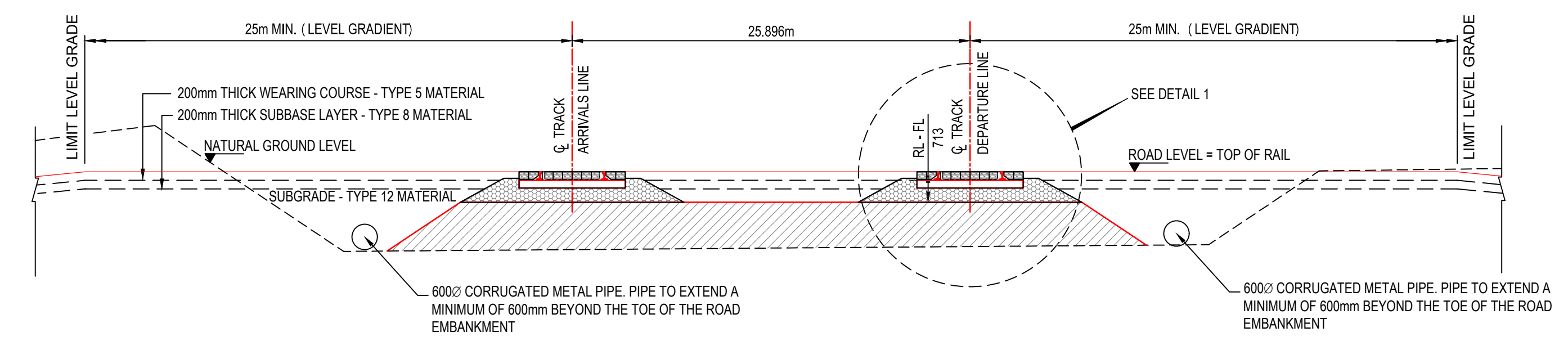
CO-ORDINATE LIST UTM (NAD83) ZONE 17		
	E	N
PI 1 START	504145.474	7974115.151
GATE	504088.233	7974204.753
LEVEL CROSSING ARRIVALS LINE	504070.464	7974232.567
GRADE CROSSING DEPARTURE LINE	504056.522	7974254.390
GATE	504038.753	7974282.204
BCC CURVE A	504029.675	7974296.414
PI 2 CURVE A	503989.203	7974359.767
ECC CURVE A	503928.492	7974404.102
BCC CURVE B	503922.429	7974408.530
PI 3 CURVE B	503844.007	7974465.800
ECC CURVE B	503840.510	7974562.845
PI 4 END	503838.783	7974610.788

- LEGEND:
- R = RADIUS
 - D.A. = DEFLECTION ANGLE
 - T.L. = TANGENT LENGTH
 - ARC. = ARC LENGTH
 - VCL = VERTICAL CURVE LENGTH
 - k = k-FACTOR
 - G = GRADIENT
 - Mo = MID ORIGINATE
 - CH = ROAD CHAINAGE
 - RAIL CH = RAIL CHAINAGE
 - RL = RAIL LEVEL
 - FL = FORMATION LEVEL
 - BCC = BEGINNING CIRCULAR CURVE
 ECC = END CIRCULAR CURVE |

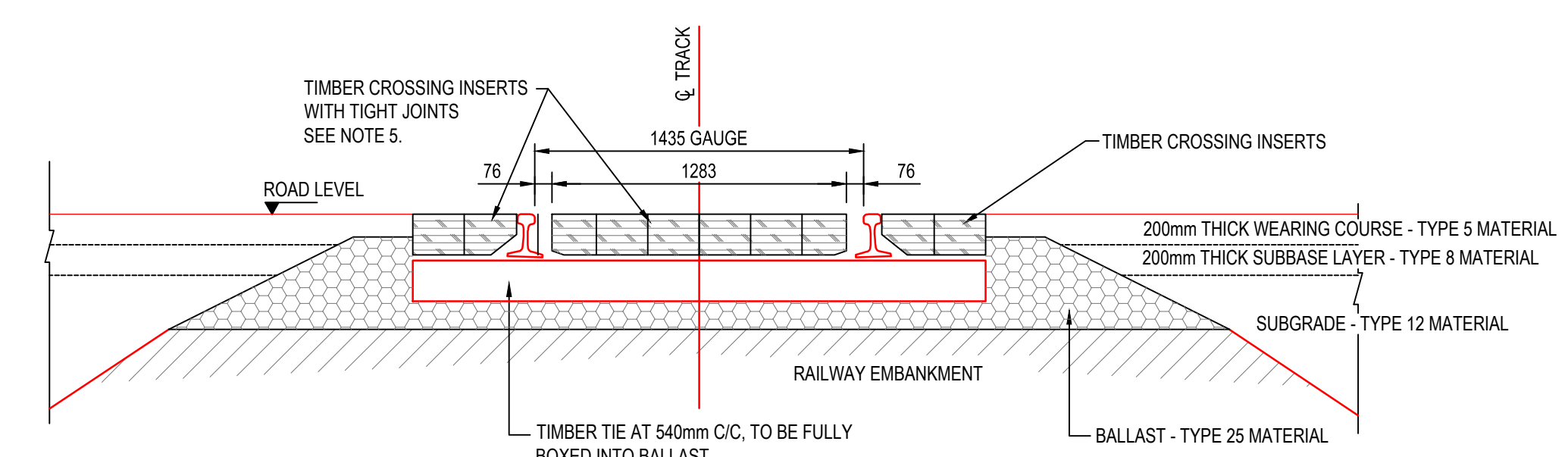
PLAN
SCALE 1:1000



LONGITUDINAL SECTION



CROSS SECTION THROUGH RAILWAY LEVEL CROSSING



DETAIL 1
SCALE 1:25

H353004-40000-221-271-0002-0001	RAIL UNLOADING AREA ACCESS ROAD
H353004-30000-224-294-0007-0001	ROAD SIGNAGE DETAIL
H353004-30000-224-294-0010-0001	TYPICAL HAUL ROAD CROSS SECTION
H353004-30000-224-294-0009-0001	TYPICAL LEVEL CROSSING SECTION
H353004-30000-224-273-0019-0001	CROSS SECTIONS CH. 0+000 TO CH. 0+600
DRAWING No.	DRAWING TITLE
REFERENCE DRAWINGS	

NAME	APPROVED FOR CONSTRUCTION			
SIGNATURE				
ENG REG NUMBER				
REVISION DATE	2	CULVERT LOCATIONS UPDATED.	A/JVN	2021/03/22
ORIGINAL DATE	0	1 VERTICAL ALIGNMENT ALTERED TO SUIT NEW TERRACE LEVEL AND CULVERT SITE IDENTIFICATION ADDED.	A/JVN	2019/05/06
REG. PROFESSIONAL	No.	0 APPROVED FOR CONSTRUCTION.	A/JVN	2018/11/27
REVISIONS		BY	CHK'D	DATE

DRAFTSPERSON	A VAN NIEKERK	NR	2018/09/20
DESIGNER	A VAN NIEKERK	NR	2018/09/20
CHECKER	G JOHNSTONE		
DESIGN COORD.	G JOHNSTONE		
RESP. ENG.	F VAN BILJON		
LEAD DISC. ENG.	F VAN BILJON		
AREA LEAD	F VAN BILJON		
ENG. MANAGER	D STANGER		
AREA MANAGER	F PITTMAN		
ROLE	NAME	SIGNATURE	DATE

PERMIT TO PRACTICE
HATCH LTD.
Signature _____
Date _____
PERMIT NUMBER: P 512
The Association of Professional Engineers,
Geologists and Geophysicists of NWTNU

