Appendix 1

Response to Transport for NSW Amendment Report request for additional information

SCT Consulting

VALLEY OF THE WINDS

Response to TfNSW Amendment Report request for additional information

26 MARCH 2024

SCT Consulting acknowledges the traditional owners of the lands on which we work.
We pay our respects to Elders past, present and emerging.

Quality Assurance

Project:	Valley of the Winds		
Project Number:	SCT_00239		
Client:	ACEN Australia Pty Ltd	**ABN:**	27 616 856 672
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Version	Date	Details
1.0	14 March 2024	Draft for review
2.0	26 March 2024	Final report

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1.0 Introduction

1.1 Background

ACEN Australia Pty Ltd (ACEN) requested SCT Consulting to prepare a response to a request for additional information submitted by Transport for NSW (TfNSW) on 15 November 2023. This request was regarding the Response to Submission and Amendment Report for the Valley of the Winds Wind Farm (SSD-10461) and focused on the five Golden Highway intersections that would provide access or were on light or heavy vehicle access routes to the three turbine clusters during construction of the wind farm:

- Golden Highway / Black Stump Way (existing intersection)
- Golden Highway / Leadville Cluster Access Road (proposed intersection)
- Golden Highway / Girragulang Road Cluster alternative access road (proposed intersection)
- Golden Highway / Short Street (existing intersection)
- Golden Highway / Ulan Road (existing intersection).

1.2 Construction workforce accommodation scenarios

In the Valley of the Winds project EIS, two construction workforce accommodation scenarios were considered – a regional distribution of the construction workforce accommodation across six towns / localities with established accommodation facilities and a centralised construction workforce accommodation, with a temporary workers accommodation camp located on site, accessed off Moorefield Road.

It is the intention of ACEN to pursue the centralised workforce accommodation, which would have a much reduced impact on the Golden Highway intersections compared to the regional distribution scenario, as the only construction workforce traffic would be to and from the Leadville Cluster Access Road via Black Stump Way and the Golden Highway and the volume of light vehicles would reduce significantly due to the increased use of mini-buses. Construction workforce traffic routes to and from the Mount Hope Cluster would be via Black Stump Way and to and from the Girragulang Road Cluster would be via Moorefield Road, neither of which would use the Golden Highway.

The regional accommodation scenario was tested as a worst case for the assessment of the Golden Highway intersections, with commentary provided on the centralised workforce accommodation.

1.3 Additional information requested

The key information requested by TfNSW and the sections in this report where this is provided are outlined in **Table 1-1**. A copy of the TfNSW submission is included in **Appendix A**.

A meeting was held with TfNSW on 29 January 2024 to discuss the requested information. In the meeting, it was agreed that the request for further intersection traffic surveys for a minimum of one full day on the Golden Highway was not required.

While it was recognised that the traffic peak hour for the Golden Highway intersections may occur more in the middle of the day, the peak traffic impact periods for the wind farm construction is when the workforce is going to and from site at the start and end of shift. It was therefore considered appropriate that the traffic impact assessment is undertaken during the AM and PM peak hours.

Table 1-1 Request for information and where it is provided in this report

Information requested	Section provided
Updated SIDRA analysis and files	SIDRA analysis in Section 6.0 and SIDRA outputs in Appendix B. SIDRA files to be provided at the same time as this report.
Discussion on impact of COVID-19 on traffic counts	Section 3.1
Inclusion of traffic volumes from known Major Projects that will have a cumulative traffic impact along shared construction routes	Section 2.0
Traffic volumes for the base, future and cumulative scenarios, including traffic volumes turning left and right at each of the five Golden Highway intersections in the AM and PM peaks for each scenario	Discussed in Section 3.0 and presented in Appendix B
Review of the SISD requirements at the five Golden Highway intersections	Section 4.0
Capacity analysis per figures 6.4 and 6.5 of AGtRD at the five Golden Highway intersections	Captured in the SIDRA analysis
Review of the Austroads intersection turn warrants at the five Golden Highway intersections	Summarised in Section 5.0 and warrant charts included in Appendix C
Swept path analysis of existing and proposed intersection treatments	Discussed in Section 7.0 and presented in Appendix D
Strategic designs of the intersection treatments (inclusive of OSOM design vehicle where applicable)	Discussed in Section 7.0 and presented in Appendix D

1.4 Report structure

The report has been structured to respond to the additional information requested by TfNSW as follows:

- **Chapter 2** discusses the forecast major project traffic volumes on the Golden Highway.
- **Chapter 3** presents a discussion of the traffic volumes at the five Golden Highway intersections for the existing traffic, 'with project construction traffic' and 'with cumulative traffic' scenarios.
- **Chapter 4** presents an updated safe intersection sight distance review of the five Golden Highway intersections using the posted speed plus 10km/h approach requested by TfNSW.
- **Chapter 5** presents the updated Austroads intersection turn warrant review at the Golden Highway intersections.
- **Chapter 6** presents the updated SIDRA analysis at the Golden Highway intersections
- **Chapter 7** discusses the strategic intersection designs (2D) and swept paths of design vehicles.
- **Chapter 8** provides a summary of the requested information.

2.0 Forecast major project traffic volumes

TfNSW requested a cumulative traffic scenario to be tested that includes traffic volumes associated with Major Projects (CSSI, SSI and SSD) that will have a cumulative traffic impact on the background network and turning traffic volumes along the shared construction routes, in particular at the five Golden Highway intersections.

The Central-West Orana Renewable Energy Zone (REZ) Transmission project EIS (EnergyCo, Sep 2023) presented a list of Major Projects that are forecast to be under construction in the next few years and would therefore have a cumulative impact with the Valley of the Winds project. **Figure 2-1** presents the schedules of Major Projects from the EnergyCo EIS.

Figure 2-1 Major Projects that may overlap with Valley of the Winds construction

Project[1]	2023				2024				2025				2026				2027				2028			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Central-West Orana REZ Transmission																								
Public road works																								
Liverpool Range wind farm																								
Valley of the Winds wind farm																								
Birriwa solar farm																								
Tallawang solar farm																								
Orana wind farm																								
Cobbora solar farm																								
Sandy Creek solar farm																								
Dapper solar farm																								
Wellington south BESS																								
Apsley BESS																								
Forest Glen solar farm																								
Stubbo solar farm																								
Bowdens silver mine																								
Inland Rail (Narromine to Narrabri)																								
Dunedoo solar farm																								
Uungula wind farm																								
Maryvale solar farm																								
Geurie solar farm																								
Dubbo solar farm																								

1. Includes only projects that have provided indicative construction periods in publicly available environmental assessment documentation.

Source: Table 20-2 Central-West Orana Renewable Energy Zone Transmission project EIS (EnergyCo, September 2023)

The peak construction period of the Valley of the Winds is expected to be Q3/Q4 2025. A review of the publicly available environmental assessment documentation was undertaken for the projects that would have both a time overlap for this peak construction period and a shared construction route. While not listed in the above figure, the Scoping Report for the Narragamba Solar Farm was published in July 2023 and the construction traffic information for Narragamba was also reviewed.

A summary of the relevant projects, the shared construction route and the AM and PM peak hour construction traffic volumes is presented in **Table 2-1**. The construction traffic volumes were added to the traffic volumes at each of the five Golden Highway intersections to produce the cumulative traffic scenario. The majority of the traffic impact would be from the Central-West Orana REZ Transmission project and the Tallawong Solar Farm.

Table 2-1 Summary of Major Projects construction traffic volumes on shared construction routes with the project

Project	Shared construction route	AM peak hour traffic volumes	PM peak hour traffic volumes	Notes
Central West Orana Renewable Energy Zone Transmission Project	Golden Highway, Ulan Road	75	75	Golden Highway between Merotherie Road and Ulan Road, inclusive.
	Golden Highway, Merotherie Road	100	100	Golden Highway between Merotherie Road and Castlereagh Highway, inclusive.
Liverpool Range Wind Farm	Golden Highway, Ulan Road	7	7	Golden Highway west of Ulan Road, inclusive
Birriwa Solar Farm	Golden Highway	11	11	Through the Golden Highway corridor
Tallawong Solar Farm	Golden Highway	165	165	Through the Golden Highway corridor
Stubbo Solar Farm	Golden Highway, Ulan Road	6	6	Golden Highway west of Ulan Road, inclusive
Narragamba Solar Farm	Golden Highway	10	10	Golden Highway east of Merotherie Road, inclusive, towards Newcastle

3.0 Traffic volumes

TfNSW requested that turning volumes in the AM and PM peak hours at each of the five intersections capture the following in the assessment scenarios:

- Background traffic volumes
- Annual growth applied to the Golden Highway
- Cumulative traffic volumes associated with Major Projects (CSSI, SSI and SSD) along the shared construction routes.

3.1 Base traffic surveys

A comment was made in TfNSW's submission that the base traffic surveys were undertaken during COVID 19 with no further reassessment or application of sensitivity analysis. Intersection surveys were undertaken on 9 June 2021, which was outside of the Sydney lockdown period (March/April 2020 and July-Oct 2021).

A review of the traffic volumes at permanent count station ID 6163 (Golden Highway) showed that the traffic volumes along the Golden Highway in June 2021 were comparable or higher than pre-COVID (June 2019) conditions, as indicated in **Table 3-1**. Therefore, no adjustment was considered necessary.

Table 3-1 Comparison of permanent count station data from June 2021 and pre-COVID traffic volumes (June 2019)

Direction	Date	Daily light vehicles	Daily heavy vehicles	Daily total vehicles
Eastbound	June 2019	796	233	1,009
	June 2021	897	312	1,190
Westbound	June 2019	733	247	963
	June 2021	911	343	1,241

Source: TfNSW permanent count station ID 6163 (Golden Highway)

3.2 Annual growth and project-related cumulative traffic

Consistent with the recent Central-West Orana REZ Transmission project EIS: Technical paper 13 – Traffic and transport (WSP, Sep 2023), no background traffic growth factor has now been applied to the existing traffic volumes, as "there is minimal land use growth in the study area, with fluctuations in traffic generally attributable to activities generated by other projects in the area"[1]. This is consistent with the traffic growth assessed in the original Valley of the Winds Traffic and Transport Assessment (Feb 2022), which indicated a steady decline in traffic prior to 2020 with a sharp increase in 2021, which reflected project-related activities in the area.

As per the EnergyCo EIS, this significant increase in traffic due to other projects in the area is captured through the cumulative impact assessment discussed in **Chapter 2.**

3.3 Traffic volume diagrams

Traffic volume diagrams of each intersection, which include the turning volumes for the existing traffic, 'with project construction traffic' (for the regional accommodation scenario), and 'with cumulative traffic' scenarios, are presented as part of the SIDRA assessments and included in **Appendix A**. These traffic volumes account for light and heavy vehicles, but not OSOM vehicles as they would travel under notice and permit and would operate differently to the standard light and heavy construction vehicles.

[1] Central-West Orana Renewable Energy Zone Transmission project EIS: Technical paper 13 – Traffic and transport, WSP, Sep 2023

4.0 Safe intersection sight distance review

4.1 Regional accommodation scenario

A review of the safe intersection sight distance (SISD) at the five intersections was undertaken. SISD is defined by the *Austroads Guide to Road Design Part 4A* (AGRD04a) as the "*minimum sight distance that should be provided on a major road at any intersection*". AGRD04a provides the following equation to determine the SISD:

$$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$

Where:

D_T = decision time (sec) = observation time (3 sec) + reaction time (sec)

V = operating (85th percentile) speed (km/h)

d = coefficient of deceleration

a = longitudinal grade in %.

TfNSW requested the operating (85th percentile) speed along the Golden Highway to be assumed as ten per cent greater than the posted speed limit of 100km/h, i.e. the design speed of 110km/h. With a reaction time of 2.5 seconds and heavy vehicle coefficient of deceleration of 0.29, which are appropriate for trucks (OSOMs would be catered for differently as they are under escort), the five intersections along the highway all require a safe intersection sight distance (SISD) of 332m, as the intersections are located along relatively level terrain.

As indicated in **Table 4-1**, using this approach, the two existing intersections of Golden Highway / Black Stump Way and Golden Highway / Short Street do not achieve the minimum SISD requirement. The existing Ulan Road intersection and the proposed Leadville Cluster Access Road do achieve the minimum SISD requirement. The proposed Girragulang Road Cluster Alternative Access Road achieves it to the east, but not to the west, as the alignment of the Golden Highway has a vertical crest where the highway has been 'cut' into the terrain about 250m to the west of the proposed location. This would limit the SISD for vehicles exiting from the new intersection if it is located within 332m of the crest.

Table 4-1 Summary of SISD analysis – using 110km/h as the operating (85th percentile) speed

Intersection	Minimum SISD (m)	SISD for eastbound traffic (m)	Satisfies SISD?	SISD for westbound traffic (m)	Satisfies SISD?
Golden Hwy / Black Stump Way (existing intersection)	332	290	No	320	No
Golden Hwy / Leadville Cluster Access Rd (proposed intersection)	332	330+	Yes	330+	Yes
Golden Hwy / Girragulang Cluster Alternative Access Rd (proposed intersection)	332	250	No	550+	Yes
Golden Hwy / Short St (existing intersection)	332	300	No	290	No
Golden Hwy / Ulan Rd (existing intersection)	332	400+	Yes	400+	Yes

In the recent Central-West Orana REZ Transmission project EIS: Technical paper 13 – Traffic and transport (WSP, Sep 2023), an assessment of SISD at the Golden Highway / Ulan Road used an operating (85th percentile) speed of 100km/h. This operating (85th percentile) speed was also used in the original Valley of the Winds Traffic and Transport Assessment (Feb 2022) for the SISD assessments.

The SISD assessment was redone using 100km/h as the operating (85th percentile) speed, and the results are presented in **Table 4-2**. They indicate that, apart from eastbound traffic at the proposed Girragulang Road Cluster Alternative Access Road, all the other intersections, including the existing intersections, satisfy the SISD requirement. This satisfaction of the required minimum SISD at the existing Golden Highway intersections would suggest that the use of an operating (85th percentile) speed of 100km/h is more appropriate.

Table 4-2 Summary of SISD analysis – using 100km/h as the operating (85th percentile) speed

Intersection	Minimum SISD (m)	SISD for eastbound traffic (m)	Satisfies SISD?	SISD for westbound traffic (m)	Satisfies SISD?
Golden Hwy / Black Stump Way (existing intersection)	284	290	Yes	320	Yes
Golden Hwy / Leadville Cluster Access Rd (proposed intersection)	284	330+	Yes	330+	Yes
Golden Hwy / Girragulang Cluster Alternative Access Rd (proposed intersection)	284	250	No	550+	Yes
Golden Hwy / Short St (existing intersection)	284	300	Yes	290	Yes
Golden Hwy / Ulan Rd (existing intersection)	284	400+	Yes	400+	Yes

To resolve the location of the proposed Girragulang Road Cluster Alternative Access Road not achieving the minimum SISD, either the location of the access road is required to be moved to the east until the SISD is achieved or traffic management is required to warn eastbound traffic prior to the vertical crest of turning traffic at the intersection. A proposed reduction in signposted speed along this section of the Golden Highway is not supported by TfNSW as a traffic mitigation measure. The relocation of the access road to the east will require coordination with EnergyCo's transmission line easement.

4.2 Centralised accommodation scenario

Under the centralised accommodation scenario, the Golden Highway / Black Stump Way and the Golden Highway / Leadville Cluster Access Road would be the only intersections used for heavy vehicle and construction worker access. The selected Golden Highway access to the Girragulang Road Cluster would only be for heavy vehicle access, while Ulan Road would not be used at all.

5.0 Intersection turn warrant review

5.1 Regional accommodation scenario

The Golden Highway / Black Stump Way intersection already has channelised turning lanes for the right turn and left turn movements on the Golden Highway and therefore has not been reassessed.

The other four intersections along the Golden Highway were assessed against the *Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings* intersection warrant charts to assess for any additional intersection treatments under the regional accommodation scenario:

- Golden Highway / Leadville Cluster Access Road (during construction of the Leadville cluster)
- Golden Highway / Girragulang Road Cluster Alternative Access Road (during construction of the Girragulang Road cluster)
- Golden Highway / Short Street (during construction of the Girragulang Road cluster)
- Golden Highway / Ulan Road (during construction of the Girragulang Road cluster).

The warrant charts showing the 'without project', 'with project construction traffic' and 'with cumulative projects' scenarios are presented in **Appendix C**. A summary of the results is presented in **Table 5-1**.

The warrant charts show that in the 'with project construction traffic' scenario under the regional accommodation scenario, the forecast turn movements fall within the limits of the basic intersection arrangement, except at the Golden Highway / Ulan Road intersection during the construction of the Girragulang Road Cluster, where the right turn movement onto Ulan Road during the PM peak hour is recommended to be accommodated within a short channelised right turn lane (CHR(s)). The Central-West Orana REZ Transmission project EIS (EnergyCo, Sep 2023) also identifies the requirement for an upgrade at the same intersection to include a CHR(s) for its project, and notes this should be confirmed in the detailed design process for the Transmission project.

With cumulative traffic from the construction activities of the other Major Projects, it is observed that all the assessed intersections are recommended to be upgraded to have a CHR to accommodate right turning movements from the Golden Highway, due to the increase in through traffic on the Golden Highway from the other projects. The majority of the traffic impact would be from the Central-West Orana REZ Transmission project and the Tallawong Solar Farm.

Table 5-1 Summary of intersection layout requirements under the regional accommodation scenario

Intersection	Current arrangement	Recommended arrangement in 'with project construction traffic' scenario	Recommended arrangement in 'cumulative traffic' scenario	Notes
Golden Hwy / Leadville Cluster Access Rd	-	**BAR / BAL**	**CHR** / BAL	Channelised right turn recommended in the **'cumulative traffic' scenario** during the AM peak hour due to increase in through movements along Golden Hwy
Golden Hwy / Girragulang Cluster Alternative Access Rd	-	**BAR / BAL**	**CHR** / BAL	Channelised right turn recommended in the **'cumulative traffic' scenario** during the AM peak hour due to increase in through movements along Golden Hwy
Golden Hwy / Short St	BAR / BAL	BAR / BAL	**CHR** / BAL	Channelised right turn recommended in **the 'cumulative traffic' scenario** during the AM peak hour due to increase in through movements along Golden Hwy
Golden Hwy / Ulan Rd	BAR / AUL	**CHR(s)** / AUL	**CHR** / AUL	Short channelised right turn recommended in the **'with project construction traffic' scenario** during the PM peak. Channelised right turn recommended during both AM and PM peak hours in the **'cumulative traffic' scenario**.

Notes: BAR / BAL – basic right turn / left turn, CHR / CHL – channelised right turn / left turn, AUL – auxiliary left turn, (s) – short lane

5.2 Centralised accommodation scenario

Under the regional accommodation scenario, the recommended short channelised right turn at the Golden Highway / Ulan Road intersection is due to light vehicles and shuttle buses returning to Gulgong and Mudgee in the PM peak hour along the access route from the Girragulang Road Cluster stated in the EIS and shown in **Figure 5-1**.

If a centralised accommodation camp is in use, as is intended by ACEN, Ulan Road would not be used and therefore no impact or upgrade would be required. The access routes to the cluster worksites for the centralised accommodation scenario are shown in **Figure 5-2**. Construction workforce traffic would only impact the Black Stump Way and Leadville Cluster Access Road intersections on the Golden Highway. The left turn into the Leadville Cluster Access Road in the AM peak hour would not warrant an auxiliary left turn at the intersection (see **Figure C-9** and **Figure C-10** in **Appendix C**) and the right turn movement at the Black Stump Way in the PM peak hour would be accommodated in the existing channelised right turn lane.

Figure 5-1 Construction workforce access routes to Girragulang Road Cluster: Regional accommodation scenario

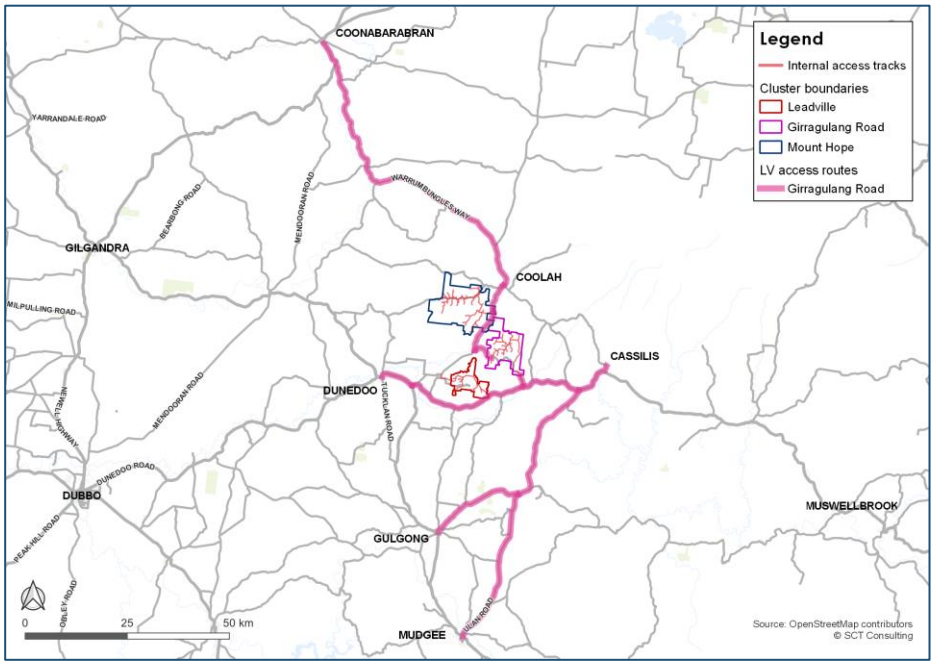
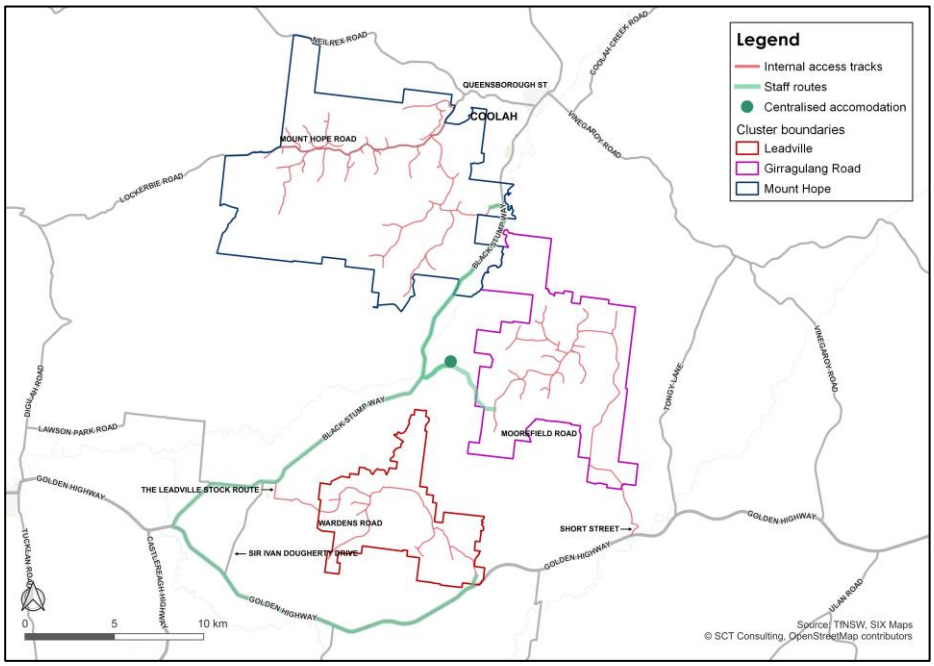


Figure 5-2 Construction workforce access routes to the worksite clusters: Centralised accommodation scenario



6.0 SIDRA analysis

An intersection assessment was undertaken using SIDRA 9.0 to check the queue lengths for turning movements.

Table 6-1 to **Table 6-5** provides summaries of the intersection performances during the AM and PM peak hours in the peak construction phase under the 'cumulative' traffic scenario, as a worst case, for:

- Golden Highway / Black Stump Way (during construction of the Mount Hope cluster)
- Golden Highway / Leadville Access Road (during construction of the Leadville cluster)
- Golden Highway / Girragulang Road Alternate Access (during construction of the Girragulang Road cluster)
- Golden Highway / Short Street (during construction of the Girragulang Road cluster)
- Golden Highway / Ulan Road (during construction of the Girragulang Road cluster).

The volumes include light and heavy vehicles (represented as 'Large Trucks' in SIDRA) and present the highest construction volume associated with each cluster. SIDRA outputs are included in **Appendix B**.

The summaries show that all the intersections are forecast to operate with spare capacity, as evidenced by the Level of Service A/B for all approaches to the intersection. Furthermore, the analysis shows that minimal resultant queues are expected at the intersections with the cumulative traffic volumes during the peak hours, whereby the maximum forecast queues are less than 15m, which is equivalent to a single 'large truck length' for less than seven seconds, which corresponds to the upper limit of Level of Service A.

Table 6-1 Golden Highway / Black Stump Way intersection performance

Intersection		AM peak cumulative			PM peak cumulative		
Approach	Movement	Volumes	Level of Service	95th Percentile Queue (m)	Volumes	Level of Service	95th Percentile Queue (m)
Golden Highway East Approach	Through	318	A	0	84	A	0
	Right	5	A	1.0	5	B	1.2
Black Stump Way East Approach	Left	5	A	3.9	5	B	12.8
	Right	38	B	3.9	172	A	12.8
Golden Highway West Approach	Left	139	A	0	1	A	0
	Through	71	A	0	318	A	0

Table 6-2 Golden Highway / Leadville Access intersection performance

Intersection		AM peak cumulative			PM peak cumulative		
Approach	Movement	Volumes	Level of Service	95th Percentile Queue (m)	Volumes	Level of Service	95th Percentile Queue (m)
Golden Highway South Approach	Through	313	A	1.7	71	A	1.1
	Right	21	A	1.7	3	A	1.1
Leadville Access East Approach	Left	3	A	0.3	21	A	2.6
	Right	1	A	0.3	139	A	2.6
Golden Highway North Approach	Left	138	A	0.0	1	A	0
	Through	62	A	0.0	315	A	0

Table 6-3 Golden Highway / Girragulang Alternate Access intersection performance

Intersection		AM peak cumulative			PM peak cumulative		
Approach	Movement	Volumes	Level of Service	95th Percentile Queue (m)	Volumes	Level of Service	95th Percentile Queue (m)
Golden Highway South Approach	Through	300	A	14.4	78	A	2.1
	Right	152	A	14.4	3	B	2.1
Alternate Access East Approach	Left	3	A	0.4	106	A	3.3
	Right	1	A	0.4	53	A	3.3
Golden Highway North Approach	Left	53	A	0	1	A	0
	Through	24	A	0	302	A	0

Table 6-4 Golden Highway / Short Street intersection performance

Intersection		AM peak cumulative			PM peak cumulative		
Approach	Movement	Volumes	Level of Service	95th Percentile Queue (m)	Volumes	Level of Service	95th Percentile Queue (m)
Golden Highway South Approach	Through	300	A	14.6	78	A	1.8
	Right	154	A	14.6	5	A	1.8
Short Street East Approach	Left	6	A	0.4	109	A	3.4
	Right	2	A	0.4	55	A	3.4
Golden Highway North Approach	Left	56	A	0	3	A	0
	Through	24	A	0	302	A	0

Table 6-5 Golden Highway / Ulan Road intersection performance

Intersection		AM peak cumulative			PM peak cumulative		
Approach	Movement	Volumes	Level of Service	95th Percentile Queue (m)	Volumes	Level of Service	95th Percentile Queue (m)
Ulan Road South Approach	Left	186	A	5.2	27	A	1.3
	Right	58	A	4.8	58	B	5.5
Golden Highway East Approach	Left	37	A	0	42	A	0
	Through	235	A	0	76	A	0
Golden Highway West Approach	Through	89	A	6.1	265	A	14.2
	Right	20	A	6.1	175	A	14.2

7.0 Strategic intersection designs and swept paths

Strategic designs and swept paths of the proposed Leadville Cluster Access Road, Girragulang Road Cluster Alternative Access Road and Short Street intersections with the Golden Highway have been produced.

The plans and swept path diagrams are included in **Appendix D**.

The Golden Highway / Black Stump Way intersection will be upgraded by EnergyCo, following approval of the EnergyCo / TfNSW Port to REZ Upgrade Program REF.

The Central-West Orana REZ Transmission project (SSI-48323210) proposes to investigate the upgrade of the Golden Highway / Ulan Road intersection to provide a short channelised right turn lane (CHR(s)), which would be of relevance for the Valley of the Wind's regional accommodation scenario.

8.0 Summary

The analysis contained in this report responds to the request for additional information submitted by TfNSW regarding the Response to Submission and Amendment Report submitted for the Valley of the Winds Wind Farm (SSD-10461). As requested by TfNSW, the analysis has focused on the five Golden Highway intersections that provide access to and from the turbine cluster sites.

A summary of the requested information and the analysis undertaken is:

– Cumulative analysis with traffic from Major Projects:

  A review of forecast traffic volumes associated with construction of Major Projects that would have a cumulative impact on the road network and turning traffic volumes along shared construction routes, in particular at the five Golden Highway intersections, was undertaken. This additional traffic was included in the cumulative analysis.

– Updated safe intersection sight distance (SISD) review of the five Golden Highway intersections:

  Using the posted speed plus 10km/h approach requested by TfNSW, the two existing intersections of Golden Highway / Black Stump Way and Golden Highway / Short Street do not achieve the minimum SISD requirement. The existing Golden Highway / Ulan Road intersection and the proposed Golden Highway / Leadville Cluster Access Road achieve the minimum SISD requirement, while the proposed Girragulang Road Cluster Alternative Access Road achieves it to the east, but not to the west.

  Using 100km/h as the operating (85th percentile) speed, as was done in the original EIS and in the recent Central-West Orana REZ Transmission project EIS, all the intersections satisfy the SISD requirement, apart from the proposed Girragulang Road Cluster Alternative Access Road to the west.

  To achieve the SISD requirement at the proposed Girragulang Road Cluster Alternative Access Road, either a reduction in the speed limit on this section of the highway is required, which it is recognised is not supported by TfNSW, or the proposed Girragulang Road Cluster Alternative Access Road intersection is required to be moved to the east. This relocation will require coordination with EnergyCo's transmission line easement

– Updated intersection turn warrant review of the Golden Highway intersections:

  In the 'with project construction traffic' scenario under the regional accommodation scenario, the forecast turn movements fall within the limits of the basic intersection arrangement, except during the PM peak hour at the Golden Highway / Ulan Road intersection during the construction of the Girragulang Road Cluster, where the right turn movement onto Ulan Road is recommended to be accommodated within a short channelised right lane (CHR(s)). The Central-West Orana REZ Transmission project (SSI-48323210) proposes to investigate the upgrade of the Golden Highway / Ulan Road intersection to provide a CHR(s).

  If a centralised workforce accommodation camp is in use, as is intended by ACEN, Ulan Road would not be used and therefore no impact or upgrade would be required. Under the centralised accommodation scenario, construction workforce traffic would only use the Black Stump Way and Leadville Cluster Access Road intersections on the Golden Highway, with no turn lane upgrades required.

  With the cumulative traffic from the construction activities of the other Major Projects, mainly from the Central-West Orana REZ Transmission project and Tallawong Solar Farm, it is observed that all the assessed intersections are recommended to be upgraded to include a CHR to accommodate the right turning movement from the Golden Highway, due to the increase in through traffic on the Golden Highway.

– Updated SIDRA analysis of the Golden Highway intersections:

  In the 'with cumulative traffic' scenario, all the intersections are still forecast to operate with significant spare capacity, as evidenced by the Level of Service A/B for all approaches to the intersections. Furthermore, the analysis shows that minimal resultant queues are expected at the intersections during the peak hours.

