Design Report

Merrimu PSP – Preliminary Road Alignment Feasibility Advice

Prepared for: DTP (VPA)
12 February 2026
Reference No. 30043805

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1. Project Understanding

1.1 Project Background

Merrimu Precinct Structure Plan (PSP) is located 46km north-west of Melbourne's CBD, north-west of Bacchus Marsh town centre. The PSP will deliver housing, community and education facilities, a retail centre with local employment opportunities along with a series of local parks, roads and drainage network to support the future community. The development land is primarily used for agricultural purposes, established rural residential development, with sections located within nature reserves.

1.1.1 Scope

SMEC's scope for concept design and cost estimating comprises the following projects:

- Buckleys Road Upgrade
- Flanagans Drive Upgrade
- East-West Connector – between Bences Road and Flanagans Drive

1.2 Reference Documents and Supporting Information

1.2.1 Infrastructure Standards

The following design standards and documents will be adopted:

- Engineering Design and Construction Manual for Subdivision in Growth Areas (VPA, December 2019)
- Guidance for Planning Road Networks in Growth Areas (DTP, 2015)
- Benchmark Infrastructure Report (VPA, April 2019)
- DTP Road Design Note RDN 04-01, Heavy Vehicle Network Access Considerations (July 2019)
- Austroads Guide to Road Design
- Austroads Design Vehicles and Turning Path Templates

2. Proposed Precinct Structure Plan

2.1 Road Connections

3 new roads (ultimate) are planned within the Merrimu PSP. The road projects are summarised in Table 1.

Table 1 - Merrimu Road Projects

Item No.	Project No.	Item	Project Description	Design Requirements
1	RD-01	Buckleys Road	Connector Street (Gisborne Rd to Bacchus Marsh Eastlink Rd West Extent)	2 lanes – 50 km/h
2	RD-02	Flanagans Drive	Connector Street (Bacchus Marsh Rd to Lindsay Ave)	2 lanes – 50 km/h
3	RD-03	East-West Connector	Secondary Arterial (Bences Rd to Flanagans Dr)	Interim 2 lanes – 60 km/h Ultimate 4 lanes – 60 km/hr

Notes

1. Design speeds are based on typical design speeds for VPA benchmark designs.

2.2 Intersections

No intersection projects within SMECs scope for the DCP.

2.3 Shared Use Paths

Shared user paths on Projects RD-02 and RD-03 will be included as part of the roads projects. The paths are to be 3.0m wide shared use paths as per Engineering Design and Construction Manual for Subdivision Growth Areas and Austroads guidelines.

2.4 List of Constraints

A below list of constraints will be utilised by SMEC in production of the draft concept plans:

- Cadastral / property boundaries;
- Reuse of existing carriageways / pavements where possible;
- Existing vegetation
- Significant steep grades
- Location of Sodic Soils
- Design / check vehicles

2.5 Actions for VPA

The below list of actions to be completed by the VPA to assist SMEC in the production of the schematic plans.

- Confirmation of road project designs an costings

3. Design Development / Optioneering

The Merrimu Precinct sits on an elevated plateau that is currently serviced by existing roads of steep grade. The existing road alignments border on, or exceed vertical alignment grade limits specified in the Engineering Design and Construction Manual (EDCM) and persist for longer than the recommended distance. These conditions present unique constraints for road design and future challenges for future road traffic at the development site. SMEC therefore deems the current vertical alignment broadly unsuitable for the Merrimu precinct.

SMEC proposes a design which cuts the existing surface to improve the vertical inclines. The design is a balance between minimising cut volumes while maintaining a best-possible vertical alignment. Nevertheless, deep cut and wide batters are necessary in places, and may lead to greater land-take.

3.1.1 Design criteria

AGRD Part 3 – Geometric Design and the EDCM were used to inform vertical and horizontal alignment decision making. EDCM Table 3 dictates the desirable-maximum grade for a Connector Road to be 6%, however where topography makes it difficult to provide a road location which will conform to desirable-maximum grades, such as the topography at Merrimu, grades up to the absolute-maximum may be used. Absolute-maximum vertical grades for Connector Streets are stipulated as 10%. AGRD also provides guidance on length of grade with consideration of vehicle speeds, therefore flat relief sections are incorporated in designs where possible or a reduction from the absolute maximum is proposed where possible on long lengths of vertical grade. Clause 8.5.4 proposes a maximum speed reduction of 15 km/h to be adopted when determining critical grade lengths.

3.1.2 Future Design Considerations

Wide batters exist principally on steep and difficult to develop land. However, retaining walls should be considered at certain locations, such as the beginning of MC10, CH 56 of MC20 and the southern boundary at Buckleys Road. Lane widening is required to accommodate design vehicles.

3.2 RD-01 – Buckleys Road

3.2.1 Existing conditions

Buckleys Road (DRG-0201) experiences a maximum 14 percent incline with an average 11 percent grade. These conditions are not considered suitable for this road being upgraded to a Connector Road with connection to property development and will require significant cut or an alternative horizontal alignment to achieve (or approach) compliance with the limits set out in AGRD 03.

3.2.2 Proposed Alignment (MC30)

Buckleys Road existing alignment straddles the PSP boundary to the southern side of the road reserve between Ch 0 and Ch 400. Due to the gradeline requirements, the use of batters would encroach over the PSP boundary if the existing Buckleys Rd road reserve. For this reason, the alignment has been shifted north to avoid this encroachment. Retaining walls were considered along the road to minimise the road reserve as an alternative, however not progressed with in the design.

This alignment therefore presents significant constraints, namely:

- Significant cut volume
- Approach grades to the Gisborne Road
- Challenging vertical alignment for design vehicles

3.2.3 Vertical Geometry

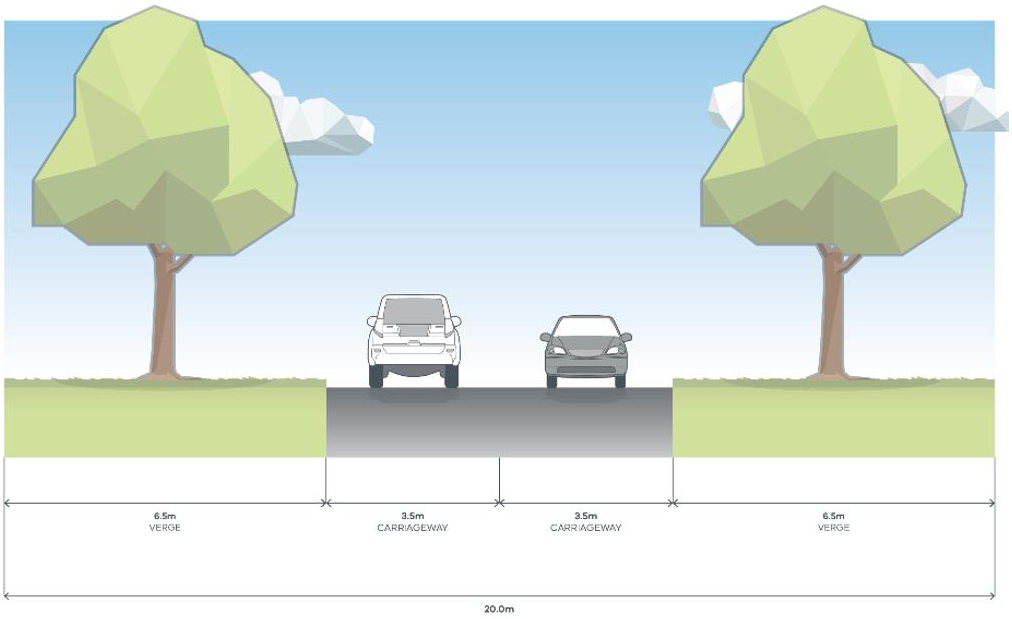
The design of MC30 sits at a maximum of 12m below existing surface at CH 540, with batters extending 36m either side of the line of kerb. At this cut, the road retains a 9 percent incline over 600m.

The approach to Gisborne Road was a design consideration due to the combined effects of increased traffic volumes and a significant downhill grade on the intersection approach. To mitigate the associated risk of rear end accidents on the approach, the approach gradeline was flattened by providing 15 m of 3% grade (equivalent to one 12.5 m design truck length), with the remaining 40 m deceleration distance accommodated on the vertical curve as the grade gradually increases.

3.2.4 Proposed Cross-section

Buckleys Road cross-section is for a Connector Street typical section. The cross-section is shown below in Figure 1.

Figure 1 – Buckleys Road cross-section



3.3 RD-02 – Flanagans Drive

3.3.1 Existing Conditions

Flanagan's Drive (DRG-0202, MC20) consists of two steep inclinations of 10% and 11%, over distances of about 200 and ~250m, separated by a 2.5% section of distance ~120m. A tie into Streeton drive exists at chainage 800. Horizontal geometry is constrained by existing residential land parcels. The steep inclination exceeds AGRD Part 3 guidelines for vertical alignment.

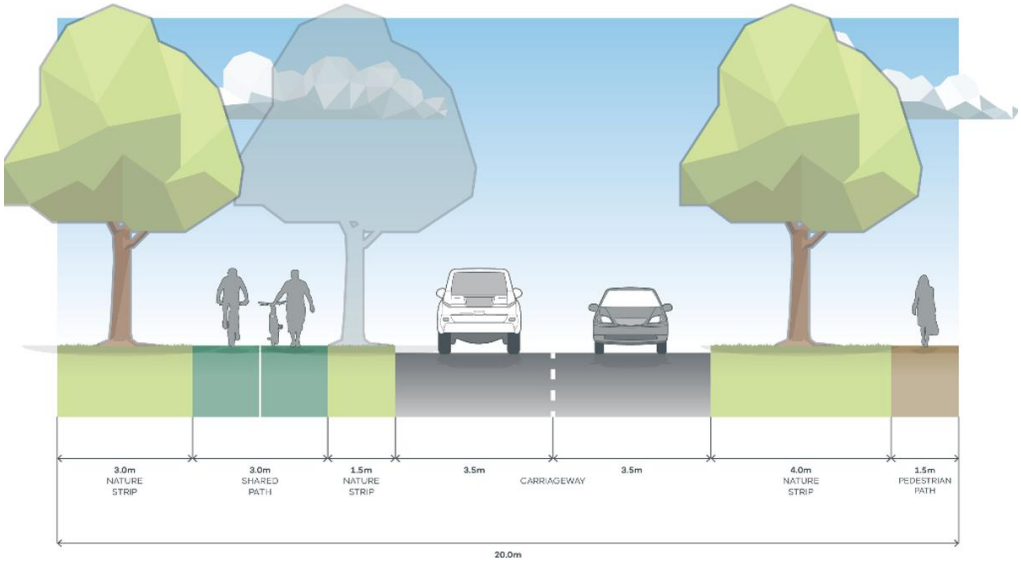
3.3.2 Proposed Alignment (MC20)

SMEC proposes a design which retains the current horizontal alignment as far as practical. Existing property access locations, including Streeton Drive, are to be maintained due to current landowners having no plans to develop their land. As a result, the proposed gradeline has been designed to accommodate and align with these access points as far as practical.

3.3.3 Proposed Cross-section

Flanagans Drive cross-section is for a Connector Street typical section. The cross-section is shown below in Figure 2 with the eastern side footpath only being location north of the existing Streeton Drive connection.

Figure 2 – Flanagans Drive cross-section



3.3.4 Vertical Grade

The grade on Flanagans Drive is proposed to meet the absolute-maximum grade of 10%. This gradeline comprises of 2 shorter sections of 10% grade with a flat section in the centre to allow vehicle speeds to recover. This design Is an improvement to the existing alignment which contains slopes of greater than 10%. Reducing the grades below 10% would result in access to existing properties being impacted by the works.

3.4 RD-03 – East-West Connector

3.4.1 Proposed Alignment (MC10)

The proposed East West Connector (DRG-0203, MC10) ties into Flanagan's Drive at CH 200, at the location nominated for IN-08 in the DCP, and runs south of the existing creek bed, cutting into the existing slope. This was favoured over a later tie-in as it avoids costs associated with construction over the creek bed.

The horizontal alignment is constrained by:

- Steep embankments
- Creek bed adjacent to the connector (to CH 180)
- Lateral slope

The road alignment generally sits below the existing surface at a typical depth of 2-4m and meets the existing surface. The maximum grade is 6% in line with arterial road requirements. The cut levels led to wide batters on the left side alignment.

The alignment is located near land with cultural and heritage significance. This has not been identified as a no-go zone and the design alignment that minimises impact to the land has been selected.

3.4.2 Proposed Cross-section

The East-West Connector cross-section is proposed as a Secondary Arterial with the following cross-section requirements;

- 4 lanes (interim 2 lanes vs ultimate 4 lanes)
- Shared path on one side of the road as part of the interim
- As narrow as possible to minimise the impact of culturally sensitive landscape

3.5 Sodic and Dispersive Soil Methodology

WSP have undertaken an analysis of the site to assess the characteristic of the soil sodicity and understand correlations with soil dispersion and potential for erosion. The findings, as documented in the "Merrimu PSP – Sodic-Dispersive Soils Peer Review and Assessment (WSP) May 2023" report of the sodic soil assessment indicate that erosion risks resulting from exposure of sodic and dispersive soil are high for the three road projects within the scope of SMECs work. The below Figure 3 shows the mapping produced by WSP.

Based on our review of the sodic soil mapping and the proposed concept design, soil stabilisation measures and engineering controls as summarised in Table 2 and Table 3 are proposed for the design and construction of the proposed development of this project. Maximum cut slopes of 1 in 3 are proposed, with engineering controls applied to these slopes with use of erosion control mesh.