HATCH

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION PROJECT

TOTE ROAD - RAIL TERRACE ACCESS
GRADE CROSSING AT RAIL CH 1+992
LAYOUT & LONGITUDINAL SECTION

SCALE: DWG. No. H353004-30000-224-271-0031-0001
1:1,000
OR AS NOTED

REV 2

A

B

C

D

E

F

A

B

C

D

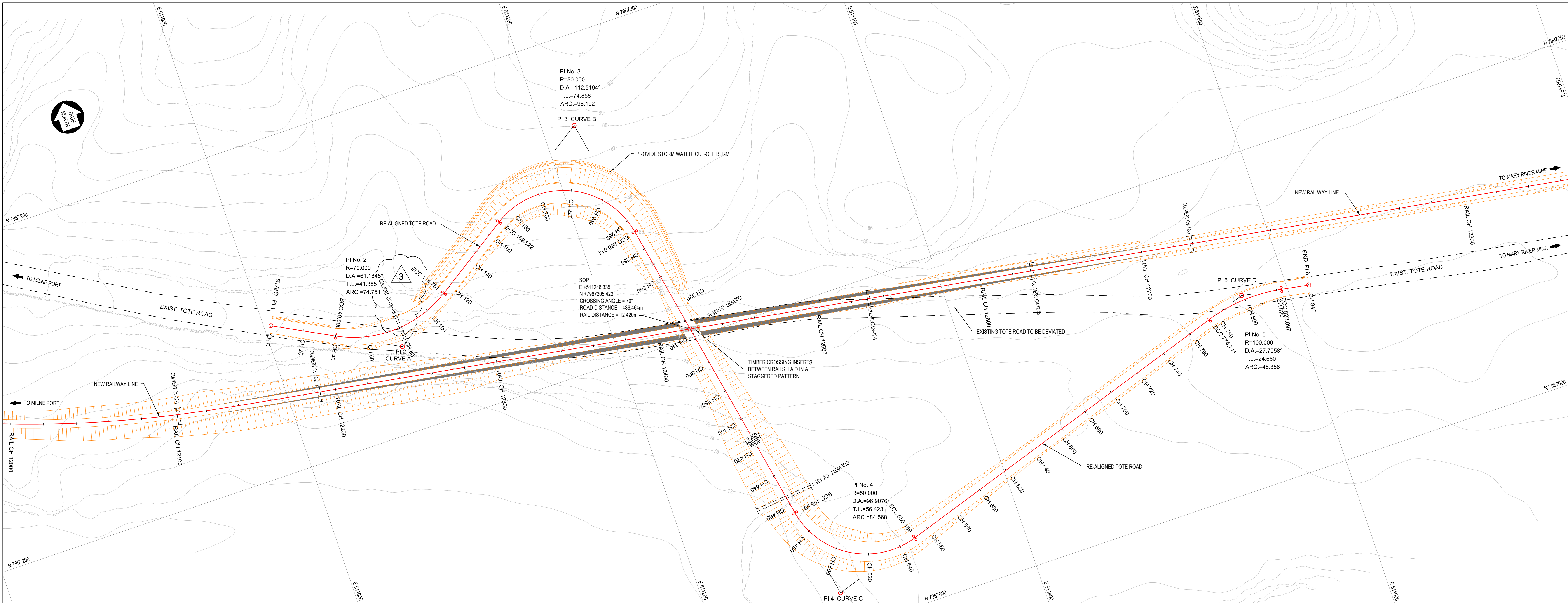
E

F

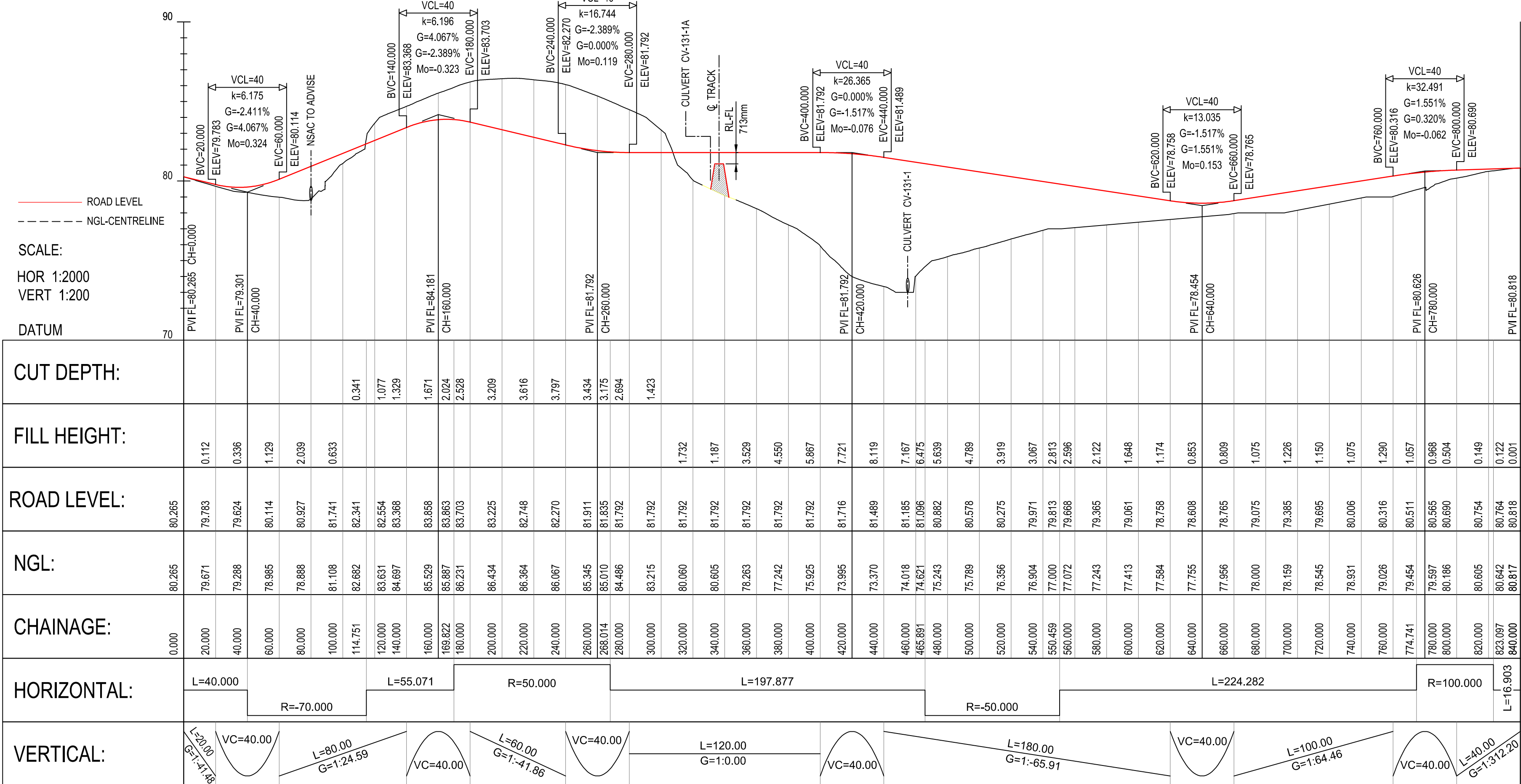
GENERAL NOTES:

1. LOCAL SURVEY PROVIDED BY PHOTSAF (2018)
2. CO-ORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METERS.
3. CONTOURS ARE IN METERS. CONTOUR INTERVAL IS 1m.
4. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
5. TIMBER CROSSING INSERTS SHALL BE 178mm HIGH AND 229mm WIDE. INSERTS ARE TO BE FASTENED TO TIMBER TIES USING 305mm LONG LAG SCREWS. A MINIMUM DISTANCE OF 76mm SHALL BE MAINTAINED ON GAUGE SIDE THE RAIL HEAD AND THE NEAREST CROSSING INSERT.
6. THIS DRAWING WAS PREVIOUSLY ISSUED AS:
H353004-0000-224-272-0038-0001
7. ALL CHAINAGES INDICATED FOR TOTE ROAD ARE LOCAL CHAINAGES.

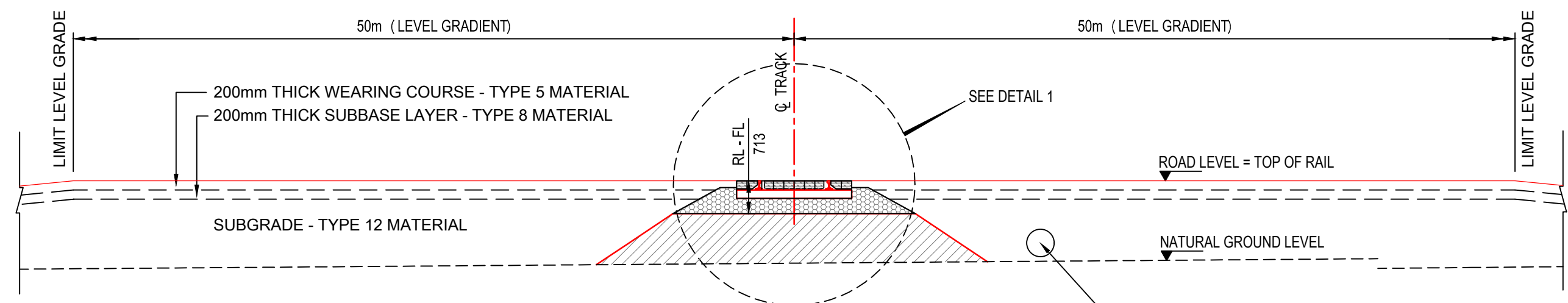
CO-ORDINATE LIST UTM (NAD83) ZONE 17		
	E	N
PI 1 START	511004.291	7667289.875
BCC CURVE A	511039.673	7667271.217
PI 2 CURVE A	511076.280	7667251.912
ECC CURVE A	511110.838	7667274.681
BCC CURVE B	511156.825	7667304.980
PI 3 CURVE B	511236.335	7667345.165
ECC CURVE B	511236.438	7667372.548
GRADE CROSSING	511246.335	7667235.423
BCC CURVE C	511270.720	7667075.314
PI 4 CURVE C	511281.350	7667022.902
ECC CURVE C	511335.082	7667040.119
BCC CURVE D	511545.666	7667108.560
PI 5 CURVE D	511572.150	7667116.085
ECC CURVE D	511596.441	7667111.829
PI 6 END	511613.091	7667108.911