– Strategic intersection designs (2D) and swept paths of design vehicles:

  Strategic designs and swept paths of the proposed Leadville Cluster Access Road, Girragulang Road Cluster Alternative Access Road and Short Street intersections have been produced and are included with this response.

  The Golden Highway / Black Stump Way intersection will be upgraded by EnergyCo, following approval of the EnergyCo / TfNSW Port to REZ Upgrade Program REF and the Central-West Orana REZ Transmission project (SSI-48323210) proposes to investigate the upgrade of the Golden Highway / Ulan Road intersection to provide a CHR(s).

APPENDIX A

TRANSPORT FOR NSW AMENDMENT REPORT SUBMISSION

Transport for NSW

15 November 2023

TfNSW reference: WST20/00171/03 | SF2020/094455
Your reference: SSD-10461

Energy Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Natasha Homesy

TfNSW Response to Valley of the Winds response to RTS and Amendment Report (SSD-10461)

Dear Natasha,

Transport for NSW (TfNSW) is responding to the SSD-10461 referred on 1 November 2023.

TfNSW has reviewed the information and is unable to properly assess possible impacts on the state transport network and its users. Details of **additional required information** are set out in **Attachment 1 and Attachment 2.**

On request, TfNSW can participate in a meeting with DPE and the Applicant to further discuss the information in Attachment 1.

If you have any questions, please contact Alexandra Power- Team Leader Development Services (Renewables) on 1300 019 680 or email development.west@transport.nsw.gov.au.

Yours faithfully,

Alexandra Power
Team Leader Development Services (West)-Renewables
Community & Place
Regional and Outer Metropolitan

Attachment 1

TfNSW Response to Valley of the Winds response to RTS and Amendment Report (SSD-10461)

This attachment relates to TfNSW's response dated 15 November 2023 reference WST20/00171/03 | SF2020/094455.

TfNSW RFI requirements are provided below and within Attachment 2.

TfNSW Response in relation to Valley of the Winds Response

No.	TfNSW comments (from response to EIS	Proponent comment in response to RTS	TfNSW response and RFI requirements in relation to RTS
1	The TIA includes a SIDRA analysis of affected intersections purporting to address the peak construction traffic volumes. A copy of the electronic analysis is to be provided for review for TfNSW to ascertain the inputs used to generate the outputs (in particular, consideration of 'Large Trucks' consistent with the June 2021 traffic count data) and final conclusions of the TIA. Should the analysis include changes to software defaults, justification should be provided.	Note. SIDRA files have been provided to TfNSW.	TfNSW development services have not sited the SIDRA files. It is noted that there have been changes to the construction routes and accesses that require further SIDRA analysis to support the Amendment Report. The traffic count surveys were undertaken during COVID 19 with no further reassessment or application of sensitivity analysis. Further traffic count surveys will be required for a minimum of one full day at the intersections with the state classified road network that form part of the construction routes. The traffic count surveys were not undertaken for a full day and will require collection of further traffic counts for all the identified intersections forming the construction routes with the state classified road network, see attachment 2. It is unclear if the base case has captured the following requirements for the base case scenario: ○ background traffic volumes (at the AM/PM peak) + ○ annual growth applied linearly (Golden Highway)

			○ Accumulative traffic volumes associated with Major Projects (CSSI, SSI and SSD) that will have a cumulative traffic impact on the background network and turning traffic volumes at key intersections along the shared construction routes. SIDRA analysis and traffic volumes at the key intersections should be based on the worst-case scenario at the AM/PM project peak assessed for the AM/PM background network peak. The information provided within the TIA and TIA Technical note does not identify the percentage of traffic volumes turning left or right at each intersection with the state classified road network during the AM/PM peak. There is minimal information underpinning worst case scenario for the turn warrants assessment(s) and the number of vehicles turning left and right at the intersection and whether it accounts for light vehicles, heavy vehicles and OSOM vehicles (travelling under notice and under permit) at each key intersection with the state classified road network that form part of the construction route.
2	Reconsideration of the proposed minimum BAR/BAL intersection treatments along the Golden Highway, noting the high percentage of heavy vehicle traffic on the major freight route and the high-speed limit (i.e. 85th percentile is likely to be higher on the rural road than the signposted speed). The TIA shows that right-turns associated with AM peak construction traffic at the Golden Highway / Leadville Access (both access locations for Leadville cluster) and Golden Highway / Short Street (Girragulang cluster)	BAR/BAL intersection reviews were undertaken with design speeds ≥ 100km/hr in the traffic and transport impact assessment. Further discussions with TfNSW (26 September 2022) revealed that the isolated nature of the region means that there is likely a freight peak as opposed to commuter peak that needs to be considered and that a workers afternoon peak may occur outside of the traditional	See above requirements for the revision of the AM/PM base case scenario, application of the annual growth rate and cumulative traffic volumes associated with coinciding major projects (SSDs, SSIs and CSSIs), utilising the same construction routes with overlapping construction schedule, refer to attachment 2. The information required to consider and assess the 85th percentile as the alternative to the 100km/hr +10km/hr as the design speed, requires the provision of the following: • Location of tube counts must be at the location of the intersection of

	are considerably greater than existing traffic movements.	"commuter peak". Likewise, the harvest peak will also need to be considered. ACEN together with SCT have re-assessed the intersection performance during the abovementioned peaks and confirmed that the geometry and design of the proposed intersection upgrades is sufficient to accommodate the various peaks.	Ringwood and Golden Highway and must have been collected in accordance with Austroads Guide to Road Design Part 3. • Duration of tube counts for a period of 7 days. • Raw data. Note: this information would be required at all intersections with the state classified road network that form part of the construction routes for the Valley of the Winds project.
3	An amended OSOM route assessment inclusive of pinch points between Port of Newcastle and the Golden Highway, particularly through Jerrys Plains, and across the Denman Bridge. Navigation around the S-bend of the Golden Highway through Jerrys Plains has not been identified. Furthermore, it is noted in the TIA that the bridge presents vertical and horizontal limitations however a viable alternative route has not been nominated. It is requested that further investigations be undertaken to understand the bridge limitations based on transportation of the proposed 90m blade or an alternative route be nominated and assessed.	OSOM route assessment inclusive of pinch points between Port of Newcastle and the Golden Highway, particularly through Jerrys Plains, and across the Denman Bridge has been assessed since EIS submission. Refer to response to Muswellbrook Shire Council in Section 4.3.2.	The information provided within section 4.3.2 appears to be outdated. The scope of works for the Port to REZ CWO OSOM upgrades are required to be reviewed in relation to consistency with the Valley of the Winds project, as follows: ○ The timing of delivery of the Port to REZ OSOM upgrades and whether the works will algin with the timeframes for delivery of OSOMs for the Valley of the Winds project. ○ Assess consistency of load dimensions in terms of weights, heights, widths, and lengths for all high-risk indivisible loads proposed for the Valley of the Winds in relation to the design vehicle parameters, laden loads dimensions and the parameters forming the basis for the scope of works for the Port to REZ OSOM upgrades. ○ Review the project specific intersection OSOM upgrades required at key intersections with the state classified road network for the Valley of the Winds will form part of the scope of the works for the OSOM upgrades to the Port to REZ OSOM Upgrades. There have been recent revisions to the scope of the OSOM upgrades to be delivered at each key intersection with the state classified road network.

			○ ACEN are required to assess and include any OSOM upgrades that are required to facilitate the Valley of the Winds OSOM movements that are inconsistent with the scope of works for the Port to REZ OSOM upgrades, where the OSOM upgrades are not proposed at the key project intersections with the state classified road network and the additional scope required if components, vehicle types and laden dimensions are inconsistent with the parameters of the project. ○ Provide further information in relation to contingencies for the delivery of the OSOM upgrades for the Valley of the Winds if the timing does not align with the Port to REZ OSOM upgrades or further revisions in scope occur to the P2R CWO OSOM upgrades that changes the design parameters that would result in increases the scope of works to facilitate the OSOM deliveries for the Valley of the Winds project. ○ Commit to a requirement via a condition of consent prohibiting OSOM movements (as defined within P2R OSOM upgrade project) until P2R OSOM upgrades delivered by EnergyCO are completed, and any additional OSOM upgrades, not in the P2R OSOM upgrade~~s~~ project required as part of the Valley of the Winds project on local and state classified roads, are also completed. ○ Please note, given the high number of renewable energy and other large scale projects requiring haulage of OSOM components on the road network, restrictions, and limitations on OSOM movements may be in imposed. In this regard, it is

			recommended that you engage earlier with TfNSW's Freight Branch – Special Permits team to discuss access needs and timing. Note: The Transport Management Plan may require further road infrastructure upgrades or requirements that may increase the scope of road infrastructure upgrades and require a further approval subject to Part 4 of the *EP and A Act 1979.* ○ Identify if there have been any changes since the EIS and TIA that were prepared in 2021 for the component sizes. ○ Further information is required in relation to the transformer dimensions and switch rooms. ○ Further to the above the design parameter for the blades for the Port to REZ project is based on the 85m blade length as opposed to the 90m blade length proposed as a part of the EIS. **Additional comments:** TfNSW Projects occurring along the route from Port of Newcastle to the REZ are likely to have implications for the OSOM movements and alternate routes may be required. It would be beneficial to understand the timing of anticipated first movements, the timeframe for deliveries of OSOM movements as a part of the construction schedule and the daily schedule of OSOM movements associated with this project (inclusive of return vehicles).

4	An environmental assessment of the proposed road work construction at each intersection affected by the OSOM intersections (DPE's consideration). TfNSW highlights that in determining the	The environmental impacts of proposed road works which are ancillary to the development including noise and vibration, removal of vegetation, potential	The OSOM upgrades that do not form part of the following Part 5.1 and Part 5.2 REFs are required to be assessed and included within scope of the Valley of Winds EIS and Amendment Report, as Valley of the Winds (ACEN) require approval pursuant to Part 4

	application under *Part 4 of the Environmental Planning & Assessment Act, 1979* it is the consent authority's responsibility to consider the environmental impacts of any road works which are ancillary to the development, such as (inter alia) removal of trees, relocation of utilities, stormwater management, etc. It is noted that one of the two options for Leadville Site access via the Golden Highway is positioned over multiple drainage culverts and a local access. Furthermore, the swept path of the Girragulang Site access appears to require removal of several trees at Short Street and further along the local road network.	impacts on Aboriginal heritage, Historic heritage, sediment and erosion and stormwater management, land use and air quality have been assessed in Chapter 7 to Chapter 17 of the EIS. As described in management and mitigation measure TT2 in Appendix 2, the road upgrades required by the project would be subject to engineering detailed design developed to the standard and satisfaction of Warrumbungle Shire Council and referred to TfNSW under Section 138 of the Roads Act 1993. Any requirements for relocation of utilities would be incorporated into the engineering detailed design.	of the Environmental Planning and Assessment Act 1979 for any road upgrades, as Valley of the Winds (ACEN) are not a public authority for the purposes of s2.109 of the *SEPP (T and I) 2021.* ○ The Port to REZ CWO scope of road infrastructure upgrades that form part of the Part 5 REF package, ○ The CWO REZ Transmission CSSI project (Part 5.2) largest design vehicle for this project is a Transformer. It is also noted that the Black Stump Way is not included within the scope of works identified within the CSSI for the CWO REZ Transmission Line EIS. ○ The CWO REZ Transmission Line local road upgrades that will form part of a separate Part 5-REF. Proponent and determining authority-EnergyCO. The information provided within this CSSI did not identify any of the local roads required to be upgraded for the Valley of the Winds Major Project. Further to the above requirements, environmental impacts associated with required intersection upgrades at each intersection with need to be assessed and considered within the scope of the EIS for this project. As the road works and associated environmental impacts require approval pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* for any road upgrades.
5	The proposal seeks approval for a “potential” worker camp to justify lower construction peak traffic however the additional construction traffic required for the proposed on-site accommodation has not been provided. The traffic study needs to include an assessment of the worst-case	The construction of a construction workers accommodation camp would occur in advance of any significant construction activity and the peak construction period. The heavy and light vehicle volumes required in the	The worst-case scenario of the existing network background traffic at the AM/PM network peak and the worst-case scenario of the construction traffic (all types of vehicles) assessed at the AM/PM project peak during peak of construction. The worst-case scenario is required to be applied at each intersection with the state

	scenario for construction traffic generation and proposed measures to be employed that mitigate the risks of these additional movements on the public road network. Details of additional haulage and OSOM movements associated with on-site accommodate should be considered in a revised analysis of the worst-case scenario.	setup of the workers camp is forecast to be less than the peak construction period volumes that have been assessed. It is therefore considered that the worst-case scenario is the one that has been assessed in the EIS and the impacts and associated mitigation measures proposed for the worst-case scenario would also manage and mitigate the risks of the additional movements on the public road network associated with the construction of the construction workers accommodation camp.	classified road that forms part of the construction route. Therefore, the regional distribution model for workforce represents the worst-case scenario for the light vehicle volumes and must be used to underpin the TIA assessment. It is unclear if the turn warrant assessment have been within the worst-case scenario of the existing background (required to be revised) and the project traffic at the AM/PM peak, with percentage splits of vehicles (LV, HV and OSOMs), turning left and right at the key intersections with the Golden Highway have been provided within the RTS and Amendment Report. A strategic design and a cumulative assessment are required, incorporating the traffic volumes associated with other Major Projects utilising the same routes as the Valley of the Winds.

Amendment Report comments:

	Amendment and comments in relation to the advisory technical note	TfNSW comment and RFI requirements in relation to the amendment report
1	light vehicle access to the Mount Hope cluster via Neilrex Road removed – a single point of access from Black Stump Way is now proposed. ○ light vehicle access to the Leadville cluster via the Leadville Stock Route and Wardens Road removed – a single point of access from the Golden Highway is now proposed ○ provision of an alternate access route option to the Girragulang Road cluster via the Golden Highway.	See comments provided in the above table and within attachment 2. The advisory technical note- identifies the application of the 85th percentile design speed as an alternative to posted speed plus 10km/hr. If reviewing the 85th as the alternative require the provision of the following: • Location of tube counts must be at the location of the intersection of Ringwood and Golden Highway and must have been collected in accordance with Austroads Guide to Road Design Part 3. • Duration of tube counts for a period of 7 days. • Raw data. Note: The TfNSW supplement for Part 3 Austroads Guide to Road Design would apply in relation to reaction speeds. Unclear, how the turn warrants have been assessed and require further reassessment for each intersection with state classified road network (see attachment 2). The Technical Advisory Note- identifies within the conclusion the use of reduced speed zones. This will not be supported by TfNSW as a traffic mitigation measure. Further information is required in relation to the shuttle bus commitments and how the commitments will be achieved and enforced.
2	removal of the overhead transmission line running south from the Girragulang Road and Leadville clusters. This infrastructure will now be delivered by EnergyCo as part of the EnergyCo CWO-REZ Transmission Line project and will be assessed as part of that project by EnergyCo	The construction of the CWO REZ Transmission Line will share the same access points with the Valley of the Winds and will need to be included as a part of the background traffic volumes if projects have a coinciding construction timeframe.

Attachment 2

Attachment 2- State classified road intersection reassessment requirements based on the Amendment Report

State classified road intersection	Traffic count survey required for a minimum of 1 full day (although note if utilising 85th as the design speed 7 day traffic counts will be required) in accordance with *Austroads Guide to Road Design Part 3. Collected at the intersection.*	Origin and destination Provide the traffic volumes of light, heavy and OSOM vehicles turning left and right at each of the identified intersection (below) with the state classified road at the AM/PM peak during peak of construction.	Requirements for SISD assessments: - identified on an aerial view as per Part 4A of Austroads Guide to Road design. -To achieve a design speed 100km/hr (posted)+10km=110km which requires a 2.5sec reaction time and a total distance to achieve SISD compliance of 300m. Review if applicable to all identified intersections that form construction route and project access. If 85th proposed as alternative design speed require: • Location of tube counts must be at the location of each state classified road intersection for a period of 7 days that forms part of the construction routes. The traffic surveys are required to be collected in accordance with *Austroads Guide to Road Design Part 3.* • Duration of tube counts for a period of 7 days. • Raw data. Strategic design required to identify measures to achieve compliant SISD.	Requirements for capacity analysis per figures 6.4 and 6.5 of AGtRD for existing intersection treatments. based on with development worst case scenario (without with development AM/PM network peak assessed based on traffic volumes at the AM/PM peak for peak of construction)	Turn warrant assessment (see section 2.25 of AGtTM Part 3) and SIDRA analysis. Revisit the without known as background traffic volumes based on revised traffic count surveys, application of annual growth rate to the year and assessment of the cumulative traffic volumes associated with other projects utilising the same access that will coincide with the construction timing for the VoW. The turn warrants must be assessed as follows: the existing without development identified above + with development worst case scenario during the AM/PM peak of the network for the AM/PM development peak during the peak of construction in relation to that accesses).	Swept path analysis of existing and proposed intersection treatments reviewed based on design vehicles can pass simultaneously in all directions at the intersection and demonstrating the design vehicle will travel wholly within the proposed intersection treatment.	Strategic design of the intersection treatments and will need to be prepared for design speed and design vehicle. Inclusive of OSOM design vehicle where applicable.
Access track/Golden Highway- Leederville Cluster	Yes	Yes	Yes- required for this intersection.	No	Yes- Turn warrant assessment and SIDRA analysis is required.	Yes	Yes
Moorefield-Short Street /Golden Highway	Yes	Yes	Yes	No	Yes- Turn warrant assessment and SIDRA analysis is required.	Yes	Yes
Alternative route/Golden Highway-	Yes	Yes	Yes	No	Yes-turn warrant assessment and SIDRA analysis is required.	Yes	Yes

Attachment 2- State classified road intersection reassessment requirements based on the Amendment Report

Ulan Road/Golden Highway	Yes	Yes	Yes	Yes-Review the existing intersection treatments worst case (with development +without development and annual growth). Assessed at the AM/PM peak for the network.	Yes- turn warrant assessment and SIDRA analysis is required	Yes	Yes
Black Stump Way/Golden Highway	Yes	Yes	Yes	Yes-Review the existing intersection treatments worst case (with development +without development +annual growth). Assessed at the AM/PM peak for the network.	Yes- turn warrant assessment and SIDRA analysis is required	Yes	Yes

Note: The points identified within Attachment 1 of this letter are also required to be addressed in relation to each intersection.

APPENDIX B

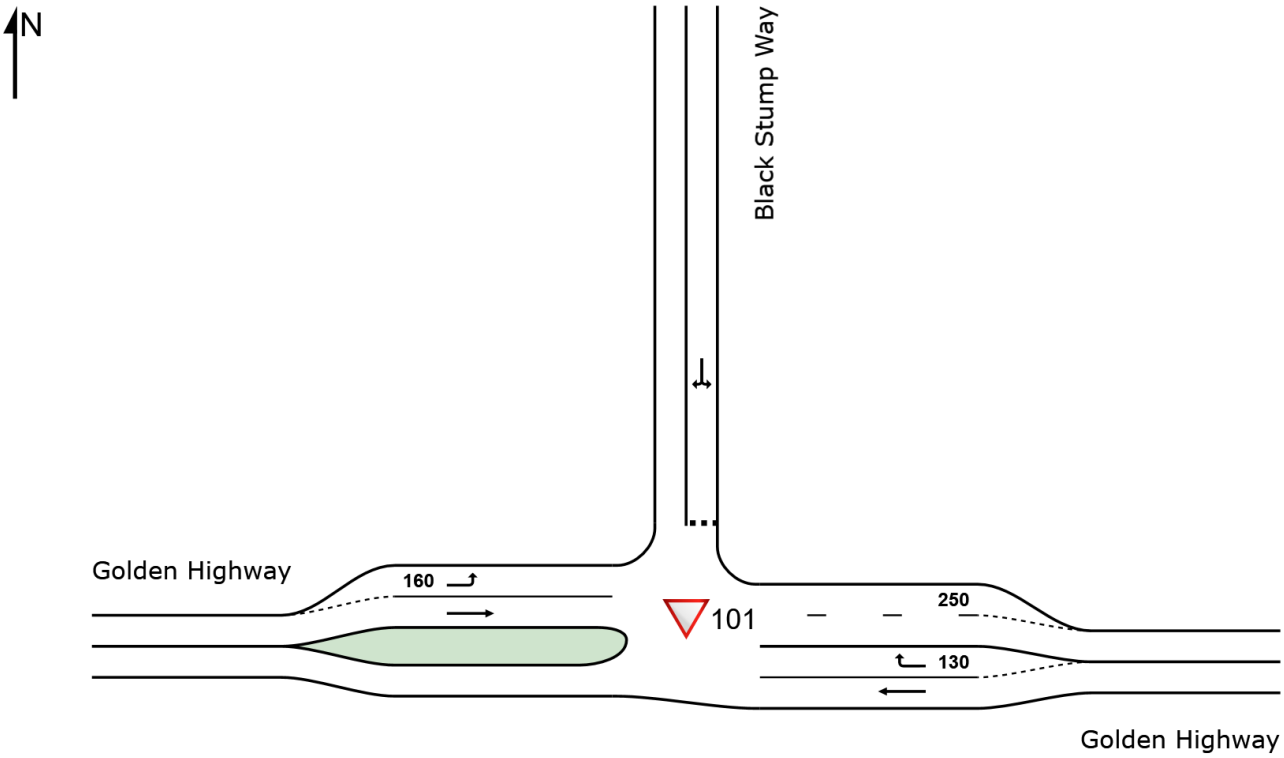
SIDRA ASSESSMENTS

SITE LAYOUT

Site: 101 [Golden_BlackStump_AM_Mt Hope Cluster_Cumulative 2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: S:\Projects\SCT_00239_Valley of Winds Traffic Assessment\3. Technical Work Area\2. Transport Planning\SIDRAs\VoW 2024_0226_response to submissions_combined.sip9

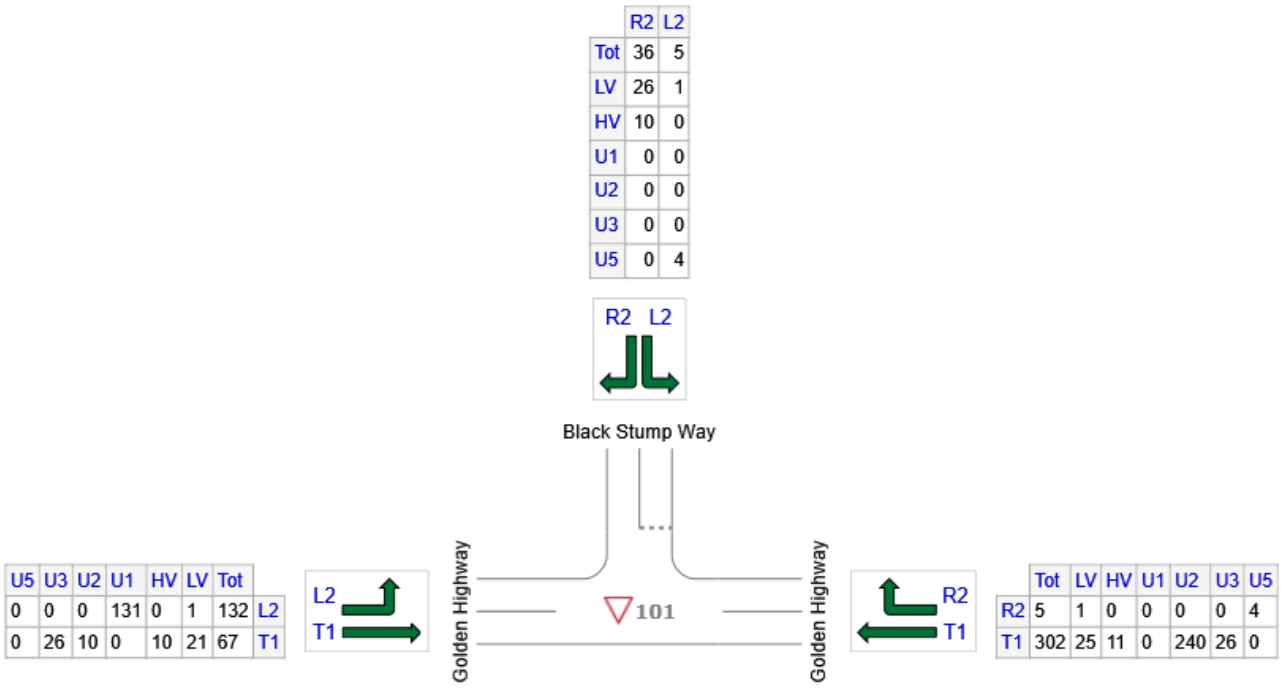
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Golden_BlackStump_AM_Mt Hope Cluster_Cumulative 2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



LV	Background light vehicles
HV	Background heavy vehicles
U1	VOW light vehicles
U2	Other development light vehicles
U3	Other development heavy vehicles
U5	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 101 [Golden_BlackStump_AM_Mt Hope Cluster_Cumulative 2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Golden Highway														
5	T1	302	37	318	12.3	0.188	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	5	4	5	80.0	0.011	14.4	LOS A	0.0	1.0	0.50	0.66	0.50	47.3
Approach		307	41	323	13.4	0.188	0.3	NA	0.0	1.0	0.01	0.01	0.01	98.1
North: Black Stump Way														
7	L2	5	4	5	80.0	0.103	11.8	LOS A	0.4	3.9	0.53	0.83	0.53	47.6
9	R2	36	10	38	27.8	0.103	15.5	LOS B	0.4	3.9	0.53	0.83	0.53	57.9
Approach		41	14	43	34.1	0.103	15.1	LOS B	0.4	3.9	0.53	0.83	0.53	56.4
West: Golden Highway														
10	L2	132	0	139	0.0	0.075	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	75.3
11	T1	67	36	71	53.7	0.061	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach		199	36	209	18.1	0.075	5.2	NA	0.0	0.0	0.00	0.44	0.00	82.1
All Vehicles		547	91	576	16.6	0.188	3.2	NA	0.4	3.9	0.04	0.23	0.04	87.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

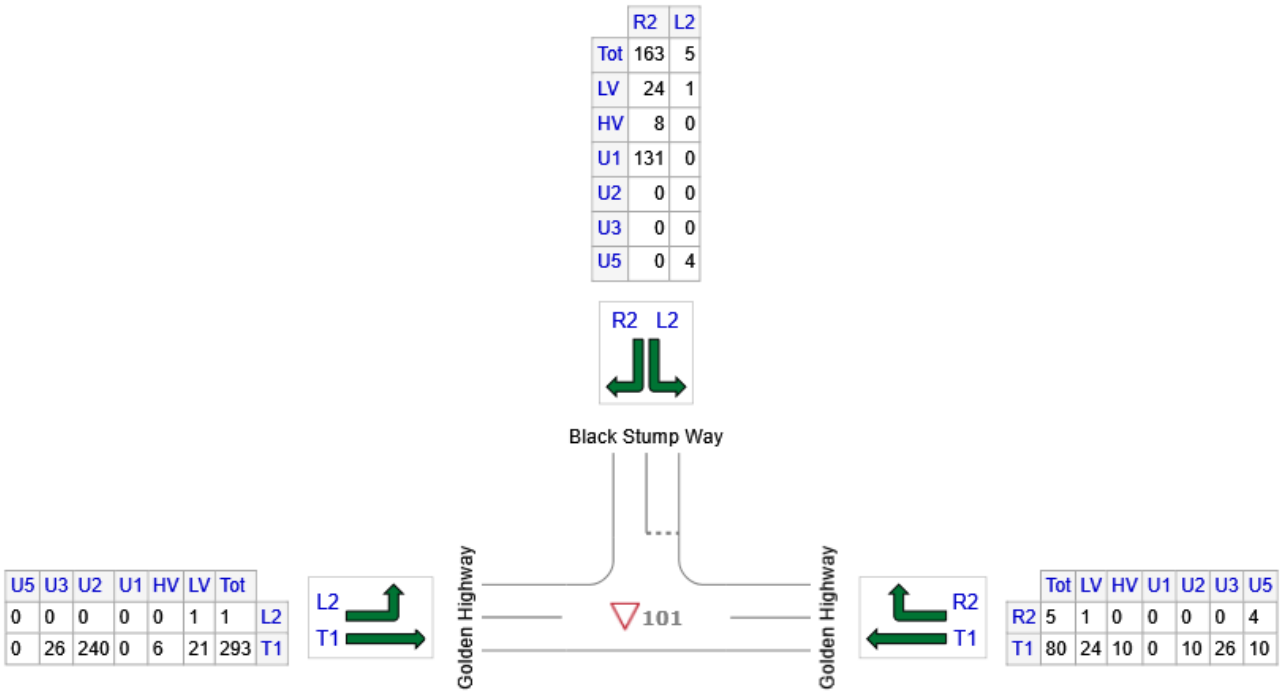
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Golden_BlackStump_PM_Mt Hope Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



LV	Background light vehicles
HV	Background heavy vehicles
U1	VOW light vehicles
U2	Other development light vehicles
U3	Other development heavy vehicles
U5	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 101 [Golden_BlackStump_PM_Mt Hope Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Golden Highway														
5	T1	80	46	84	57.5	0.076	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	5	4	5	80.0	0.014	17.2	LOS B	0.1	1.2	0.58	0.72	0.58	45.6
Approach		85	50	89	58.8	0.076	1.0	NA	0.1	1.2	0.03	0.04	0.03	93.4
North: Black Stump Way														
7	L2	5	4	5	80.0	0.341	19.9	LOS B	1.7	12.8	0.63	0.91	0.77	47.4
9	R2	163	8	172	4.9	0.341	14.3	LOS A	1.7	12.8	0.63	0.91	0.77	64.2
Approach		168	12	177	7.1	0.341	14.4	LOS A	1.7	12.8	0.63	0.91	0.77	63.5
West: Golden Highway														
10	L2	1	0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.00	0.66	0.00	75.3
11	T1	293	32	308	10.9	0.181	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		294	32	309	10.9	0.181	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		547	94	576	17.2	0.341	4.6	NA	1.7	12.8	0.20	0.29	0.24	84.1

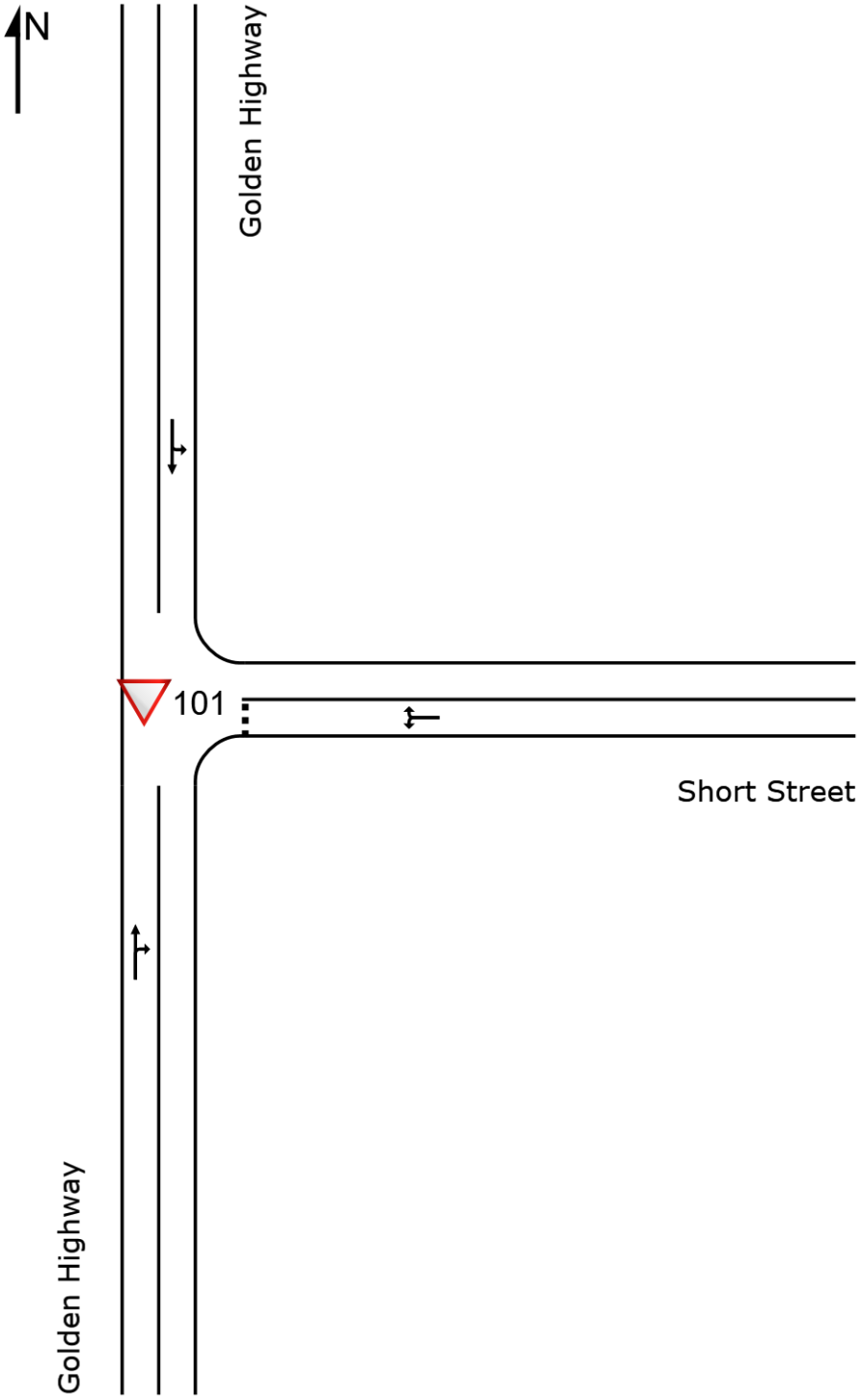
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Golden_Short_AM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