Figure 3 – Sodic Soils Erosion Risk Map - WSP

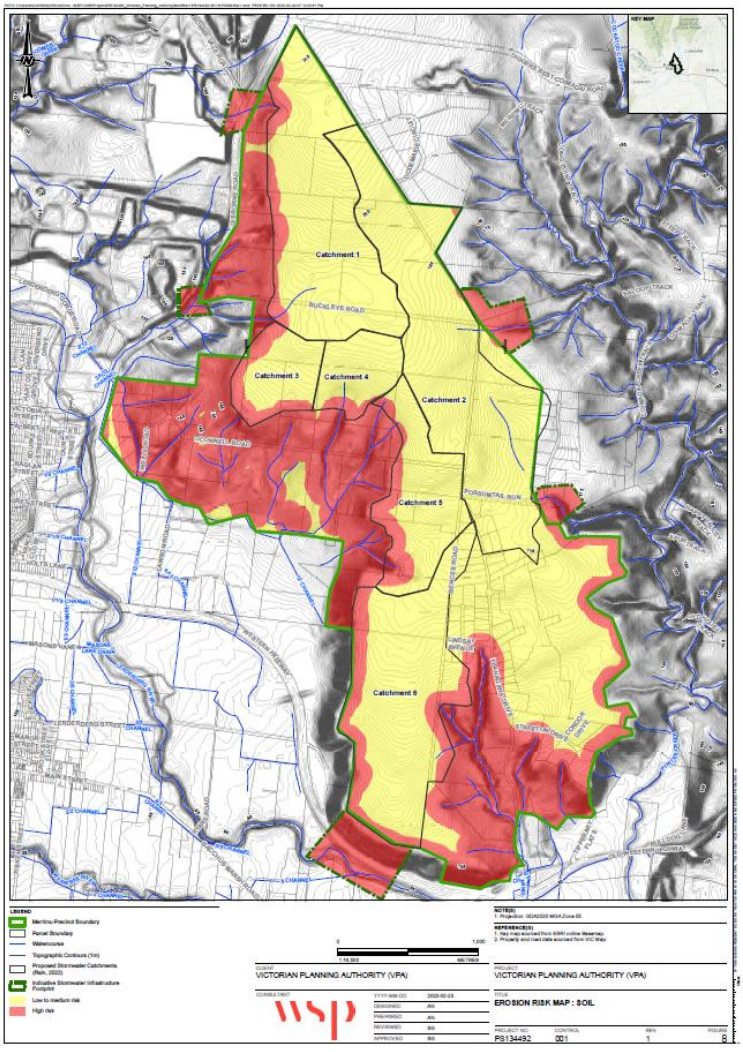


Table 2 – High level recommendation on control measures for managing dispersive soils

Purposed Works	Identified Geotechnical Risks	Recommended Control Measures
Subgrade preparation and foundation	Soil erosion due to the dispersive nature of the subsurface soil Dispersive soils are highly prone to erosion when exposed to water, causing instability of road base and foundation of the bridge crossing.	• Undertake detailed site investigation to assess the subsurface conditions and stability of the road subgrade founding materials to inform suitable foundation design and appropriate protection to any exposed soil such as batters. • Improve the subgrade layer by replacing the existing dispersive soil and reactive clay (immediate below the proposed subgrade or founding level) with imported granular fill materials for a nominal 200-300 thick layer. • Adopt lime treatment on the soil layers below the replaced fill if required by design. • Incorporate drainage collection and diversion system in the foundation design to ensure no waterlogging or ponding in and around the subgrade or foundation particularly if parts of the backfill around foundation are to be exposed. • Adopt high level compaction to the subgrade and foundation layers. • All finishes of soil layer should be vegetated to control surface runoff and minimise erosion risk.
Re-use of site won materials	Soil erosion due to the dispersive nature of subsoil material if not managed properly Dispersive soils are highly susceptible to erosion when expose to water from rainfall or surface runoff	• Recommend stripping off the topsoil for reuse for vegetation within site • Apply capping layer to cover and protect the recycled subsoil when re-use on site during construction • Alternatively, apply gypsum treatment to the subsoil • Gypsum-modified subsoil can only be used outside of the road corridors
Road Pavement	Instability of the road base due to the reuse of site won materials and subgrade is subjected to high groundwater table Majority of the site is found to be underlain by dispersive soil	• Conduct a ground investigation and laboratory testing to determine the characteristics of the subsurface soils and the depths to groundwater across the site • Apply lime treatment on site won materials before reusing them for subgrade or capping layer • Lime-modified materials should be compacted and tested to comply with DTP/VicRoads standards • Limit batter slope to 1:4 batters. Any slope steeper than 1:4 to be installed with erosion control mats
Steep slopes	Dispersive soil result in soil erosion especially during heavy rainfall Soil wash-off or flooding in downslope can be expected due to the decrease in elevation during heavy rainfall.	• Apply lime treatment to stabilise dispersive soils in the steeper or more critical part of the slope • Recommend improving surface cover protection such as rock/concrete barriers, geotextiles or vegetation to prevent soil from being washed away by rainwater

Based on the above summary of potential treatments, the below treatments have been adopted and applied to the road projects based on the dispersive soil conditions expected.

Table 3 – Sodic soil contingency application

Treatment Option	Applied to projects
Provision of soil stabilisation using gypsum to topsoil and 150mm of earth beneath topsoil	All top soiled areas
Batter protection matting	For area of 1 in 3 batter slopes
Lime stabilisation for soil	Area of road pavement up to 0.5m Back of kerb

Appendix A PSP Design

REV	DESCRIPTION	DESIGNED	CHECKED	IND REV	APP'D	DATE
B	DRAFT SCHEMATIC DESIGN	GC			GC	12/02/26
A	DRAFT SCHEMATIC DESIGN	GC			GC	16/12/25

FILENAME 30043805-SME-CVR-DRG-0201.dgn

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INDEPENDENT REVIEW BY

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APPROVED BY AND DATE G CHRZANOWSKI 2026-02-12

RPEV NAME & No. G CHRZANOWSKI PE0008305

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VICTORIA State Government

COORD SYSTEM MGA2020 Z55

SUITABILITY S5

CIVIL - ROADWORKS

LOCATION	UP	DOWN
EAST		
NORTH		
ID No.		

ROAD No. / SITE No.

STRUCTURE No.

MERRIMU PSP
RD-01 BUCKLEYS ROAD
ROAD ALIGNMENT
DRAFT SCHEMATIC DESIGN

PROJECT DRAWING No. 30043805-SME-CVR-DRG-0201

REV. B

CONTRACT No. | SHEET No. | DRAWING No. | REV.

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ID No.		

ROAD No. / SITE No.
STRUCTURE No.

PROJECT DRAWING No. 30043805-SME-CVR-DRG-0202
REV. B

MERRIMU PSP
RD-02 FLANAGANS DRIVE
ROAD ALIGNMENT
DRAFT SCHEMATIC DESIGN

CONTRACT No. | SHEET No. | DRAWING No. | REV.

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REV. B

MERRIMU PSP
RD-02 FLANAGANS DRIVE
ROAD ALIGNMENT
DRAFT SCHEMATIC DESIGN

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NORTH		
ID No.		

ROAD No. / SITE No.

STRUCTURE No.

PROJECT DRAWING No. 30043805-SME-CVR-DRG-0203

REV. B

MERRIMU PSP
RD-03 NEW EAST WEST CONNECTOR
ROAD ALIGNMENT
DRAFT SCHEMATIC DESIGN

CONTRACT No. | SHEET No. | DRAWING No. | REV.

REV	DESCRIPTION	DESIGNED	CHECKED	IND REV	APP'D	DATE
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COORD SYSTEM: MGA2020 Z55
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MERRIMU PSP
RD-03 NEW EAST WEST CONNECTOR
ROAD ALIGNMENT
DRAFT SCHEMATIC DESIGN

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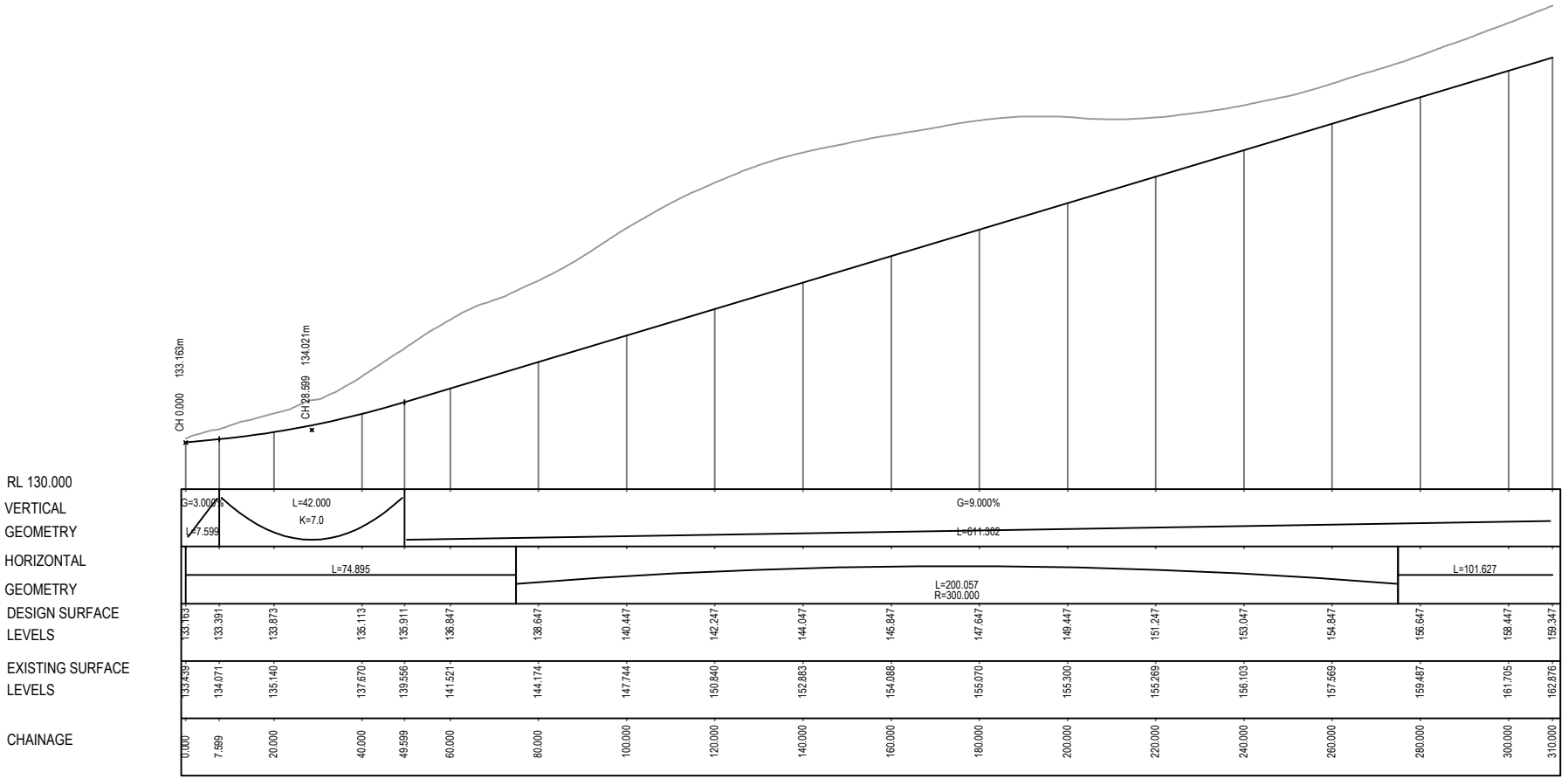
Appendix B Long Sections



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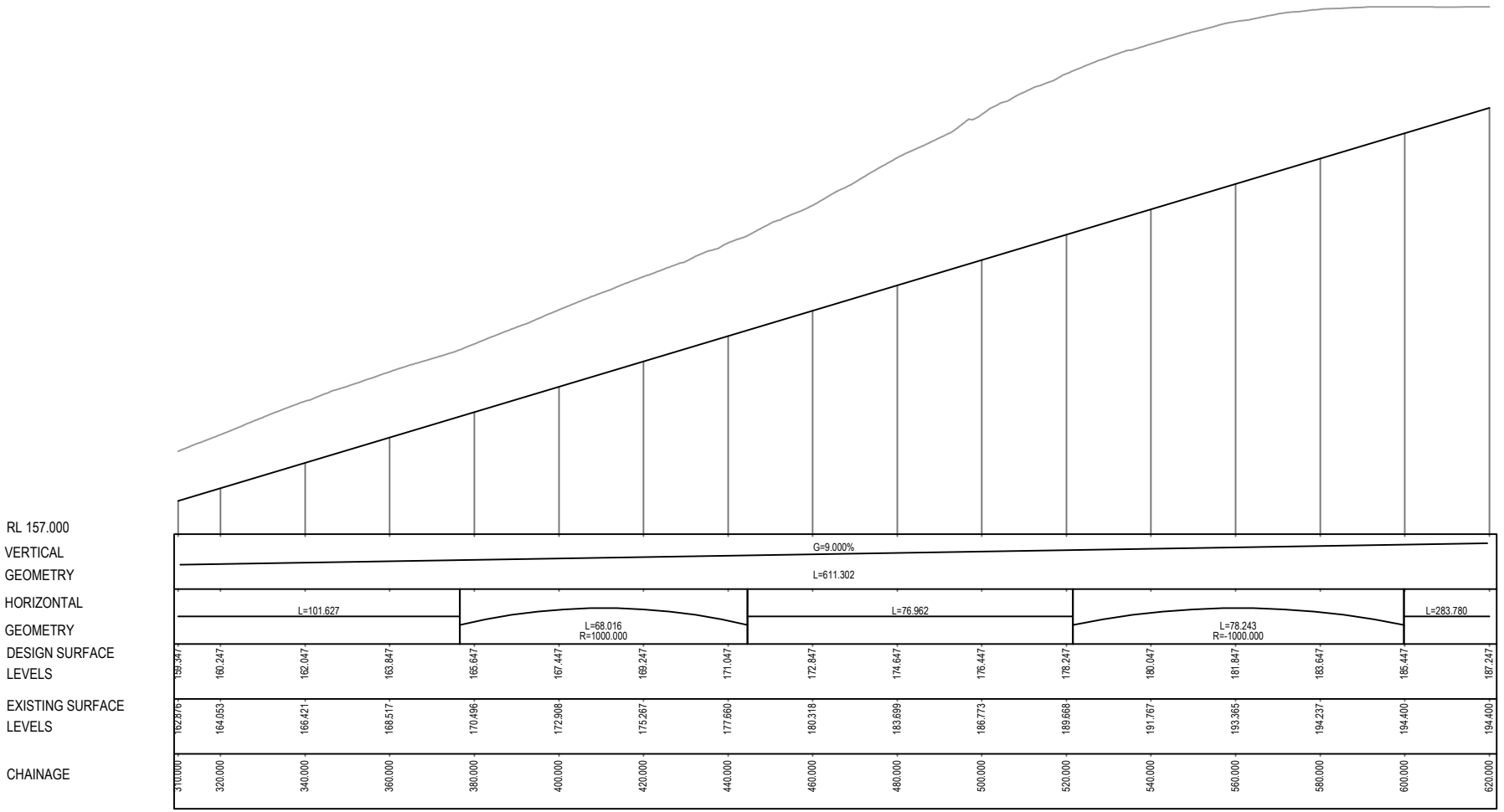