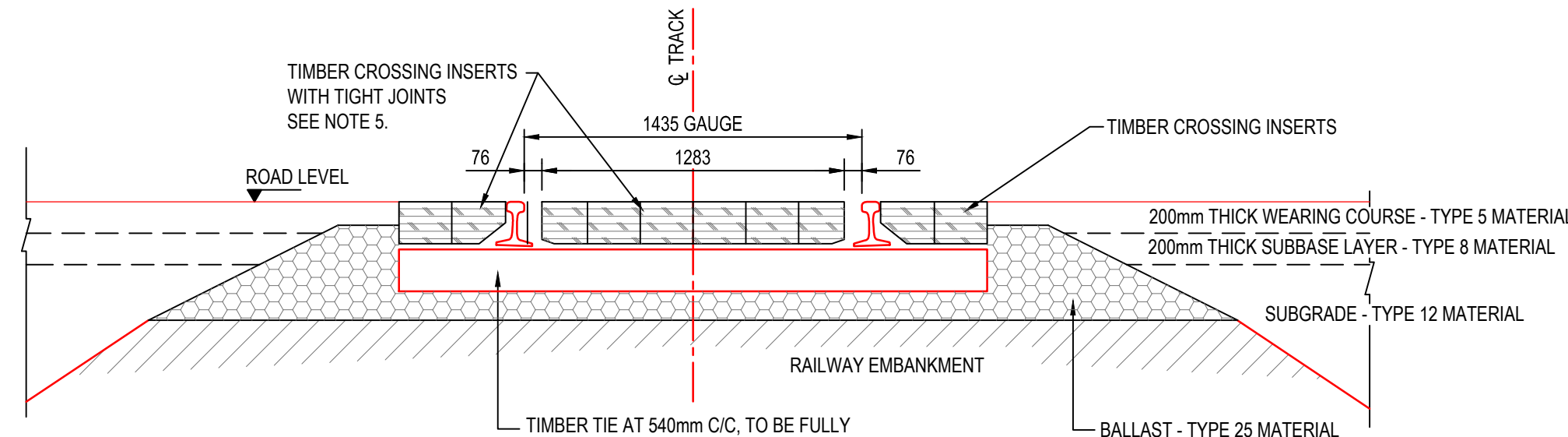
PLAN
SCALE 1:1000



LONGITUDINAL SECTION



CROSS SECTION THROUGH RAILWAY LEVEL CROSSING
SCALE 1:100



DETAIL 1
SCALE 1:25

PERMIT TO PRACTICE
HATCH LTD.
Signature _____
Date _____
PERMIT NUMBER: P 312
The Association of Professional Engineers,
Geologists and Geophysicists of NWT/NU

APPROVED FOR CONSTRUCTION

HATCH

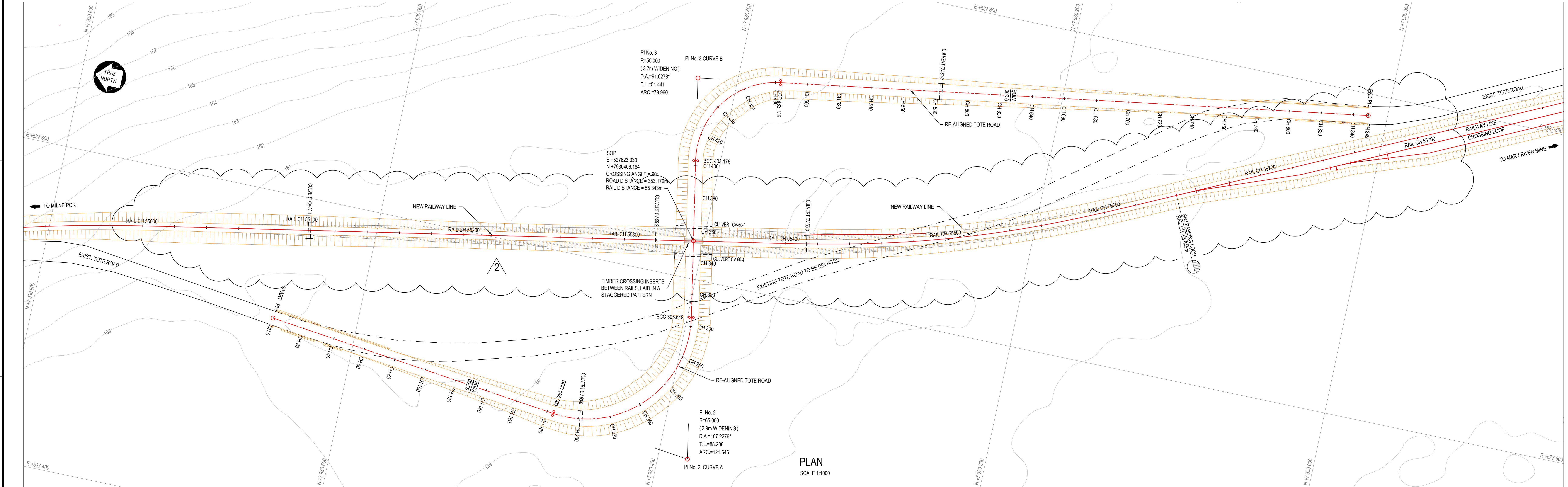
Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER PROJECT