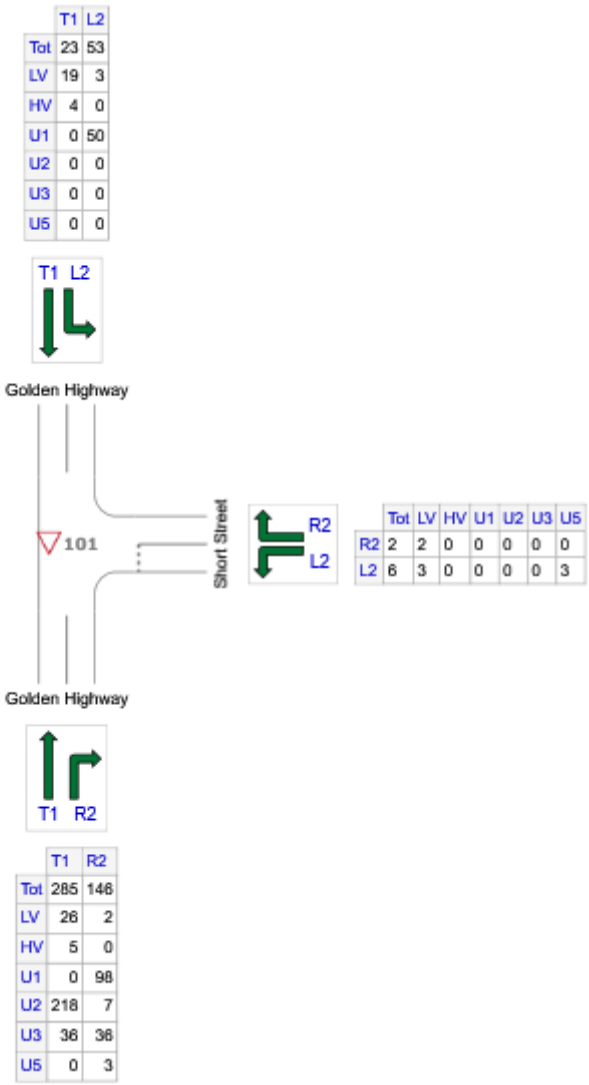
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Golden_Short_AM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



	T1	L2
Tot	23	53
LV	19	3
HV	4	0
U1	0	50
U2	0	0
U3	0	0
U5	0	0

	Tot	LV	HV	U1	U2	U3	U5
R2	2	2	0	0	0	0	0
L2	6	3	0	0	0	0	3

	T1	R2
Tot	285	146
LV	26	2
HV	5	0
U1	0	98
U2	218	7
U3	36	36
U5	0	3

LV	Background light vehicles
HV	Background heavy vehicles
U1	VOW light vehicles
U2	Other development light vehicles
U3	Other development heavy vehicles
U5	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 101 [Golden_Short_AM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Golden Highway														
2	T1	285	41	300	14.4	0.298	0.3	LOS A	1.4	14.6	0.20	0.21	0.20	91.9
3	R2	146	39	154	26.7	0.298	8.8	LOS A	1.4	14.6	0.20	0.21	0.20	64.7
Approach		431	80	454	18.6	0.298	3.2	NA	1.4	14.6	0.20	0.21	0.20	80.4
East: Short Street														
4	L2	6	3	6	50.0	0.007	6.5	LOS A	0.0	0.4	0.07	0.57	0.07	49.3
6	R2	2	0	2	0.0	0.007	6.5	LOS A	0.0	0.4	0.07	0.57	0.07	61.2
Approach		8	3	8	37.5	0.007	6.5	LOS A	0.0	0.4	0.07	0.57	0.07	51.8
North: Golden Highway														
7	L2	53	0	56	0.0	0.044	7.8	LOS A	0.0	0.0	0.00	0.47	0.00	77.8
8	T1	23	4	24	17.4	0.044	0.0	LOS A	0.0	0.0	0.00	0.47	0.00	86.3
Approach		76	4	80	5.3	0.044	5.5	NA	0.0	0.0	0.00	0.47	0.00	80.2
All Vehicles		515	87	542	16.9	0.298	3.6	NA	1.4	14.6	0.17	0.26	0.17	79.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

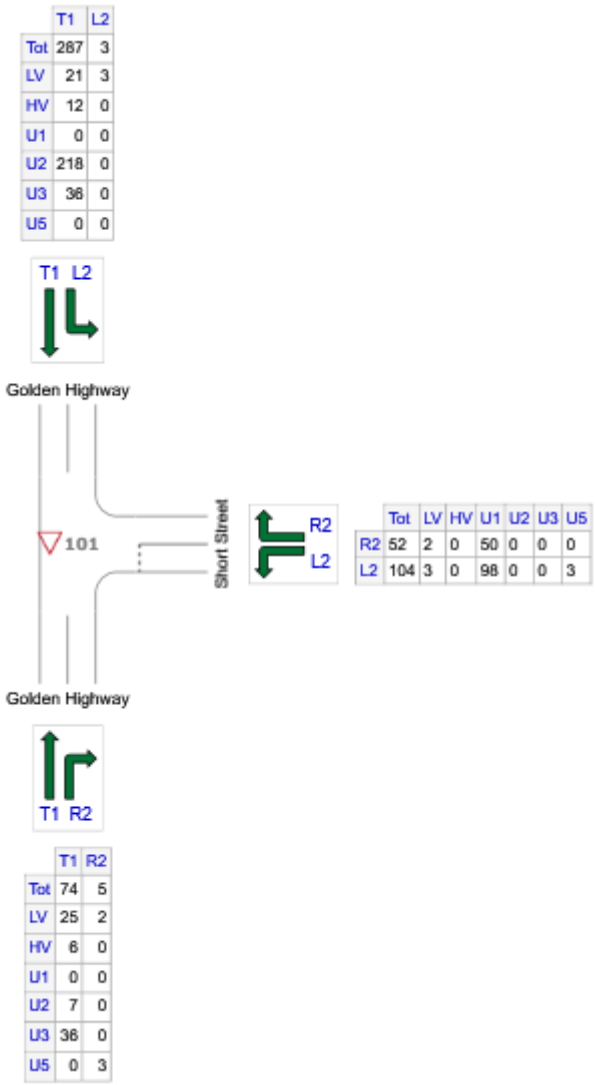
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Golden_Short_PM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



	T1	L2
Tot	287	3
LV	21	3
HV	12	0
U1	0	0
U2	218	0
U3	36	0
U5	0	0

	Tot	LV	HV	U1	U2	U3	U5
R2	52	2	0	50	0	0	0
L2	104	3	0	98	0	0	3

	T1	R2
Tot	74	5
LV	25	2
HV	6	0
U1	0	0
U2	7	0
U3	36	0
U5	0	3

LV	Background light vehicles
HV	Background heavy vehicles
U1	VOW light vehicles
U2	Other development light vehicles
U3	Other development heavy vehicles
U5	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 101 [Golden_Short_PM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Golden Highway														
2	T1	74	42	78	56.8	0.080	0.5	LOS A	0.1	1.8	0.10	0.04	0.10	96.9
3	R2	5	3	5	60.0	0.080	13.7	LOS A	0.1	1.8	0.10	0.04	0.10	63.9
Approach		79	45	83	57.0	0.080	1.3	NA	0.1	1.8	0.10	0.04	0.10	93.8
East: Short Street														
4	L2	104	3	109	2.9	0.121	6.7	LOS A	0.5	3.4	0.39	0.64	0.39	59.5
6	R2	52	0	55	0.0	0.121	6.4	LOS A	0.5	3.4	0.39	0.64	0.39	60.1
Approach		156	3	164	1.9	0.121	6.6	LOS A	0.5	3.4	0.39	0.64	0.39	59.7
North: Golden Highway														
7	L2	3	0	3	0.0	0.190	7.9	LOS A	0.0	0.0	0.00	0.01	0.00	88.4
8	T1	287	48	302	16.7	0.190	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
Approach		290	48	305	16.6	0.190	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.5
All Vehicles		525	96	553	18.3	0.190	2.2	NA	0.5	3.4	0.13	0.20	0.13	82.4

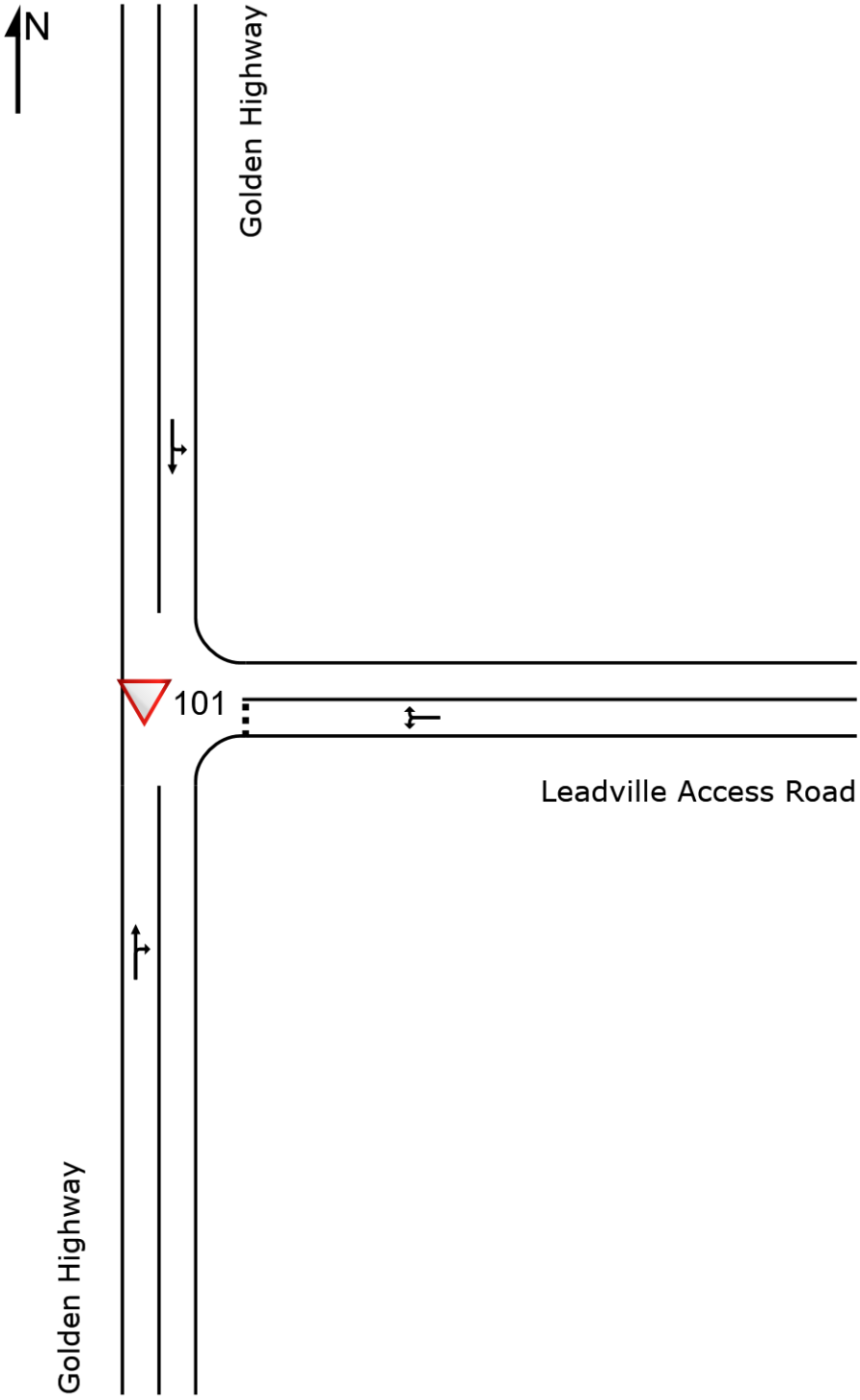
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Golden_Leadville Access_AM_Leadville Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



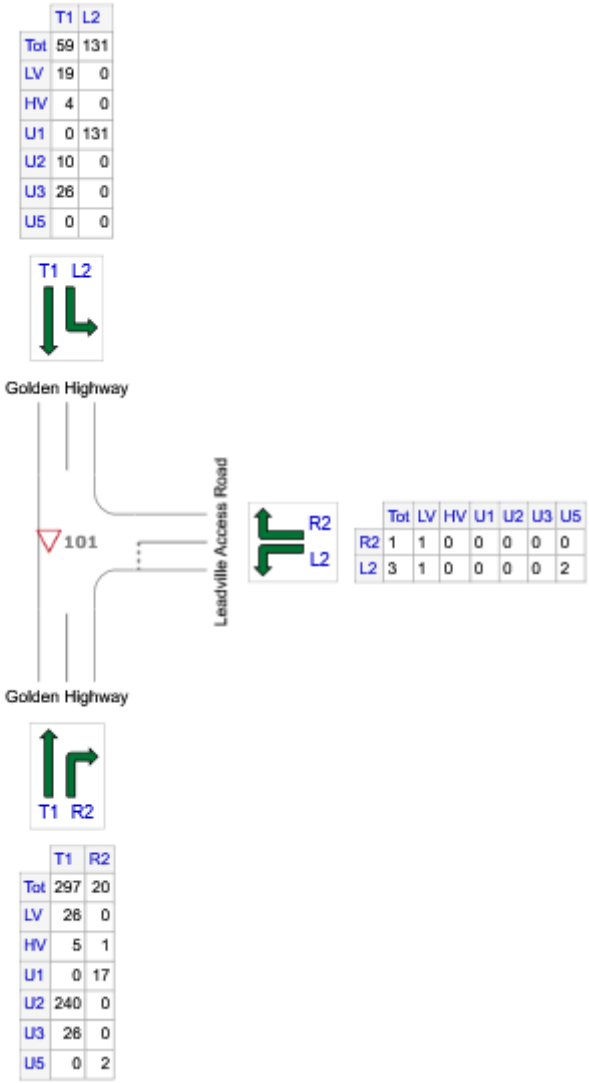
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Golden_Leadville Access_AM_Leadville Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



LV	Background light vehicles
HV	Background heavy vehicles
U1	VOW light vehicles
U2	Other development light vehicles
U3	Other development heavy vehicles
U5	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 101 [Golden_Leadville Access_AM_Leadville Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Golden Highway														
2	T1	297	31	313	10.4	0.197	0.1	LOS A	0.2	1.7	0.07	0.04	0.07	97.9
3	R2	20	3	21	15.0	0.197	8.9	LOS A	0.2	1.7	0.07	0.04	0.07	68.9
Approach		317	34	334	10.7	0.197	0.6	NA	0.2	1.7	0.07	0.04	0.07	95.4
East: Leadville Access Road														
4	L2	3	2	3	66.7	0.004	7.5	LOS A	0.0	0.3	0.25	0.56	0.25	45.9
6	R2	1	0	1	0.0	0.004	6.3	LOS A	0.0	0.3	0.25	0.56	0.25	60.7
Approach		4	2	4	50.0	0.004	7.2	LOS A	0.0	0.3	0.25	0.56	0.25	48.9
North: Golden Highway														
7	L2	131	0	138	0.0	0.129	7.8	LOS A	0.0	0.0	0.00	0.47	0.00	76.7
8	T1	59	30	62	50.8	0.129	0.0	LOS A	0.0	0.0	0.00	0.47	0.00	85.0
Approach		190	30	200	15.8	0.129	5.4	NA	0.0	0.0	0.00	0.47	0.00	79.1
All Vehicles		511	66	538	12.9	0.197	2.5	NA	0.2	1.7	0.04	0.20	0.04	88.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

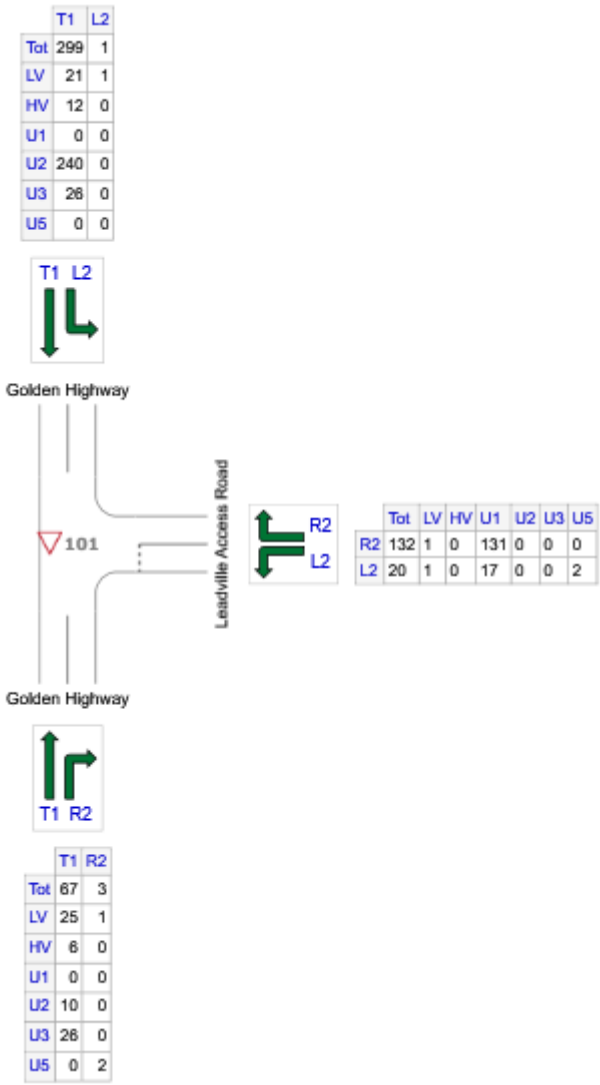
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Golden_Leadville Access_PM_Leadville Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



	T1	L2
Tot	299	1
LV	21	1
HV	12	0
U1	0	0
U2	240	0
U3	26	0
U5	0	0

	Tot	LV	HV	U1	U2	U3	U5
R2	132	1	0	131	0	0	0
L2	20	1	0	17	0	0	2

	T1	R2
Tot	67	3
LV	25	1
HV	6	0
U1	0	0
U2	10	0
U3	26	0
U5	0	2

LV	Background light vehicles
HV	Background heavy vehicles
U1	VOW light vehicles
U2	Other development light vehicles
U3	Other development heavy vehicles
U5	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 101 [Golden_Leadville Access_PM_Leadville Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Golden Highway														
2	T1	67	32	71	47.8	0.065	0.4	LOS A	0.1	1.1	0.08	0.03	0.08	97.9
3	R2	3	2	3	66.7	0.065	14.3	LOS A	0.1	1.1	0.08	0.03	0.08	63.8
Approach		70	34	74	48.6	0.065	1.0	NA	0.1	1.1	0.08	0.03	0.08	95.7
East: Leadville Access Road														
4	L2	20	2	21	10.0	0.131	7.1	LOS A	0.4	2.6	0.32	0.67	0.32	57.9
6	R2	132	0	139	0.0	0.131	6.3	LOS A	0.4	2.6	0.32	0.67	0.32	60.5
Approach		152	2	160	1.3	0.131	6.4	LOS A	0.4	2.6	0.32	0.67	0.32	60.1
North: Golden Highway														
7	L2	1	0	1	0.0	0.187	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	88.5
8	T1	299	38	315	12.7	0.187	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		300	38	316	12.7	0.187	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		522	74	549	14.2	0.187	2.0	NA	0.4	2.6	0.10	0.20	0.10	83.3

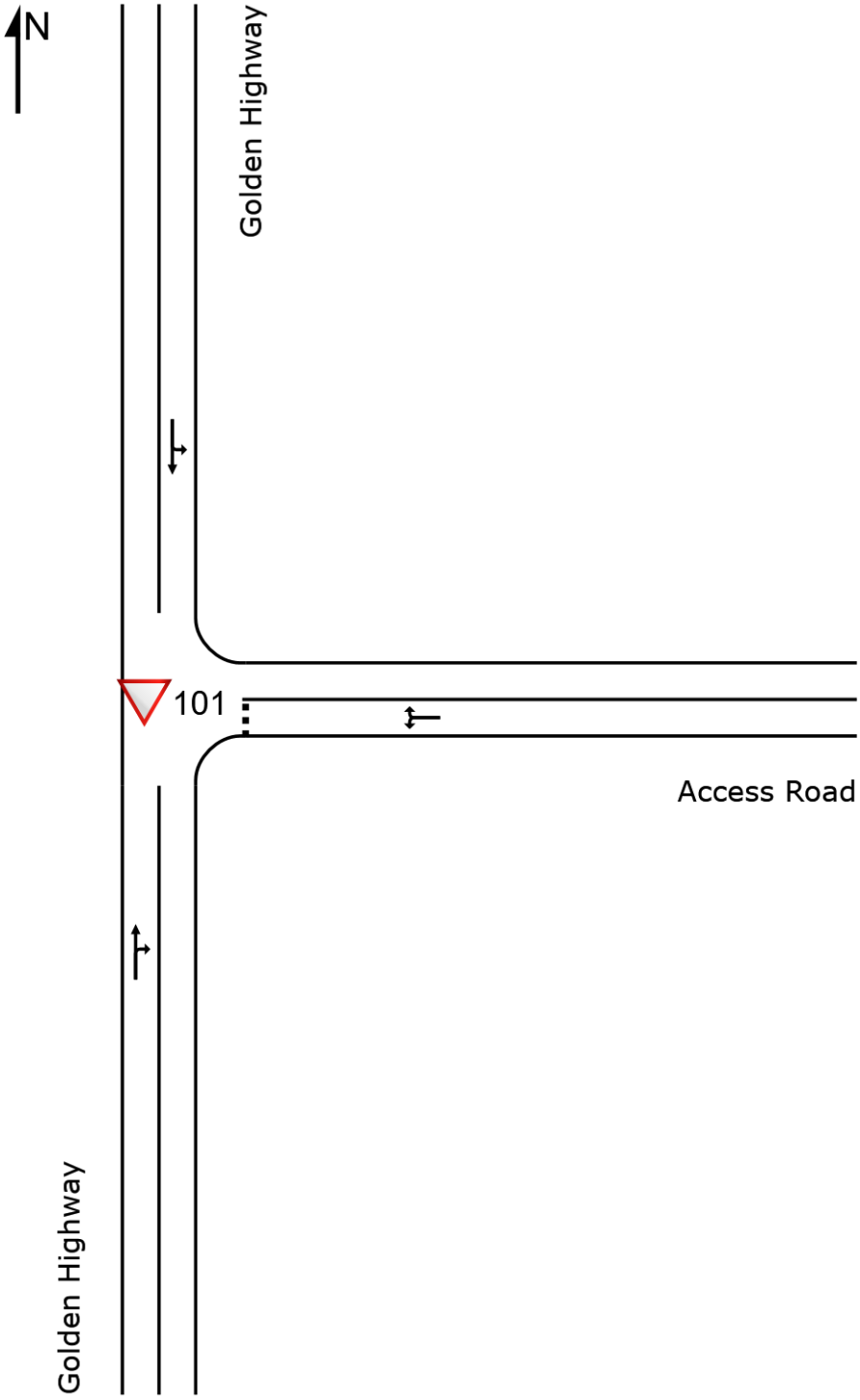
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Golden_Alt Access_AM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



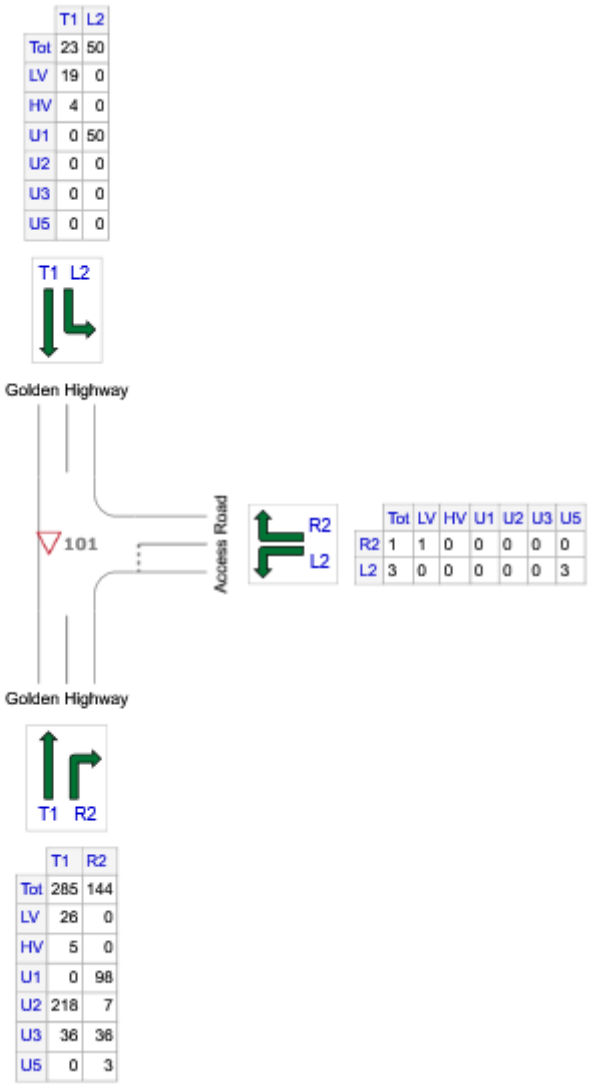
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Golden_Alt Access_AM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



	T1	L2
Tot	23	50
LV	19	0
HV	4	0
U1	0	50
U2	0	0
U3	0	0
U5	0	0

	Tot	LV	HV	U1	U2	U3	U5
R2	1	1	0	0	0	0	0
L2	3	0	0	0	0	0	3

	T1	R2
Tot	285	144
LV	26	0
HV	5	0
U1	0	98
U2	218	7
U3	36	36
U5	0	3

LV	Background light vehicles
HV	Background heavy vehicles
U1	VOW light vehicles
U2	Other development light vehicles
U3	Other development heavy vehicles
U5	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 101 [Golden_Alt Access_AM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Golden Highway														
2	T1	285	41	300	14.4	0.297	0.3	LOS A	1.4	14.4	0.19	0.21	0.19	92.0
3	R2	144	39	152	27.1	0.297	8.8	LOS A	1.4	14.4	0.19	0.21	0.19	64.7
Approach		429	80	452	18.6	0.297	3.1	NA	1.4	14.4	0.19	0.21	0.19	80.6
East: Access Road														
4	L2	3	3	3	100.0	0.005	7.4	LOS A	0.0	0.4	0.09	0.57	0.09	48.7
6	R2	1	0	1	0.0	0.005	8.5	LOS A	0.0	0.4	0.09	0.57	0.09	62.6
Approach		4	3	4	75.0	0.005	7.7	LOS A	0.0	0.4	0.09	0.57	0.09	51.6
North: Golden Highway														
7	L2	50	0	53	0.0	0.042	7.8	LOS A	0.0	0.0	0.00	0.46	0.00	77.9
8	T1	23	4	24	17.4	0.042	0.0	LOS A	0.0	0.0	0.00	0.46	0.00	86.5
Approach		73	4	77	5.5	0.042	5.4	NA	0.0	0.0	0.00	0.46	0.00	80.4
All Vehicles		506	87	533	17.2	0.297	3.5	NA	1.4	14.4	0.16	0.25	0.16	80.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

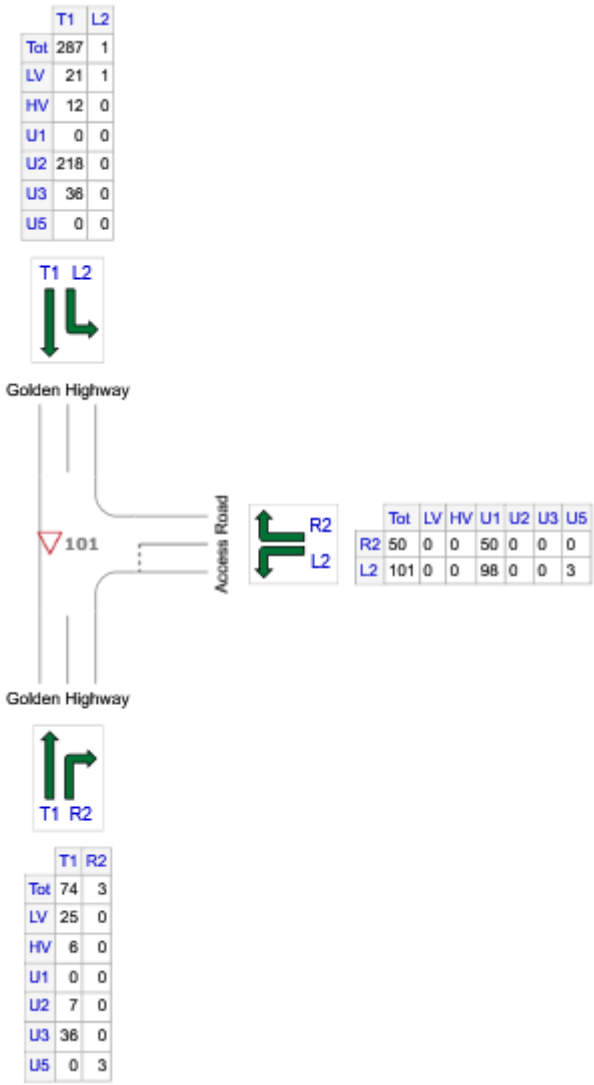
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 101 [Golden_Alt Access_PM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



	T1	L2
Tot	287	1
LV	21	1
HV	12	0
U1	0	0
U2	218	0
U3	36	0
U5	0	0

	Tot	LV	HV	U1	U2	U3	U5
R2	50	0	0	50	0	0	0
L2	101	0	0	98	0	0	3

	T1	R2
Tot	74	3
LV	25	0
HV	6	0
U1	0	0
U2	7	0
U3	36	0
U5	0	3

LV	Background light vehicles
HV	Background heavy vehicles
U1	VOW light vehicles
U2	Other development light vehicles
U3	Other development heavy vehicles
U5	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 101 [Golden_Alt Access_PM_Girragulang Cluster_Cumulative_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Golden Highway														
2	T1	74	42	78	56.8	0.080	0.8	LOS A	0.1	2.1	0.09	0.03	0.09	94.8
3	R2	3	3	3	100.0	0.080	19.0	LOS B	0.1	2.1	0.09	0.03	0.09	59.5
Approach		77	45	81	58.4	0.080	1.5	NA	0.1	2.1	0.09	0.03	0.09	92.6
East: Access Road														
4	L2	101	3	106	3.0	0.117	6.7	LOS A	0.4	3.3	0.38	0.64	0.38	59.4
6	R2	50	0	53	0.0	0.117	6.4	LOS A	0.4	3.3	0.38	0.64	0.38	60.1
Approach		151	3	159	2.0	0.117	6.6	LOS A	0.4	3.3	0.38	0.64	0.38	59.7
North: Golden Highway														
7	L2	1	0	1	0.0	0.189	7.9	LOS A	0.0	0.0	0.00	0.00	0.00	88.5
8	T1	287	48	302	16.7	0.189	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
Approach		288	48	303	16.7	0.189	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
All Vehicles		516	96	543	18.6	0.189	2.2	NA	0.4	3.3	0.13	0.19	0.13	82.5