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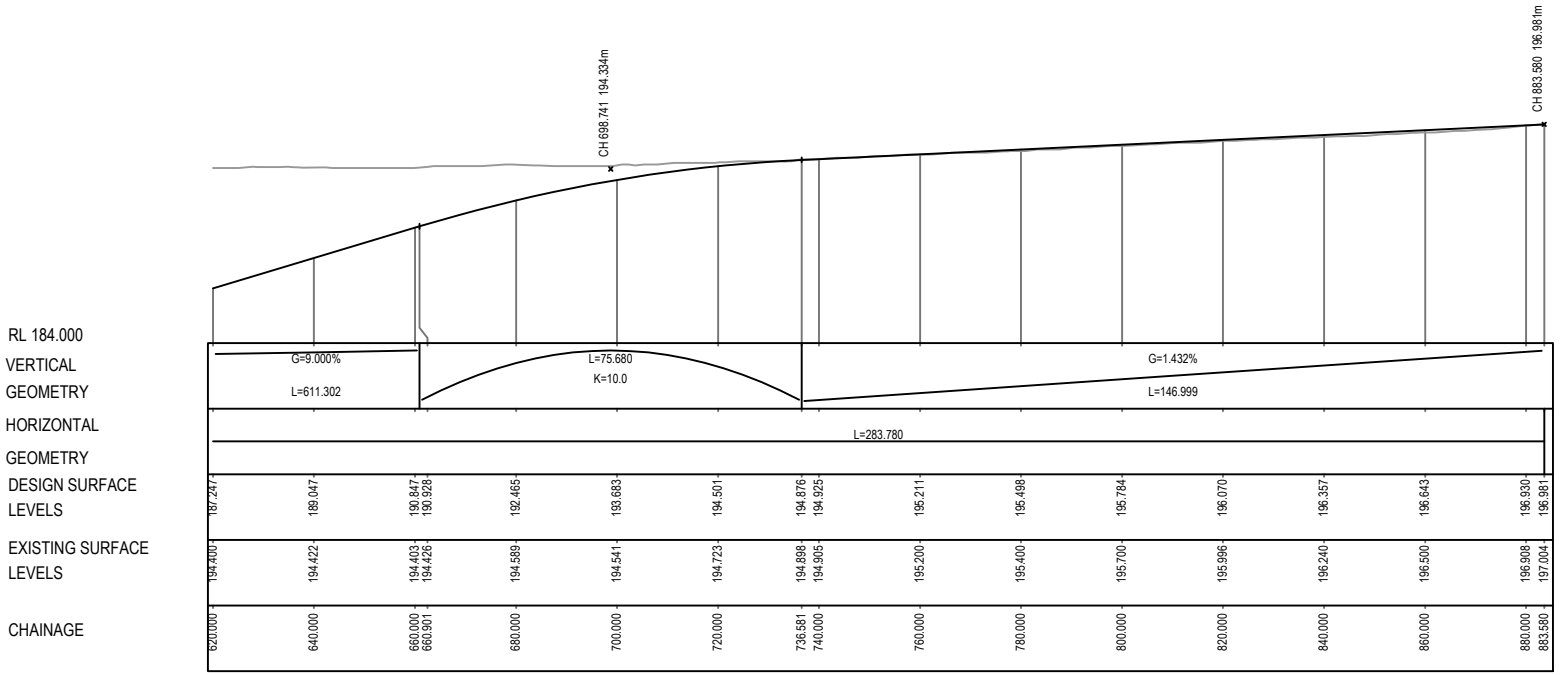

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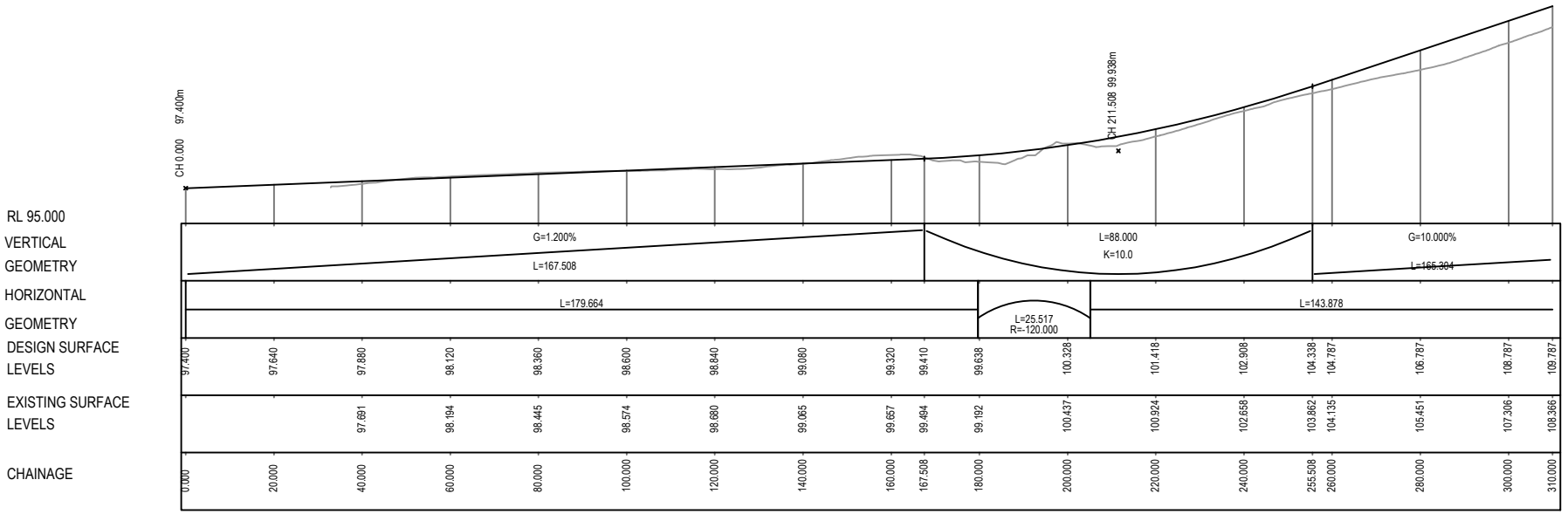

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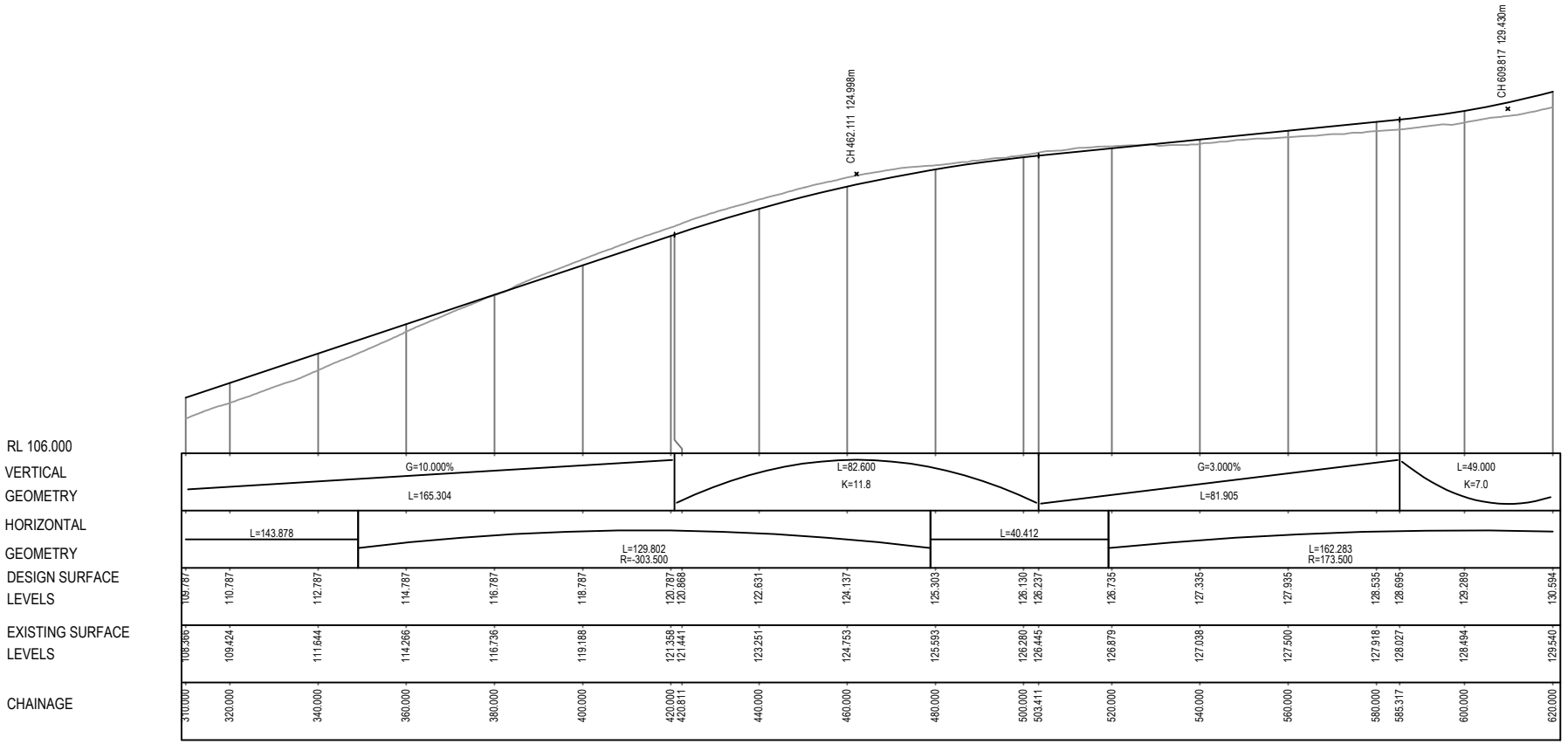

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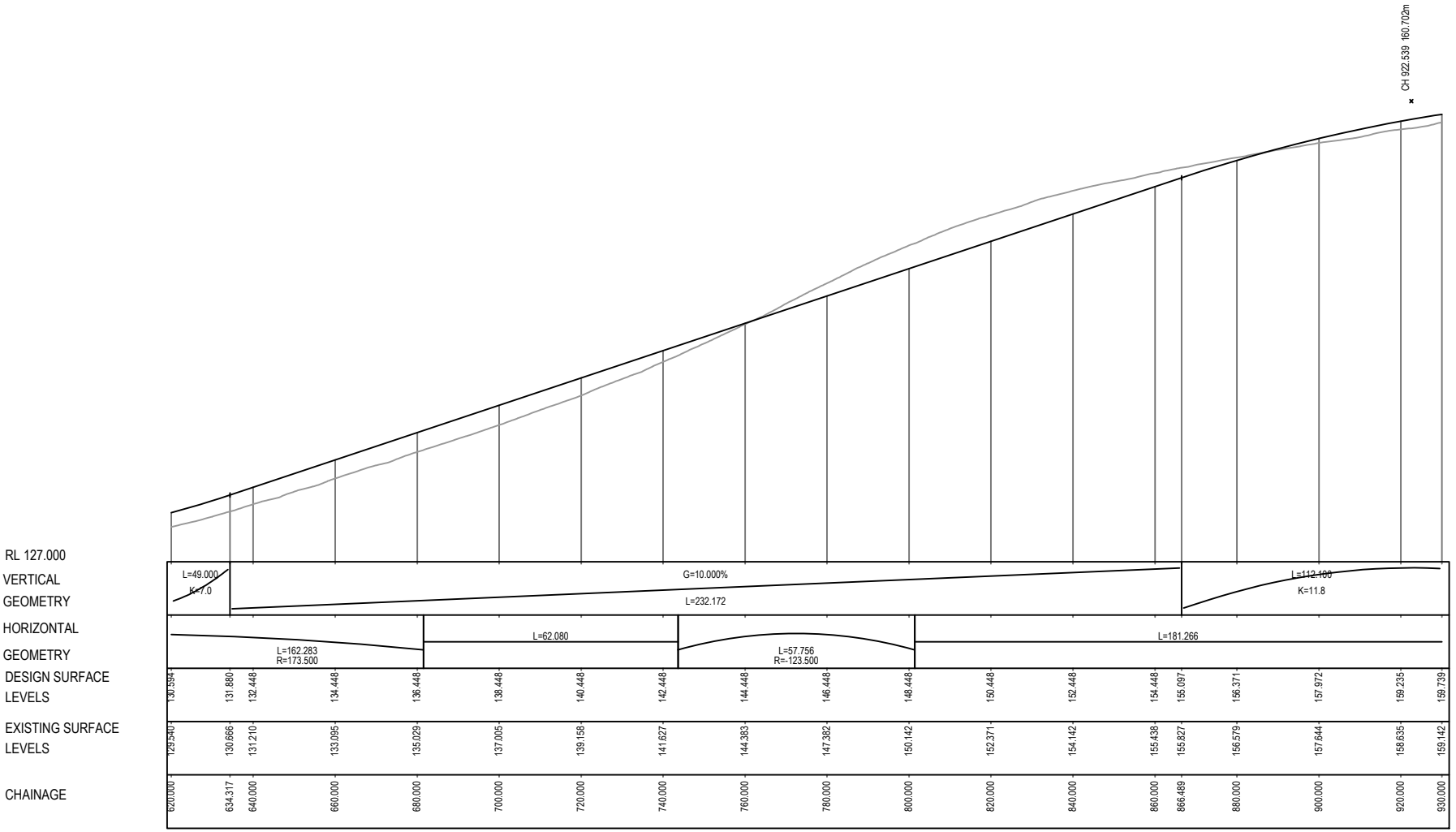

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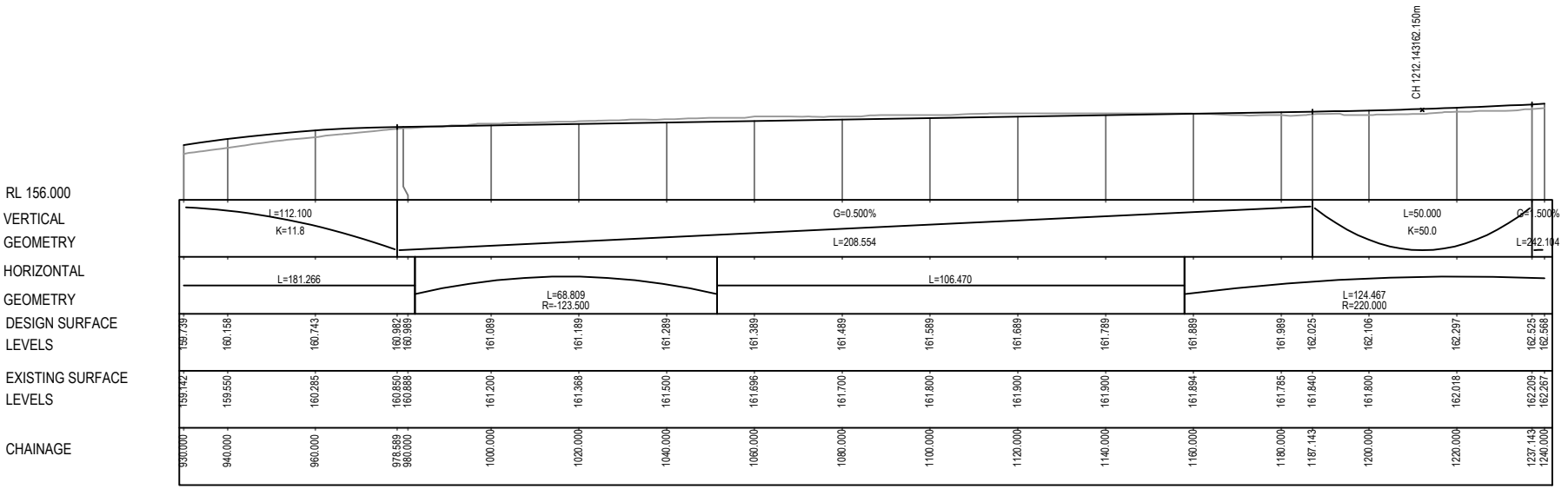