TOTE ROAD
LAYOUT AND LONGITUDINAL SECTION
GRADE CROSSING AT RAIL CH. 12+420

SCALE: DWG. No. 1:1,000
OR AS NOTED
H353004-30000-224-271-0034-0001

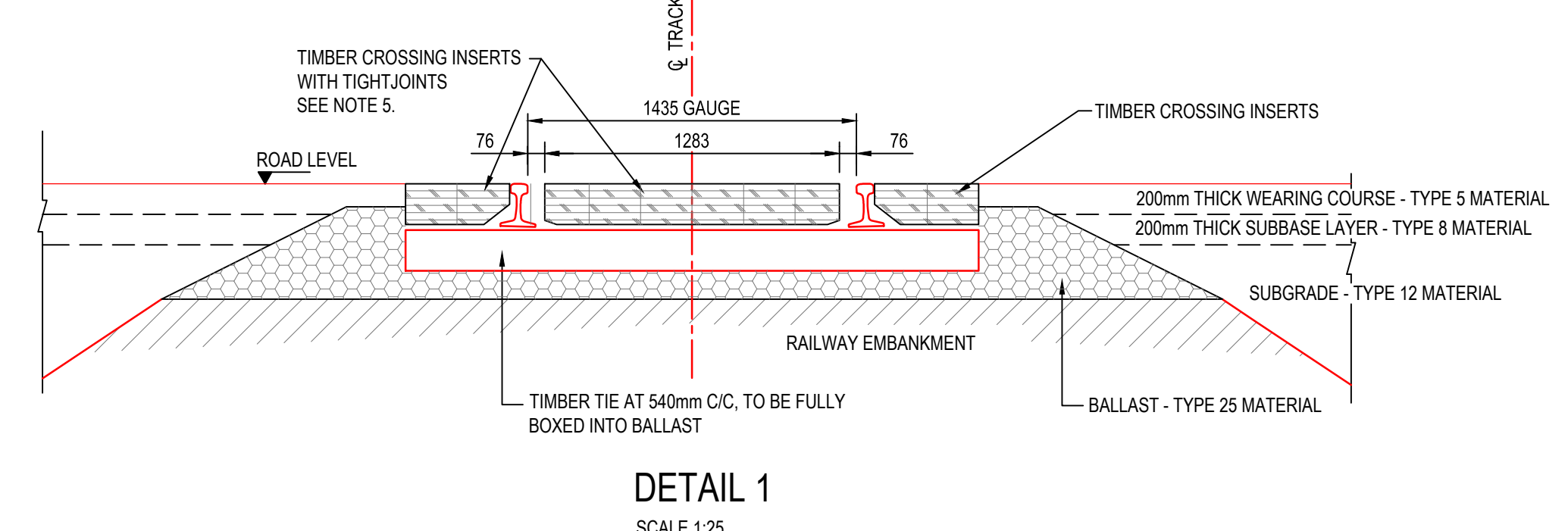
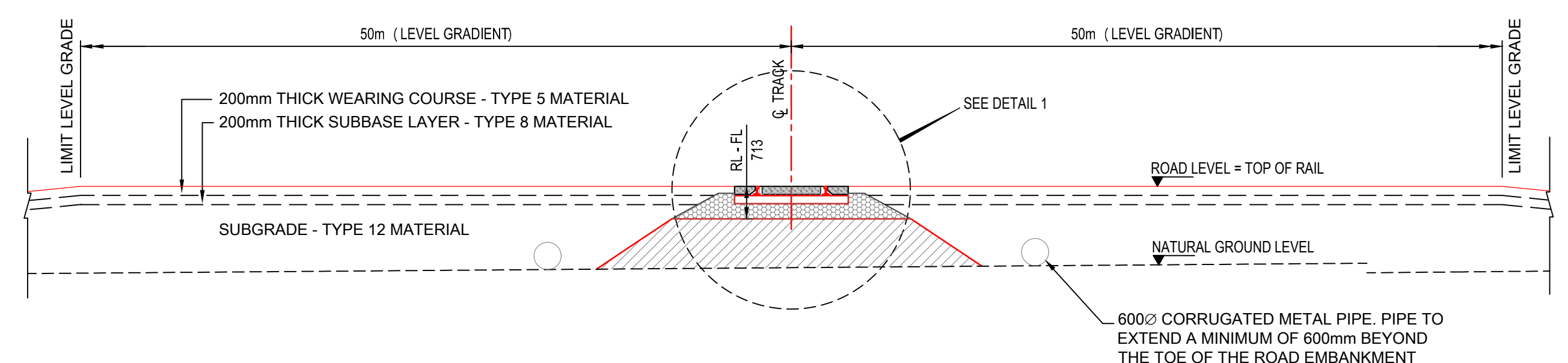
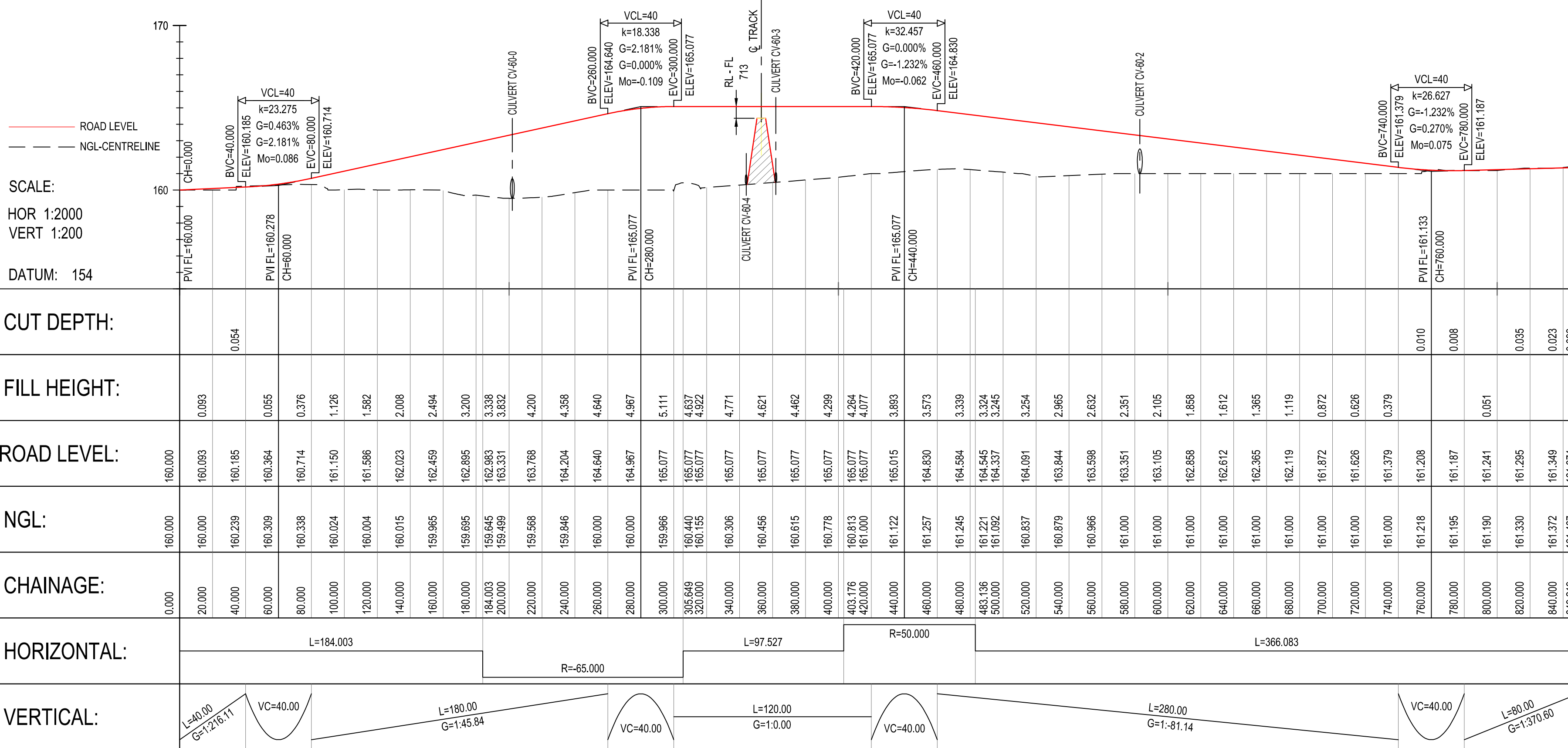
REV
3
SHEET SIZE: A

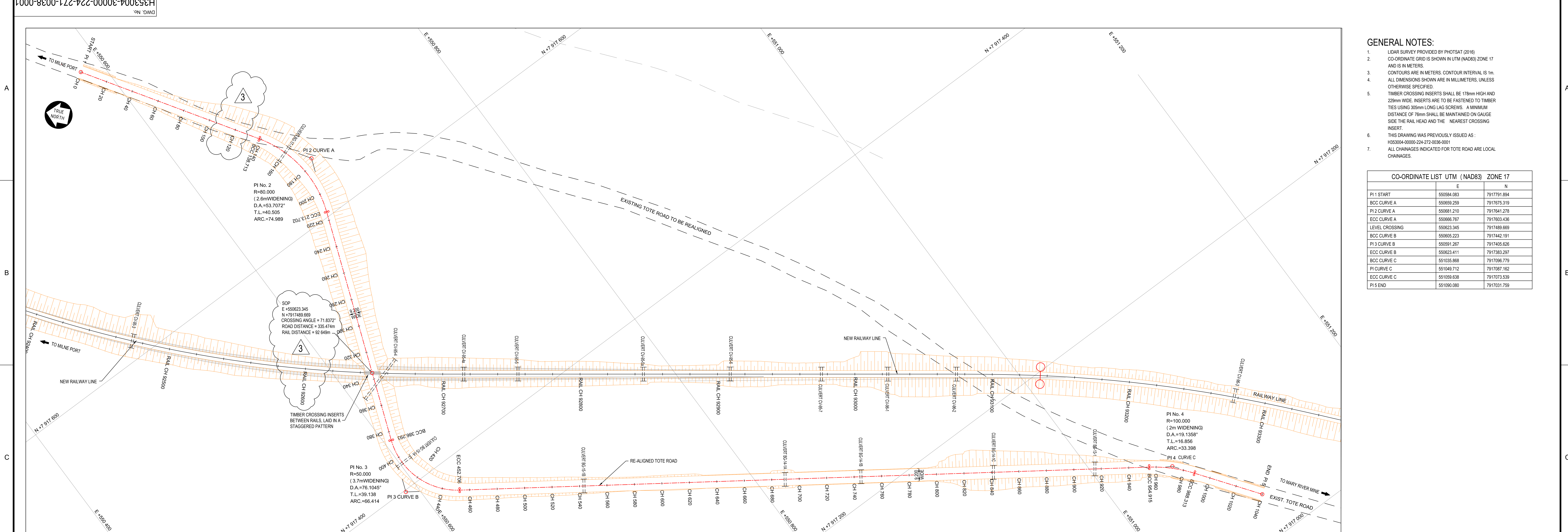


GENERAL NOTES:

1. LIDAR SURVEY PROVIDED BY PHOTSAF (2018)
2. CO-ORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METERS.
3. CONTOURS ARE IN METERS. CONTOUR INTERVAL IS 1m. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
4. TIMBER CROSSING INSERTS SHALL BE 178mm HIGH AND 228mm WIDE. INSERTS ARE TO BE FASTENED TO TIMBER TIES USING 305mm LONG LAG SCREWS. A MINIMUM DISTANCE OF 78mm SHALL BE MAINTAINED ON GAUGE SIDE THE RAIL HEAD AND THE NEAREST CROSSING INSERT.
5. THIS DRAWING WAS PREVIOUSLY ISSUED AS: H353004-00000-224-272-0035-0001
6. ALL CHAINAGES INDICATED FOR TOTE ROAD ARE LOCAL CHAINAGES.