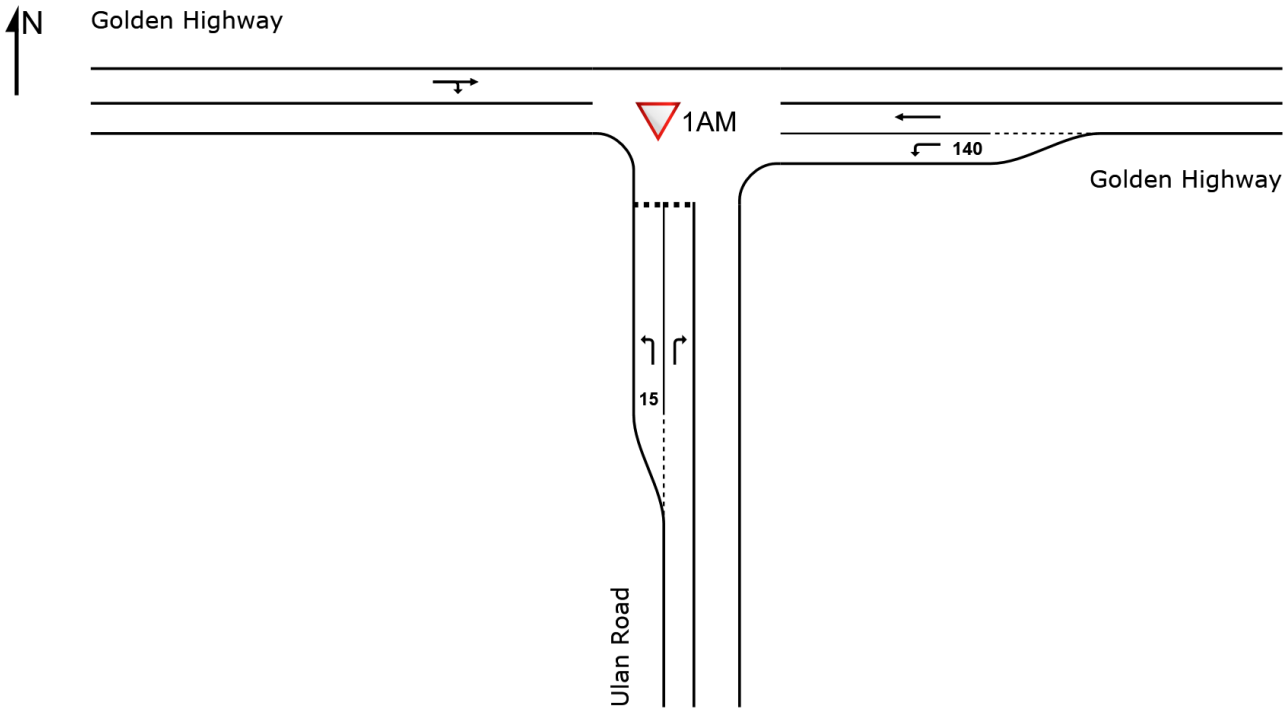
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 1AM [Golden_Ulan_AM_Girragulang_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com
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Project: S:\Projects\SCT_00239_Valley of Winds Traffic Assessment\3. Technical Work Area\2. Transport Planning\SIDRAs\VoW 2024_0226_response to submissions_combined.sip9

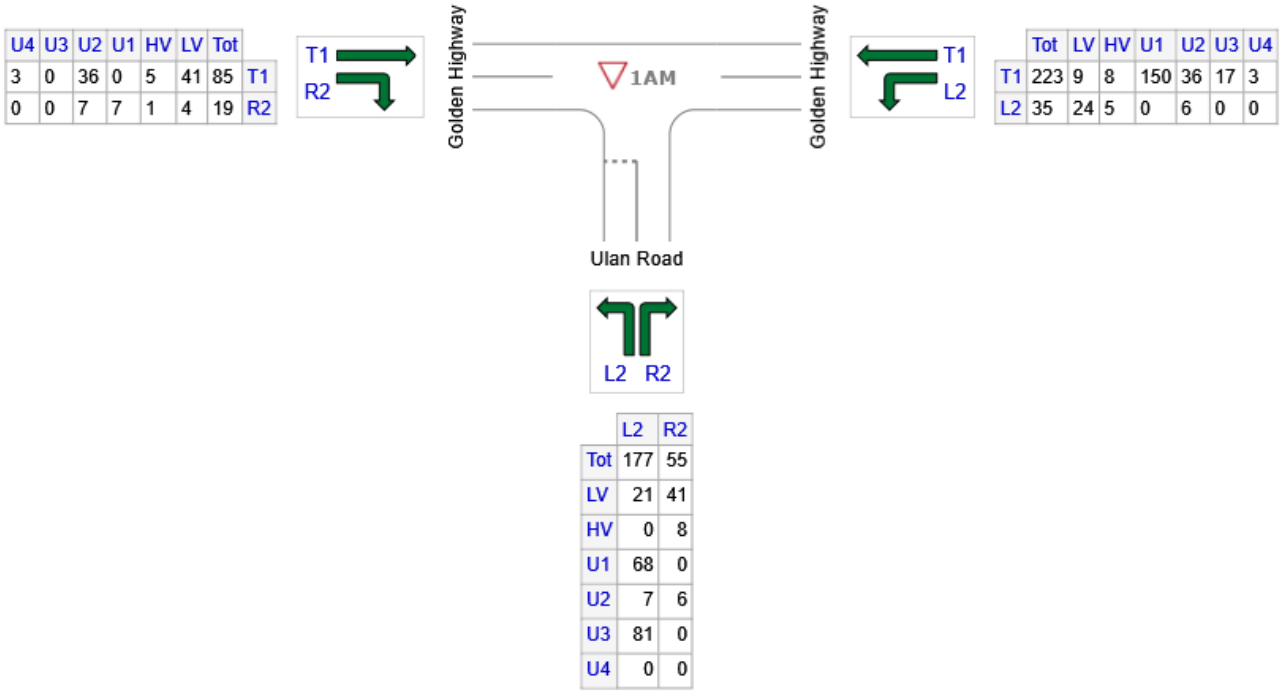
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1AM [Golden_Ulan_AM_Girragulang_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



LV	Background light vehicles
HV	Background heavy vehicles
U1	Other development light vehicles
U2	Other development heavy vehicles
U3	VOW light vehicles
U4	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 1AM [Golden_Ulan_AM_Girragulang_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ulan Road														
1	L2	177	7	186	4.0	0.161	6.9	LOS A	0.7	5.2	0.40	0.63	0.40	59.0
3	R2	55	14	58	25.5	0.129	11.9	LOS A	0.5	4.8	0.58	0.81	0.58	50.7
Approach		232	21	244	9.1	0.161	8.1	LOS A	0.7	5.2	0.44	0.68	0.44	56.8
East: Golden Highway														
4	L2	35	11	37	31.4	0.027	8.8	LOS A	0.0	0.0	0.00	0.66	0.00	63.2
5	T1	223	47	235	21.1	0.155	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		258	58	272	22.5	0.155	1.2	NA	0.0	0.0	0.00	0.09	0.00	92.6
West: Golden Highway														
11	T1	85	44	89	51.8	0.116	1.6	LOS A	0.4	6.1	0.25	0.14	0.25	90.5
12	R2	19	8	20	42.1	0.116	13.8	LOS A	0.4	6.1	0.25	0.14	0.25	63.6
Approach		104	52	109	50.0	0.116	3.8	NA	0.4	6.1	0.25	0.14	0.25	84.0
All Vehicles		594	131	625	22.1	0.161	4.3	NA	0.7	6.1	0.22	0.33	0.22	73.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

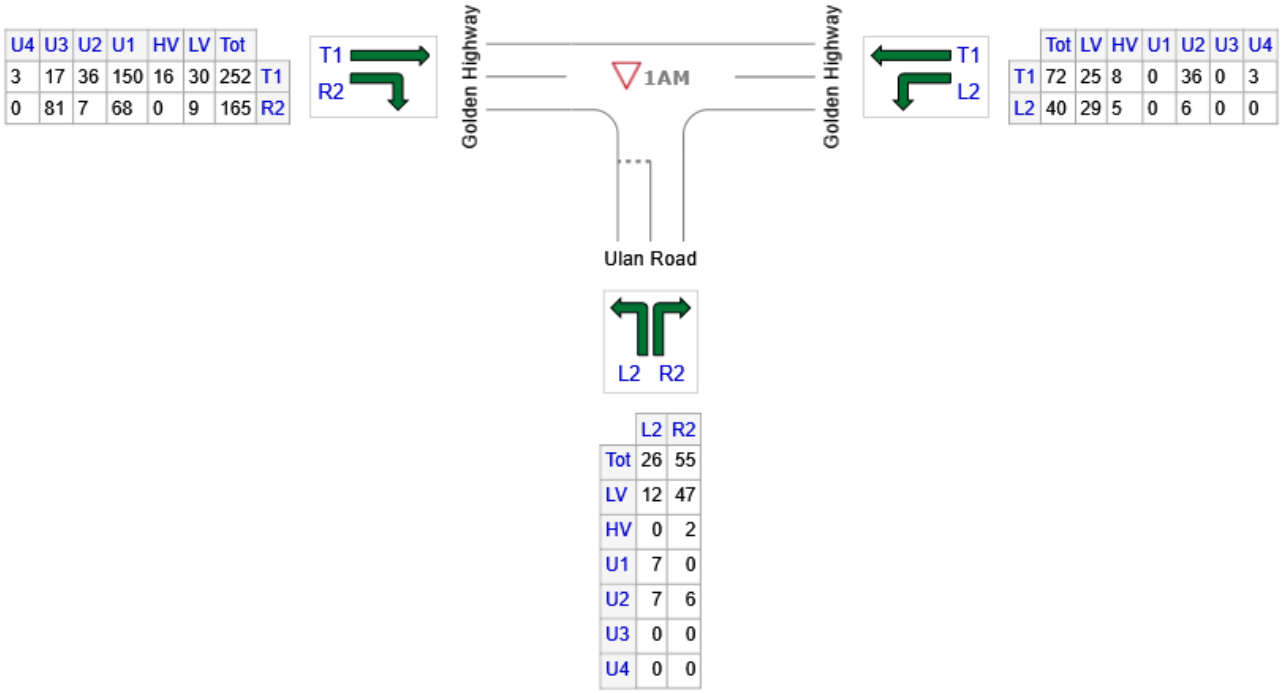
INPUT VOLUMES

Vehicles and pedestrians per 60 minutes

Site: 1AM [Golden_Ulan_PM_Girragulang_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Volume Display Method: Separate



LV	Background light vehicles
HV	Background heavy vehicles
U1	Other development light vehicles
U2	Other development heavy vehicles
U3	VOW light vehicles
U4	VOW heavy vehicles

MOVEMENT SUMMARY

Site: 1AM [Golden_Ulan_PM_Girragulang_2023 Regional (Site Folder: Response to comments Cumulative + Regional)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

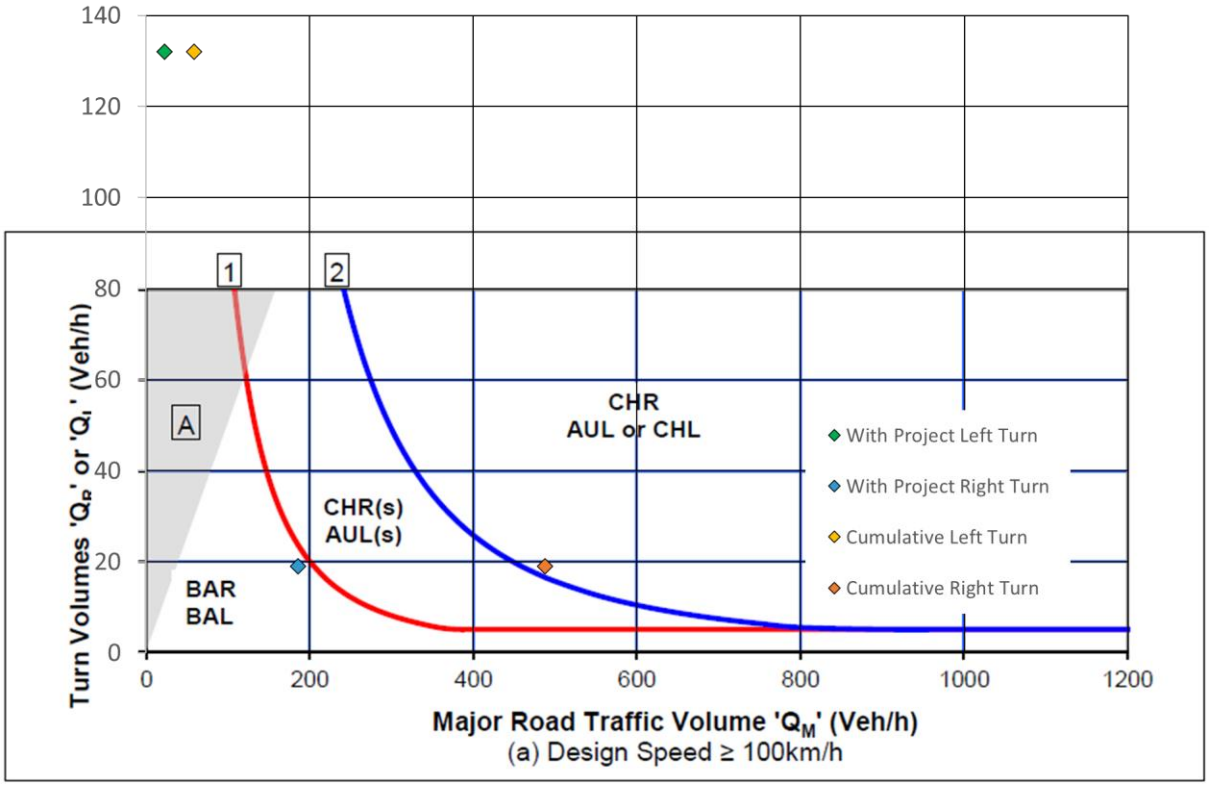
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Ulan Road														
1	L2	26	7	27	26.9	0.028	6.8	LOS A	0.1	1.3	0.28	0.55	0.28	53.6
3	R2	55	8	58	14.5	0.167	15.0	LOS B	0.6	5.5	0.70	0.87	0.70	50.4
Approach		81	15	85	18.5	0.167	12.3	LOS A	0.6	5.5	0.56	0.77	0.56	51.4
East: Golden Highway														
4	L2	40	11	42	27.5	0.030	8.7	LOS A	0.0	0.0	0.00	0.66	0.00	64.4
5	T1	72	47	76	65.3	0.073	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
Approach		112	58	118	51.8	0.073	3.1	NA	0.0	0.0	0.00	0.24	0.00	83.5
West: Golden Highway														
11	T1	252	55	265	21.8	0.317	0.7	LOS A	1.5	14.2	0.30	0.28	0.30	88.3
12	R2	165	7	174	4.2	0.317	9.1	LOS A	1.5	14.2	0.30	0.28	0.30	77.2
Approach		417	62	439	14.9	0.317	4.1	NA	1.5	14.2	0.30	0.28	0.30	83.5
All Vehicles		610	135	642	22.1	0.317	5.0	NA	1.5	14.2	0.28	0.34	0.28	77.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX C

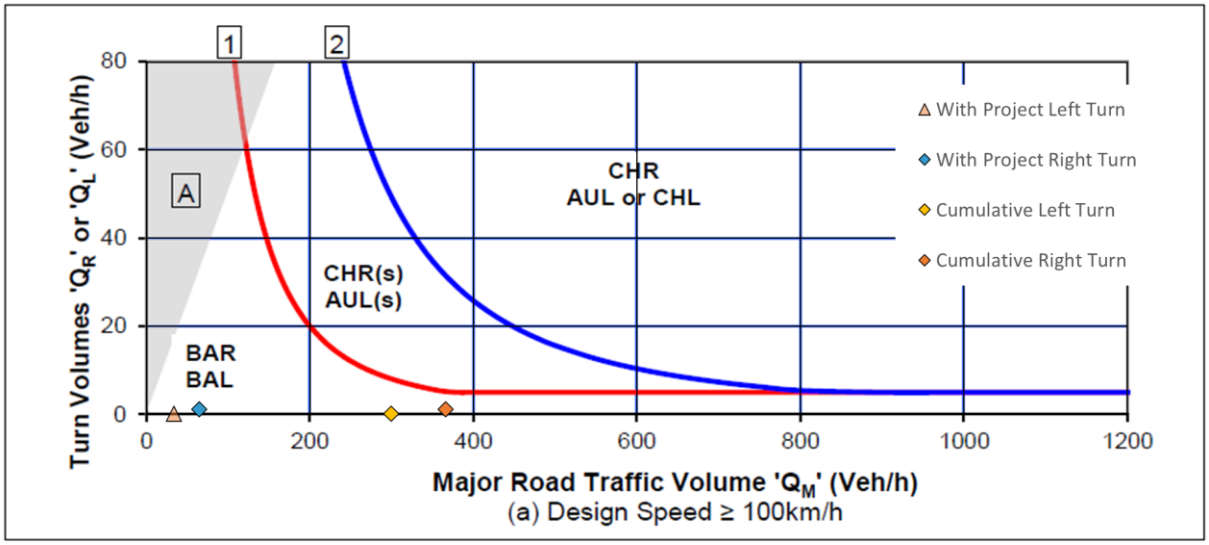
AUSTROADS TURN WARRANT CHART REVIEWS

Figure C-1 Golden Highway / Leadville Cluster Access Road (Leadville Cluster) – AM peak hour (Regional accommodation scenario)



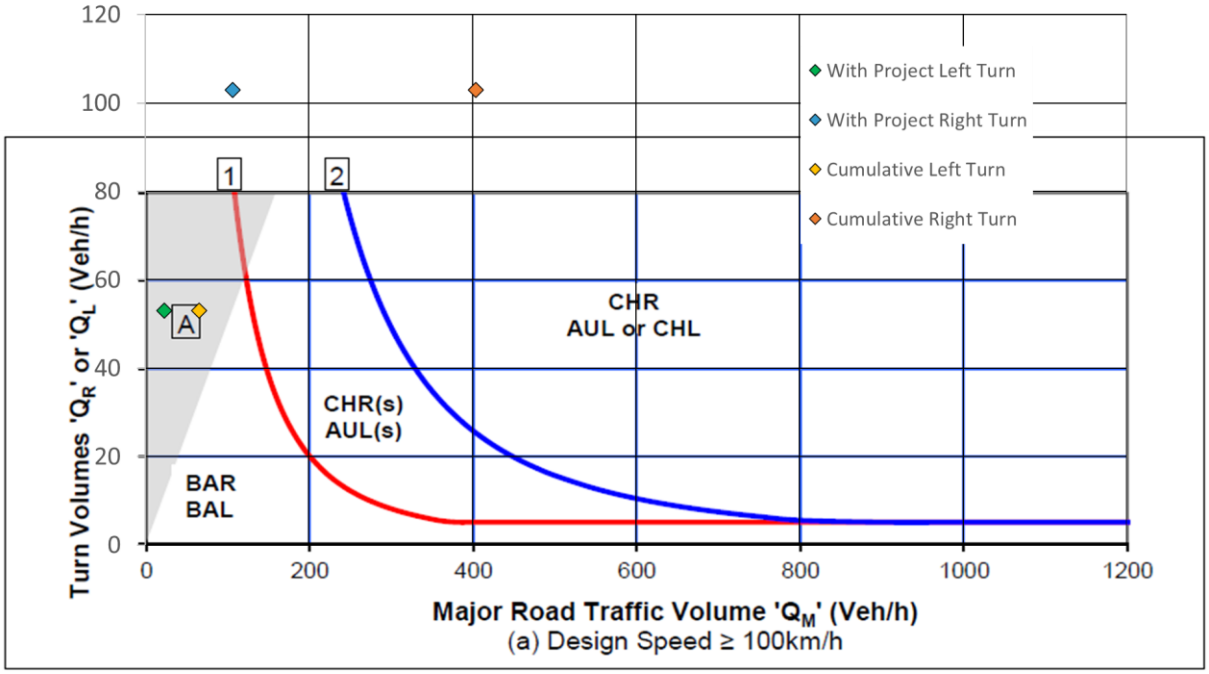
Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-2 Golden Highway / Leadville Cluster Access Road (Leadville Cluster) – PM peak hour (Regional accommodation scenario)



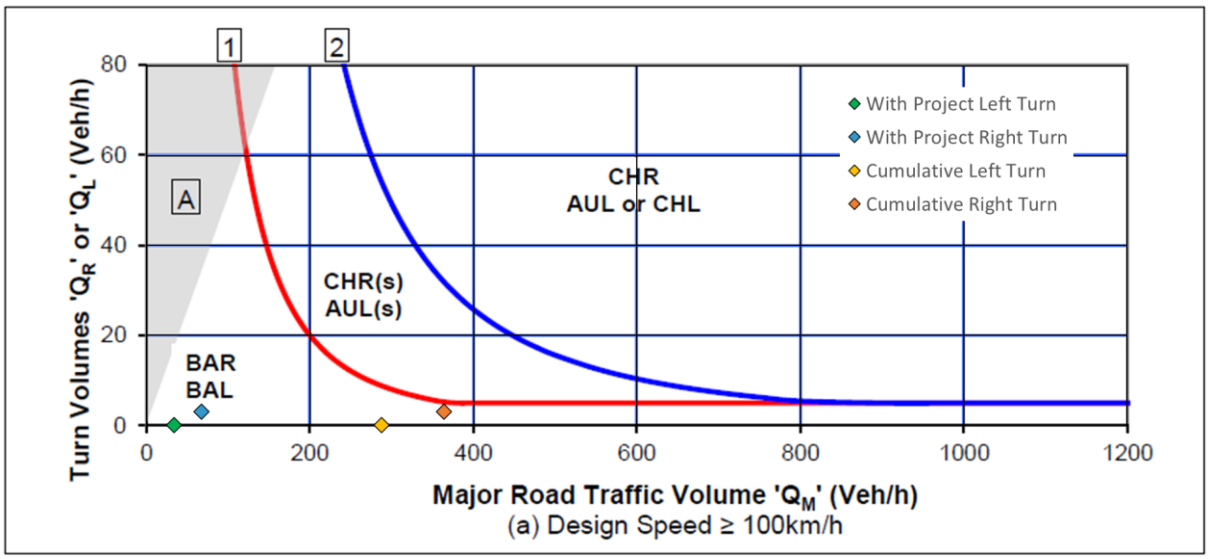
Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-3 Golden Highway / Girragulang Road Alternative Access (Girragulang Road Cluster) – AM peak hour (Regional accommodation scenario)



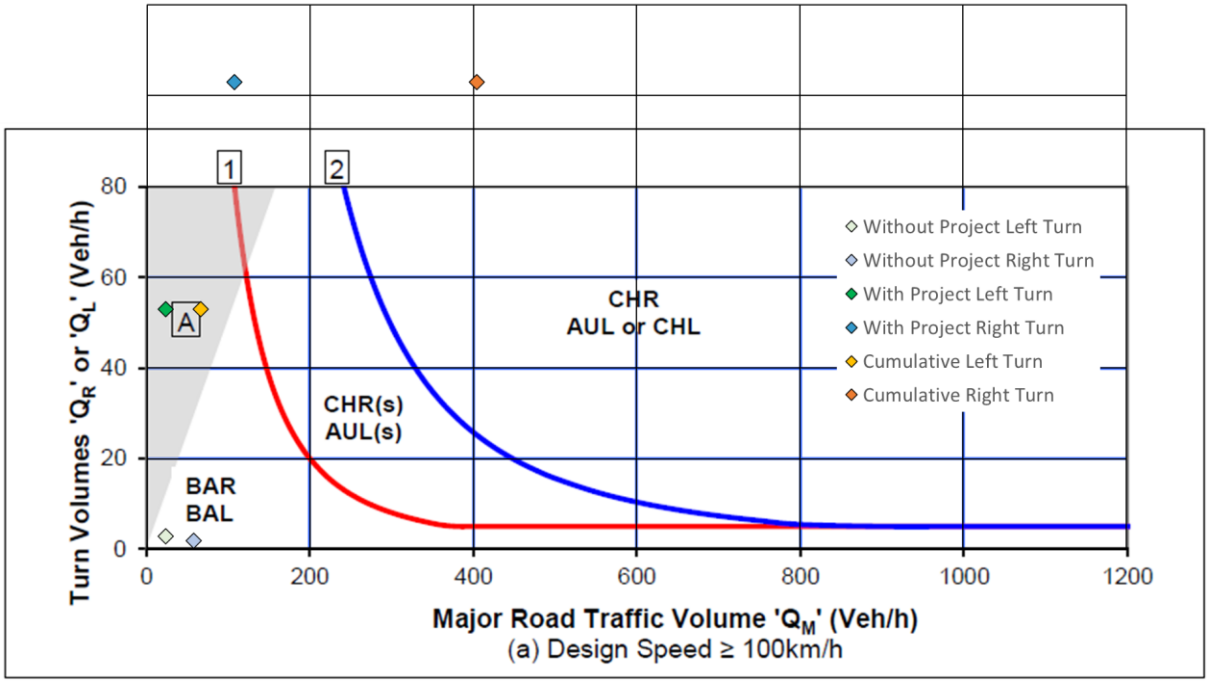
Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-4 Golden Highway / Girragulang Road Alternative Access (Girragulang Road Cluster) – PM peak hour (Regional accommodation scenario)



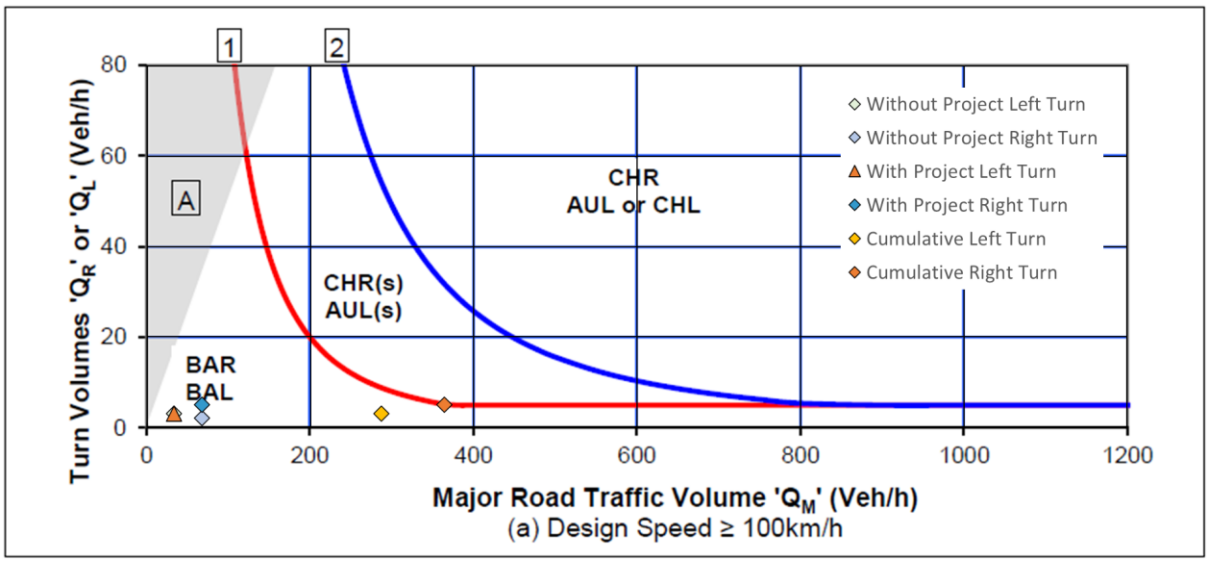
Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-5 Golden Highway / Short Street (Girragulang Road Cluster) – AM peak hour (Regional accommodation scenario)



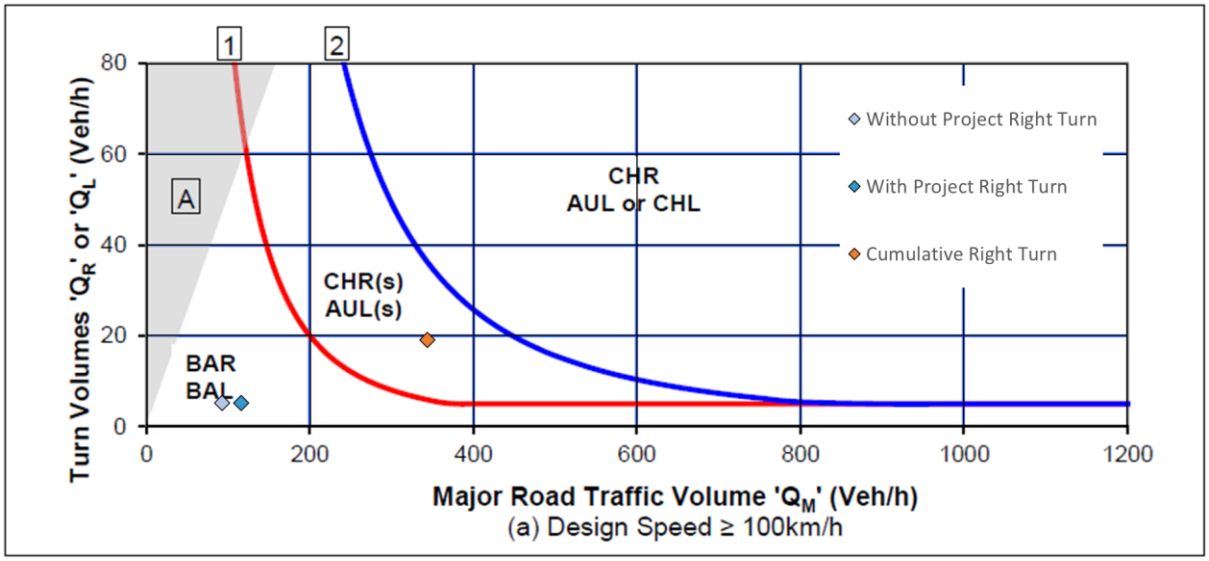
Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-6 Golden Highway / Short Street (Girragulang Road Cluster) – PM peak hour (Regional accommodation scenario)