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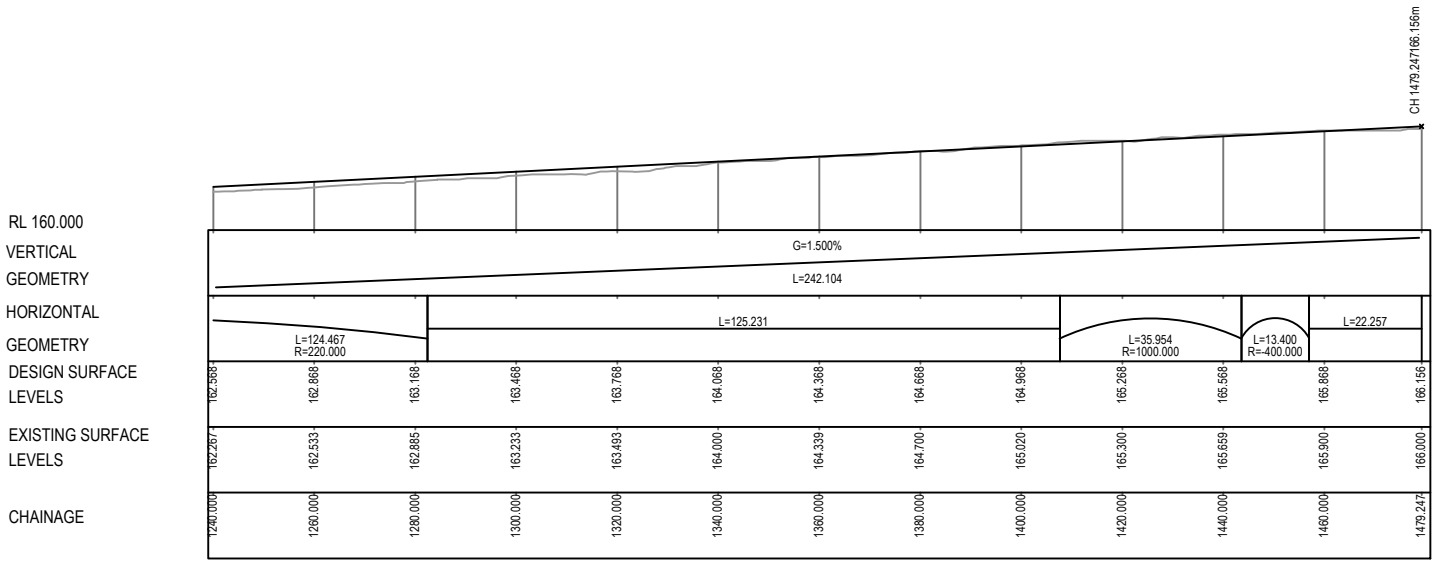

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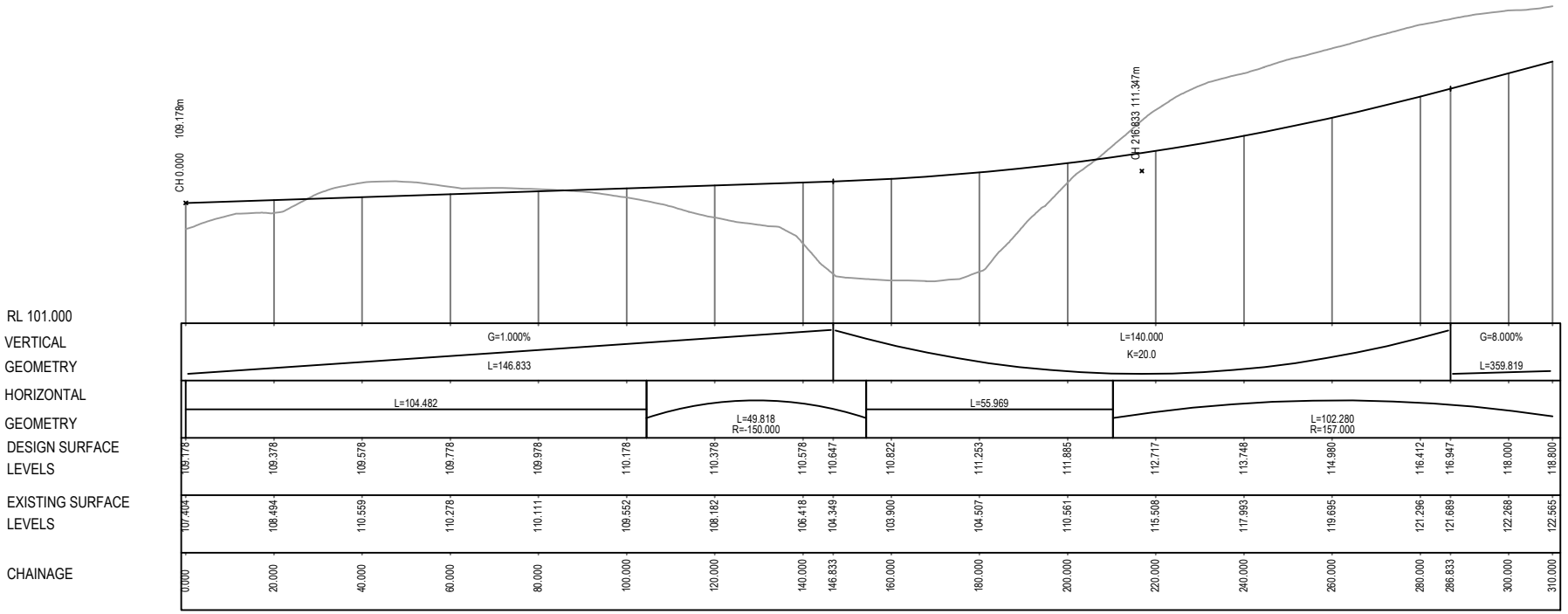

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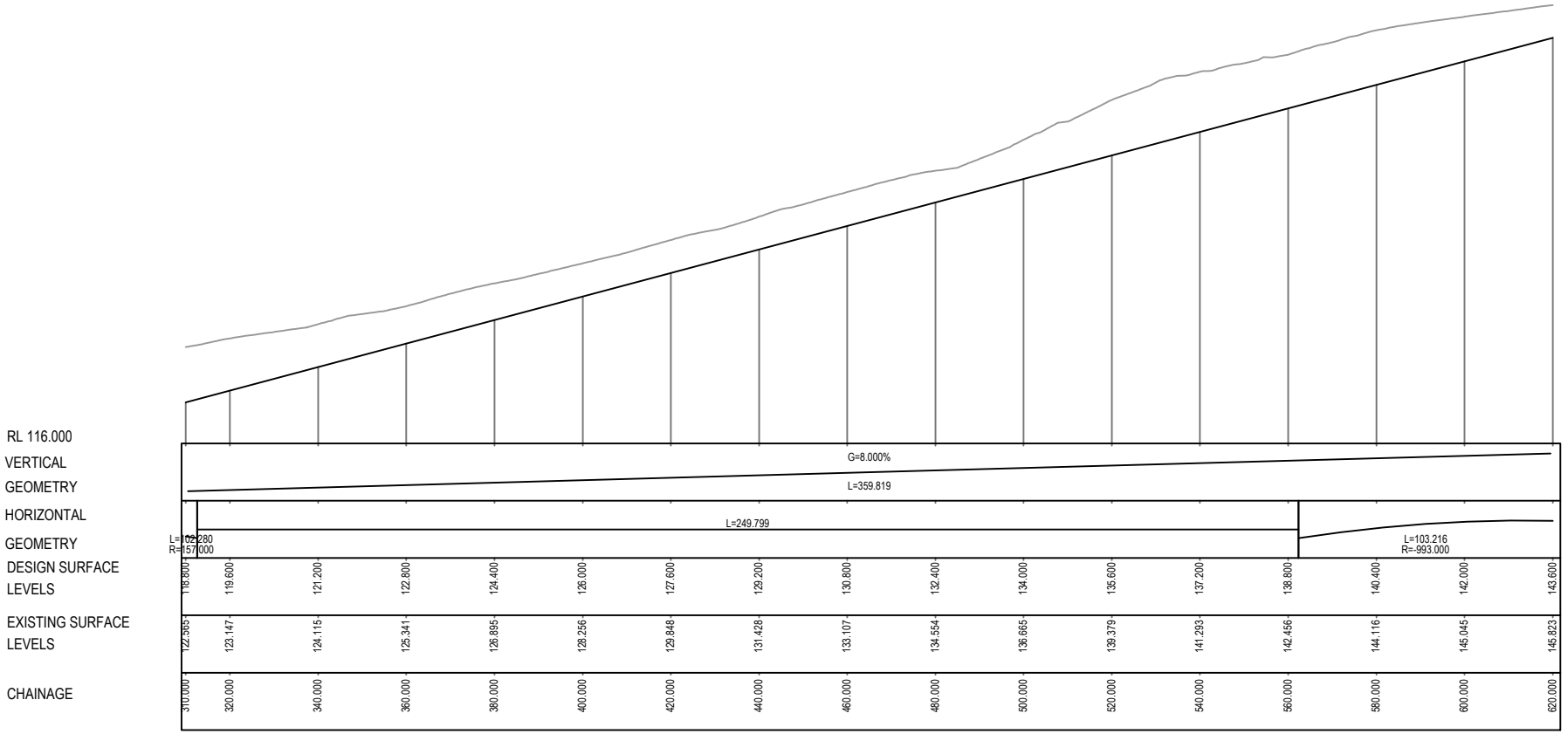

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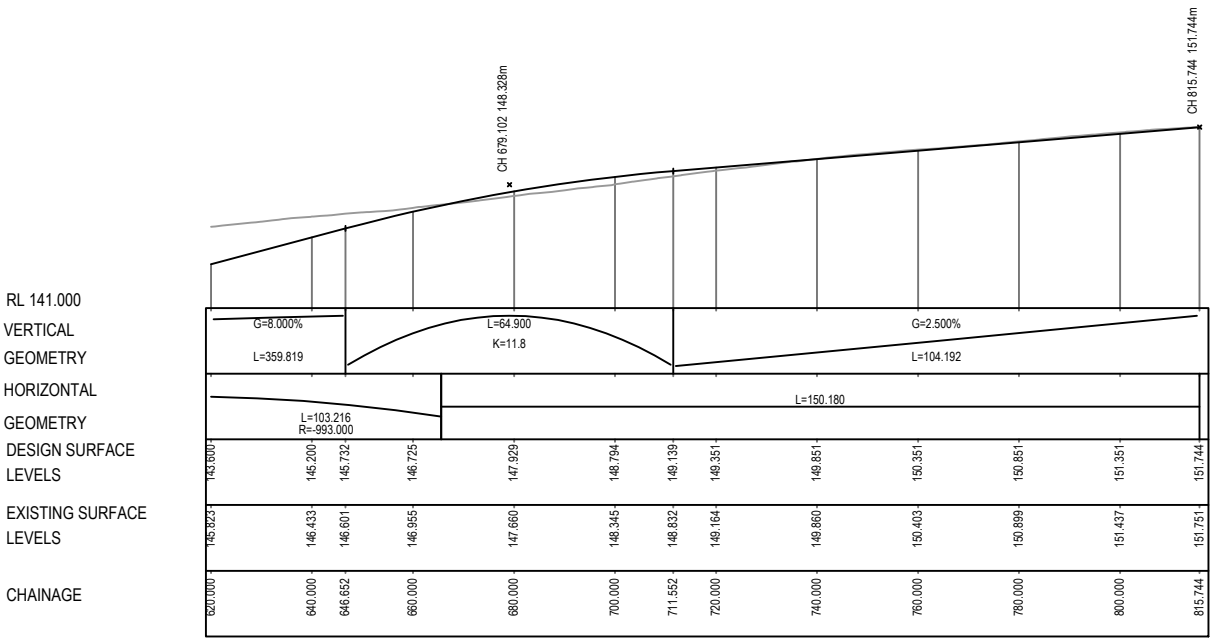

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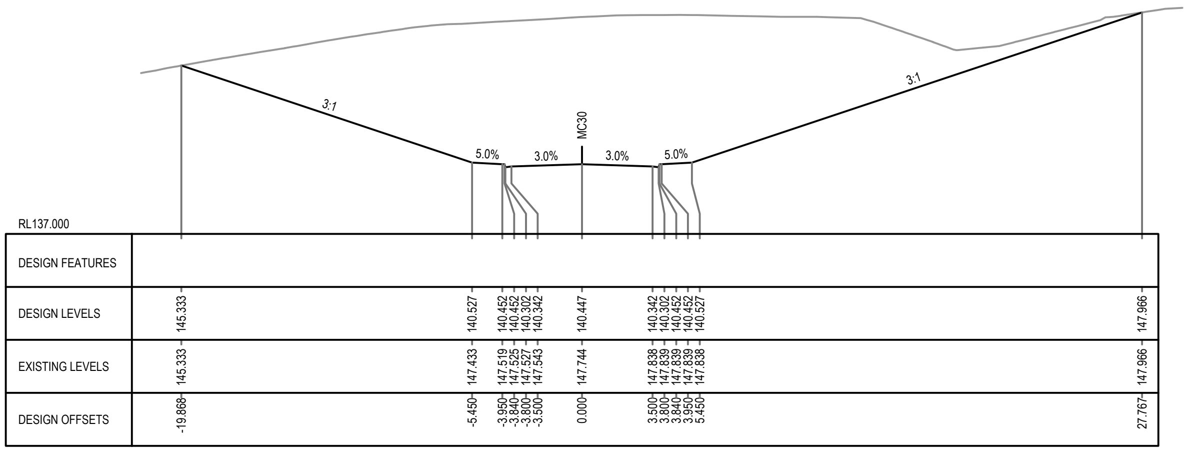
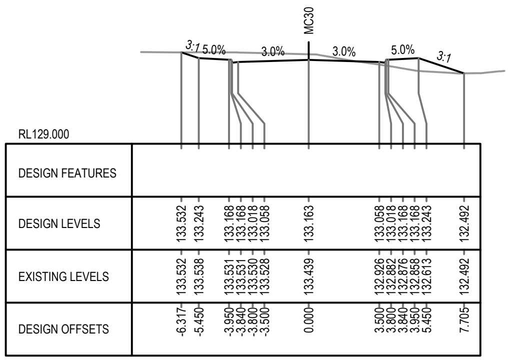
RD-03 - EAST-WEST CONNECTOR

Appendix C Cross Sections



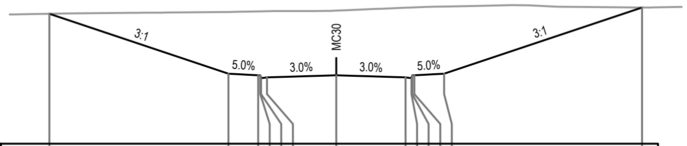
CHAINAGE 100.000
ROAD NAME - MC30
HZ 1: 250 V 1:250



CHAINAGE 0.000
ROAD NAME - MC30
HZ 1: 250 V 1:250

RD-01 - BUCKLEYS ROAD

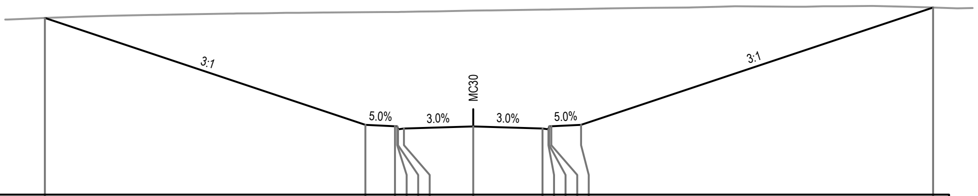
RL155.000



DESIGN FEATURES													
DESIGN LEVELS	161.545	158.527	158.452	158.452	158.302	158.342	158.447	158.342	158.302	158.452	158.452	158.527	161.863
EXISTING LEVELS	161.545	161.637	161.667	161.668	161.669	161.674	161.705	161.851	161.863	161.865	161.869	161.913	161.863
DESIGN OFFSETS	-14.504	-5.450	-3.950	-3.840	-3.800	-3.500	0.000	3.500	3.800	3.840	3.950	5.450	15.458