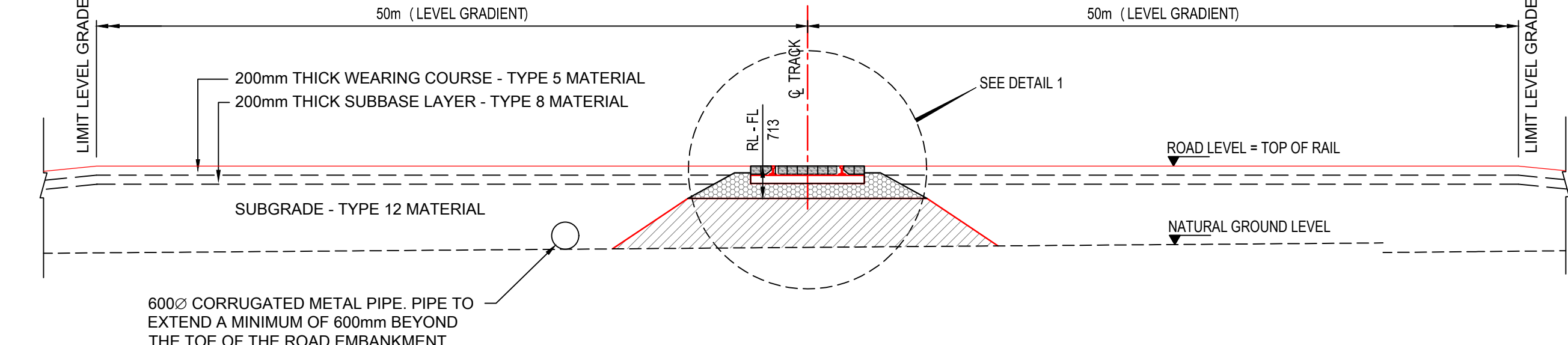
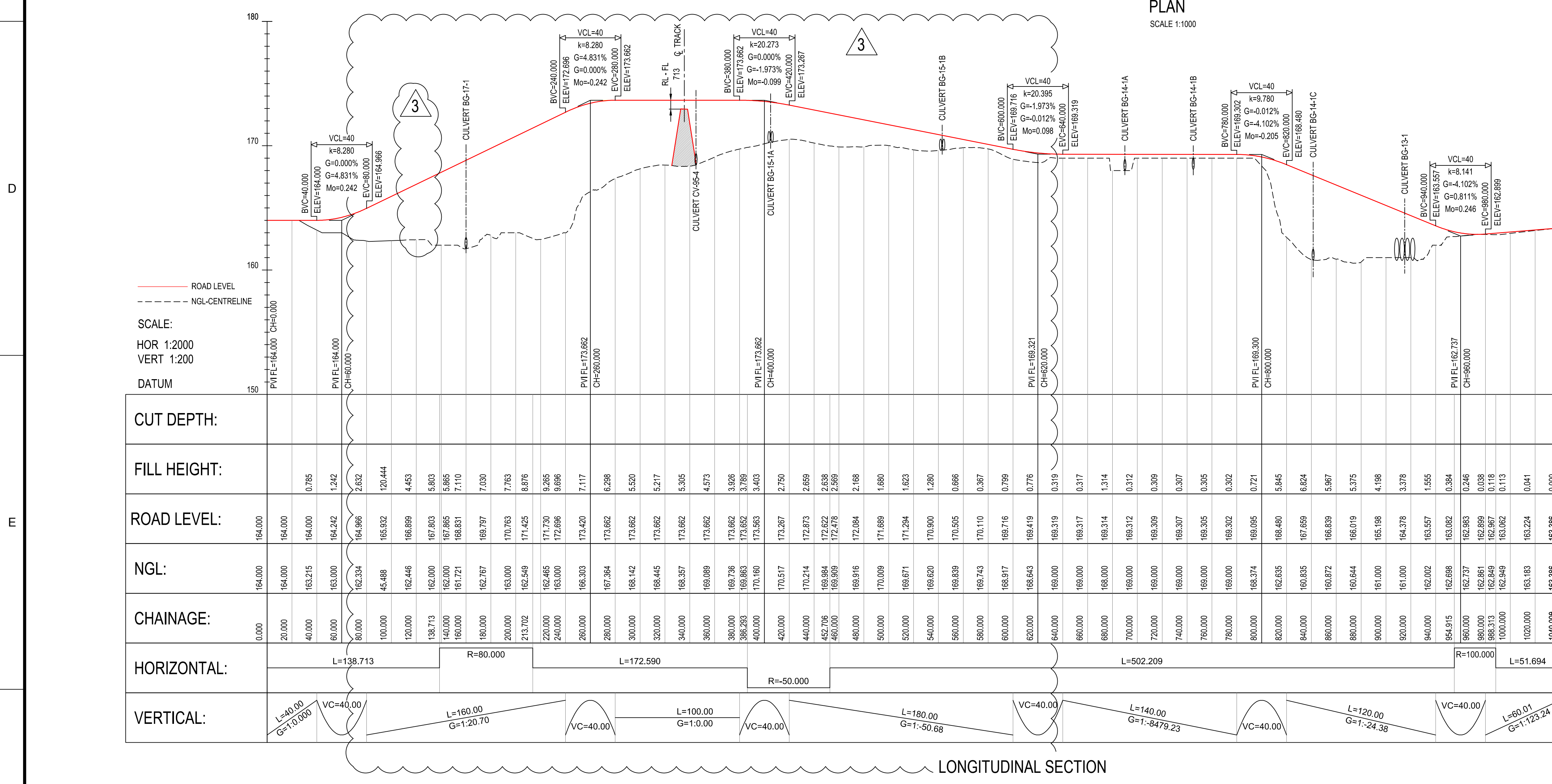
CO-ORDINATE LIST UTM (NAD83) ZONE 17		
	E	N
PI 1 START	527522.280	7930552.001
BCC CURVE A	527500.336	7930469.311
PI CURVE A	527489.816	7930381.732
ECC CURVE A	527576.581	7930397.622
LEVEL CROSSING	527523.330	7930406.184
BCC CURVE B	527672.512	7930415.191
PI CURVE B	527723.112	7930424.458
ECC CURVE B	527730.838	7930373.615
PI 4 END	527786.629	7930311.793





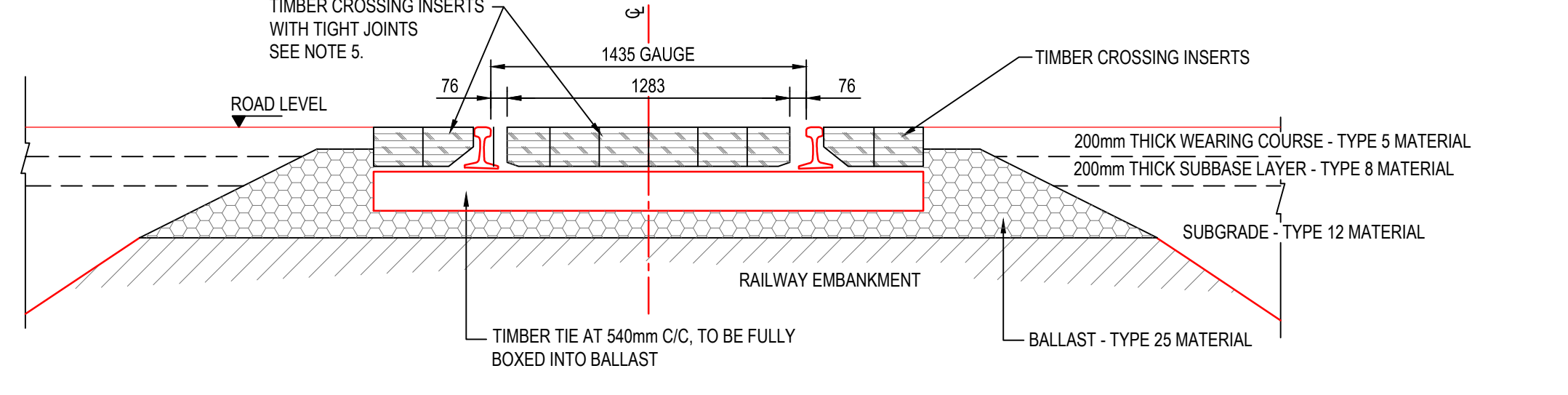
- GENERAL NOTES:**
1. LIDAR SURVEY PROVIDED BY PHOTASAT (2016)
 2. CO-ORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METERS.
 3. CONTOURS ARE IN METERS. CONTOUR INTERVAL IS 1m.
 4. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
 5. TIMBER CROSSING INSERTS SHALL BE 178mm HIGH AND 22mm WIDE. INSERTS ARE TO BE FASTENED TO TIMBER TIES USING 305mm LONG LAG SCREWS. A MINIMUM DISTANCE OF 76mm SHALL BE MAINTAINED ON GAUGE SIDE OF THE RAIL HEAD AND THE NEAREST CROSSING INSERT.
 6. THIS DRAWING WAS PREVIOUSLY ISSUED AS: H353004-0000-224-272-0036-0001
 7. ALL CHAINAGES INDICATED FOR TOTE ROAD ARE LOCAL CHAINAGES.