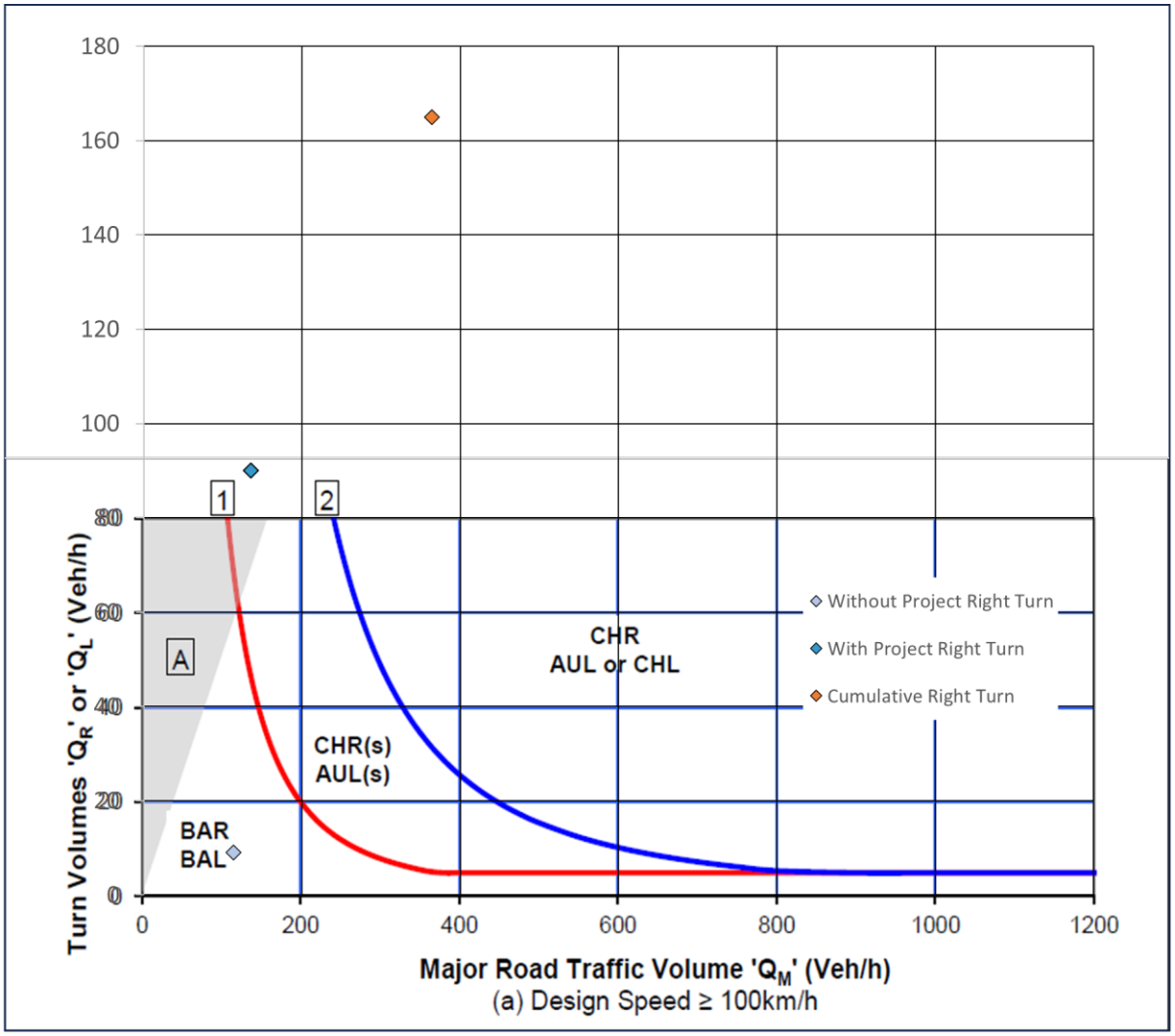
Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-7 Golden Highway / Ulan Road (Girragulang Road Cluster) – AM peak hour (Regional accommodation scenario)



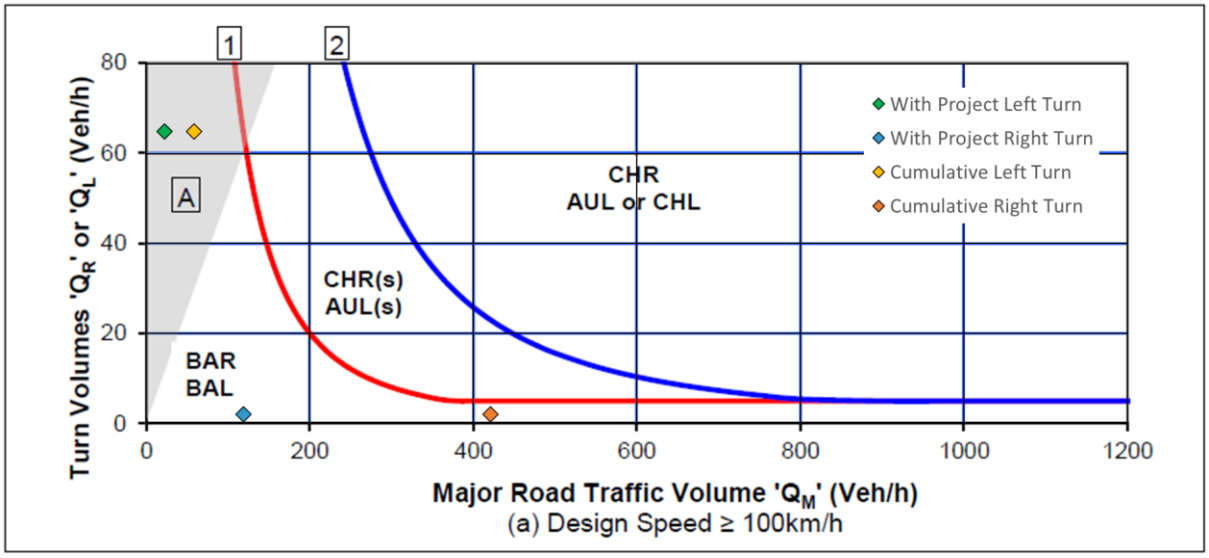
Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-8 Golden Highway / Ulan Road (Girragulang Road Cluster) – PM peak hour (Regional accommodation scenario)



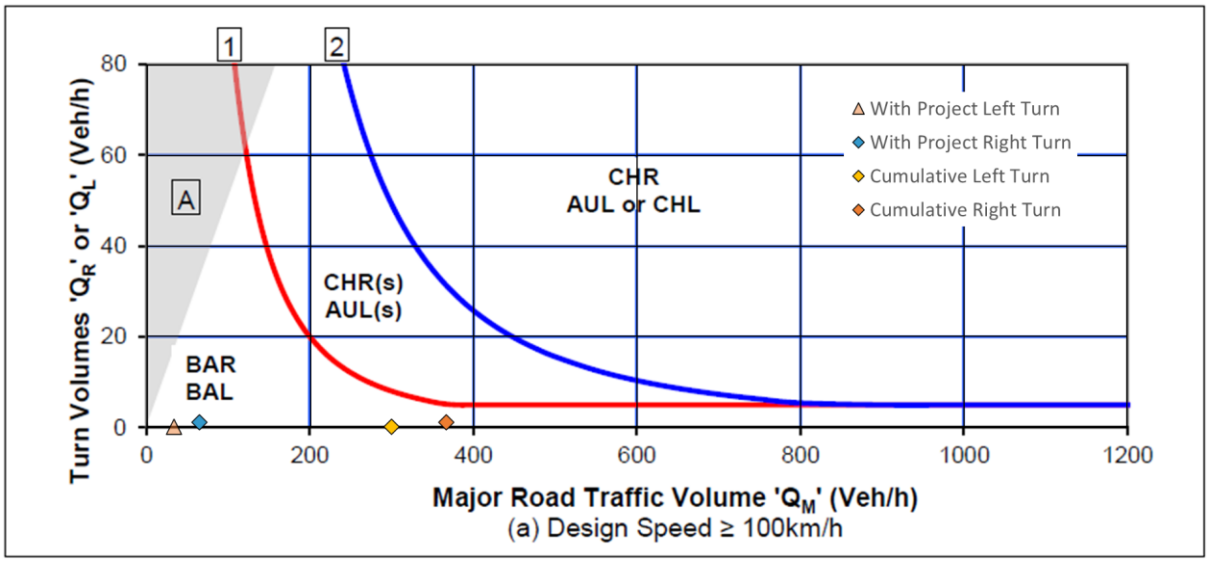
Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-9 Golden Highway / Leadville Cluster Access Road (Leadville Cluster) – AM peak hour (Centralised accommodation scenario)



Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

Figure C-10 Golden Highway / Leadville Cluster Access Road (Leadville Cluster) – PM peak hour (Centralised accommodation scenario)



Source: SCT Consulting based on Austroads Guide to Traffic Management Part 6, 2021

APPENDIX D

STRATEGIC DESIGNS AND SWEPT PATHS

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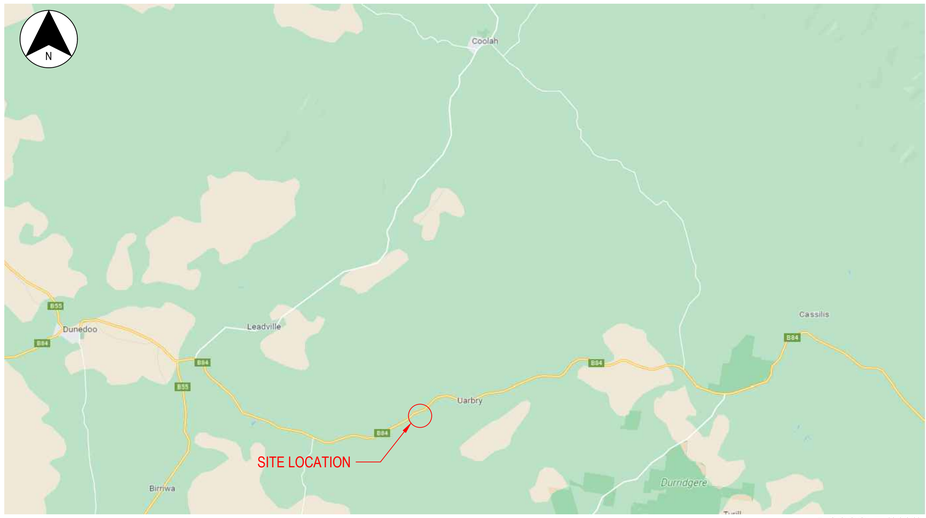
WARRUMBUNGLE SHIRE COUNCIL

GOLDEN HIGHWAY / LEADVILLE ACCESS ROAD INTERSECTION

ROAD DESIGN

80% CONCEPT DESIGN



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LOCALITY PLAN

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01	TB	02.11.22	80% CONCEPT DESIGN	BS

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UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

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ABN 48 641 009 681 ACN 641 009 681

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DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
COVER SHEET

SHEET 1 OF 24

PROJECT NO	SHEET NO	STATUS
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DRAWING INDEX AND AMENDMENT REGISTER

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1	52-GN-0001	COVER SHEET	BTE-220034-SHT-52-GN-0001	02.11.22	24.03.24	
2	52-GN-0002	DRAWING INDEX	BTE-220034-SHT-52-GN-0002	02.11.22	24.03.24	
3	52-GN-0101	GENERAL ARRANGEMENT PLAN	BTE-220034-SHT-52-GN-0101	02.11.22	24.03.24	
4	52-RW-0001	TYPICAL SECTIONS	BTE-220034-SHT-52-RW-0001	02.11.22	24.03.24	
5	52-RW-0101	DETAIL PLAN	BTE-220034-SHT-52-RW-0101	02.11.22	24.03.24	
6	52-RW-0201	LONGITUDINAL SECTION - MCR01 - SHEET 1 OF 2	BTE-220034-SHT-52-RW-0201	02.11.22	24.03.24	
7	52-RW-0202	LONGITUDINAL SECTION - MCR01 - SHEET 2 OF 2	BTE-220034-SHT-52-RW-0202	02.11.22	24.03.24	
8	52-RW-0204	LONGITUDINAL SECTION - MCR02	BTE-220034-SHT-52-RW-0204	02.11.22	24.03.24	
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10	52-RW-0302	CROSS SECTION - MCR01 - SHEET 2 OF 6	BTE-220034-SHT-52-RW-0302	02.11.22	24.03.24	
11	52-RW-0303	CROSS SECTION - MCR01 - SHEET 3 OF 6	BTE-220034-SHT-52-RW-0303	02.11.22	24.03.24	
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19	52-RW-0315	CROSS SECTION - MCR02 - SHEET 5 OF 8	BTE-220034-SHT-52-RW-0315	02.11.22	24.03.24	
20	52-RW-0316	CROSS SECTION - MCR02 - SHEET 6 OF 8	BTE-220034-SHT-52-RW-0316	02.11.22	24.03.24	
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VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
DRAWING INDEX

SHEET 2 OF 24

PROJECT NO	SHEET NO	STATUS
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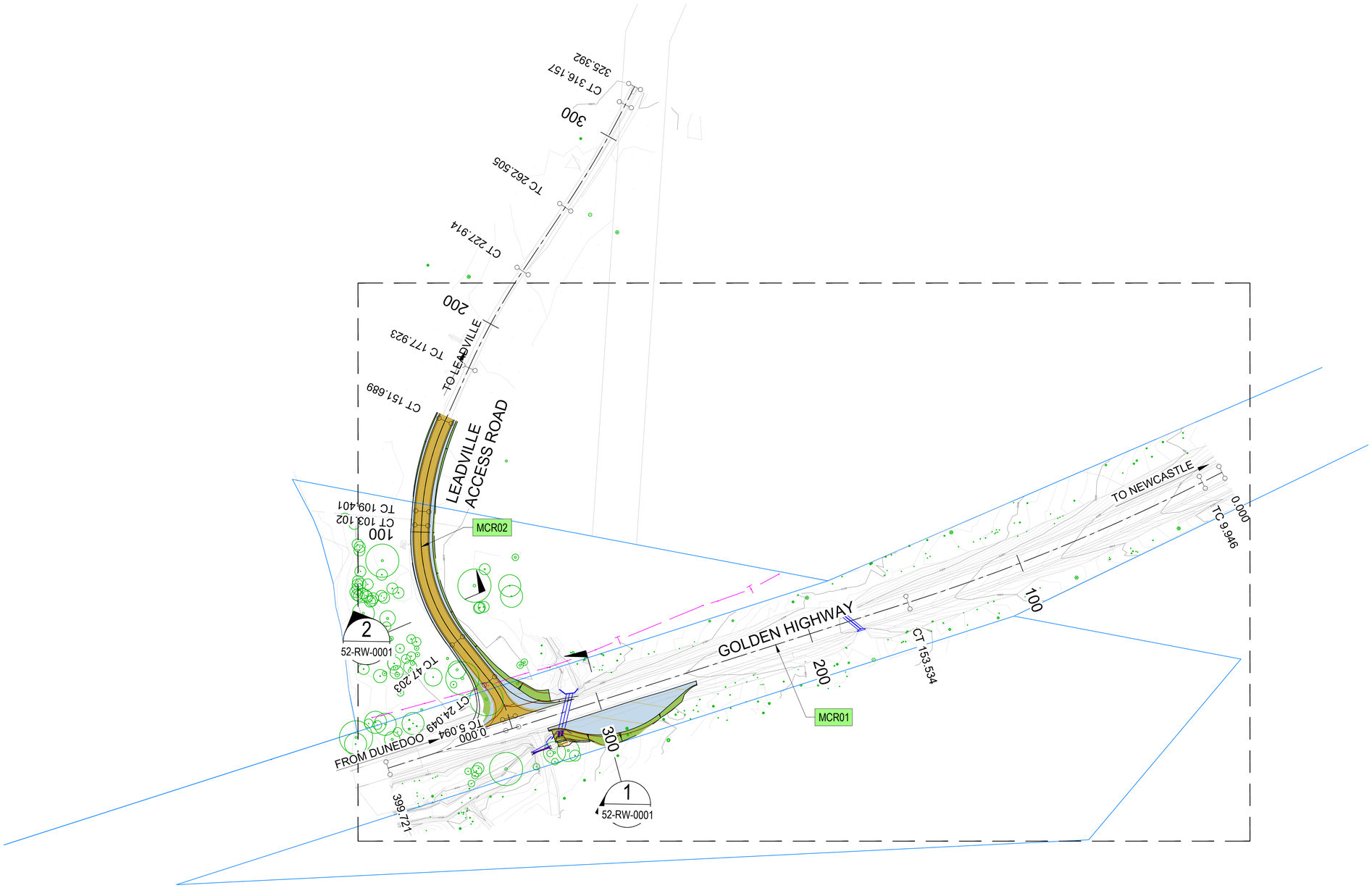

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01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

5 0 5 10 15 20m

1 : 1000 FULL SIZE A3

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CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

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ABN 48 641 009 681 ACN 641 009 681

SCALE	1:2000	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
GENERAL ARRANGEMENT PLAN

SHEET 3 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-GN-0101	80% CONCEPT

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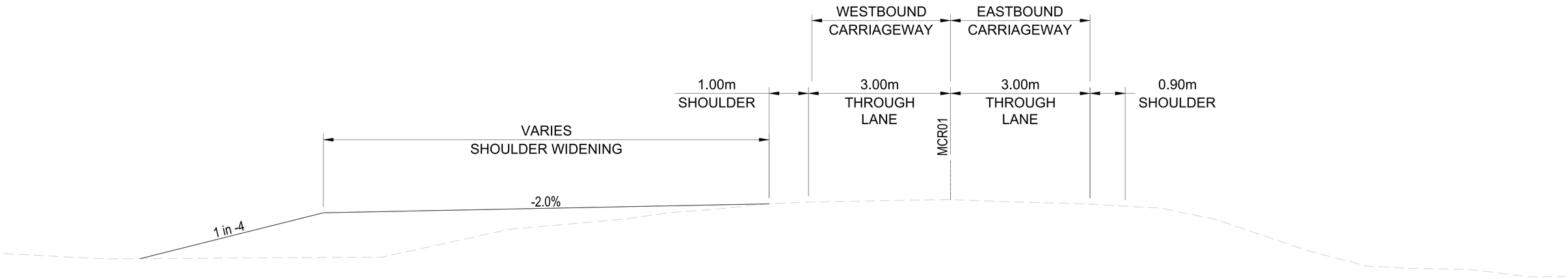

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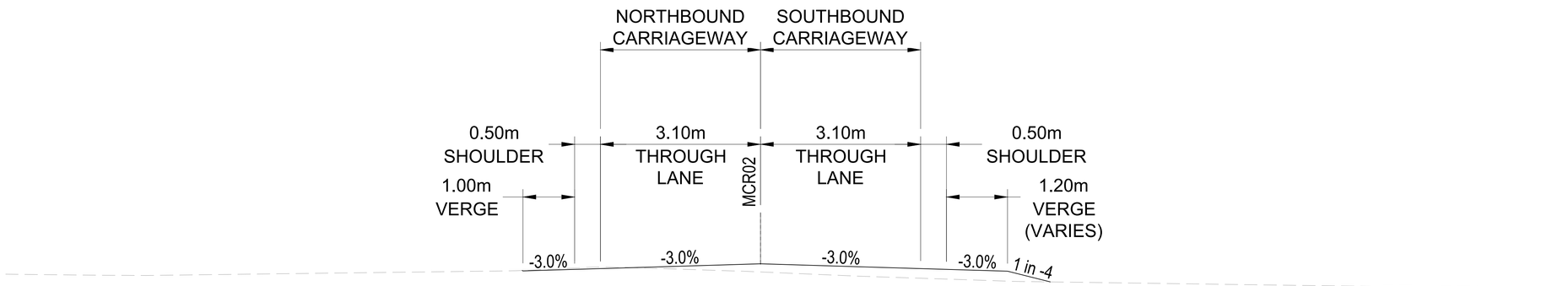

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52-GN-0101

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES
0.5 0 0.5 1 1.5 2m
1 : 100 FULL SIZE A3

CLIENT
UPC AC Renewables AUSTRALIA

CONSULTANT
RAMBOLL

DESIGNER
BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:100	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

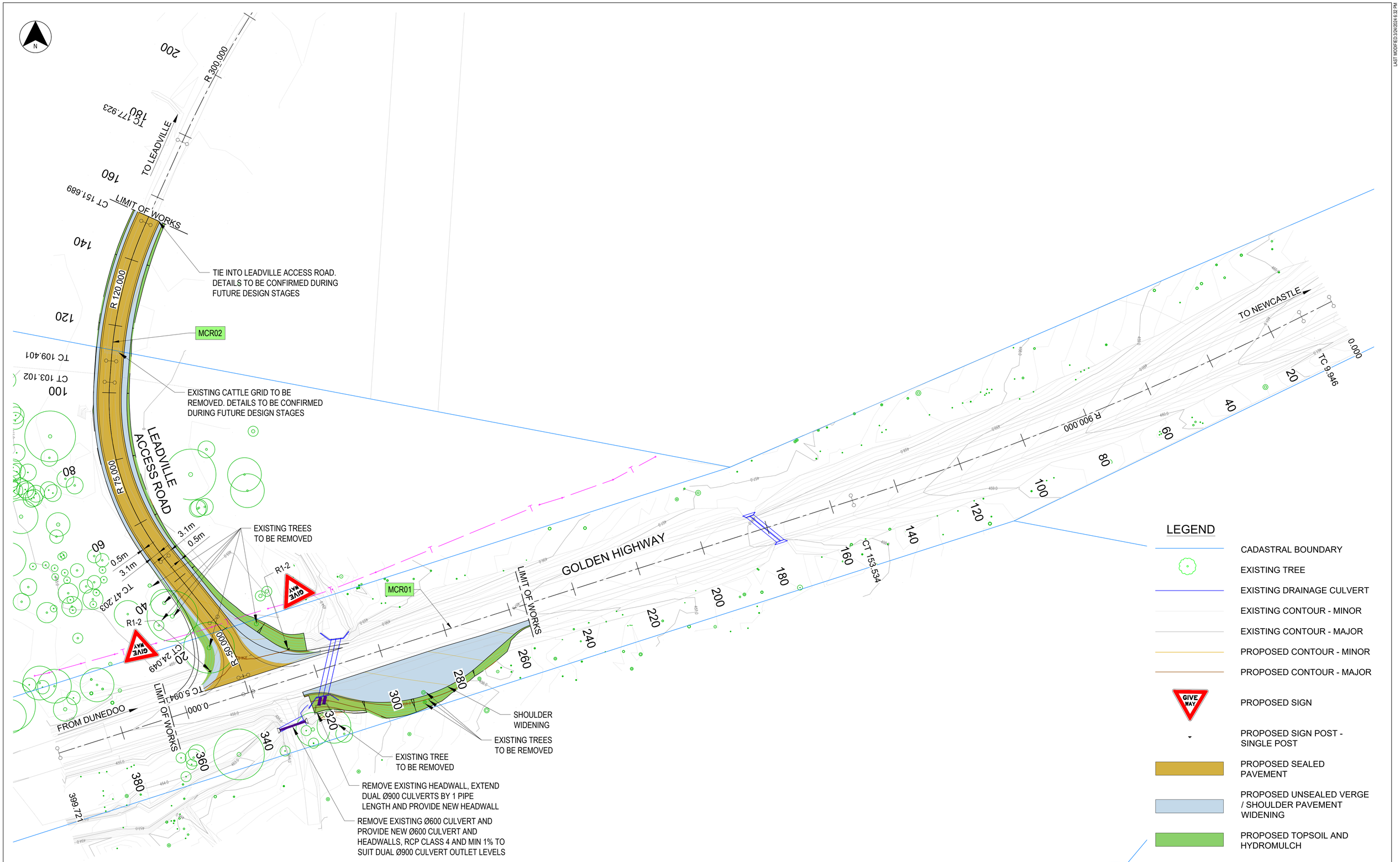
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
TYPICAL SECTIONS

SHEET 4 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0001	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0101.DWG

LAST MODIFIED: 3/24/2024 6:32 PM



LEGEND

- CADASTRAL BOUNDARY
- EXISTING TREE
- EXISTING DRAINAGE CULVERT
- EXISTING CONTOUR - MINOR
- EXISTING CONTOUR - MAJOR
- PROPOSED CONTOUR - MINOR
- PROPOSED CONTOUR - MAJOR
- PROPOSED SIGN
- PROPOSED SIGN POST - SINGLE POST
- PROPOSED SEALED PAVEMENT
- PROPOSED UNSEALED VERGE / SHOULDER PAVEMENT WIDENING
- PROPOSED TOPSOIL AND HYDROMULCH

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES: 5 0 5 10 15 20m — 1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING — BTE CONSULTING PTY LTD ABN 48 641 009 681 ACN 641 009 681

SCALE	1:1000	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

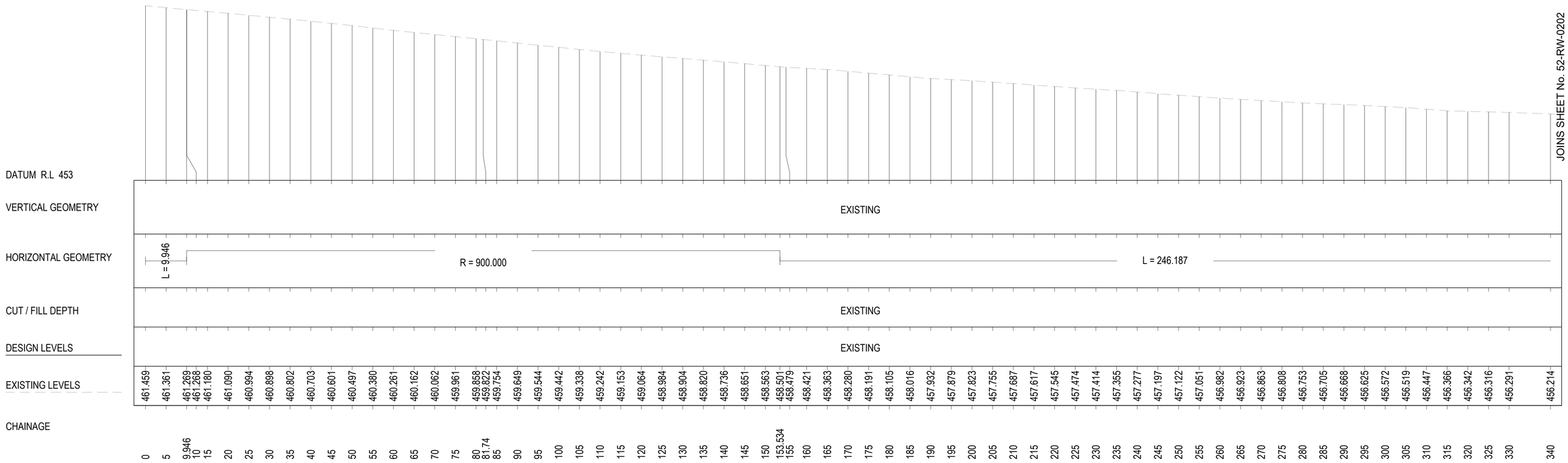
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION DETAIL PLAN

SHEET 5 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0101	80% CONCEPT

CAD REF: P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0201.DWG

LAST MODIFIED: 3/24/2024 6:32 PM



GOLDEN HIGHWAY - MCR01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

1 : 200 FULL SIZE A3

1 : 1000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

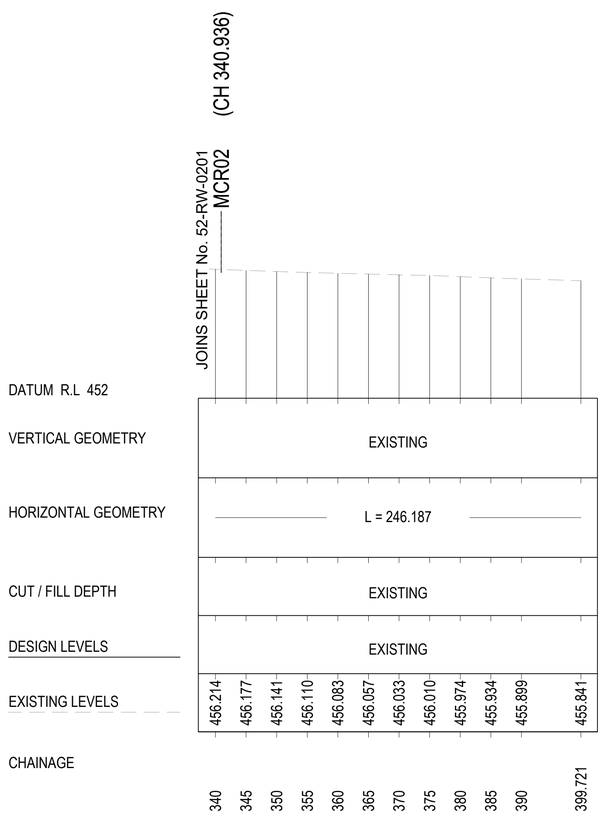
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
LONGITUDINAL SECTION - MCQ01
SHEET 1 OF 2

SHEET 6 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0201	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0202.DWG

LAST MODIFIED: 3/24/2024 6:32 PM



GOLDEN HIGHWAY - MCR01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

© COPYRIGHT BTE CONSULTING PTY LTD

No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

1 : 200 — FULL SIZE A3

1 : 1000 — FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

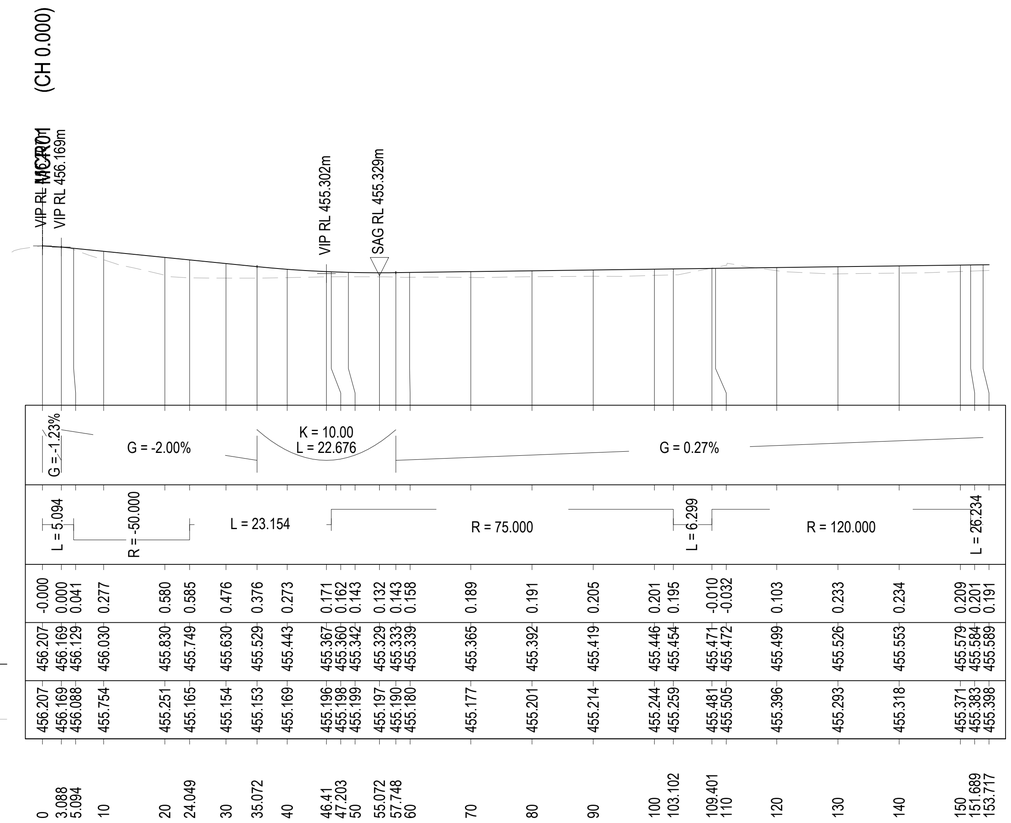
VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
LONGITUDINAL SECTION - MCQ01
SHEET 2 OF 2

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0202	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0211.DWG