CHAINAGE 300.000
ROAD NAME - MC30
HZ 1: 250 V 1:250

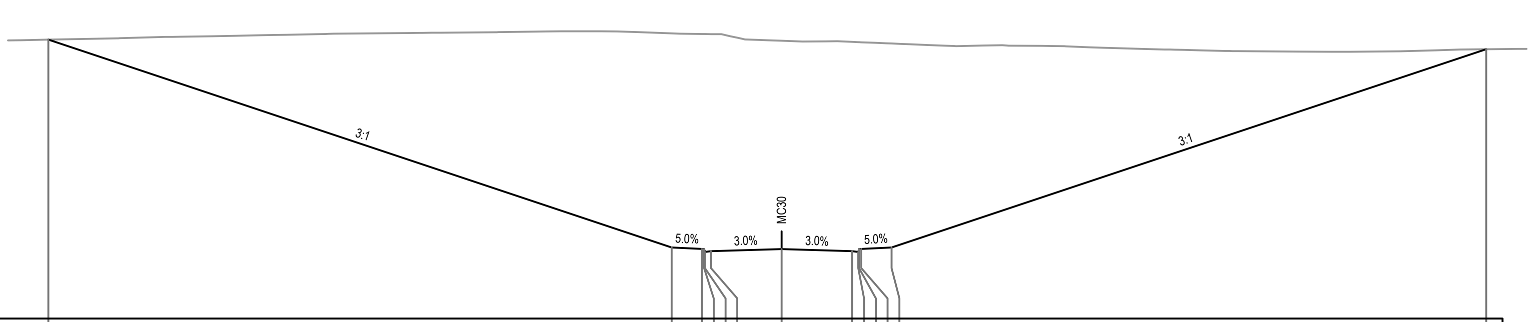
RL146.000



DESIGN FEATURES													
DESIGN LEVELS	154.928	149.527	149.452	149.452	149.302	149.342	149.447	149.342	149.302	149.452	149.452	149.527	155.457
EXISTING LEVELS	154.928	155.221	155.232	155.233	155.233	155.235	155.300	155.348	155.352	155.353	155.355	155.385	155.457
DESIGN OFFSETS	-21.652	-5.450	-3.950	-3.840	-3.800	-3.500	0.000	3.500	3.800	3.840	3.950	5.450	23.240

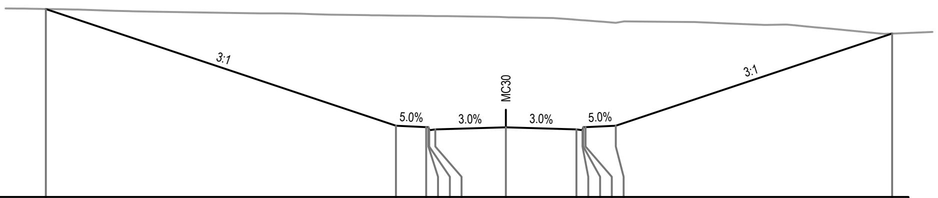
CHAINAGE 200.000
ROAD NAME - MC30
HZ 1: 250 V 1:250

RD-01 - BUCKLEYS ROAD



DESIGN FEATURES													
DESIGN LEVELS	186.826	176.527	176.452	176.452	176.302	176.342	176.447	176.342	176.302	176.452	176.452	176.527	186.352
EXISTING LEVELS	186.826	187.138	187.109	187.108	187.107	187.103	186.773	186.716	186.702	186.700	186.695	186.639	186.352
DESIGN OFFSETS	-36.348	-5.450	-3.950	-3.840	-3.800	-3.500	0.000	3.500	3.800	3.840	3.950	5.450	34.925

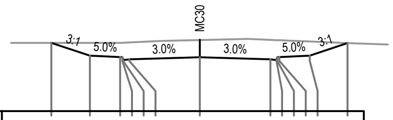
CHAINAGE 500.000
ROAD NAME - MC30
HZ 1: 250 V 1:250



DESIGN FEATURES													
DESIGN LEVELS	173.314	167.527	167.452	167.452	167.302	167.342	167.447	167.342	167.302	167.452	167.452	167.527	172.096
EXISTING LEVELS	173.314	172.990	172.971	172.970	172.969	172.966	172.908	172.780	172.757	172.754	172.746	172.632	172.096
DESIGN OFFSETS	-22.812	-5.450	-3.950	-3.840	-3.800	-3.500	0.000	3.500	3.800	3.840	3.950	5.450	19.155

CHAINAGE 400.000
ROAD NAME - MC30
HZ 1: 250 V 1:250

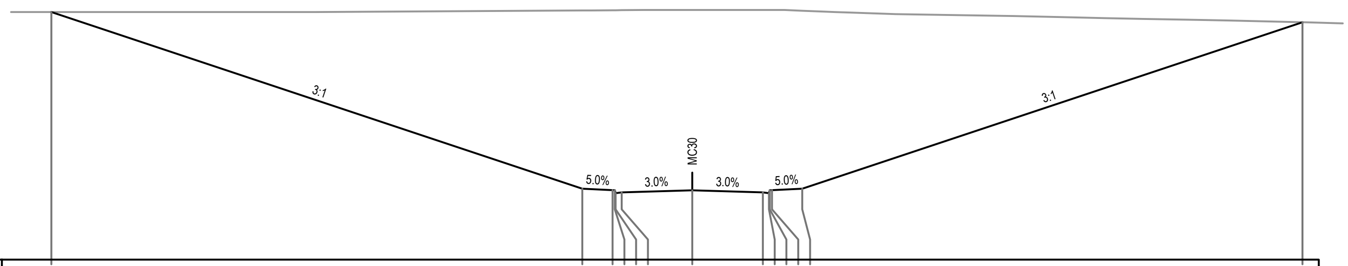
RD-01 - BUCKLEYS ROAD



RL191.000

DESIGN FEATURES													
DESIGN LEVELS	194.400	193.763	193.688	193.688	193.538	193.578	193.683	193.578	193.538	193.688	193.688	193.763	194.388
EXISTING LEVELS	194.400	194.400	194.400	194.403	194.405	194.419	194.541	194.546	194.534	194.532	194.528	194.465	194.388
DESIGN OFFSETS	-7.361	-5.450	-3.950	-3.840	-3.800	-3.500	0.000	3.500	3.800	3.840	3.950	5.450	7.325

CHAINAGE 700.000
ROAD NAME - MC30
HZ 1: 250   V 1:250

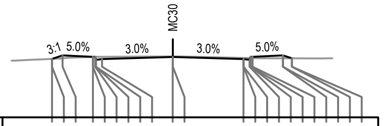


RL182.000

DESIGN FEATURES													
DESIGN LEVELS	194.300	185.527	185.452	185.452	185.302	185.342	185.447	185.342	185.302	185.452	185.452	185.527	193.793
EXISTING LEVELS	194.300	194.380	194.390	194.390	194.391	194.393	194.400	194.400	194.400	194.400	194.400	194.365	193.793
DESIGN OFFSETS	-31.768	-5.450	-3.950	-3.840	-3.800	-3.500	0.000	3.500	3.800	3.840	3.950	5.450	30.246

CHAINAGE 600.000
ROAD NAME - MC30
HZ 1: 250   V 1:250

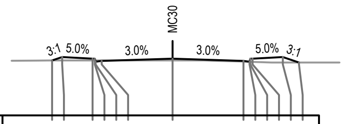
RD-01 - BUCKLEYS ROAD



RL194.000

DESIGN FEATURES																						
DESIGN LEVELS	196.886	196.886	197.061	196.986	196.986	196.986	196.836	196.836	196.876	196.981	196.981	196.876	196.876	196.876	196.836	196.986	196.986	196.986	197.061	197.061	196.914	196.914
EXISTING LEVELS	196.886	196.886	196.915	196.979	196.979	196.982	196.984	196.984	196.985	197.004	197.004	196.931	196.931	196.931	196.924	196.923	196.923	196.920	196.915	196.915	196.914	196.914
DESIGN OFFSETS	-5.975	-5.974	-5.450	-3.951	-3.950	-3.840	-3.800	-3.800	-3.500	-0.002	0.000	3.498	3.500	3.500	3.800	3.840	3.840	3.950	5.449	5.450	5.890	5.890

CHAINAGE 883.577
ROAD NAME - MC30
HZ 1: 250 V 1:250

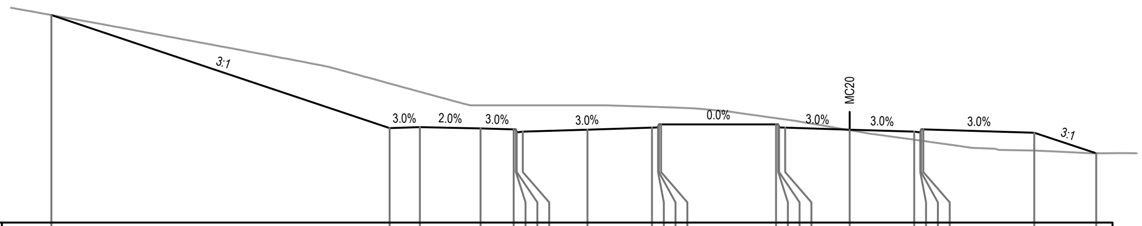


RL193.000

DESIGN FEATURES													
DESIGN LEVELS	195.696	195.864	195.789	195.789	195.639	195.679	195.784	195.679	195.639	195.789	195.789	195.864	195.600
EXISTING LEVELS	195.696	195.698	195.700	195.700	195.700	195.700	195.700	195.641	195.632	195.631	195.628	195.600	195.600
DESIGN OFFSETS	-5.953	-5.450	-3.950	-3.840	-3.800	-3.500	0.000	3.500	3.800	3.840	3.950	5.450	6.242

CHAINAGE 800.000
ROAD NAME - MC30
HZ 1: 250 V 1:250

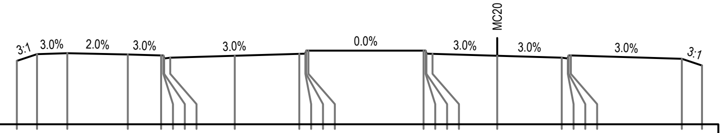
RD-01 - BUCKLEYS ROAD



RL94.000

DESIGN FEATURES																								
DESIGN LEVELS	104.268	98.678	98.724	98.663	98.614	98.614	98.464	98.504	98.600	98.696	98.705	98.855	98.855	98.855	98.855	98.705	98.696	98.600	98.504	98.464	98.614	98.614	98.449	97.426
EXISTING LEVELS	104.268	100.881	100.471	99.800	99.800	99.800	99.800	99.800	99.800	99.728	99.719	99.718	99.714	99.165	99.150	99.144	99.102	98.574	98.102	98.061	98.056	98.041	97.561	97.426
DESIGN OFFSETS	-39.568	-22.800	-21.300	-18.300	-16.650	-16.540	-16.500	-16.200	-13.000	-9.800	-9.500	-9.460	-9.350	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	9.150	12.218

CHAINAGE 100.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

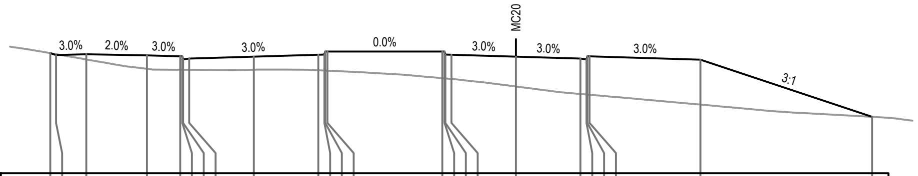


RL94.000

DESIGN FEATURES																								
DESIGN LEVELS	97.145	97.478	97.523	97.463	97.414	97.414	97.264	97.304	97.400	97.496	97.505	97.655	97.655	97.655	97.655	97.505	97.496	97.400	97.304	97.264	97.414	97.414	97.249	96.916
EXISTING LEVELS																								
DESIGN OFFSETS	-23.800	-22.800	-21.300	-18.300	-16.650	-16.540	-16.500	-16.200	-13.000	-9.800	-9.500	-9.460	-9.350	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	9.150	10.150

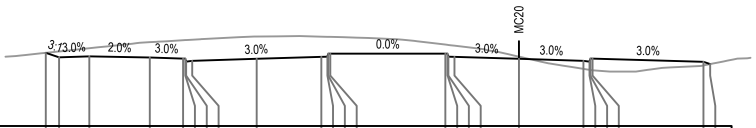
CHAINAGE 0.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

RD-02 - FLANAGANS ROAD



DESIGN FEATURES																								
DESIGN LEVELS	108.962	108.866	108.911	108.851	108.801	108.801	108.651	108.691	108.787	108.883	108.892	109.042	109.042	109.042	109.042	108.892	108.883	108.787	108.691	108.651	108.801	108.801	108.636	105.799
EXISTING LEVELS	108.962	108.911	108.649	108.184	108.140	108.139	108.139	108.136	108.139	108.114	108.098	108.096	108.090	107.719	107.709	107.705	107.678	107.306	106.933	106.907	106.903	106.894	106.409	105.799
DESIGN OFFSETS	-23.089	-22.800	-21.300	-18.300	-16.650	-16.540	-16.500	-16.200	-13.000	-9.800	-9.500	-9.460	-9.350	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	9.150	17.662

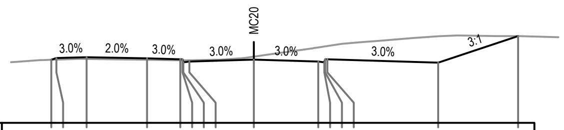
CHAINAGE 300.000
ROAD NAME - MC20
HZ 1: 250 V 1:250



DESIGN FEATURES																								
DESIGN LEVELS	100.627	100.406	100.451	100.391	100.342	100.342	100.192	100.232	100.328	100.424	100.433	100.583	100.583	100.583	100.583	100.433	100.424	100.328	100.232	100.192	100.342	100.342	100.177	100.067
EXISTING LEVELS	100.627	100.696	100.854	101.153	101.250	101.256	101.258	101.276	101.434	101.429	101.421	101.420	101.417	101.034	101.021	101.016	100.980	100.437	99.829	99.781	99.775	99.757	100.002	100.067
DESIGN OFFSETS	-23.460	-22.800	-21.300	-18.300	-16.650	-16.540	-16.500	-16.200	-13.000	-9.800	-9.500	-9.460	-9.350	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	9.150	9.478

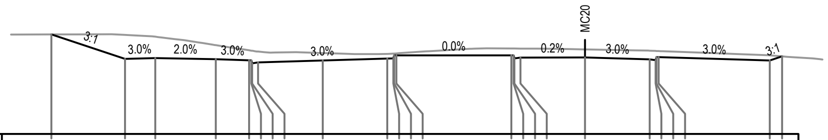
CHAINAGE 200.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