CO-ORDINATE LIST UTM (NAD83) ZONE 17		
	E	N
PI 1 START	550584.083	791791.884
BCC CURVE A	550659.259	7917675.319
PI 2 CURVE A	550681.210	7917641.278
ECC CURVE A	550666.767	7917603.436
LEVEL CROSSING	550623.345	7917489.669
BCC CURVE B	550605.223	7917442.191
PI 3 CURVE B	550591.267	7917405.626
ECC CURVE B	550623.411	7917383.287
BCC CURVE C	551025.868	7917086.779
PI CURVE C	551049.712	7917087.162
ECC CURVE C	551059.638	7917073.539
PI 5 END	551080.080	7917031.759



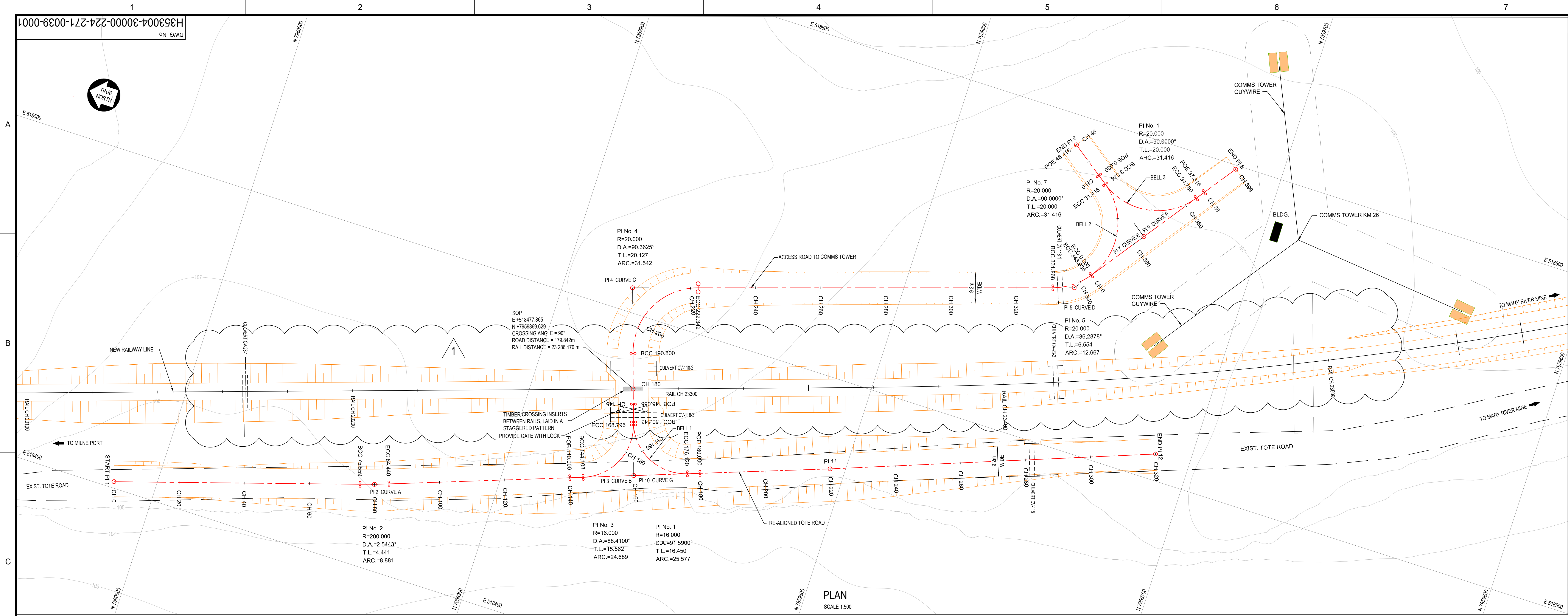
CROSS SECTION THROUGH RAILWAY LEVEL CROSSING