LAST MODIFIED: 3/24/2024 6:32 PM



LEADVILLE ACCESS ROAD - MCR02

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

1 : 200 FULL SIZE A3

1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

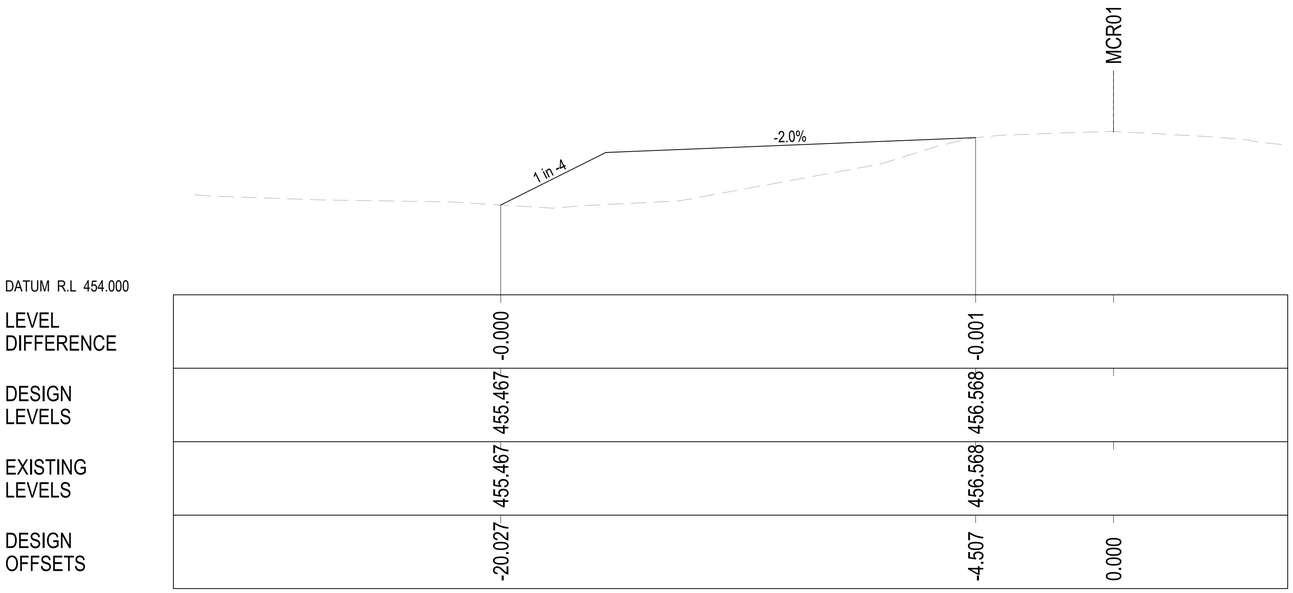
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
LONGITUDINAL SECTION - MCQ02

SHEET 8 OF 24

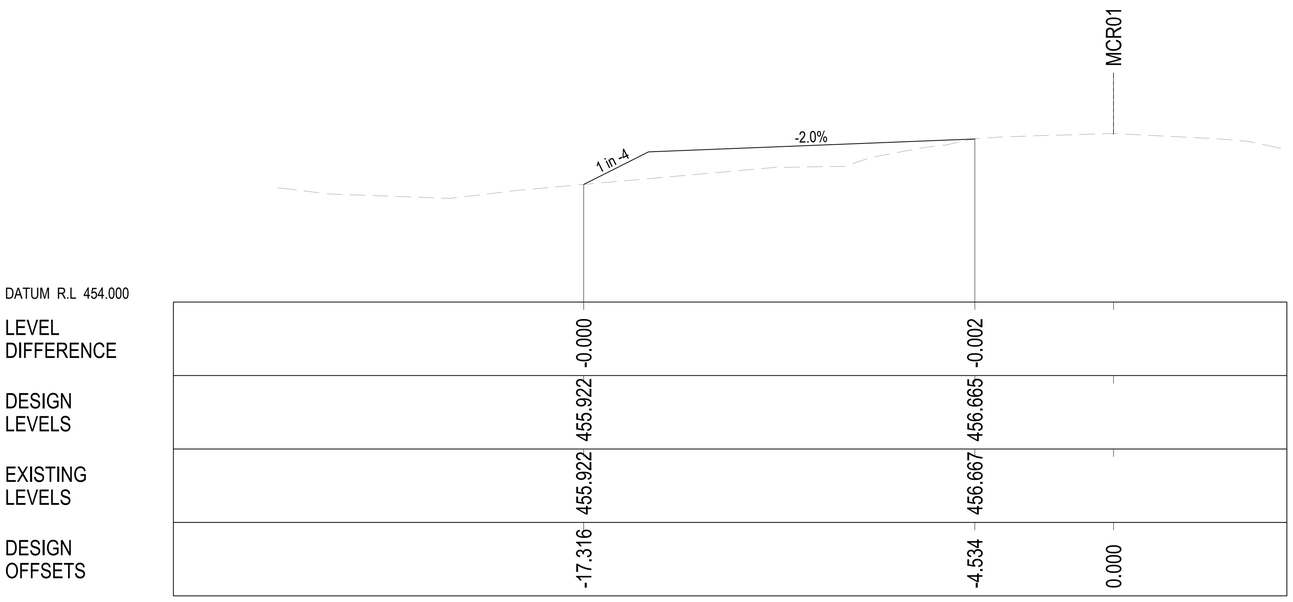
PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0211	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0302.DWG

LAST MODIFIED: 3/24/2024 6:32 PM



CH 290



CH 280

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

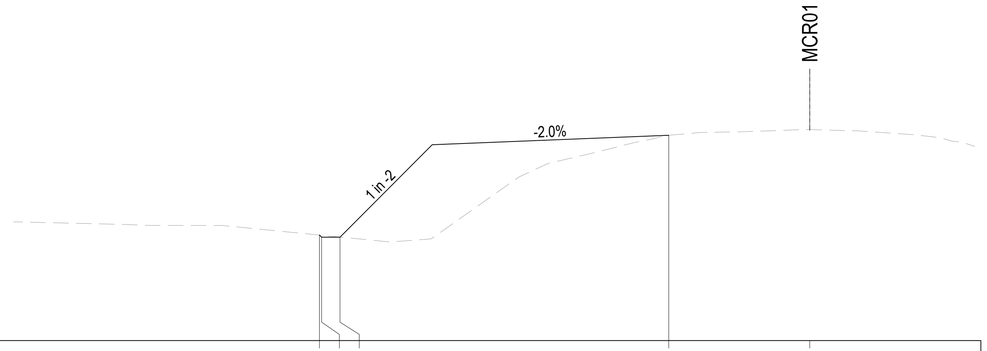
VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR01
SHEET 2 OF 6

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0302	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0303.DWG

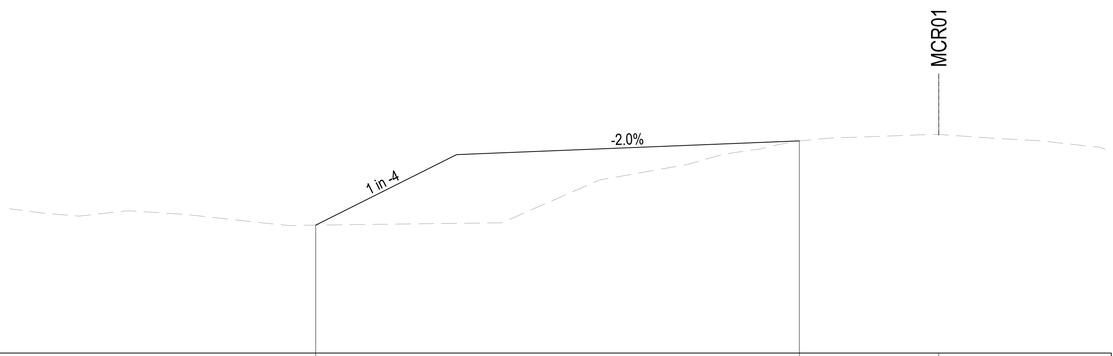
LAST MODIFIED: 3/24/2024 6:32 PM



DATUM R.L 453.000

LEVEL DIFFERENCE	0.000	-0.032	-0.002	-0.001
DESIGN LEVELS	454.724	454.688	454.689	456.354
EXISTING LEVELS	454.724	454.720	454.691	456.355
DESIGN OFFSETS	-16.024	-15.953	-15.353	-4.608	0.000

CH 310



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000	0.000
DESIGN LEVELS	455.091	456.467
EXISTING LEVELS	455.091	456.467
DESIGN OFFSETS	-20.361	-4.557	0.000

CH 300

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

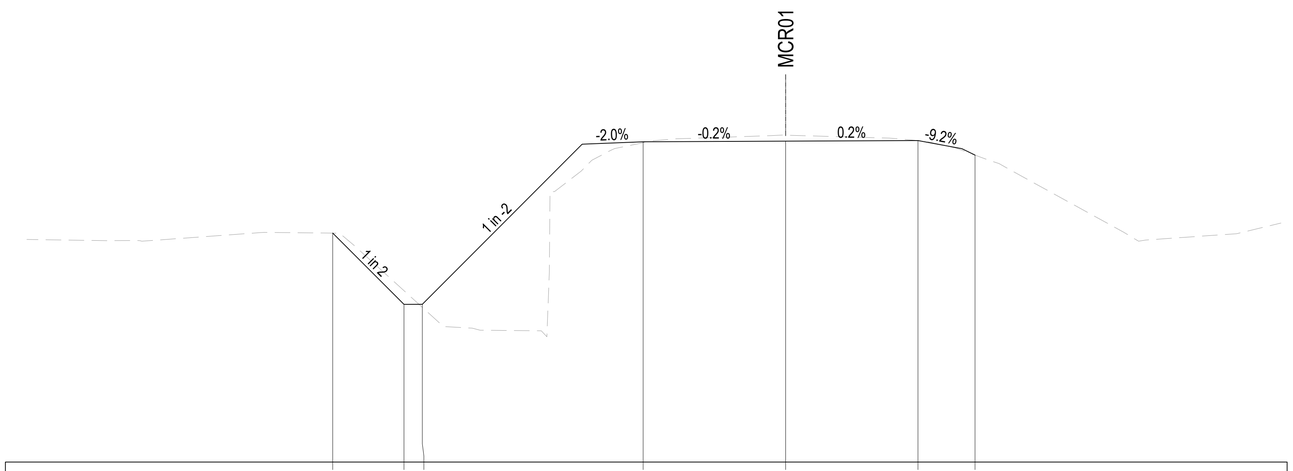
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR01
SHEET 3 OF 6

SHEET 11 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0303	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0304.DWG

LAST MODIFIED: 3/24/2024 6:33 PM



DATUM R.L 451.000

LEVEL DIFFERENCE	0.000	-0.223	0.049	0.015	-0.098	0.000	0.000
DESIGN LEVELS	454.741	453.577	453.577	456.233	456.244	456.253	456.016
EXISTING LEVELS	454.741	453.800	453.528	456.218	456.342	456.253	456.015
DESIGN OFFSETS	-14.802	-12.474	-11.874	-4.659	0.000	4.324	6.189

CH 320

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

1 : 100 V FULL SIZE A3

1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

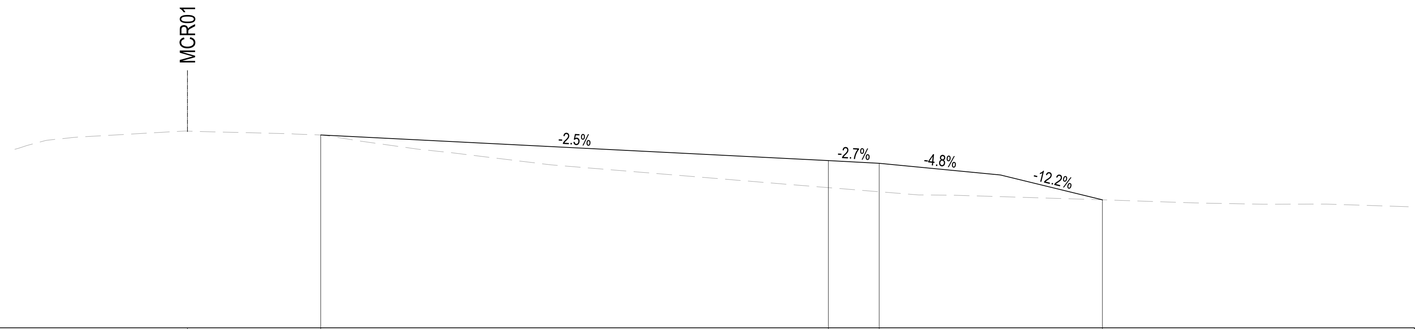
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR01
SHEET 4 OF 6

SHEET 12 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0304	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0305.DWG

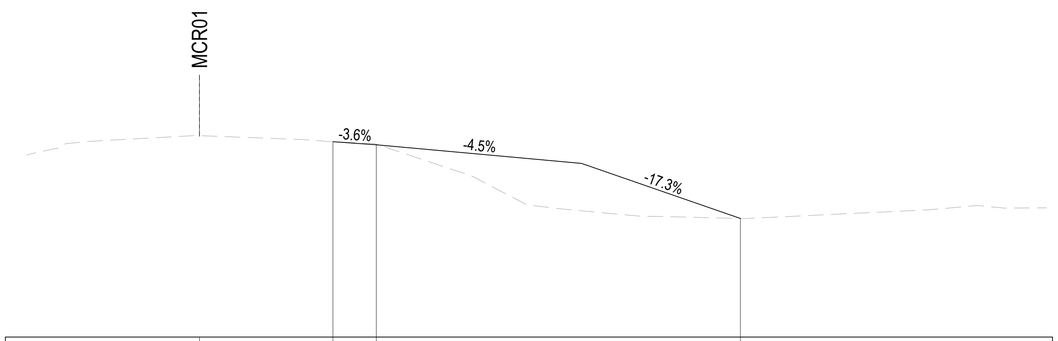
LAST MODIFIED: 3/24/2024 6:33 PM



DATUM R.L 453.000

LEVEL DIFFERENCE		0.001	0.443	0.465	-0.000
DESIGN LEVELS		456.150	455.732	455.687	455.091
EXISTING LEVELS		456.149	455.290	455.223	455.091
DESIGN OFFSETS	0.000	4.358	20.948	22.609	29.906

CH 340



DATUM R.L 453.000

LEVEL DIFFERENCE		0.002	-0.012	0.001
DESIGN LEVELS		456.192	456.142	454.938
EXISTING LEVELS		456.190	456.154	454.937
DESIGN OFFSETS	0.000	4.363	5.781	17.681

CH 330

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR01
SHEET 5 OF 6

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0305	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0306.DWG

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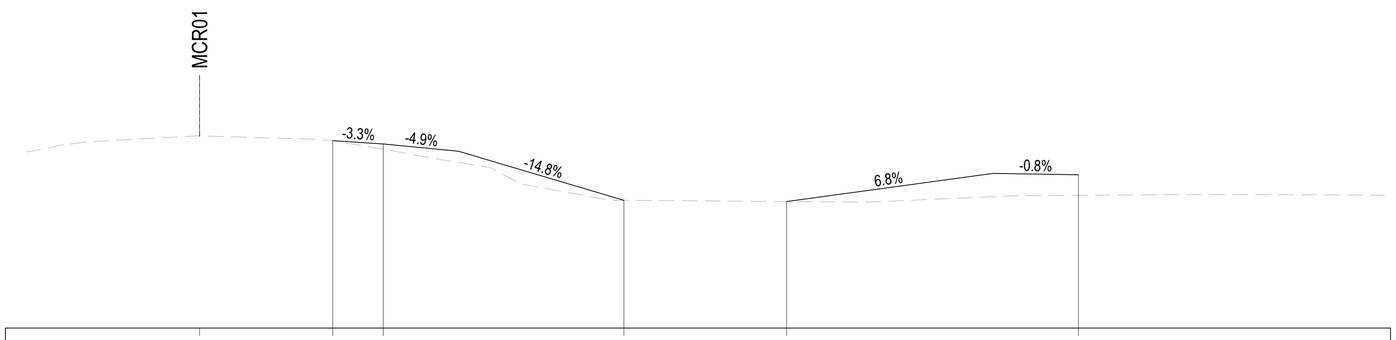

DATUM R.L 453.000

LEVEL DIFFERENCE		0.001	0.087	-0.000	-0.000	0.336
DESIGN LEVELS		456.062	456.008	455.087	455.067	455.505
EXISTING LEVELS		456.061	455.922	455.087	455.067	455.169
DESIGN OFFSETS	0.000	4.353	6.004	13.868	19.184	28.724

CH 350

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

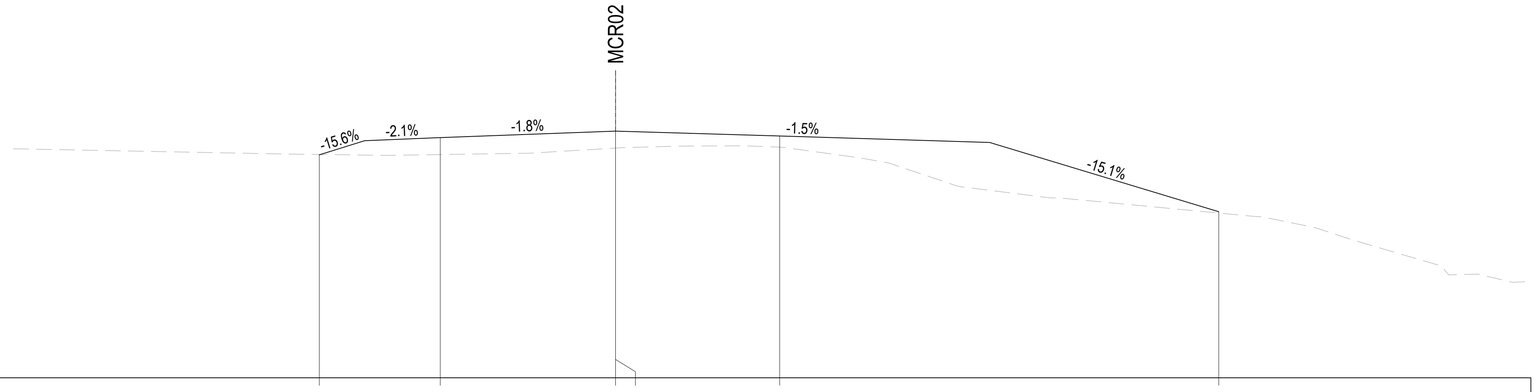
VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR01
SHEET 6 OF 6

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0306	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0311.DWG

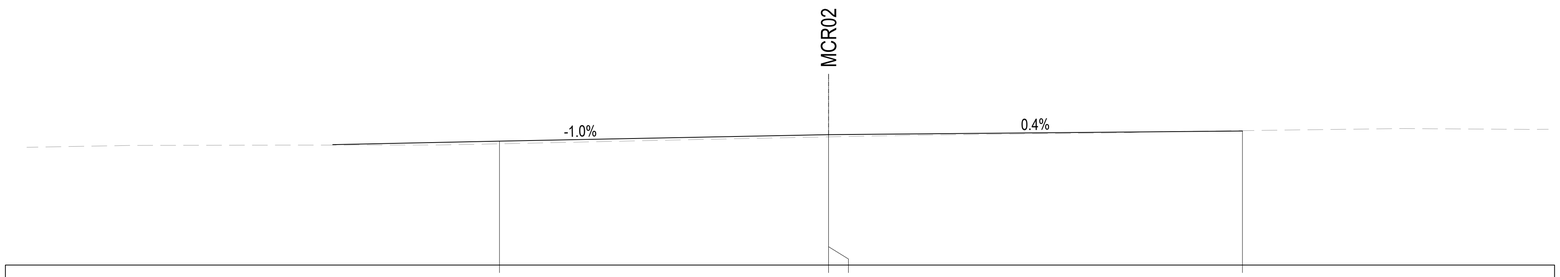
LAST MODIFIED:3/24/2024 6:33 PM



DATUM R.L 452.000

LEVEL DIFFERENCE	-0.006	0.278	0.277 0.277	0.182	0.022
DESIGN LEVELS	455.643	455.925	456.030 456.030	455.951	454.714
EXISTING LEVELS	455.649	455.647	455.754 455.754	455.769	454.692
DESIGN OFFSETS	-9.682	-5.729	0.000 0.000	5.366	19.715

CH 10



DATUM R.L 454.000

LEVEL DIFFERENCE	0.044	0.035 0.035	-0.006
DESIGN LEVELS	456.025	456.130 456.130	456.191
EXISTING LEVELS	455.981	456.095 456.095	456.197
DESIGN OFFSETS	-10.754	0.000 0.000	13.528

CH 5

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES
1 : 100 V — FULL SIZE A3
1 : 200 H — FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

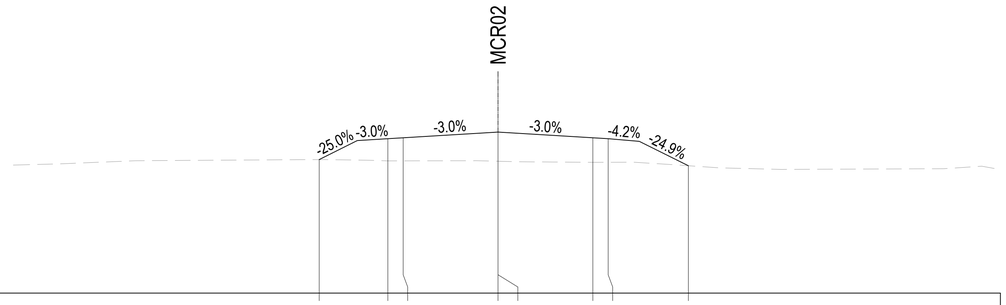
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR02
SHEET 1 OF 8

SHEET 15 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0311	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0312.DWG

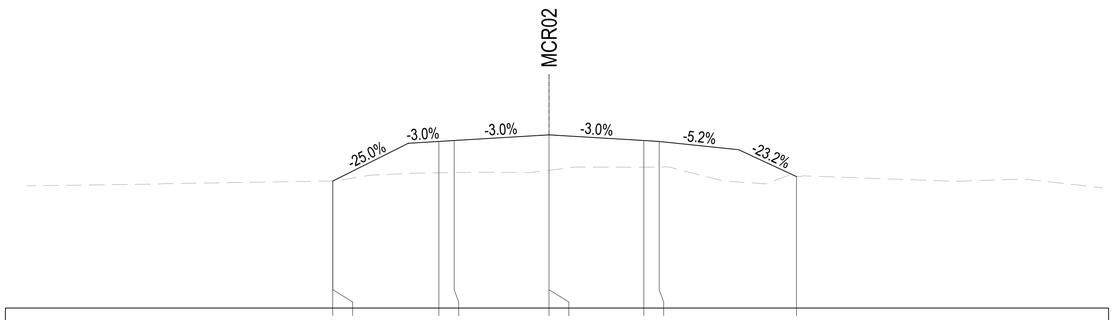
LAST MODIFIED: 3/24/2024 6:33 PM



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000	0.362 0.377	0.476 0.476	0.401 0.385	-0.000	
DESIGN LEVELS	455.182	455.522 455.537	455.630 455.630	455.537 455.522	455.081	
EXISTING LEVELS	455.182	455.161 455.161	455.154 455.154	455.136 455.137	455.081	
DESIGN OFFSETS	-5.843	-3.600 -3.100	0.000 0.000	3.100 3.600	6.221	

CH 30



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000 -0.000	0.512 0.525	0.580 0.580	0.436 0.418	-0.001	
DESIGN LEVELS	455.076 455.076	455.722 455.737	455.830 455.830	455.737 455.722	455.148	
EXISTING LEVELS	455.076 455.076	455.210 455.213	455.251 455.251	455.301 455.305	455.149	
DESIGN OFFSETS	-7.067 -7.067	-3.600 -3.100	0.000 0.000	3.100 3.600	8.090	

CH 20

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

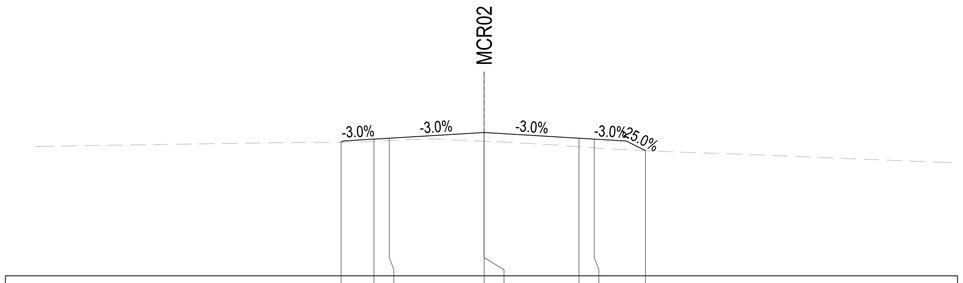
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR02
SHEET 2 OF 8

SHEET 16 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0312	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0313.DWG

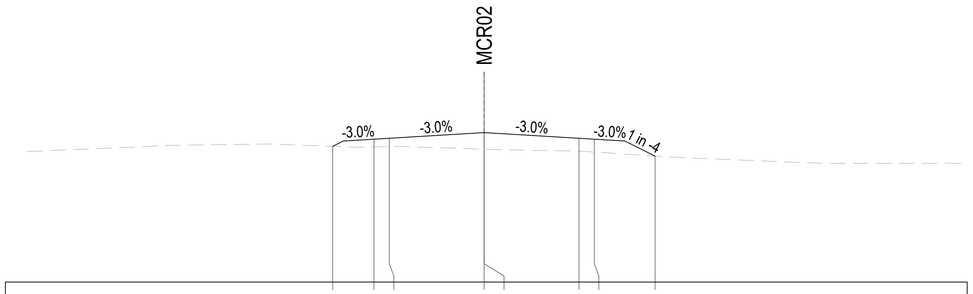
LAST MODIFIED: 3/24/2024 6:33 PM



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000	0.033	0.035	0.143	0.143	0.141	0.144	-0.000
DESIGN LEVELS	455.185	455.234	455.249	455.342	455.342	455.249	455.234	455.046
EXISTING LEVELS	455.185	455.201	455.213	455.199	455.199	455.108	455.090	455.046
DESIGN OFFSETS	-4.674	-3.600	-3.100	0.000	0.000	3.100	3.600	5.271

CH 50



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000	0.126	0.133	0.273	0.273	0.211	0.210	-0.000
DESIGN LEVELS	455.218	455.335	455.350	455.443	455.443	455.350	455.335	455.058
EXISTING LEVELS	455.218	455.209	455.217	455.169	455.169	455.139	455.124	455.058
DESIGN OFFSETS	-4.947	-3.600	-3.100	0.000	0.000	3.100	3.600	5.587

CH 40

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

1 : 100 V — FULL SIZE A3

1 : 200 H — FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

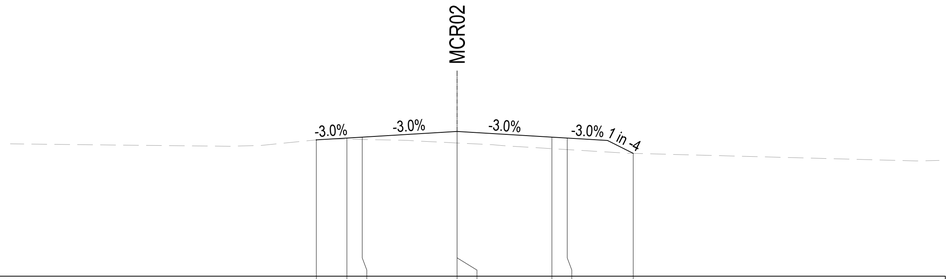
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR02
SHEET 3 OF 8

SHEET 17 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0313	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0314.DWG

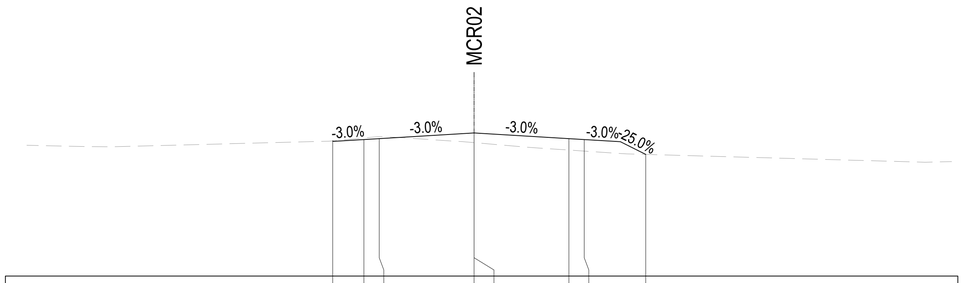
LAST MODIFIED: 3/24/2024 5:33 PM



DATUM R.L 453.000

LEVEL DIFFERENCE	0.000	0.019	0.039	0.189	0.188	-0.000
	0.189					
DESIGN LEVELS	455.227	455.257	455.272	455.365	455.272	455.007
	455.365				455.257	
EXISTING LEVELS	455.227	455.238	455.233	455.177	455.084	455.007
	455.177				455.069	
DESIGN OFFSETS	-4.600	-3.600	-3.100	0.000	3.100	5.759
	0.000				3.600	

CH 70



DATUM R.L 453.000

LEVEL DIFFERENCE	0.000	-0.026	-0.034	0.158	0.187	-0.000
	0.158				0.188	
DESIGN LEVELS	455.209	455.231	455.246	455.339	455.246	454.988
	455.339				455.231	
EXISTING LEVELS	455.209	455.256	455.279	455.180	455.059	454.988
	455.180				455.042	
DESIGN OFFSETS	-4.618	-3.600	-3.100	0.000	3.100	5.611
	0.000				3.600	

CH 60

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

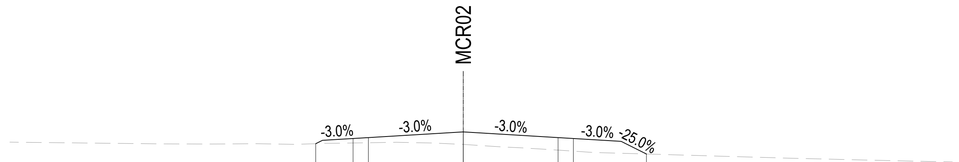
VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR02
SHEET 4 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0314	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0315.DWG

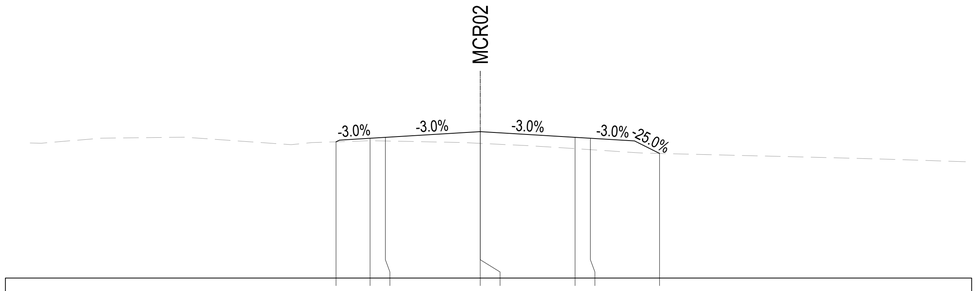
LAST MODIFIED: 3/24/2024 6:33 PM



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000	0.073	0.084	0.205	0.205	0.207	-0.000
DESIGN LEVELS	455.226	455.311	455.326	455.419	455.419	455.326	455.311	455.057
EXISTING LEVELS	455.226	455.237	455.242	455.214	455.214	455.121	455.104	455.057
DESIGN OFFSETS	-4.819	-3.600	-3.100	0.000	0.000	3.100	3.600	5.989

CH 90



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000	0.040	0.059	0.191	0.191	0.184	0.186	-0.000
DESIGN LEVELS	455.226	455.284	455.299	455.392	455.392	455.299	455.284	455.036
EXISTING LEVELS	455.226	455.244	455.240	455.201	455.201	455.115	455.098	455.036
DESIGN OFFSETS	-4.712	-3.600	-3.100	0.000	0.000	3.100	3.600	5.862

CH 80

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

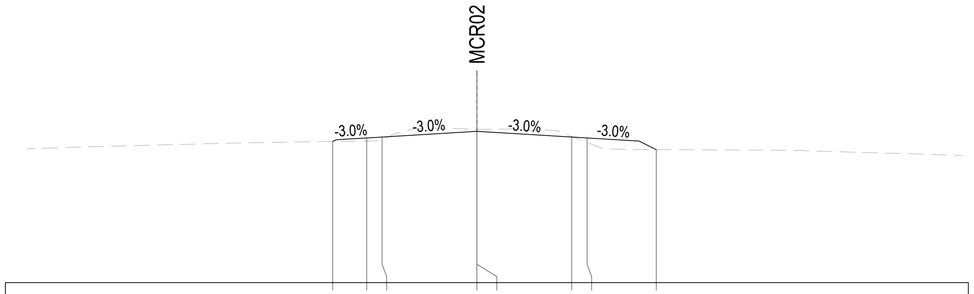
VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR02
SHEET 5 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0315	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0316.DWG