RD-02 - FLANAGANS ROAD



DESIGN OFFSETS	DESIGN LEVELS	EXISTING LEVELS	DESIGN FEATURES
-10.053	126.124	126.124	
-9.800	126.209	126.132	
-8.300	126.254	126.165	
-5.300	126.194	126.123	
-3.650	126.144	126.099	
-3.540	126.144	126.097	
-3.500	125.994	126.097	
-3.200	126.034	126.098	
0.000	126.130	126.280	
3.200	126.034	126.735	
3.500	125.994	126.780	
3.540	126.144	126.787	
3.650	126.144	126.803	
9.150	125.979	127.288	
13.112	127.300	127.300	

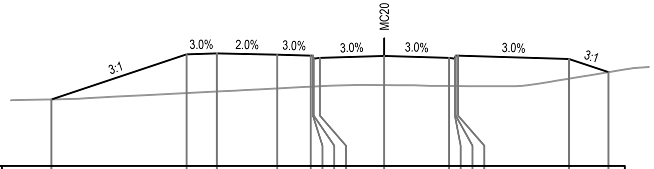
CHAINAGE 500.000
ROAD NAME - MC20
HZ 1: 250 V 1:250



DESIGN OFFSETS	DESIGN LEVELS	EXISTING LEVELS	DESIGN FEATURES
-26.447	119.930	119.930	
-22.800	118.714	119.907	
-21.300	118.759	119.819	
-18.300	118.699	119.398	
-16.650	118.650	119.143	
-16.540	118.650	119.126	
-16.500	118.500	119.120	
-16.200	118.540	119.079	
-13.000	118.636	119.005	
-9.800	118.732	118.961	
-9.500	118.741	118.980	
-9.460	118.891	118.983	
-9.350	118.891	118.990	
-3.650	118.891	119.231	
-3.540	118.891	119.231	
-3.500	118.741	119.230	
-3.200	118.781	119.228	
0.000	118.787	119.188	
3.200	118.691	119.124	
3.500	118.651	119.111	
3.540	118.801	119.109	
3.650	118.801	119.104	
9.150	118.636	118.895	
9.767	118.842	118.842	

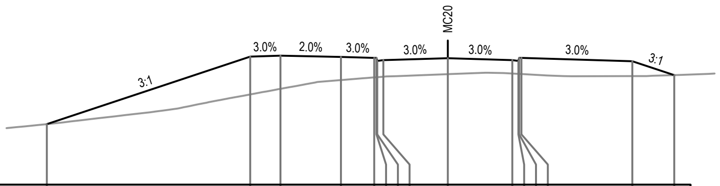
CHAINAGE 400.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

RD-02 - FLANAGANS ROAD



DESIGN FEATURES															
DESIGN LEVELS	136.294	138.526	138.571	138.511	138.462	138.462	138.312	138.352	138.448	138.352	138.312	138.462	138.462	138.297	137.645
EXISTING LEVELS	136.294	136.609	136.684	136.841	136.927	136.932	136.934	136.947	137.005	136.964	136.960	136.959	136.958	137.323	137.645
DESIGN OFFSETS	-16.498	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	9.150	11.107

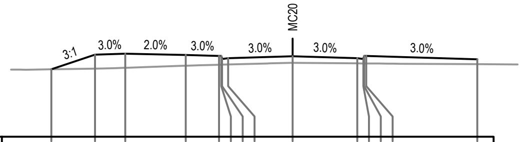
CHAINAGE 700.000
ROAD NAME - MC20
HZ 1: 250 V 1:250



DESIGN FEATURES															
DESIGN LEVELS	126.006	129.368	129.413	129.353	129.303	129.303	129.153	129.193	129.289	129.193	129.153	129.303	129.303	129.138	128.447
EXISTING LEVELS	126.006	127.486	127.763	128.201	128.330	128.339	128.342	128.365	128.494	128.524	128.507	128.504	128.498	128.397	128.447
DESIGN OFFSETS	-19.884	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	9.150	11.223

CHAINAGE 600.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

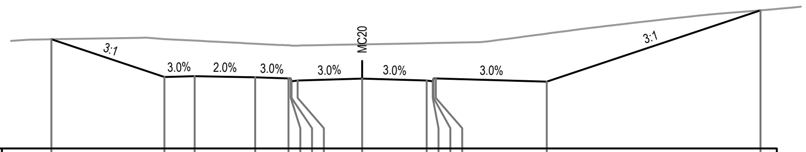
RD-02 - FLANAGANS ROAD



RL154.000

DESIGN FEATURES															
DESIGN LEVELS	157.328	158.051	158.096	158.036	157.986	157.986	157.836	157.876	157.972	157.876	157.836	157.986	157.986	157.821
EXISTING LEVELS	157.328	157.361	157.404	157.504	157.553	157.556	157.557	157.565	157.644	157.620	157.618	157.618	157.617	157.579
DESIGN OFFSETS	-11.969	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	9.150

CHAINAGE 900.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

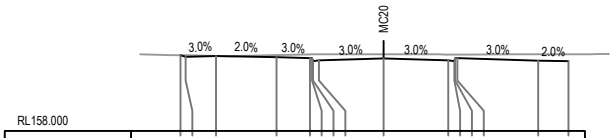


RL145.000

DESIGN FEATURES																
DESIGN LEVELS	150.394	148.526	148.571	148.511	148.462	148.462	148.312	148.352	148.448	148.352	148.312	148.462	148.462	148.297	151.826
EXISTING LEVELS	150.394	150.401	150.329	150.175	150.099	150.087	150.083	150.081	150.142	150.202	150.207	150.208	150.210	150.674	151.826
DESIGN OFFSETS	-15.401	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	9.150	19.737

CHAINAGE 800.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

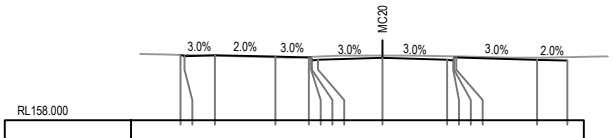
RD-02 - FLANAGANS ROAD



RL158.000

DESIGN FEATURES													
DESIGN LEVELS	161.752	161.668	161.713	161.653	161.603	161.603	161.453	161.493	161.589	161.493	161.453	161.603	161.603	161.483	161.453
EXISTING LEVELS	161.752	161.747	161.712	161.753	161.792	161.794	161.795	161.800	161.800	161.782	161.781	161.781	161.780	161.800	161.800
DESIGN OFFSETS	-10.053	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	7.650	9.150

CHAINAGE 1100.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

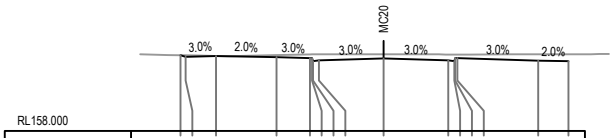


RL158.000

DESIGN FEATURES													
DESIGN LEVELS	161.234	161.168	161.213	161.153	161.103	161.103	160.953	160.993	161.089	160.993	160.953	161.103	161.103	160.983	160.953
EXISTING LEVELS	161.234	161.229	161.191	161.115	161.133	161.137	161.139	161.152	161.200	161.169	161.164	161.163	161.162	161.100	161.121
DESIGN OFFSETS	-9.999	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	7.650	9.150

CHAINAGE 1000.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

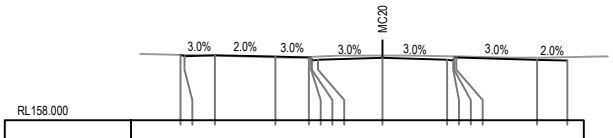
RD-02 - FLANAGANS ROAD



RL158.000

DESIGN FEATURES													
DESIGN LEVELS	161.752	161.668	161.713	161.653	161.603	161.603	161.453	161.493	161.589	161.493	161.453	161.603	161.603	161.483	161.453
EXISTING LEVELS	161.752	161.747	161.712	161.753	161.792	161.794	161.795	161.800	161.800	161.782	161.781	161.781	161.780	161.800	161.800
DESIGN OFFSETS	-10.053	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	7.650	9.150

CHAINAGE 1100.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

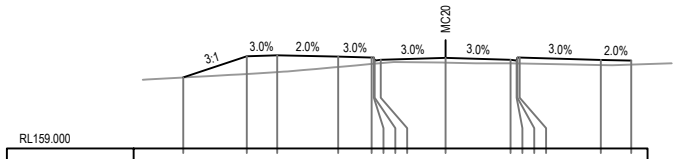


RL158.000

DESIGN FEATURES													
DESIGN LEVELS	161.234	161.168	161.213	161.153	161.103	161.103	160.953	160.993	161.089	160.993	160.953	161.103	161.103	160.983	160.953
EXISTING LEVELS	161.234	161.229	161.191	161.115	161.133	161.137	161.139	161.152	161.200	161.169	161.164	161.163	161.162	161.100	161.121
DESIGN OFFSETS	-9.999	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	7.650	9.150

CHAINAGE 1000.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

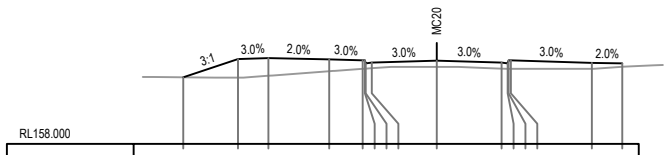
RD-02 - FLANAGANS ROAD



RL159.000

DESIGN FEATURES														
DESIGN LEVELS	162.501	163.546	163.591	163.531	163.482	163.482	163.332	163.372	163.468	163.372	163.332	163.482	163.482	163.362	163.332
EXISTING LEVELS	162.501	162.672	162.767	163.019	163.166	163.176	163.180	163.205	163.233	163.198	163.192	163.192	163.190	163.116	163.136
DESIGN OFFSETS	-12.935	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	7.650	9.150

CHAINAGE 1300.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

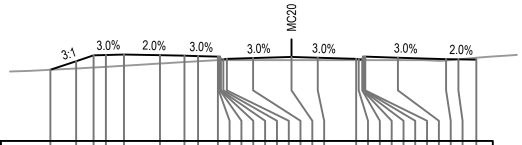


RL158.000

DESIGN FEATURES														
DESIGN LEVELS	161.285	162.184	162.229	162.169	162.120	162.120	161.970	162.010	162.106	162.010	161.970	162.120	162.120	162.000	161.970
EXISTING LEVELS	161.285	161.270	161.362	161.585	161.701	161.709	161.712	161.733	161.800	161.715	161.705	161.704	161.700	161.700	161.803
DESIGN OFFSETS	-12.498	-9.800	-8.300	-5.300	-3.650	-3.540	-3.500	-3.200	0.000	3.200	3.500	3.540	3.650	7.650	9.150

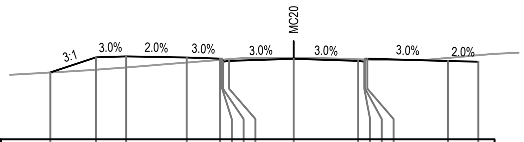
CHAINAGE 1200.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

RD-02 - FLANAGANS ROAD



DESIGN FEATURES	DESIGN LEVELS	EXISTING LEVELS	DESIGN OFFSETS
	165.521	165.521	-11.938
	165.946	165.585	-10.662
	166.233	165.633	-9.800
	166.252	165.669	-9.193
	166.278	165.723	-8.300
	166.243	165.830	-6.515
	166.218	165.903	-5.300
	166.198	165.943	-4.632
	166.169	165.998	-3.650
	166.169	166.000	-3.605
	166.169	166.000	-3.540
	166.080	166.000	-3.516
	166.019	166.000	-3.500
	166.035	166.000	-3.379
	166.059	166.000	-3.200
	166.098	166.000	-1.904
	166.155	166.000	0.000
	166.116	166.000	1.296
	166.059	166.000	3.200
	166.043	166.000	3.321
	166.019	166.000	3.500
	166.108	166.000	3.524
	166.169	166.000	3.540
	166.169	166.000	3.585
	166.169	166.000	3.650
	166.120	166.000	5.269
	166.049	165.982	7.650
	166.037	166.036	8.257
	166.019	166.114	9.150

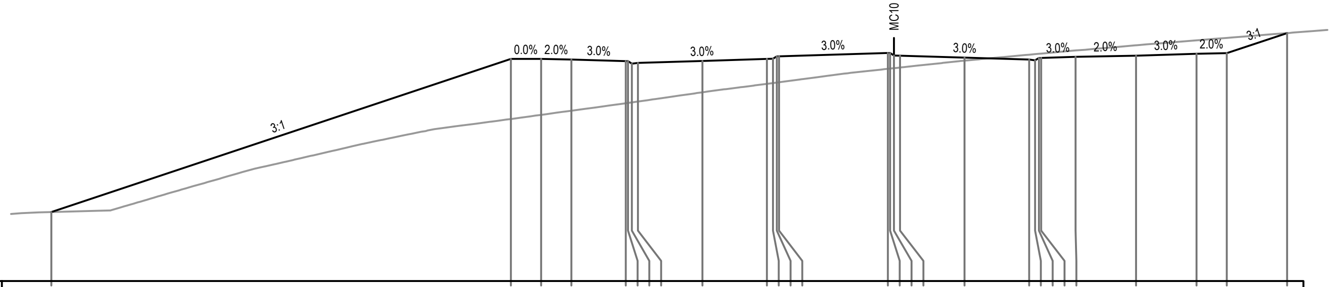
CHAINAGE 1479.147
ROAD NAME - MC20
HZ 1: 250 V 1:250



DESIGN FEATURES	DESIGN LEVELS	EXISTING LEVELS	DESIGN OFFSETS
	164.295	164.295	-12.053
	165.046	164.432	-9.800
	165.091	164.544	-8.300
	165.031	164.785	-5.300
	164.982	164.917	-3.650
	164.982	164.926	-3.540
	164.832	164.929	-3.500
	164.872	164.953	-3.200
	164.968	165.020	0.000
	164.872	164.947	3.200
	164.832	164.937	3.500
	164.982	164.936	3.540
	164.982	164.933	3.650
	164.862	165.014	7.650
	164.832	165.147	9.150

CHAINAGE 1400.000
ROAD NAME - MC20
HZ 1: 250 V 1:250

RD-02 - FLANAGANS ROAD

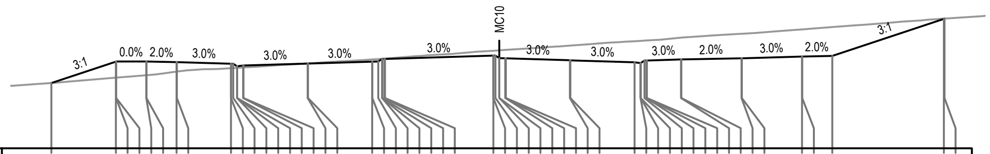


RL99.000

DESIGN OFFSETS	DESIGN LEVELS	EXISTING LEVELS
-41.783	102.417	102.417
-19.000	110.011	107.031
-17.500	110.011	107.238
-16.000	109.981	107.440
-13.300	109.900	107.813
-13.190	109.900	107.828
-13.000	109.775	107.855
-12.700	109.815	107.897
-9.500	109.911	108.357
-6.300	110.007	108.776
-6.000	110.016	108.816
-5.810	110.141	108.840
-5.700	110.141	108.855
-0.300	110.303	109.519
-0.190	110.303	109.531
0.000	110.178	109.552
0.300	110.169	109.584
3.500	110.073	109.924
6.700	109.977	110.220
7.000	109.937	110.248
7.190	110.062	110.265
7.300	110.062	110.275
9.000	110.113	110.427
12.000	110.173	110.684
15.000	110.263	110.932
16.500	110.293	111.053
19.491	111.290	111.290