SCALE 1:100



DETAIL 1

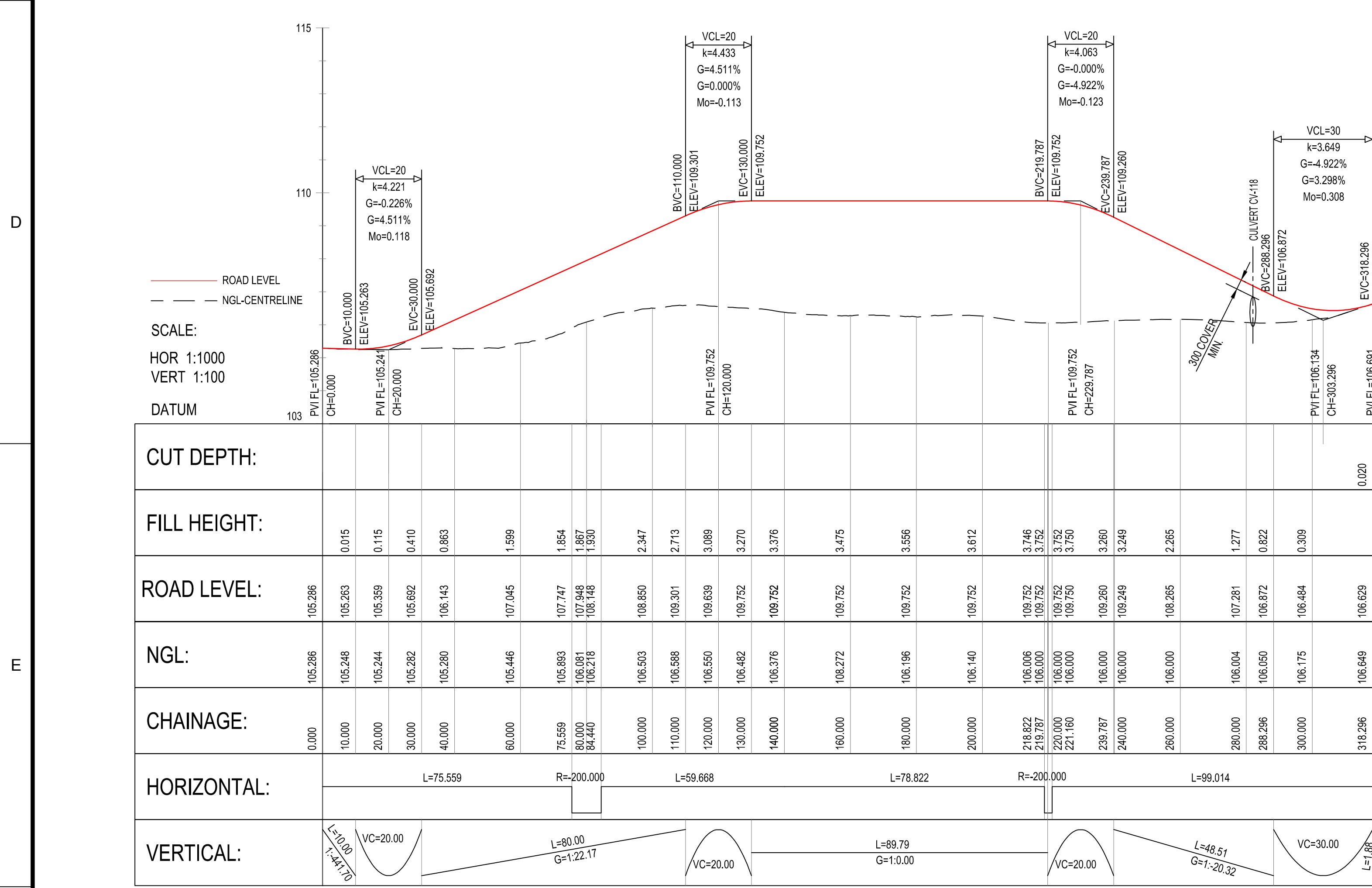
SCALE 1:25



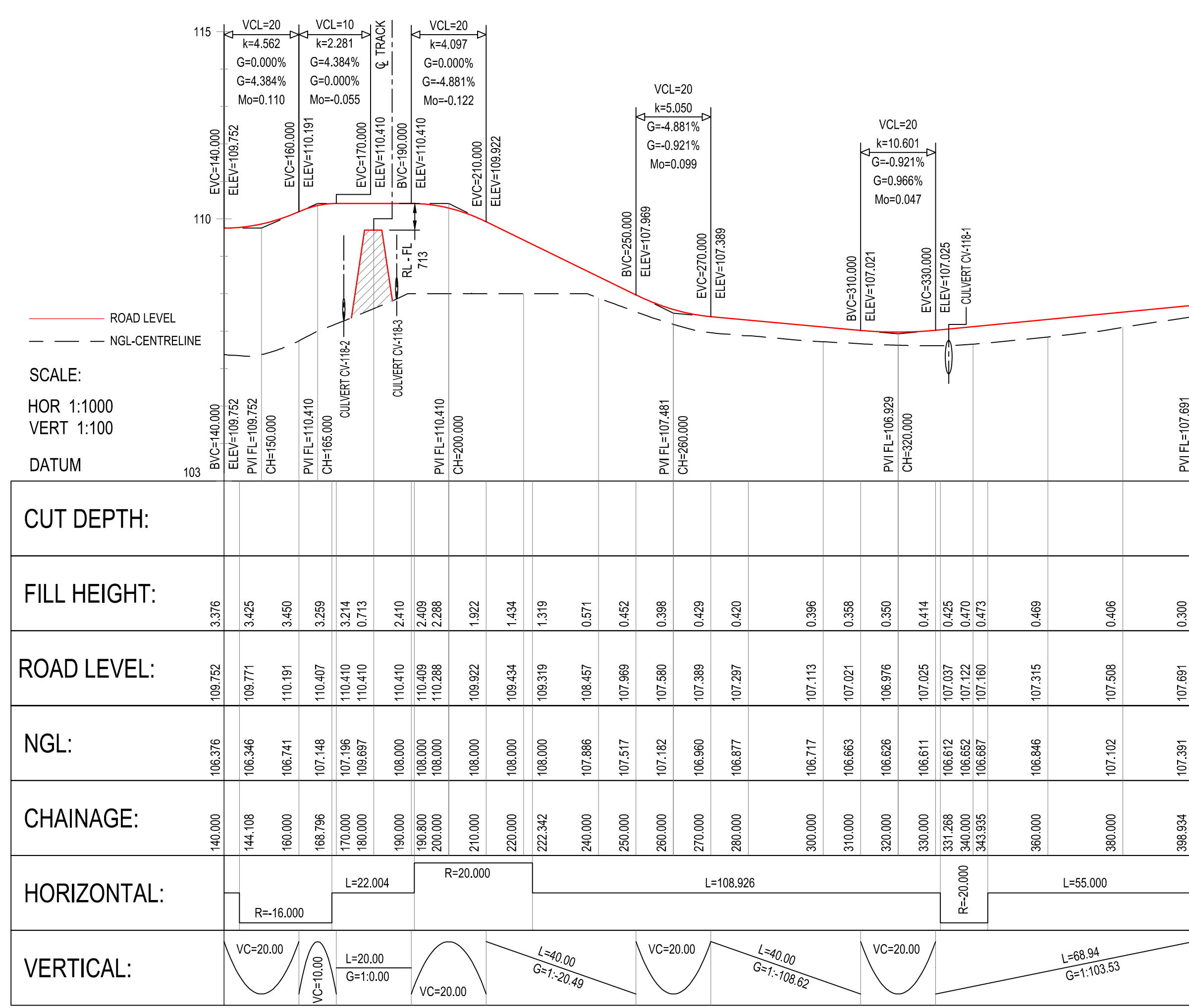
- GENERAL NOTES:
1. LIDAR SURVEY PROVIDED BY PHOTASAT (2016)
 2. CO-ORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METERS.
 3. CONTOURS ARE IN METERS. CONTOUR INTERVAL IS 1m.
 4. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
 5. TIMBER CROSSING INSERTS SHALL BE 178mm HIGH AND 22mm WIDE. INSERTS ARE TO BE FASTENED TO TIMBER TIES USING 305mm LONG LAG SCREWS. A MINIMUM DISTANCE OF 76mm SHALL BE MAINTAINED ON GAUGE SIDE THE RAIL HEAD AND THE NEAREST CROSSING INSERT.
 6. ALL CHAINAGES INDICATED FOR TOTE ROAD ARE LOCAL CHAINAGES.

CO-ORDINATE LIST UTM (NAD83) ZONE 17		
	E	N
PI 1 START	518401.920	796012.700
CULVERT CV-32-1	518419.688	7959955.395
BCC CURVE A	518424.309	7959940.535
PI CURVE A	518425.625	7959936.293
ECC CURVE A	518427.128	7959932.113
BCC CURVE B	518447.320	7959875.966
PI 3 & 10 CURVE B & G	518452.588	7959861.322
ECC CURVE B	518467.371	7959866.180
CULVERT	518470.210	7959867.113
LEVEL CROSSING	518477.885	7959869.628
BCC CURVE C	518488.275	7959873.049
PI CURVE C	518507.396	7959879.332
ECC CURVE C	518513.558	7959880.172
BCC CURVE D	518546.906	7959756.477
PI CURVE D	518548.912	7959750.237
ECC CURVE D	518554.232	7959746.396
Q1'S END	518598.763	7959714.157
PI 7 & 8 CURVE E & F	518570.426	7959734.673
ECC CURVE E & BCC CURVE F	518592.148	7959750.877
PI 8 END	518590.942	7959763.000
ECC CURVE F	518596.632	7959722.950
BCC CURVE G	518458.153	7959845.843
ECC CURVE G	518458.153	7959845.843
PI 11	518473.003	7959804.552
CULVERT CV-32-2	518478.138	7959790.779
PI 12 END	518507.945	7959710.846

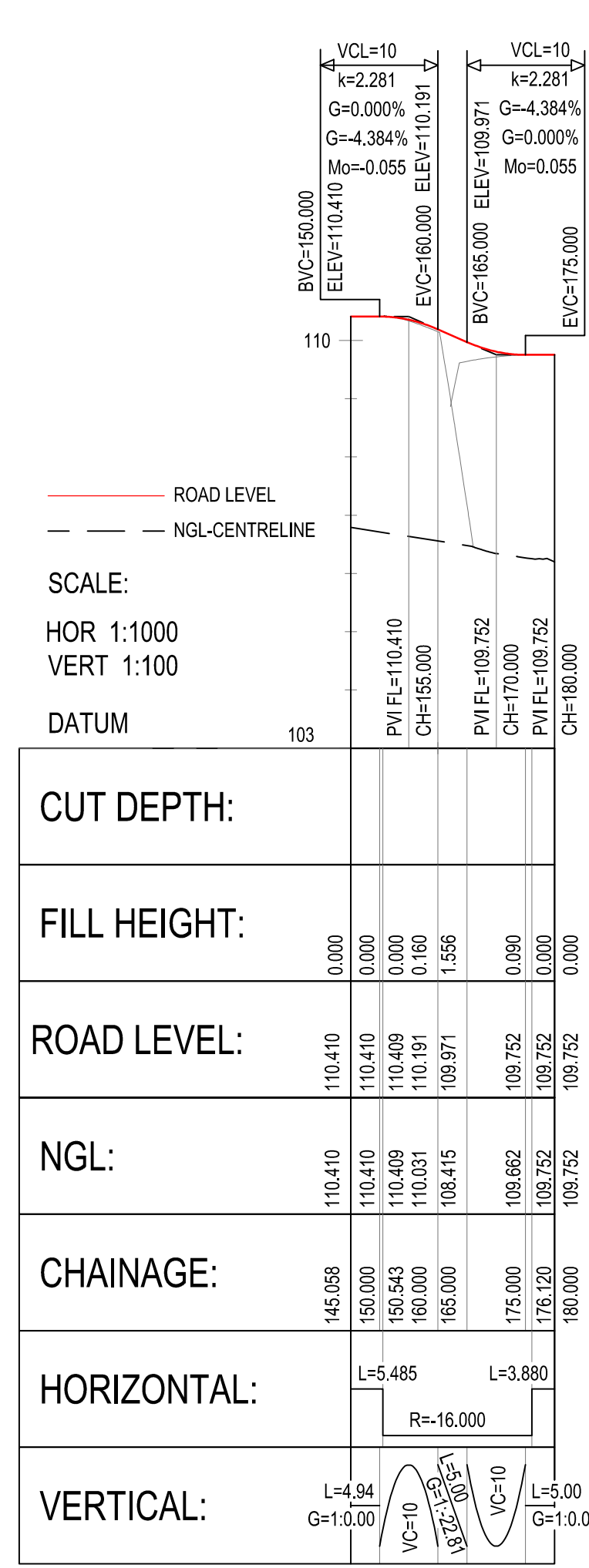
LEGEND:
R = RADIUS
D.A. = DEFLECTION ANGLE
T.L. = TANGENT LENGTH
ARC = ARC LENGTH
VCL = VERTICAL CURVE LENGTH
k = k-FACTOR
G = GRAVIENT
Mo = MID ORIGINATE
CH = ROAD CHAINAGE
RAIL CH = RAIL CHAINAGE