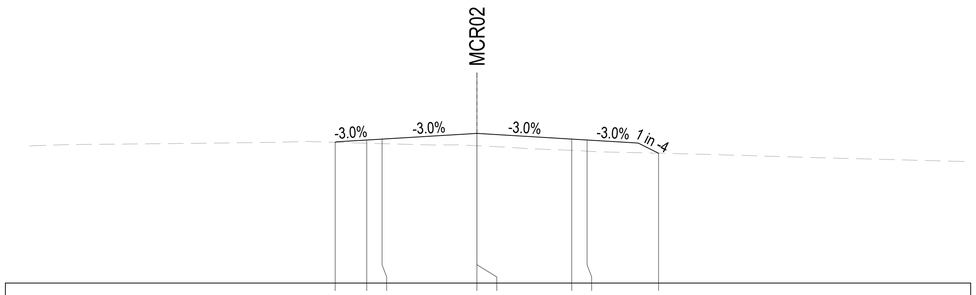
LAST MODIFIED: 3/24/2024 6:33 PM



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000	0.051	0.051	-0.032	-0.032	-0.010	0.074	-0.000
DESIGN LEVELS	455.306	455.364	455.379	455.472	455.472	455.379	455.364	455.173
EXISTING LEVELS	455.306	455.314	455.328	455.505	455.505	455.389	455.291	455.173
DESIGN OFFSETS	-4.712	-3.600	-3.100	0.000	0.000	3.100	3.600	5.861

CH 110



DATUM R.L 453.000

LEVEL DIFFERENCE	-0.000	0.053	0.075	0.201	0.201	0.185	0.182	-0.000
DESIGN LEVELS	455.300	455.338	455.353	455.446	455.446	455.353	455.338	455.121
EXISTING LEVELS	455.300	455.285	455.278	455.244	455.244	455.168	455.156	455.121
DESIGN OFFSETS	-4.632	-3.600	-3.100	0.000	0.000	3.100	3.600	5.937

CH 100

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

1 : 100 V — FULL SIZE A3

1 : 200 H — FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

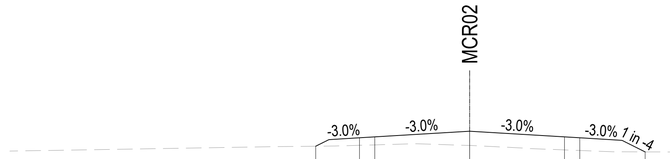
VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR02
SHEET 6 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0316	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-RW-0317.DWG

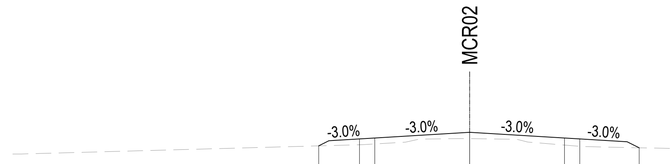
LAST MODIFIED: 3/24/2024 6:33 PM



DATUM R.L 454.000

LEVEL DIFFERENCE	-0.000	0.123	0.131	0.233	0.233	0.213	0.207	-0.000
DESIGN LEVELS	455.280	455.418	455.433	455.526	455.526	455.433	455.418	455.188
EXISTING LEVELS	455.280	455.295	455.302	455.293	455.293	455.220	455.210	455.188
DESIGN OFFSETS	-5.030	-3.600	-3.100	0.000	0.000	3.100	3.600	5.737

CH 130



DATUM R.L 454.000

LEVEL DIFFERENCE	-0.000	0.095	0.097	0.103	0.103	0.116	0.121	-0.000
DESIGN LEVELS	455.278	455.391	455.406	455.499	455.499	455.406	455.391	455.246
EXISTING LEVELS	455.278	455.296	455.309	455.396	455.396	455.291	455.270	455.246
DESIGN OFFSETS	-4.934	-3.600	-3.100	0.000	0.000	3.100	3.600	5.540

CH 120

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

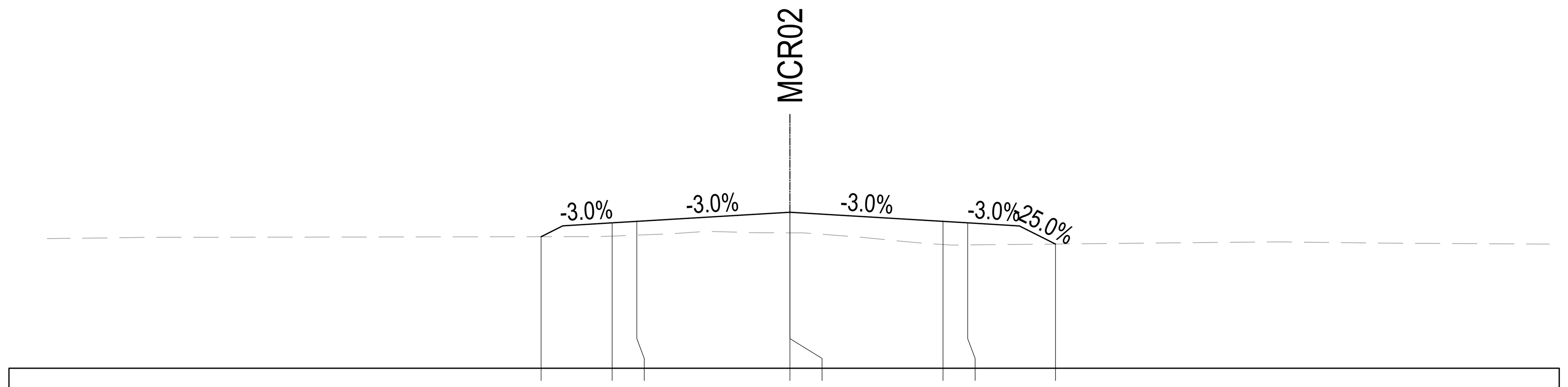
SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR02
SHEET 7 OF 8

SHEET 21 OF 24

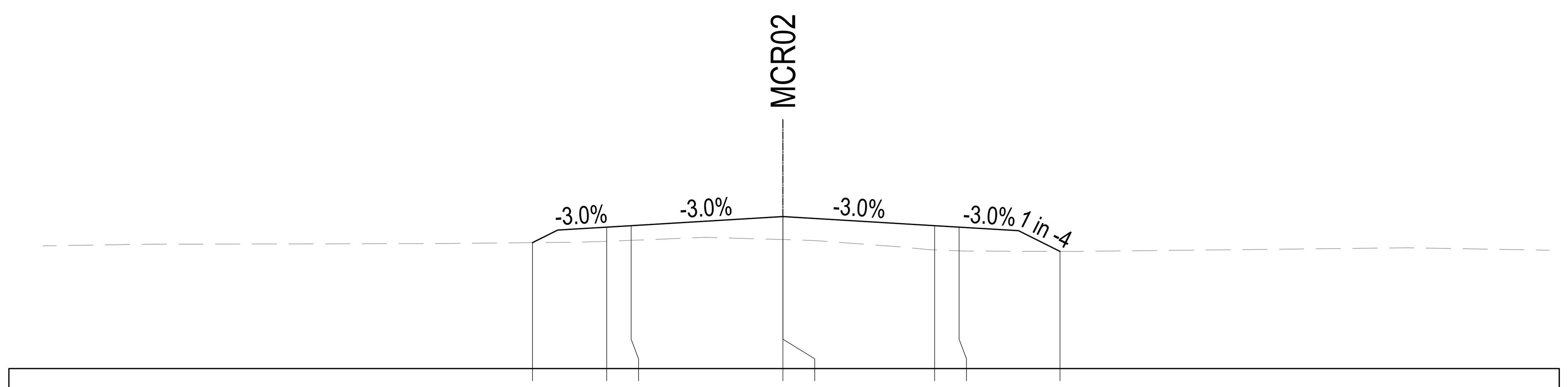
PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0317	80% CONCEPT



DATUM R.L 454.000

LEVEL DIFFERENCE	-0.000	0.134	0.139	0.209	0.209	0.234	0.223	-0.000
DESIGN LEVELS	455.331	455.471	455.486	455.579	455.579	455.486	455.471	455.257
EXISTING LEVELS	455.331	455.337	455.347	455.371	455.371	455.252	455.248	455.257
DESIGN OFFSETS	-5.040	-3.600	-3.100	0.000	0.000	3.100	3.600	5.378

CH 150



DATUM R.L 454.000

LEVEL DIFFERENCE	-0.000	0.145	0.150	0.234	0.234	0.248	0.242	-0.000
DESIGN LEVELS	455.286	455.445	455.460	455.553	455.553	455.460	455.445	455.197
EXISTING LEVELS	455.286	455.299	455.309	455.318	455.318	455.212	455.202	455.197
DESIGN OFFSETS	-5.114	-3.600	-3.100	0.000	0.000	3.100	3.600	5.662

CH 140

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES
0.5 0 0.5 1 1.5 2m — 1 : 100 V — FULL SIZE A3
1 0 1 2 3 4m — 1 : 200 H — FULL SIZE A3

CLIENT: UPC\AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
CROSS SECTION - MCR02
SHEET 8 OF 8
SHEET 22 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-RW-0318	80% CONCEPT

CAD REF P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-MS-0001.DWG

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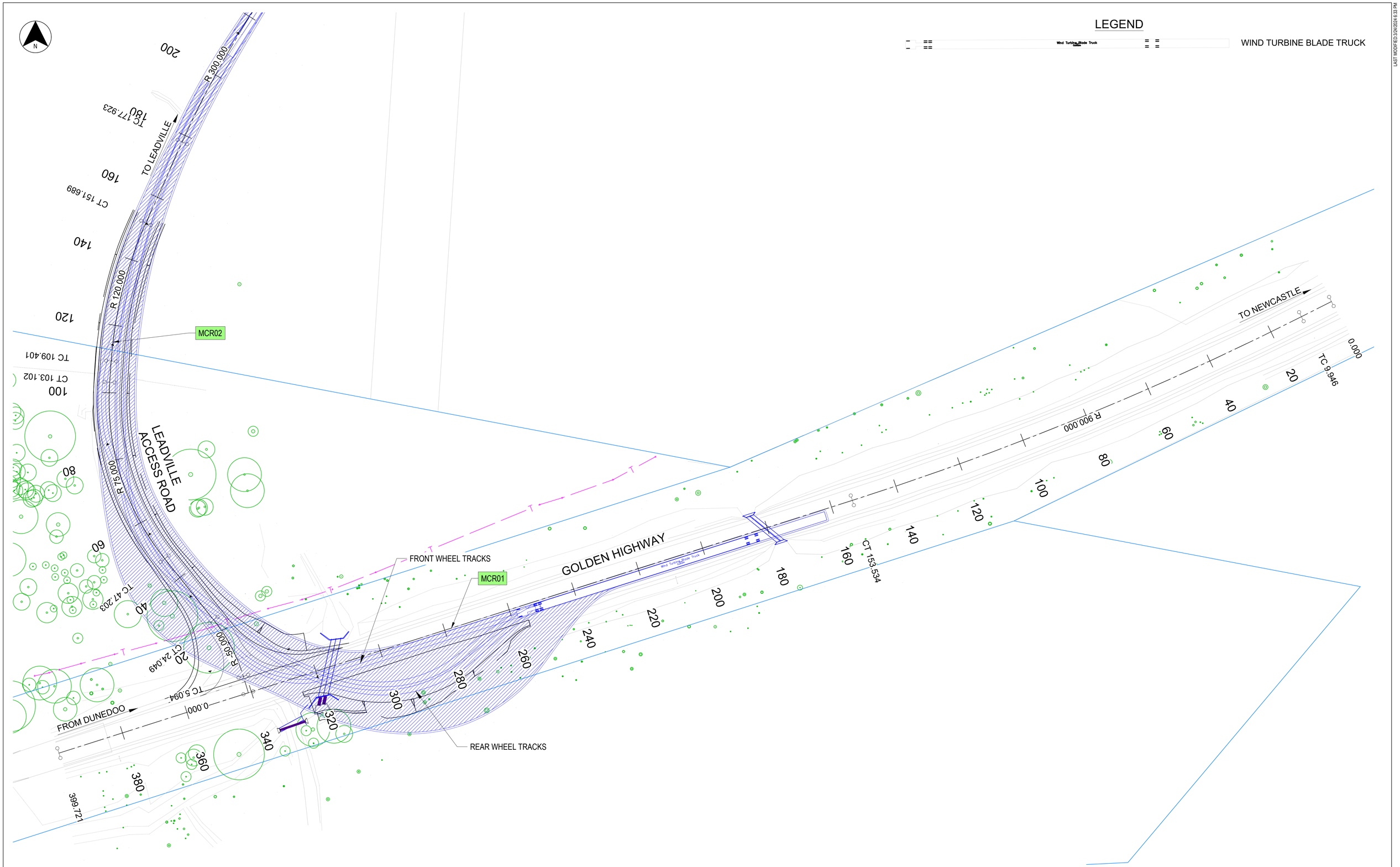

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

5 0 5 10 15 20m

1 : 1000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:1000	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

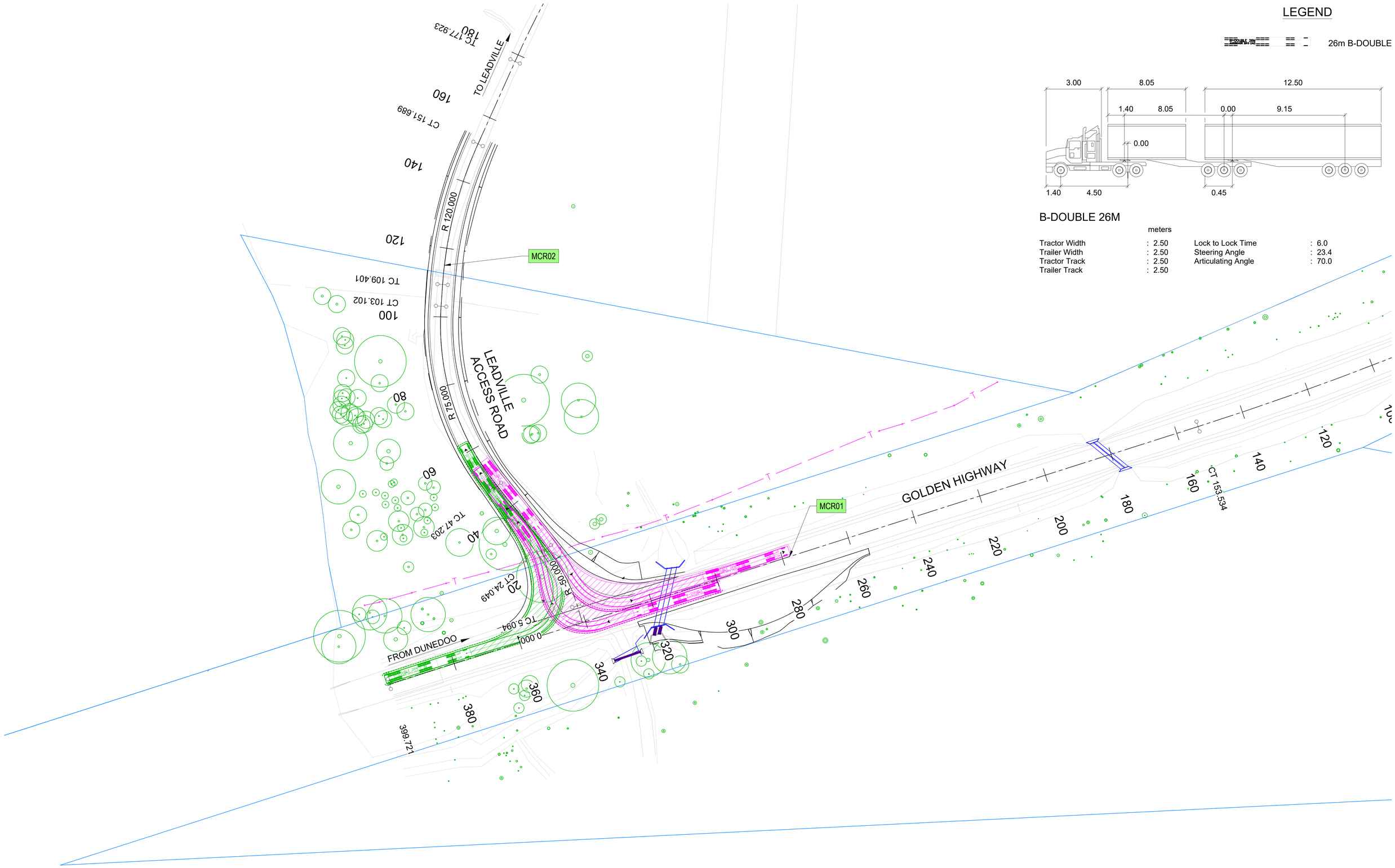
GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
VEHICLE TURNPATH PLAN
SHEET 1 OF 2

SHEET 23 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-MS-0001	80% CONCEPT

CAD REF P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-52-MS-0002.DWG

LAST MODIFIED:3/24/2024 6:34 PM



LEGEND

26m B-DOUBLE

B-DOUBLE 26M

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
02	TB	24.03.24	80% CONCEPT DESIGN REVISED	BS
01	TB	02.11.22	80% CONCEPT DESIGN	BS

SCALES

5 0 5 10 15 20m

1 : 1000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:1000	REVISION	02
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / LEADVILLE ACCESS ROAD INTERSECTION
VEHICLE TURNPATH PLAN
SHEET 2 OF 2

SHEET 24 OF 24

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-52-MS-0002	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWING\S01-SHEETS\BTE-220034-SHT-06-GN-0001.DWG

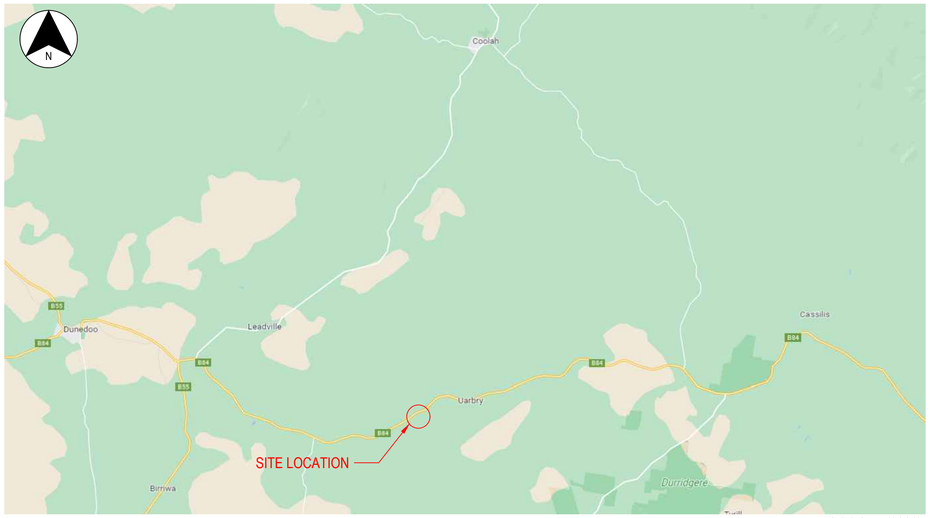
LAST MODIFIED: 3/24/2024 6:04 PM

WARRUMBUNGLE SHIRE COUNCIL

UARBRY / ENERGY CO CORRIDOR ACCESS

ROAD DESIGN

STRATEGIC DESIGN



© GOOGLE (2022)

LOCALITY PLAN

NOT FOR CONSTRUCTION

© COPYRIGHT BTE CONSULTING PTY LTD

No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02			NOT ISSUED	
01			NOT ISSUED	

SCALES

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	N.T.S.	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
COVER SHEET

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-GN-0001	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-GN-0002.DWG

LAST MODIFIED: 3/24/2024 6:22 PM

DRAWING INDEX AND AMENDMENT REGISTER

SHEET No.	SHEET NAME	SHEET DESCRIPTION	DRAWING FILE	ISSUE		
				01	02	03
1	06-GN-0001	COVER SHEET	BTE-220034-SHT-06-GN-0001	-	-	24.03.24
2	06-GN-0002	DRAWING INDEX	BTE-220034-SHT-06-GN-0002	-	-	24.03.24
5	06-RW-0101	DETAIL PLAN - SHEET 1 OF 4	BTE-220034-SHT-06-RW-0101	-	-	24.03.24
5	06-RW-0111	DETAIL PLAN - SHEET 2 OF 4	BTE-220034-SHT-06-RW-0111	03.04.23	06.04.23	24.03.24
5	06-RW-0112	DETAIL PLAN - SHEET 3 OF 4	BTE-220034-SHT-06-RW-0112	03.04.23	06.04.23	24.03.24
5	06-RW-0113	DETAIL PLAN - SHEET 4 OF 4	BTE-220034-SHT-06-RW-0113	03.04.23	06.04.23	24.03.24
6	06-RW-0201	LONGITUDINAL SECTION - MCT01 - SHEET 1 OF 16	BTE-220034-SHT-06-RW-0201	03.04.23	06.04.23	24.03.24
7	06-RW-0202	LONGITUDINAL SECTION - MCT01 - SHEET 2 OF 16	BTE-220034-SHT-06-RW-0202	03.04.23	06.04.23	24.03.24
8	06-RW-0203	LONGITUDINAL SECTION - MCT01 - SHEET 3 OF 16	BTE-220034-SHT-06-RW-0203	03.04.23	06.04.23	24.03.24
9	06-RW-0204	LONGITUDINAL SECTION - MCT01 - SHEET 4 OF 16	BTE-220034-SHT-06-RW-0204	03.04.23	06.04.23	24.03.24
10	06-RW-0205	LONGITUDINAL SECTION - MCT01 - SHEET 5 OF 16	BTE-220034-SHT-06-RW-0205	03.04.23	06.04.23	24.03.24
11	06-RW-0206	LONGITUDINAL SECTION - MCT01 - SHEET 6 OF 16	BTE-220034-SHT-06-RW-0206	03.04.23	06.04.23	24.03.24
12	06-RW-0207	LONGITUDINAL SECTION - MCT01 - SHEET 7 OF 16	BTE-220034-SHT-06-RW-0207	03.04.23	06.04.23	24.03.24
13	06-RW-0208	LONGITUDINAL SECTION - MCT01 - SHEET 8 OF 16	BTE-220034-SHT-06-RW-0208	03.04.23	06.04.23	24.03.24
14	06-RW-0209	LONGITUDINAL SECTION - MCT01 - SHEET 9 OF 16	BTE-220034-SHT-06-RW-0209	03.04.23	06.04.23	24.03.24
15	06-RW-0210	LONGITUDINAL SECTION - MCT01 - SHEET 10 OF 16	BTE-220034-SHT-06-RW-0210	03.04.23	06.04.23	24.03.24
16	06-RW-0211	LONGITUDINAL SECTION - MCT01 - SHEET 11 OF 16	BTE-220034-SHT-06-RW-0211	03.04.23	06.04.23	24.03.24
17	06-RW-0212	LONGITUDINAL SECTION - MCT01 - SHEET 12 OF 16	BTE-220034-SHT-06-RW-0212	03.04.23	06.04.23	24.03.24
18	06-RW-0213	LONGITUDINAL SECTION - MCT01 - SHEET 13 OF 16	BTE-220034-SHT-06-RW-0213	03.04.23	06.04.23	24.03.24
19	06-RW-0214	LONGITUDINAL SECTION - MCT01 - SHEET 14 OF 16	BTE-220034-SHT-06-RW-0214	03.04.23	06.04.23	24.03.24
18	06-RW-0215	LONGITUDINAL SECTION - MCT01 - SHEET 15 OF 16	BTE-220034-SHT-06-RW-0215	03.04.23	06.04.23	24.03.24
19	06-RW-0216	LONGITUDINAL SECTION - MCT01 - SHEET 16 OF 16	BTE-220034-SHT-06-RW-0216	03.04.23	06.04.23	24.03.24
20	06-MS-0001	VEHICLE TURNPATH PLAN	BTE-220034-SHT-06-MS-0001	-	-	24.03.24
20	06-MS-0002	VEHICLE TURNPATH PLAN	BTE-220034-SHT-06-MS-0002	-	-	24.03.24

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02			NOT ISSUED	
01			NOT ISSUED	

SCALES

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	N.T.S.	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

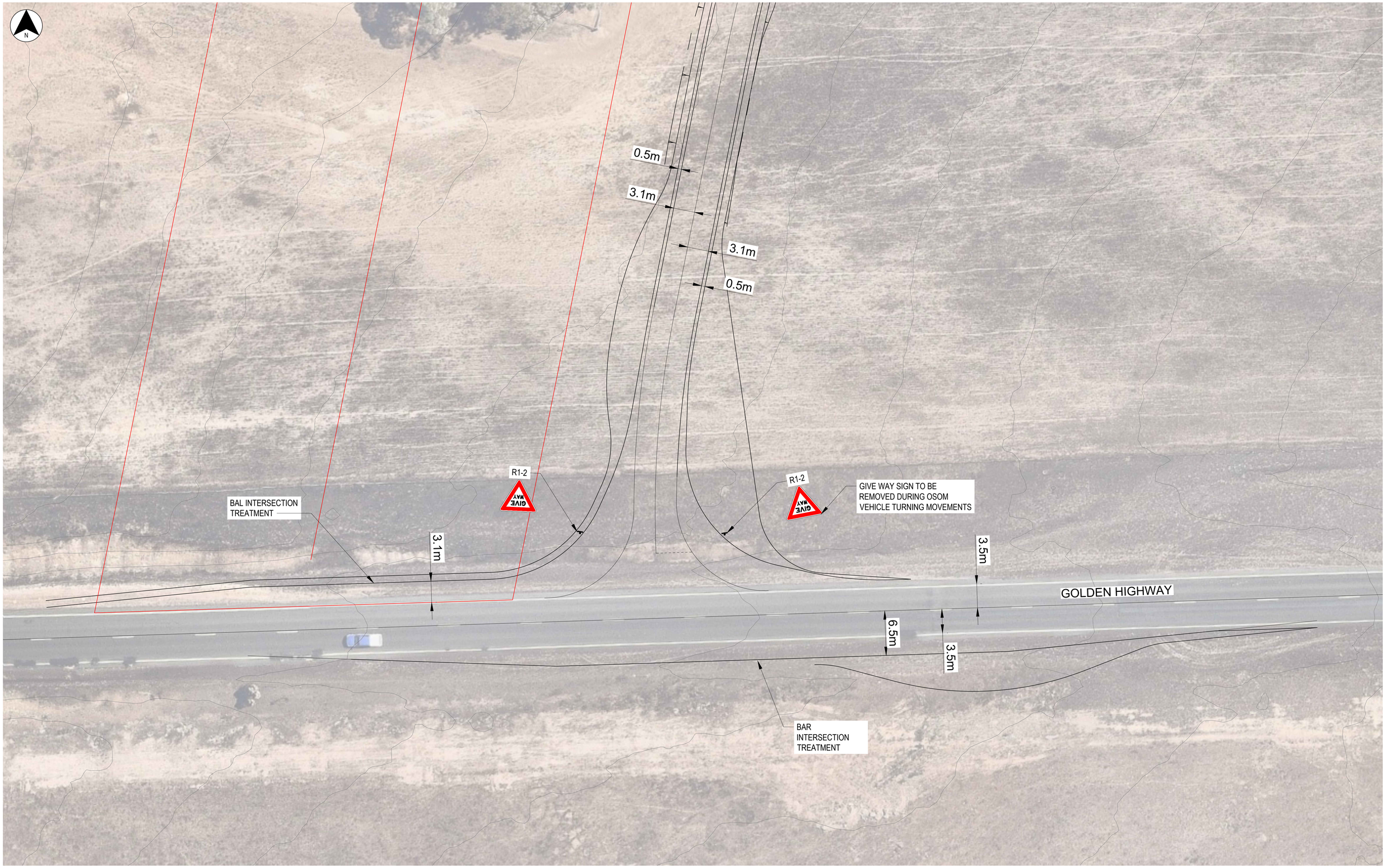
VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
DRAWING INDEX

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-GN-0002	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0101.DWG

LAST MODIFIED: 3/04/2024 6:22 PM



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03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES

2.5 0 2.5 5 7.5m

1 : 500 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:500	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
DETAIL PLAN
SHEET 1 OF 4

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0101	STRATEGIC DESIGN

CAD REF:P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0111.DWG

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES

25 0 25 50 75m

1 : 5000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:5000	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
DETAIL PLAN
SHEET 2 OF 4

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0111	STRATEGIC DESIGN

LAST MODIFIED:3/24/2024 6:22 PM

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0112.DWG

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES

25 0 25 50 75m

1 : 5000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:5000	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
DETAIL PLAN
SHEET 3 OF 4

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0112	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0113.DWG

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES

25 0 25 50 75m

1 : 5000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:5000	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
DETAIL PLAN
SHEET 4 OF 4

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0113	STRATEGIC DESIGN

LAST MODIFIED:3/24/2024 6:22 PM

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0201.DWG

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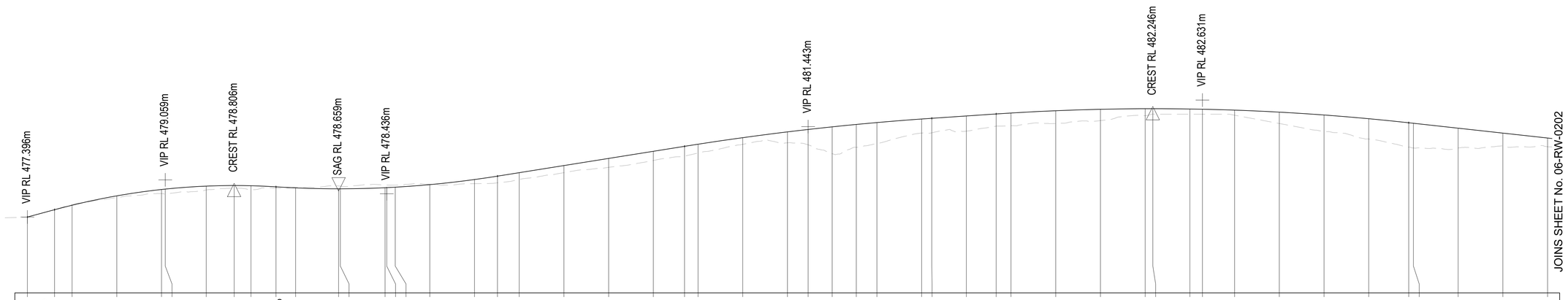

DATUM R.L 474

VERTICAL GEOMETRY: G = 5.39% | K = 7.45, L = 49.528 | G = -1.26% | K = 11.13, L = 49.528 | G = 3.19% | K = 30.00, L = 55.291 | G = 1.35% | K = 26.00, L = 92.274 | G = -2.20%

HORIZONTAL GEOMETRY: L = 82.275 | R = 300.000 | L = 1558.257

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
0	0.000	477.396	477.395
6.08	0.000	477.723	477.723
10	-0.025	477.924	477.950
20	0.074	478.344	478.270
30	0.185	478.629	478.444
30.843	0.219	478.647	478.428
40	0.171	478.780	478.608
46.24	0.113	478.806	478.693
50	0.173	478.797	478.623
55.607	0.058	478.747	478.689
60	-0.024	478.701	478.724
69.609	-0.128	478.659	478.787
70	-0.119	478.659	478.778
80	-0.121	478.708	478.829
80.371	-0.117	478.711	478.828
82.275	-0.092	478.731	478.823
90	-0.010	478.846	478.856
100	0.185	479.074	478.889
105.135	0.298	479.226	478.927
110	0.301	479.381	479.080
120	0.323	479.700	479.377
130	0.401	480.019	479.618
140	0.413	480.338	479.925
146.976	0.431	480.561	480.130
150	0.398	480.656	480.258
160	0.300	480.948	480.648
170	0.489	481.207	480.718
174.621	0.687	481.315	480.628
180	1.204	481.433	480.229
185.391	1.025	481.541	480.515
190	0.939	481.625	480.686
200	0.630	481.784	481.154
202.267	0.652	481.815	481.163
210	0.678	481.920	481.242
216.673	0.546	482.010	481.464
220	0.571	482.052	481.481
230	0.579	482.155	481.576
240	0.507	482.219	481.712
250	0.315	482.245	481.930
251.711	0.239	482.246	482.006
260	0.232	482.232	482.000
262.81	0.222	482.222	482.000
270	0.227	482.181	481.954
280	0.510	482.092	481.582
290	0.731	481.964	481.232
300	0.909	481.797	480.888
308.948	1.091	481.616	480.525
310	1.106	481.592	480.486
320	0.888	481.372	480.484
330	0.573	481.152	480.579
340	0.388	480.932	480.544