DESIGN FEATURES

CHAINAGE 100.000
ROAD NAME - MC10
HZ 1: 250 V 1:250



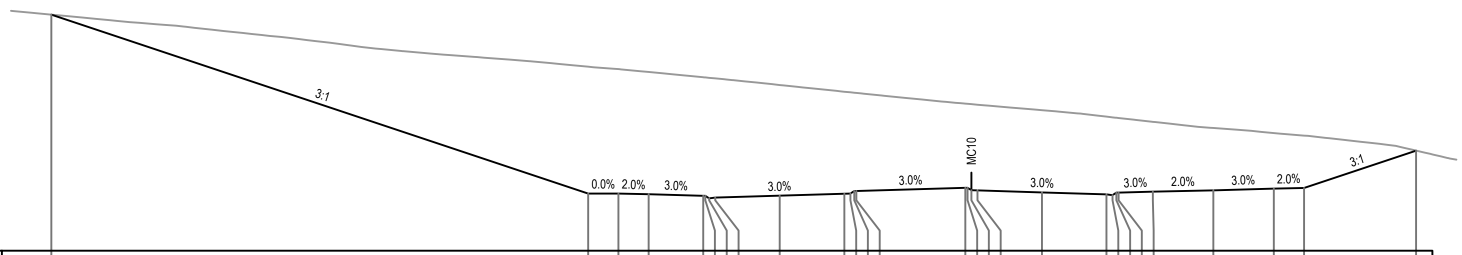
RL105.000

DESIGN OFFSETS	DESIGN LEVELS	EXISTING LEVELS
-22.202	108.249	108.249
-19.008	109.313	108.516
-19.000	109.316	108.516
-18.991	109.316	108.517
-17.500	109.316	108.639
-17.491	109.316	108.640
-16.000	109.286	108.813
-15.984	109.286	108.815
-13.300	109.205	108.984
-13.299	109.205	108.984
-13.190	109.205	108.991
-13.001	109.081	109.003
-13.000	109.080	109.003
-12.998	109.080	109.003
-12.700	109.120	109.022
-12.681	109.121	109.023
-9.500	109.216	109.224
-9.481	109.217	109.226
-6.300	109.312	109.418
-6.298	109.312	109.418
-6.000	109.321	109.438
-5.811	109.445	109.452
-5.810	109.446	109.452
-5.809	109.446	109.452
-5.700	109.446	109.460
-5.667	109.447	109.463
-0.300	109.608	109.849
-0.299	109.608	109.849
-0.190	109.608	109.855
-0.001	109.484	109.872
0.000	109.483	109.872
0.298	109.474	109.899
0.300	109.474	109.899
0.319	109.474	109.901
3.500	109.378	110.107
3.519	109.378	110.109
6.700	109.282	110.328
6.998	109.242	110.345
7.000	109.242	110.346
7.001	109.243	110.346
7.190	109.367	110.357
7.299	109.367	110.363
7.300	109.367	110.363
7.310	109.367	110.364
9.000	109.418	110.503
9.018	109.418	110.505
12.000	109.478	110.697
12.018	109.479	110.698
15.000	109.568	110.915
15.009	109.568	110.916
16.500	109.598	111.030
22.027	111.441	111.451
22.065	111.453	111.453

DESIGN FEATURES

CHAINAGE 30.478
ROAD NAME - MC10
HZ 1: 250 V 1:250

RD-03 - EAST-WEST CONNECTOR

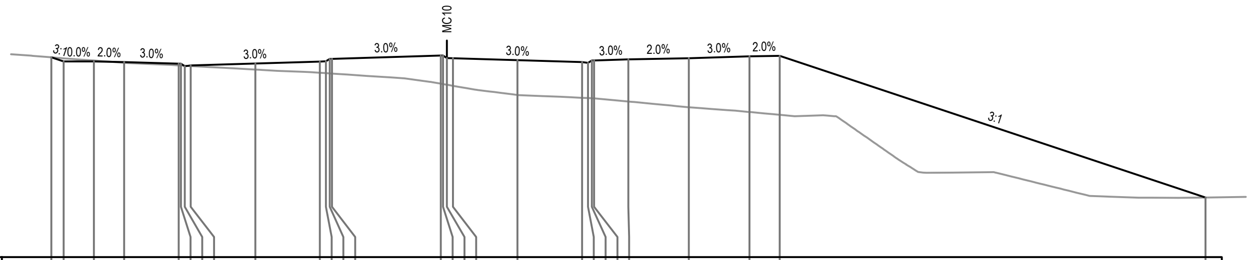


RL115.000

DESIGN OFFSETS	DESIGN LEVELS	EXISTING LEVELS
-45.620	126.706	126.706
-19.000	117.833	124.125
-17.500	117.833	124.006
-16.000	117.803	123.864
-13.300	117.722	123.604
-13.190	117.722	123.594
-13.000	117.597	123.576
-12.700	117.637	123.547
-9.500	117.733	123.219
-6.300	117.829	122.885
-6.000	117.838	122.855
-5.810	117.963	122.836
-5.700	117.963	122.825
-0.300	118.125	122.294
-0.190	118.125	122.285
0.000	118.000	122.268
0.300	117.991	122.243
3.500	117.895	121.971
6.700	117.799	121.650
7.000	117.759	121.616
7.190	117.884	121.595
7.300	117.884	121.583
9.000	117.935	121.394
12.000	117.995	121.088
15.000	118.085	120.833
16.500	118.115	120.712
22.053	119.966	119.966

DESIGN FEATURES

CHAINAGE 300.000
ROAD NAME - MC10
HZ 1: 250 V 1:250



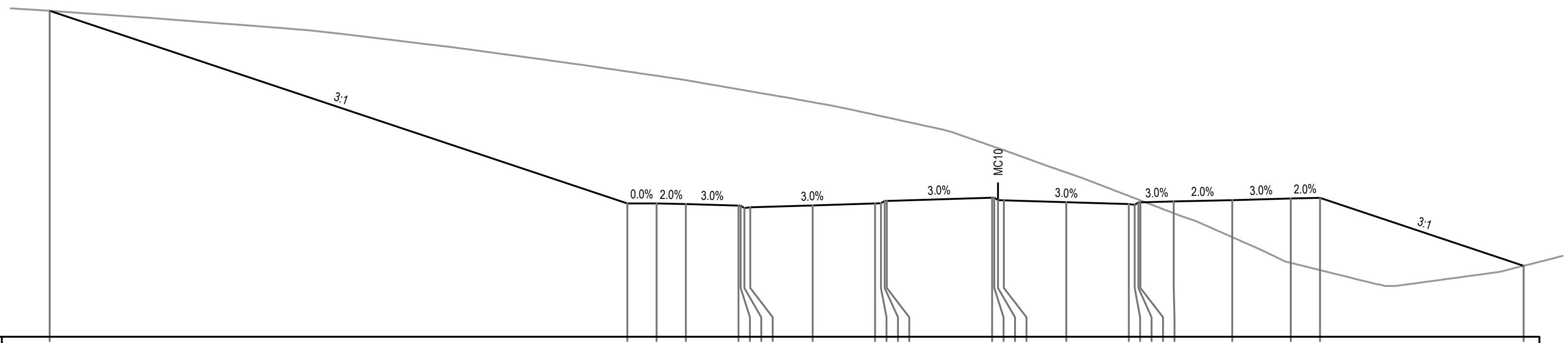
RL102.000

DESIGN OFFSETS	DESIGN LEVELS	EXISTING LEVELS
-19.614	111.923	111.923
-19.000	111.718	111.873
-17.500	111.718	111.764
-16.000	111.688	111.647
-13.300	111.607	111.524
-13.190	111.607	111.518
-13.000	111.482	111.507
-12.700	111.522	111.491
-9.500	111.618	111.317
-6.300	111.714	111.156
-6.000	111.723	111.136
-5.810	111.848	111.123
-5.700	111.848	111.116
-0.300	112.010	110.614
-0.190	112.010	110.595
0.000	111.885	110.561
0.300	111.876	110.509
3.500	111.780	110.055
6.700	111.684	109.913
7.000	111.644	109.899
7.190	111.769	109.890
7.300	111.769	109.884
9.000	111.820	109.729
12.000	111.880	109.441
15.000	111.970	109.207
16.500	112.000	109.068
37.615	104.962	104.962

DESIGN FEATURES

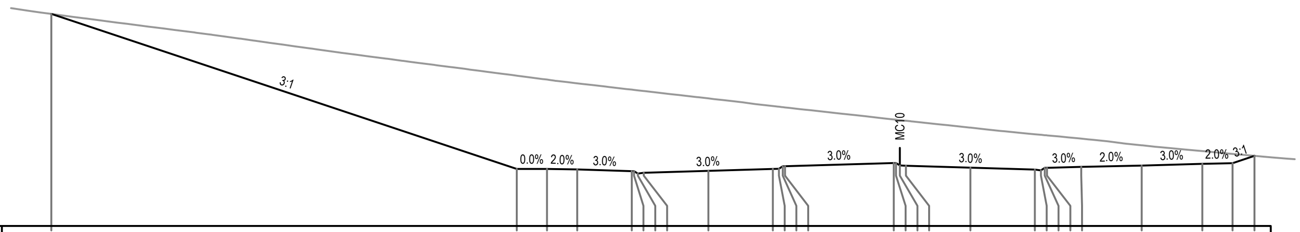
CHAINAGE 200.000
ROAD NAME - MC10
HZ 1: 250 V 1:250

RD-03 - EAST-WEST CONNECTOR



DESIGN FEATURES	DESIGN LEVELS	EXISTING LEVELS	DESIGN OFFSETS
	143.699	143.699	-48.599
	133.833	140.593	-19.000
	133.833	140.374	-17.500
	133.803	140.149	-16.000
	133.722	139.681	-13.300
	133.722	139.662	-13.190
	133.597	139.629	-13.000
	133.637	139.577	-12.700
	133.733	139.019	-9.500
	133.829	138.372	-6.300
	133.838	138.307	-6.000
	133.963	138.265	-5.810
	133.963	138.241	-5.700
	134.125	136.769	-0.300
	134.125	136.731	-0.190
	134.000	136.665	0.000
	133.991	136.560	0.300
	133.895	135.419	3.500
	133.799	134.217	6.700
	133.759	134.102	7.000
	133.884	134.028	7.190
	133.884	133.986	7.300
	133.935	133.331	9.000
	133.995	132.106	12.000
	134.085	130.788	15.000
	134.115	130.416	16.500
	130.636	130.636	26.937

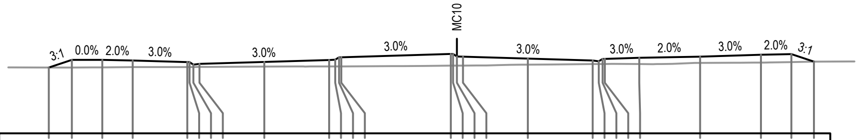
CHAINAGE 500.000
ROAD NAME - MC10
HZ 1: 250 V 1:250



DESIGN FEATURES	DESIGN LEVELS	EXISTING LEVELS	DESIGN OFFSETS
	133.530	133.530	-42.091
	125.833	130.464	-19.000
	125.833	130.269	-17.500
	125.803	130.083	-16.000
	125.722	129.770	-13.300
	125.722	129.758	-13.190
	125.597	129.736	-13.000
	125.637	129.701	-12.700
	125.733	129.334	-9.500
	125.829	128.954	-6.300
	125.838	128.921	-6.000
	125.963	128.897	-5.810
	125.963	128.885	-5.700
	126.125	128.289	-0.300
	126.125	128.277	-0.190
	126.000	128.256	0.000
	125.991	128.224	0.300
	125.895	127.881	3.500
	125.799	127.553	6.700
	125.759	127.525	7.000
	125.884	127.507	7.190
	125.884	127.497	7.300
	125.935	127.333	9.000
	125.995	127.003	12.000
	126.085	126.717	15.000
	126.115	126.578	16.500
	126.477	126.477	17.587

CHAINAGE 400.000
ROAD NAME - MC10
HZ 1: 250 V 1:250

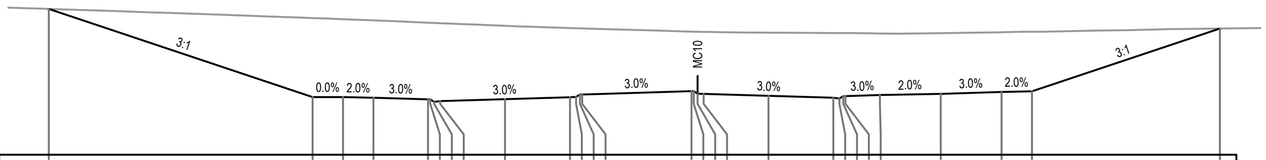
RD-03 - EAST-WEST CONNECTOR



RL145.000

DESIGN FEATURES																											
DESIGN LEVELS	148.249	148.627	148.627	148.597	148.516	148.516	148.391	148.431	148.527	148.623	148.632	148.757	148.757	148.919	148.919	148.794	148.785	148.689	148.593	148.553	148.678	148.678	148.729	148.789	148.879	148.909	148.538
EXISTING LEVELS	148.249	148.251	148.253	148.268	148.275	148.275	148.275	148.277	148.293	148.304	148.305	148.306	148.306	148.342	148.343	148.345	148.347	148.390	148.419	148.421	148.423	148.424	148.420	148.475	148.496	148.518	148.538
DESIGN OFFSETS	-20.134	-19.000	-17.500	-16.000	-13.300	-13.190	-13.000	-12.700	-9.500	-6.300	-6.000	-5.810	-5.700	-0.300	-0.190	0.000	0.300	3.500	6.700	7.000	7.190	7.300	9.000	12.000	15.000	16.500	17.614

CHAINAGE 700.000
ROAD NAME - MC10
HZ 1: 250 V 1:250

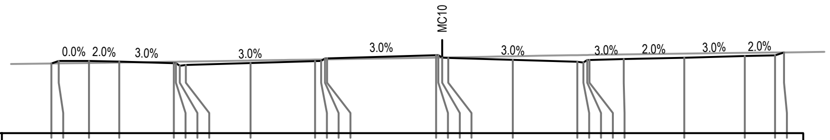


RL139.000

DESIGN FEATURES																											
DESIGN LEVELS	146.172	141.833	141.833	141.803	141.722	141.722	141.597	141.637	141.733	141.829	141.838	141.963	141.963	142.125	142.125	142.000	141.991	141.895	141.799	141.759	141.884	141.884	141.935	141.995	142.085	142.115	145.208
EXISTING LEVELS	146.172	145.723	145.666	145.607	145.494	145.489	145.481	145.469	145.342	145.231	145.221	145.215	145.212	145.054	145.050	145.045	145.043	145.003	144.987	144.985	144.984	144.984	144.964	144.980	145.023	145.048	145.208
DESIGN OFFSETS	-32.017	-19.000	-17.500	-16.000	-13.300	-13.190	-13.000	-12.700	-9.500	-6.300	-6.000	-5.810	-5.700	-0.300	-0.190	0.000	0.300	3.500	6.700	7.000	7.190	7.300	9.000	12.000	15.000	16.500	25.779