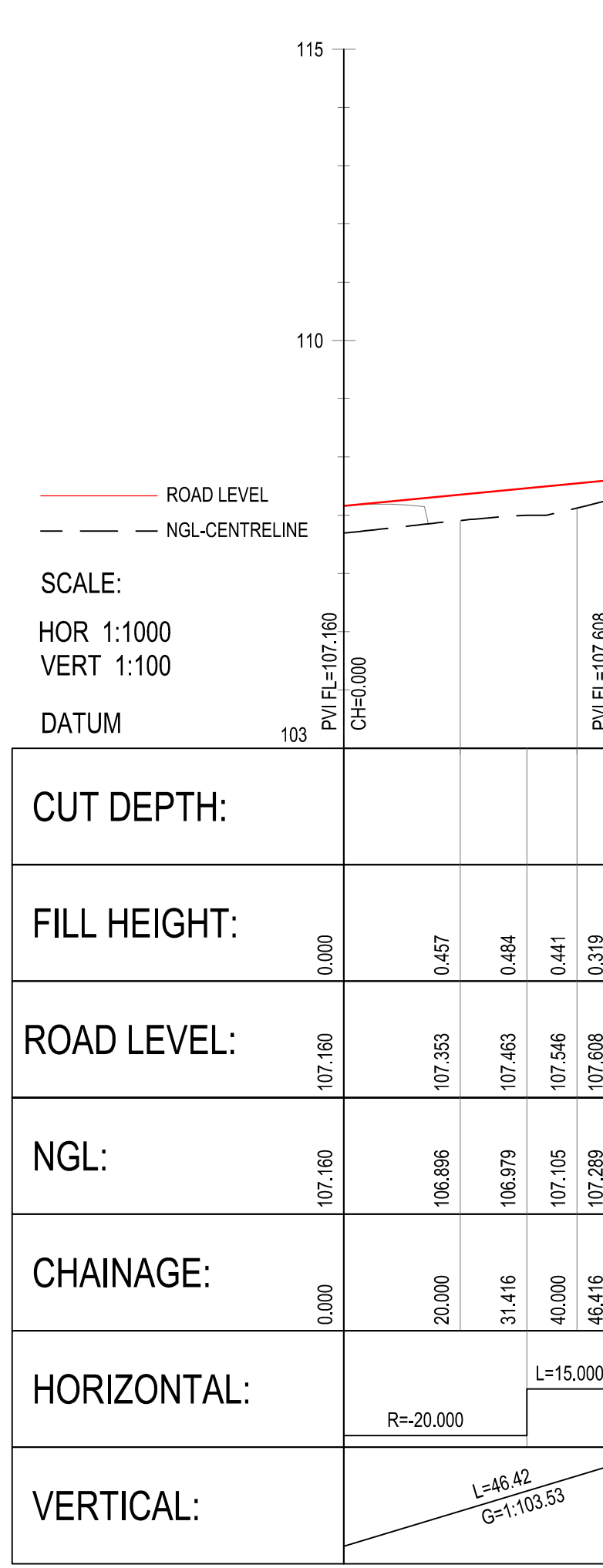
LONGITUDINAL SECTION - TOTE ROAD



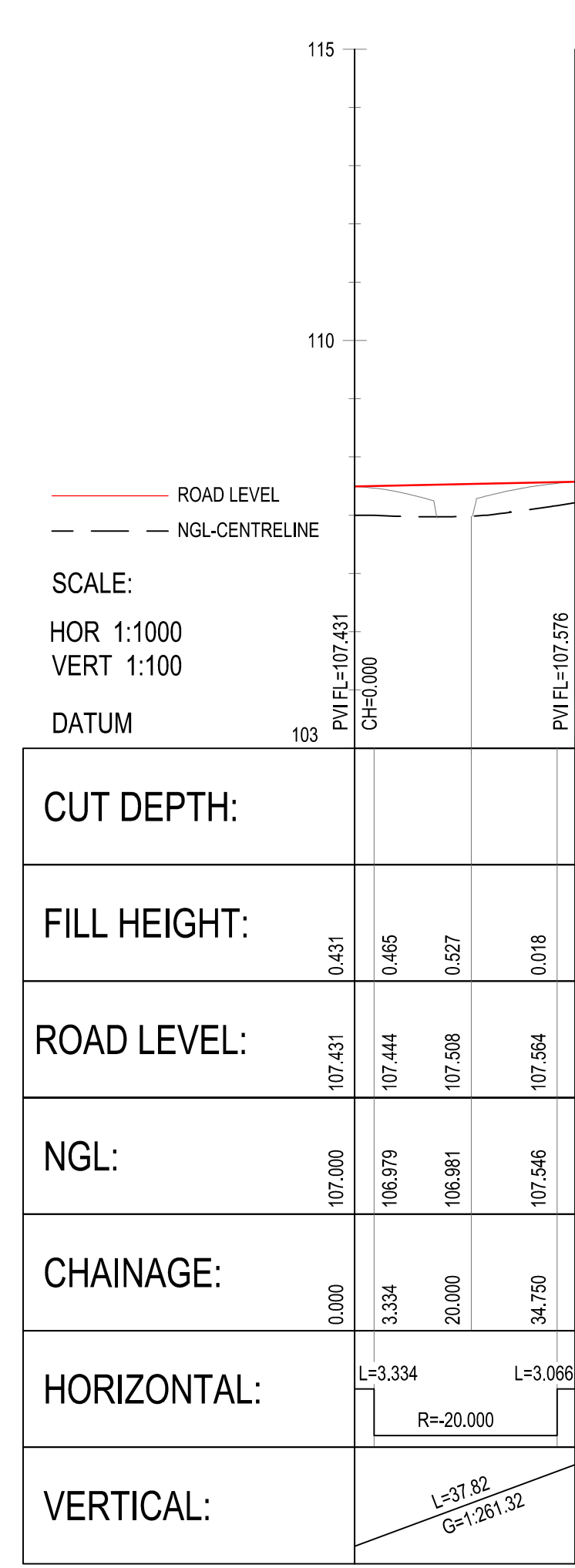
LONGITUDINAL SECTION - ACCESS ROAD



LONGITUDINAL SECTION - BELL 1



LONGITUDINAL SECTION - BELL 2



LONGITUDINAL SECTION - BELL 3

DRAWING No.	DRAWING TITLE
H353004-30000-224-294-0007	ROAD SIGNAGE DETAIL
H353004-30000-224-294-0010	TYPICAL HAIL ROAD CROSS SECTION
H353004-30000-224-294-0009	TYPICAL LEVEL CROSSING LAYOUT
H353004-30000-224-273-0027	CROSS SECTIONS CH. 0.000m TO CH.399.000m

REFERENCE DRAWINGS
1
2
3
4
5
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8

FOR CONSTRUCTION
1
2
3
4
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6
7
8

REVISIONS
1
2
3
4
5
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7
8

DRAFTSPERSON	A VAN NIEKERK	NR	2018/08/20
DESIGNER	A VAN NIEKERK	NR	2018/08/20
CHECKER	A AQUIL		
DESIGN COORD.	A AQUIL		
RESP. ENG.	D STANGER		
LEAD DISC. ENG.	F VAN BILJON		
AREA LEAD	F VAN BILJON		
ENG. MANAGER	D STANGER		
AREA MANAGER	F PITTMAN		

PERMIT TO PRACTICE	HATCH LTD
Signature	
Date	
PERMIT NUMBER	P-512
The Association of Professional Engineers, Geologists and Geophysicists of NWTTA	

HATCH

Baffinland

BAFFINLAND IRON MINES LP
MARY RIVER EXPANSION PROJECT

TOTE ROAD - COMMS TOWER ACCESS
GRADE CROSSING AT RAIL CH. 23+286
LAYOUT & LONGITUDINAL SECTION

SCALE: DWG. No. 1:500 OR AS NOTED

REV 2

H353004-30000-224-271-0039-0001