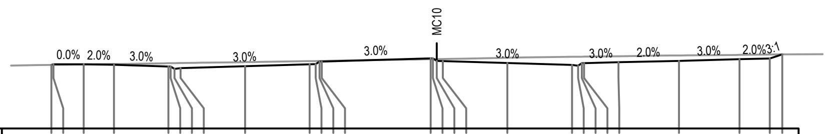
CHAINAGE 600.000
ROAD NAME - MC10
HZ 1: 250 V 1:250

RD-03 - EAST-WEST CONNECTOR



DESIGN OFFSETS	DESIGN LEVELS	EXISTING LEVELS	DESIGN FEATURES
-19.366	151.455	151.455	
-19.000	151.577	151.460	
-17.500	151.577	151.479	
-16.000	151.547	151.500	
-13.300	151.466	151.543	
-13.190	151.466	151.545	
-13.000	151.341	151.548	
-12.700	151.381	151.552	
-9.500	151.477	151.602	
-6.300	151.573	151.649	
-6.000	151.582	151.654	
-5.810	151.707	151.657	
-5.700	151.707	151.659	
-0.300	151.869	151.746	
-0.190	151.869	151.748	
0.000	151.744	151.751	
0.300	151.735	151.756	
3.500	151.639	151.814	
6.700	151.543	151.868	
7.000	151.503	151.873	
7.190	151.628	151.877	
7.300	151.628	151.879	
9.000	151.679	151.905	
12.000	151.739	151.945	
15.000	151.829	151.981	
16.500	151.859	151.999	
16.938	152.005	152.005	

CHAINAGE 815.744
ROAD NAME - MC10
HZ 1: 250 V 1:250



DESIGN OFFSETS	DESIGN LEVELS	EXISTING LEVELS	DESIGN FEATURES
-19.100	151.150	151.150	
-19.000	151.184	151.152	
-17.500	151.184	151.174	
-16.000	151.154	151.194	
-13.300	151.073	151.233	
-13.190	151.073	151.234	
-13.000	150.948	151.237	
-12.700	150.988	151.241	
-9.500	151.084	151.288	
-6.300	151.180	151.338	
-6.000	151.189	151.343	
-5.810	151.314	151.346	
-5.700	151.314	151.348	
-0.300	151.476	151.432	
-0.190	151.476	151.434	
0.000	151.351	151.437	
0.300	151.342	151.442	
3.500	151.246	151.505	
6.700	151.150	151.550	
7.000	151.110	151.554	
7.190	151.235	151.557	
7.300	151.235	151.558	
9.000	151.286	151.581	
12.000	151.346	151.620	
15.000	151.436	151.646	
16.500	151.466	151.665	
17.118	151.672	151.672	

CHAINAGE 800.000
ROAD NAME - MC10
HZ 1: 250 V 1:250

RD-03 - EAST-WEST CONNECTOR

Appendix D Cost Estimates

RD-01

Rev B - 11 February 2026

Buckleys Road - Connector Street - 860m

Group	Item	Description	Quantity	Unit	Rate ($)	Benchmark cost index	Amount ($) (With Benchmark cost index)	Comment
Siteworks and Earthworks	1.1	Site Preparation	39804	m2	4.96	1.33	$ 262,579.03	
	1.2	Soil stabilisation - gypsum treatment	11180	m2	4.65	1.33	$ 69,142.71	
	1.3	Earthworks (cut)	139948	m3	40.52	1.33	$ 7,542,014.79	
	1.4	Erosion protection matting for 1:3 batters	24410	m2	4.29	1.33	$ 139,276.14	
Road Pavement	2.1	Secondary Arterial Pavement	0	m2	133.78	1.33	$ -	
	2.2	Collector Arterial Pavement	6794	m2	112.44	1.33	$ 1,016,010.09	
	2.3	Subgrade Preparation	7654	m2	16.16	1.33	$ 164,505.89	
	2.4	Lime stabilisation, 0.5m past BoK	7654	m2	54.22	1.33	$ 551,949.84	
Concrete Works	3.1	Kerb and Channel	1720	m	60.9	1.33	$ 139,314.84	
	3.2	Traffic Island	0	m2	84.07	1.33	$ -	
	3.3	SUP/footpath/ Cycle Path	0	m2	91.94	1.33	$ -	
	3.4	Cycle Path	0	m2	91.94	1.33	$ -	
Drainage	4.1	Drainage Pipe 300mm CR Bfilled	0	m	197.96	1.33	$ -	
	4.2	Drainage Pipe 375mm CR Bfilled	860	m	282.96	1.33	$ 323,649.65	
	4.3	Drainage Pipe 450mm CR Bfilled	430	m	334.33	1.33	$ 191,203.33	
	4.4	Drainage Pipe 600mm CR Bfilled	430	m	550	1.33	$ 314,545.00	
	4.5	Drainage - Pits	43	No.	2806.1	1.33	$ 160,480.86	
	4.6	Drainage - Subsoil Drainage	1720	m	43.4	1.33	$ 99,281.84	
Traffic	5.1	Traffic Signals	0	Item/ per leg	128786.34	1.33	$ -	
Landscape	6.1	Trees	43	No. m2 m2	363.01	1.33	$ 20,760.54	
	6.2	Landscaping	33010	m2	25.16	1.33	$ 1,104,607.03	
	6.3	Topsoil Seeding	33010	m2	8.44	1.33	$ 370,543.85	
Street Lighting	7.1	Street Lighting (Road)	860	m	225.67	1.33	$ 258,121.35	
Miscellaneous	8.1	Linemarking	6794	m2 of pavement	4.09	1.33	$ 36,957.32	
	8.2	Signage	10	Item	380.39	1.33	$ 5,059.19	
	8.3	Landscape Maintenance (road)	33010	m2	2.96	1.33	$ 129,953.77	
	8.4	Tactile Pavers (Hazard only)	0	Item	319.78	1.33	$ -	
Other	9.1	Demolition of existing concrete kerbs, footpath, islands	0	m3	206	1.33	$ -	
	9.2	Rock excavation and removal / sodic soil treatment (capping layer)	0	m3	116.53	1.33	$ -	
	9.3	Redundant pavement demolition	0	m3	206	1.33	$ -	
Delivery	10.1	Council Fees	1	%	3.25	1	$ 419,248.60	
	10.2	VicRoads Fees	1	%	1	1	$ 128,999.57	
	10.3	Traffic Management	1	%	5	1	$ 644,997.85	
	10.4	Environmental Management	1	%	0.5	1	$ 64,499.79	
	10.5	Survey/Design	1	%	5	1	$ 644,997.85	
	10.6	Supervision and Project Management	1	%	9	1	$ 1,160,996.13	
	10.7	Site Establishment	1	%	2.5	1	$ 322,498.93	
	10.8	Contingency	1	%	15	1	$ 1,934,993.56	
		Excluding Delivery				1	$ 12,899,957.05	
		Including Delivery					$ 18,221,189.33	

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RD-02

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Flanagans Drive - Connector Street - 1424m

Group	Item	Description	Quanity	Unit	Rate ($)	Benchmark cost index	Amount ($) (With Benchmark cost index)	Comment
Siteworks and Earthworks	1.1	Site Preparation	41000	m2	4.96	1.32	$ 268,437.82	
	1.2	Earthworks (cut)	22364	m3	40.52	1.32	$ 1,196,188.57	
	1.3	Erosion protection matting for 1:3 batters	12190	m2	4.29	1.32	$ 69,029.53	
Road Pavement	2.1	Secondary Arterial Pavement	0	m2	133.78	1.32	$ -	
	2.2	Collector Arterial Pavement	10822	m2	112.44	1.32	$ 1,606,269.27	
	2.3	Subgrade Preparation	12246	m2	16.16	1.32	$ 261,230.41	
	2.4	Lime stabilisation, 0.5m past BoK	12246	m2	54.22	1.32	$ 876,479.75	
Concrete Works	3.1	Kerb and Channel	2848	m	60.9	1.32	$ 228,945.02	
	3.2	Traffic Island	0	m2	84.07	1.32	$ -	
	3.3	SUP/footpath/ Cycle Path	5172	m2	91.94	1.32	$ 627,678.06	
	3.4	Cycle Path	0	m2	91.94	1.32	$ -	
Drainage	4.1	Drainage Pipe 300mm CR Bfilled	0	m	197.96	1.32	$ -	
	4.2	Drainage Pipe 375mm CR Bfilled	1424	m	282.96	1.32	$ 531,874.25	
	4.3	Drainage Pipe 450mm CR Bfilled	712	m	334.33	1.32	$ 314,216.71	
	4.4	Drainage Pipe 600mm CR Bfilled	712	m	550	1.32	$ 516,912.00	
	4.5	Drainage - Pits	72	No.	2806.1	1.32	$ 266,691.74	
	4.6	Drainage - Subsoil Drainage	2848	m	43.4	1.32	$ 163,156.22	
Traffic	5.1	Traffic Signals	0	Item/ per leg	128786.3	1.32	$ -	
Landscape	6.1	Trees	72	No. m2 m2	363.01	1.32	$ 34,500.47	
	6.2	Landscaping	25006	m2	25.16	1.32	$ 830,479.27	
	6.3	Topsoil Seeding	25006	m2	8.44	1.32	$ 278,586.84	
Street Lighting	7.1	Street Lighting (Road)	1424	m	225.67	1.32	$ 424,187.39	
Miscellaneous	8.1	Linemarking	21166	m2 of pavement	4.09	1.32	$ 114,273.16	
	8.2	Regulatory Signage	14	Item	380.39	1.32	$ 7,029.61	
	8.3	Landscape Maintenance (road)	25006	m2	2.96	1.32	$ 97,703.44	
	8.4	Tactile Pavers (Hazard only)	0	Item	319.78	1.32	$ -	
Other	9.1	Demolition of existing concrete kerbs, footpath, islands	0	m3	206	1.32	$ -	
	9.2	Rock excavation and removal / sodic soil treatment (capping layer)	0	m3	116.53	1.32	$ -	
	9.3	Redundant pavement demolition	0	m3	206	1.32	$ -	
Delivery	10.1	Council Fees	1	%	3.25	1	$ 283,200.76	
	10.2	VicRoads Fees	1	%	1	1	$ 87,138.70	
	10.3	Traffic Management	1	%	5	1	$ 435,693.48	
	10.4	Environmental Management	1	%	0.5	1	$ 43,569.35	
	10.5	Survey/Design	1	%	5	1	$ 435,693.48	
	10.6	Supervision and Project Management	1	%	9	1	$ 784,248.26	
	10.7	Site Establishment	1	%	2.5	1	$ 217,846.74	
	10.8	Contingency	1	%	15	1	$ 1,307,080.43	
		Excluding Delivery				1	$ 8,713,869.53	
		Including Delivery					$ 12,308,340.71	

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RD-03

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East-West Connector - Connector Street - 815m

Group	Item	Description	Quanity	Unit	Rate ($)	Benchmark cost index	Amount ($) (With Benchmark cost index)	Comment
Siteworks and Earthworks	1.1	Site Preparation	30544	m2	4.96	1.32	$ 199,977.68	
	1.2	Earthworks (net cut)	57744	m3	40.52	1.32	$ 3,088,502.85	
	1.3	Erosion protection matting for 1:3 batters	14570	m2	4.29	1.32	$ 82,507.00	
Road Pavement	2.1	Secondary Arterial Pavement	0	m2	133.78	1.32	$ -	
	2.2	Collector Arterial Pavement	6194	m2	112.44	1.32	$ 919,318.44	
	2.3	Subgrade Preparation	7009	m2	16.16	1.32	$ 149,510.38	
	2.4	Lime stabilisation, 0.5m past BoK	7009	m2	54.22	1.32	$ 501,636.93	
Concrete Works	3.1	Kerb and Channel	1630	m	60.9	1.32	$ 131,032.44	
	3.2	Traffic Island	0	m2	84.07	1.32	$ -	
	3.3	SUP/footpath/ Cycle Path	2445	m2	91.94	1.32	$ 296,727.16	
	3.4	Cycle Path	0	m2	91.94	1.32	$ -	
Drainage	4.1	Drainage Pipe 300mm CR Bfilled	0	m	197.96	1.32	$ -	
	4.2	Drainage Pipe 375mm CR Bfilled	815	m	282.96	1.32	$ 304,408.37	
	4.3	Drainage Pipe 450mm CR Bfilled	408	m	334.33	1.32	$ 179,836.11	
	4.4	Drainage Pipe 600mm CR Bfilled	408	m	550	1.32	$ 295,845.00	
	4.5	Drainage - Pits	41	No.	2806.1	1.32	$ 151,866.13	
	4.6	Drainage - Subsoil Drainage	1630	m	43.4	1.32	$ 93,379.44	
Traffic	5.1	Traffic Signals	0	Item/ per leg	128786.34	1.32	$ -	
Landscape	6.1	Trees	41	No. m2 m2	363.01	1.32	$ 19,646.10	
	6.2	Landscaping	21905	m2	25.16	1.32	$ 727,491.34	
	6.3	Topsoil Seeding	21905	m2	8.44	1.32	$ 244,039.22	
Street Lighting	7.1	Street Lighting (Road)	815	m	225.67	1.32	$ 242,775.79	
Miscellaneous	8.1	Linemarking	11084	m2 of pavement	4.09	1.32	$ 59,840.30	
	8.2	Regulatory Signage	6	Item	380.39	1.32	$ 3,012.69	
	8.3	Landscape Maintenance (road)	21905	m2	2.96	1.32	$ 85,587.22	
	8.4	Tactile Pavers (Hazard only)	0	Item	319.78	1.32	$ -	
Other	9.1	Demolition of existing concrete kerbs, footpath, islands	0	m3	206	1.32	$ -	
	9.2	Rock excavation and removal / sodic soil treatment (capping layer)	0	m3	116.53	1.32	$ -	
	9.3	Redundant pavement demolition	0	m3	206	1.32	$ -	
Delivery	10.1	Council Fees	1	%	3.25	1	$ 252,750.57	
	10.2	VicRoads Fees	1	%	1	1	$ 77,769.41	
	10.3	Traffic Management	1	%	5	1	$ 388,847.03	
	10.4	Environmental Management	1	%	0.5	1	$ 38,884.70	
	10.5	Survey/Design	1	%	5	1	$ 388,847.03	
	10.6	Supervision and Project Management	1	%	9	1	$ 699,924.65	
	10.7	Site Establishment	1	%	2.5	1	$ 194,423.51	
	10.8	Contingency	1	%	15	1	$ 1,166,541.08	
		Excluding Delivery				1	$ 7,776,940.57	
		Including Delivery					$ 10,984,928.55	

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