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 1 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0201	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0202.DWG

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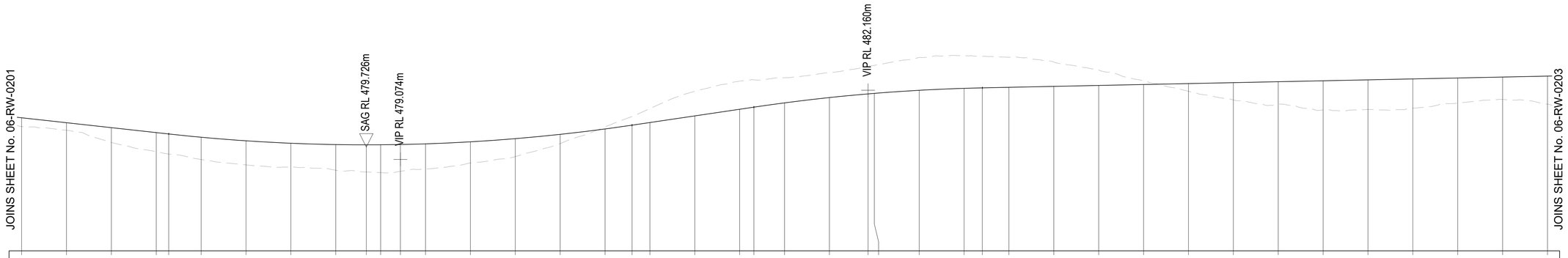

DATUM R.L 475

VERTICAL GEOMETRY: G = -2.20% | K = 20.00, L = 103.245 | G = 2.96% | K = 20.00, L = 50.892 | G = 0.42%

HORIZONTAL GEOMETRY: L = 1558.257

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
340	0.388	480.932	480.544
350	0.334	480.712	480.377
360	0.662	480.492	479.830
370	0.852	480.272	479.420
372.779	0.896	480.210	479.314
380	0.995	480.065	479.069
390	1.073	479.905	478.832
400	1.040	479.796	478.757
410	1.143	479.737	478.595
416.807	1.210	479.726	478.516
420	1.240	479.728	478.488
424.401	1.194	479.740	478.546
430	1.123	479.769	478.646
440	0.942	479.860	478.918
450	0.800	480.001	479.201
460	0.409	480.192	479.783
470	-0.093	480.433	480.526
476.024	-0.388	480.602	480.990
480	-0.624	480.720	481.344
490	-1.097	481.016	482.113
500	-1.255	481.312	482.567
503.167	-1.219	481.406	482.625
510	-1.120	481.597	482.717
520	-1.106	481.834	482.940
528.613	-1.243	481.998	483.241
530	-1.249	482.021	483.270
540	-1.467	482.158	483.624
550	-1.454	482.244	483.699
554.059	-1.410	482.265	483.675
560	-1.340	482.290	483.630
570	-1.086	482.332	483.418
580	-0.686	482.373	483.060
590	-0.158	482.415	482.573
600	0.342	482.457	482.115
610	0.770	482.498	481.728
620	1.003	482.540	481.537
630	1.299	482.582	481.283
640	1.320	482.623	481.303
650	1.298	482.665	481.367
660	1.120	482.706	481.587
670	0.997	482.748	481.751
680	1.248	482.790	481.542

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

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03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3 (1 0 1 2 3 4m)
1 : 1000 FULL SIZE A3 (5 0 5 10 15 20m)

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 2 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0202	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0203.DWG

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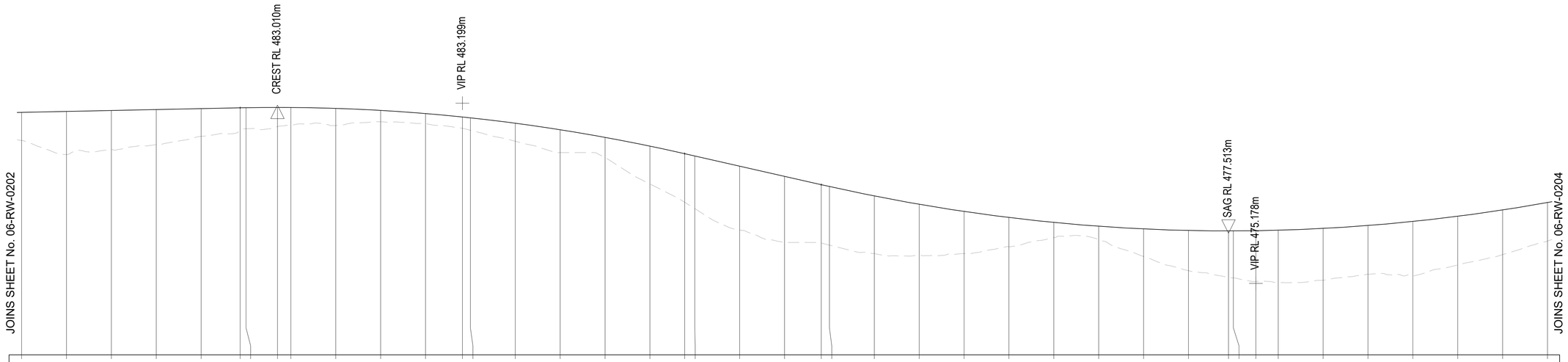

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
680	1.248	482.790	481.542
690	1.920	482.831	480.912
700	1.737	482.873	481.136
710	1.559	482.915	481.355
720	1.232	482.956	481.724
728.69	1.014	482.992	481.979
730	0.935	482.997	482.062
737.015	0.854	483.010	482.156
740	0.795	483.007	482.213
750	0.759	482.968	482.208
760	0.506	482.878	482.372
770	0.454	482.738	482.284
778.221	0.504	482.585	482.081
780	0.555	482.548	481.992
790	0.804	482.308	481.504
800	1.018	482.018	481.000
810	0.904	481.678	480.774
820	1.684	481.288	479.604
827.751	2.162	480.951	478.790
830	2.344	480.849	478.506
840	2.834	480.396	477.562
850	2.941	479.942	477.002
858.182	2.598	479.571	476.973
860	2.607	479.489	476.882
870	2.564	479.070	476.506
880	2.274	478.700	476.426
890	1.874	478.380	476.506
900	1.301	478.111	476.810
910	0.675	477.891	477.216
920	0.588	477.722	477.134
930	1.227	477.602	476.375
940	1.788	477.532	475.745
948.918	2.069	477.513	475.443
950	2.089	477.513	475.424
955.015	2.256	477.522	475.266
960	2.332	477.543	475.212
970	2.304	477.624	475.320
980	2.171	477.754	475.584
990	2.419	477.935	475.515
1000	2.164	478.165	476.001
1010	1.984	478.445	476.462
1020	1.713	478.776	477.063

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 3 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0203	STRATEGIC DESIGN

CAD REF: P:\BTE-22003\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0204.DWG

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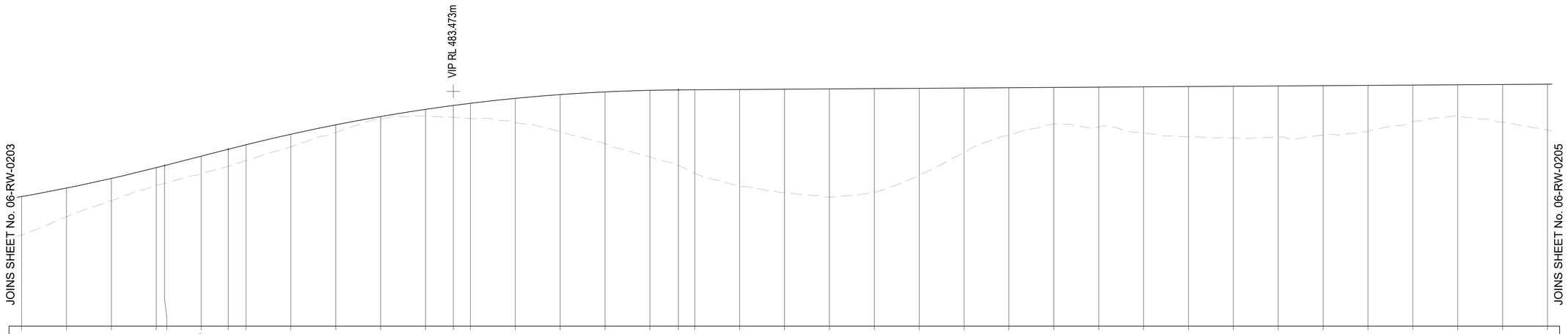

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
1020	1.713	478.776	477.063
1030	1.272	479.156	477.884
1040	0.990	479.587	478.596
1050	0.796	480.067	479.271
1051.849	0.800	480.161	479.361
1060	0.788	480.581	479.793
1066.038	0.760	480.892	480.132
1070	0.707	481.092	480.384
1080	0.567	481.561	480.995
1090	0.340	481.981	481.641
1100	0.117	482.351	482.234
1110	0.303	482.671	482.368
1116.192	0.529	482.844	482.315
1120	0.681	482.941	482.260
1130	1.077	483.161	482.083
1140	1.666	483.330	481.664
1150	2.314	483.450	481.136
1160	2.973	483.520	480.547
1166.346	3.367	483.539	480.172
1170	3.721	483.543	479.822
1180	4.320	483.556	479.236
1190	4.628	483.570	478.942
1200	4.825	483.583	478.757
1210	4.627	483.596	478.969
1220	3.878	483.609	479.730
1230	2.864	483.622	480.758
1240	2.108	483.635	481.527
1250	1.633	483.648	482.016
1260	1.777	483.661	481.884
1270	2.053	483.674	481.622
1280	2.241	483.688	481.447
1290	2.311	483.701	481.390
1300	2.268	483.714	481.446
1310	2.202	483.727	481.525
1320	2.043	483.740	481.697
1330	1.625	483.753	482.128
1340	1.418	483.766	482.348
1350	1.681	483.779	482.098
1360	2.040	483.792	481.753

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

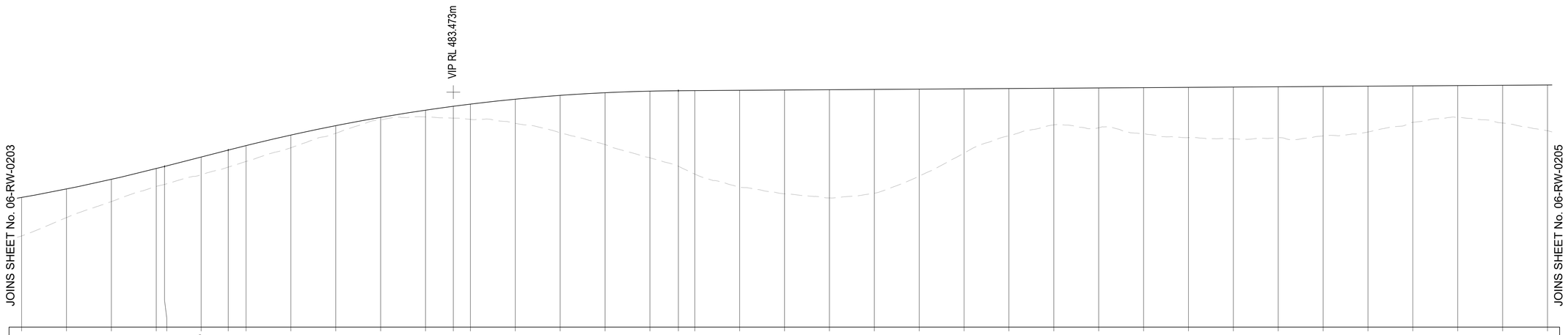
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 4 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0204	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0205.DWG

LAST MODIFIED: 3/24/2024 6:23 PM



CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
1020	1.713	478.776	477.063
1030	1.272	479.156	477.884
1040	0.990	479.587	478.596
1050	0.796	480.067	479.271
1051.849	0.800	480.161	479.361
1060	0.788	480.581	479.793
1066.038	0.760	480.892	480.132
1070	0.707	481.092	480.384
1080	0.567	481.561	480.995
1090	0.340	481.981	481.641
1100	0.117	482.351	482.234
1110	0.303	482.671	482.368
1116.192	0.529	482.844	482.315
1120	0.681	482.941	482.260
1130	1.077	483.161	482.083
1140	1.666	483.330	481.664
1150	2.314	483.450	481.136
1160	2.973	483.520	480.547
1166.346	3.367	483.539	480.172
1170	3.721	483.543	479.822
1180	4.320	483.556	479.236
1190	4.628	483.570	478.942
1200	4.825	483.583	478.757
1210	4.627	483.596	478.969
1220	3.878	483.609	479.730
1230	2.864	483.622	480.758
1240	2.108	483.635	481.527
1250	1.633	483.648	482.016
1260	1.777	483.661	481.884
1270	2.053	483.674	481.622
1280	2.241	483.688	481.447
1290	2.311	483.701	481.390
1300	2.268	483.714	481.446
1310	2.202	483.727	481.525
1320	2.043	483.740	481.697
1330	1.625	483.753	482.128
1340	1.418	483.766	482.348
1350	1.681	483.779	482.098
1360	2.040	483.792	481.753

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 5 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0205	STRATEGIC DESIGN

CAD REF: P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0206.DWG

LAST MODIFIED: 3/24/2024 6:23 PM

DATUM R.L 482

VERTICAL GEOMETRY: G = 0.17% | K = 26.00, L = 64.216 | G = 2.64% | K = 26.00, L = 172.421 | G = -3.99%

HORIZONTAL GEOMETRY: L = 1558.257 | R = -300.000 | L = 1451.319

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
1700	3.507	488.816	485.309
1710	2.500	488.833	486.333
1720	2.020	488.850	486.829
1730	1.352	488.866	487.514
1740	0.978	488.883	487.905
1743.648	0.913	488.889	487.977
1745.233	0.812	488.892	488.079
1750	0.828	488.904	488.076
1760	0.941	488.958	488.017
1770	1.051	489.051	488.000
1777.341	1.144	489.144	488.000
1780	1.182	489.182	488.000
1790	1.281	489.352	488.071
1800	1.256	489.560	488.304
1809.449	1.061	489.792	488.731
1810	1.053	489.807	488.754
1811.919	1.018	489.857	488.839
1820	0.978	490.058	489.079
1830	0.755	490.271	489.516
1840	0.523	490.446	489.923
1850	0.244	490.582	490.338
1860	0.125	490.680	490.556
1861.918	0.060	490.695	490.615
1870	-0.087	490.740	490.827
1880	-0.053	490.761	490.814
1880.475	-0.050	490.761	490.811
1890	0.062	490.743	490.682
1898.129	0.079	490.701	490.622
1900	0.077	490.688	490.611
1910	0.082	490.593	490.512
1920	0.071	490.461	490.390
1930	0.053	490.289	490.237
1940	0.143	490.080	489.936
1950	0.291	489.831	489.540
1960	0.454	489.545	489.091
1970	0.553	489.220	488.667
1980	0.454	488.856	488.402
1984.34	0.412	488.686	488.275
1990	0.364	488.460	488.096
2000	0.288	488.061	487.773
2010	0.230	487.661	487.432
2020	0.294	487.262	486.967
2030	0.323	486.862	486.539
2040	0.349	486.463	486.114

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3 (1 0 1 2 3 4m)
1 : 1000 FULL SIZE A3 (5 0 5 10 15 20m)

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

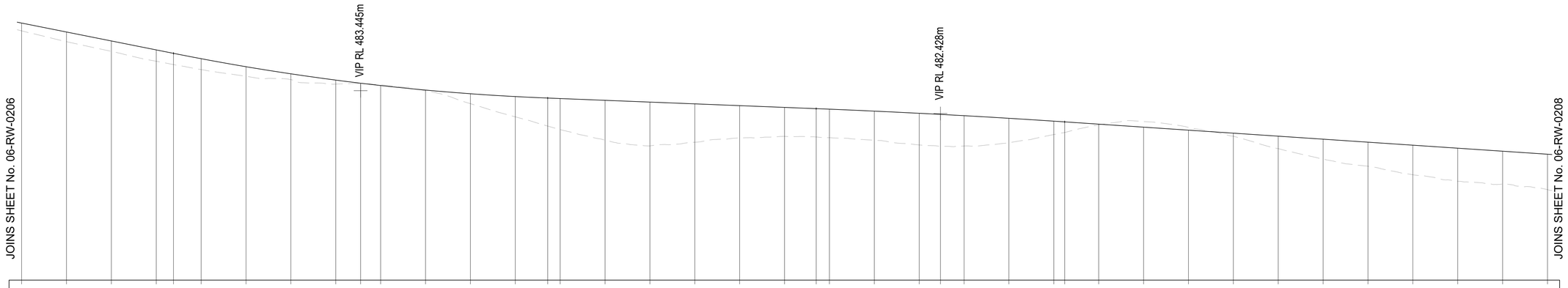
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 6 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0206	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0207.DWG

LAST MODIFIED: 3/24/2024 6:23 PM



CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
2040	0.349	486.463	486.114
2050	0.430	486.063	485.633
2060	0.463	485.664	485.201
2070	0.504	485.264	484.760
2073.84	0.501	485.111	484.610
2080	0.485	484.872	484.388
2090	0.426	484.516	484.090
2100	0.257	484.198	483.940
2110	0.180	483.918	483.738
2115.536	0.030	483.780	483.749
2120	-0.031	483.677	483.707
2130	0.040	483.474	483.434
2140	0.442	483.310	482.868
2150	0.904	483.184	482.280
2157.231	1.249	483.117	481.868
2160	1.383	483.095	481.712
2170	1.776	483.016	481.241
2180	1.955	482.938	480.983
2190	1.711	482.859	481.148
2200	1.443	482.780	481.337
2210	1.290	482.702	481.412
2217.053	1.264	482.646	481.382
2220	1.273	482.622	481.350
2230	1.295	482.536	481.241
2240	1.412	482.439	481.027
2244.74	1.423	482.390	480.967
2250	1.352	482.332	480.980
2260	1.092	482.216	481.123
2270	0.596	482.089	481.493
2272.427	0.474	482.057	481.583
2280	0.034	481.955	481.921
2290	-0.248	481.821	482.069
2300	-0.125	481.687	481.812
2310	0.138	481.553	481.414
2320	0.556	481.419	480.862
2330	0.889	481.284	480.395
2340	1.071	481.150	480.079
2350	1.318	481.016	479.698
2360	1.473	480.882	479.409
2370	1.457	480.748	479.291
2380	1.580	480.614	479.034

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

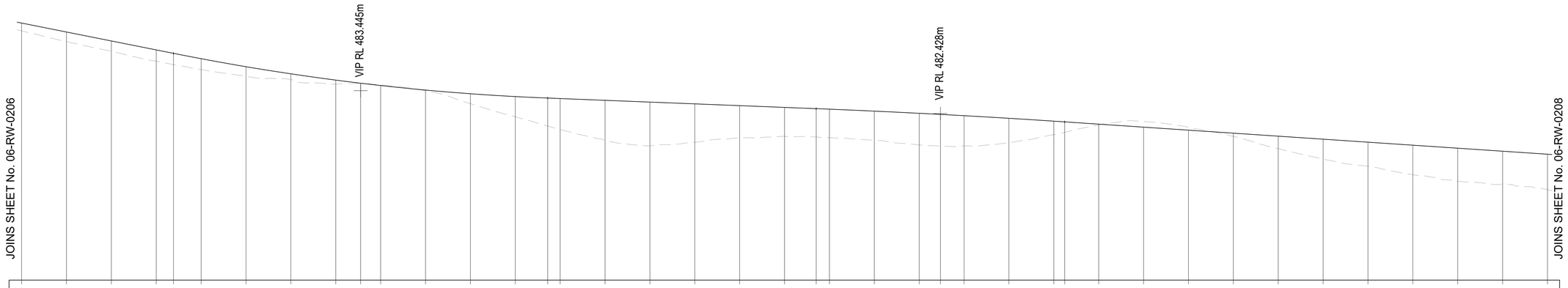
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 7 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0207	STRATEGIC DESIGN

CAD REF: P:\BTE-22003\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0208.DWG

LAST MODIFIED: 3/24/2024 6:23 PM



CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
2040	0.349	486.463	486.114
2050	0.430	486.063	485.633
2060	0.463	485.664	485.201
2070	0.504	485.264	484.760
2073.84	0.501	485.111	484.610
2080	0.485	484.872	484.388
2090	0.426	484.516	484.090
2100	0.257	484.198	483.940
2110	0.180	483.918	483.738
2115.536	0.030	483.780	483.749
2120	-0.031	483.677	483.707
2130	0.040	483.474	483.434
2140	0.442	483.310	482.868
2150	0.904	483.184	482.280
2157.231	1.249	483.117	481.868
2160	1.383	483.095	481.712
2170	1.776	483.016	481.241
2180	1.955	482.938	480.983
2190	1.711	482.859	481.148
2200	1.443	482.780	481.337
2210	1.290	482.702	481.412
2217.053	1.264	482.646	481.382
2220	1.273	482.622	481.350
2230	1.295	482.536	481.241
2240	1.412	482.439	481.027
2244.74	1.423	482.390	480.967
2250	1.352	482.332	480.980
2260	1.092	482.216	481.123
2270	0.596	482.089	481.493
2272.427	0.474	482.057	481.583
2280	0.034	481.955	481.921
2290	-0.248	481.821	482.069
2300	-0.125	481.687	481.812
2310	0.138	481.553	481.414
2320	0.556	481.419	480.862
2330	0.889	481.284	480.395
2340	1.071	481.150	480.079
2350	1.318	481.016	479.698
2360	1.473	480.882	479.409
2370	1.457	480.748	479.291
2380	1.580	480.614	479.034

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 8 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0208	STRATEGIC DESIGN

CAD REF: P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0209.DWG

LAST MODIFIED: 3/24/2024 6:23 PM

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
2720	0.569	479.423	478.855
2730	0.748	479.475	478.728
2740	0.972	479.511	478.539
2750	1.221	479.530	478.309
2756.278	1.405	479.533	478.128
2760	1.428	479.532	478.104
2770	1.468	479.517	478.050
2780	1.318	479.486	478.168
2790	1.311	479.438	478.127
2796.353	1.044	479.399	478.355
2800	1.113	479.374	478.260
2810	1.258	479.293	478.034
2820	1.342	479.195	477.853
2830	1.264	479.080	477.816
2840	1.076	478.949	477.873
2850	0.930	478.801	477.871
2860	0.661	478.636	477.975
2870	0.678	478.455	477.778
2880	0.618	478.257	477.640
2881.194	0.629	478.233	477.603
2890	0.571	478.049	477.479
2900	0.532	477.841	477.309
2910	0.468	477.633	477.165
2920	0.552	477.425	476.873
2930	0.593	477.217	476.623
2940	0.744	477.008	476.264
2950	0.765	476.800	476.035
2960	0.994	476.592	475.598
2970	1.053	476.384	475.330
2980	1.111	476.176	475.065
2990	1.015	475.967	474.953
3000	0.951	475.759	474.808
3005.09	0.841	475.653	474.812
3010	0.834	475.556	474.722
3020	0.748	475.386	474.637
3030	0.636	475.254	474.618
3040	0.441	475.161	474.719
3050	0.281	475.106	474.825
3059.221	0.160	475.090	474.930
3060	0.166	475.090	474.924

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

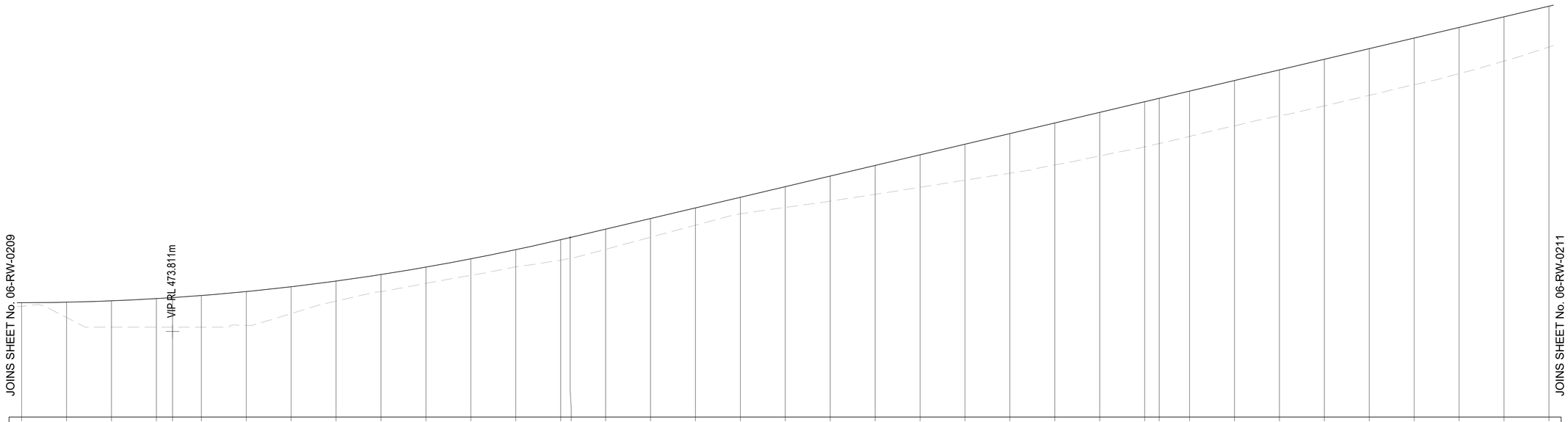
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 9 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0209	STRATEGIC DESIGN

CAD REF: P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0210.DWG

LAST MODIFIED: 3/24/2024 6:23 PM



DATUM R.L 470

VERTICAL GEOMETRY: K = 26.00, L = 177.018; G = 4.73%

HORIZONTAL GEOMETRY: L = 1451.319; R = -300.000

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
3060	0.166	475.090	474.924
3070	0.681	475.112	474.432
3080	1.173	475.173	474.000
3090	1.272	475.272	474.000
3093.599	1.317	475.317	474.000
3100	1.410	475.410	474.000
3110	1.501	475.586	474.084
3120	1.194	475.800	474.606
3130	0.890	476.053	475.163
3140	0.755	476.345	475.590
3150	0.720	476.675	475.954
3160	0.733	477.043	476.310
3170	0.764	477.450	476.686
3180	0.911	477.895	476.985
3182.108	0.930	477.994	477.064
3190	0.901	478.367	477.466
3200	0.832	478.839	478.008
3210	0.770	479.312	478.542
3220	0.741	479.785	479.044
3230	0.925	480.257	479.332
3240	1.119	480.730	479.611
3250	1.287	481.203	479.916
3260	1.446	481.675	480.230
3270	1.603	482.148	480.545
3280	1.763	482.621	480.858
3290	1.863	483.093	481.231
3300	1.939	483.566	481.627
3310	2.007	484.039	482.031
3313.236	2.012	484.192	482.179
3320	2.015	484.511	482.497
3330	2.022	484.984	482.961
3340	2.030	485.457	483.427
3350	2.074	485.929	483.856
3360	2.077	486.402	484.325
3370	2.071	486.874	484.803
3380	2.058	487.347	485.290
3390	1.973	487.820	485.847
3400	1.817	488.292	486.475

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 10 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0210	STRATEGIC DESIGN

CAD REF:P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0211.DWG

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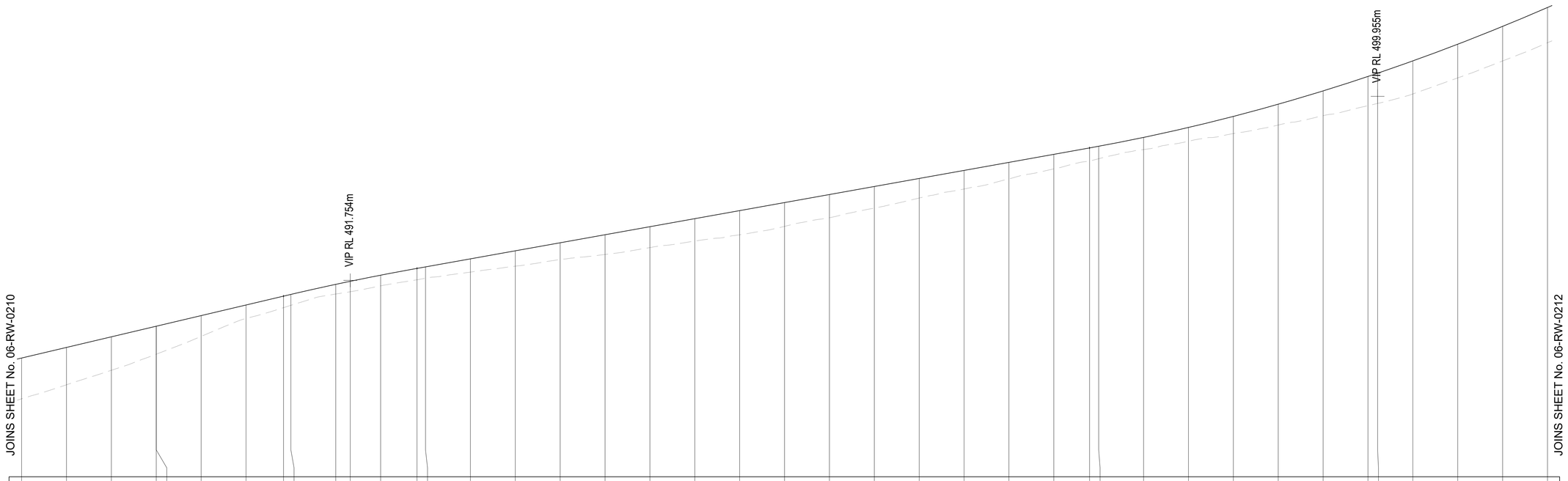

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
3400	1.817	488.292	486.475
3410	1.666	488.765	487.100
3420	1.492	489.238	487.746
3430	1.247	489.710	488.463
3430.005	1.247	489.711	488.464
3440	0.927	490.183	489.256
3450	0.601	490.656	490.054
3458.361	0.514	491.051	490.537
3460	0.486	491.128	490.642
3470	0.430	491.575	491.145
3473.231	0.465	491.711	491.246
3480	0.475	491.984	491.509
3488.1	0.507	492.286	491.780
3490	0.506	492.354	491.849
3500	0.591	492.713	492.121
3510	0.686	493.071	492.385
3520	0.743	493.429	492.686
3530	0.881	493.787	492.906
3540	0.933	494.146	493.213
3550	0.998	494.504	493.506
3560	1.079	494.862	493.784
3570	1.061	495.221	494.160
3580	1.033	495.579	494.546
3590	0.963	495.937	494.974
3600	0.873	496.295	495.422
3610	0.830	496.654	495.824
3620	0.735	497.012	496.276
3630	0.649	497.370	496.721
3637.968	0.579	497.656	497.076
3640	0.555	497.729	497.174
3650	0.541	498.123	497.581
3660	0.614	498.566	497.952
3670	0.765	499.060	498.295
3680	0.927	499.603	498.676
3690	1.102	500.197	499.094
3700	1.303	500.840	499.537
3702.141	1.347	500.984	499.637
3710	1.473	501.533	500.061
3720	1.501	502.277	500.775
3730	1.539	503.070	501.532
3740	1.569	503.914	502.344

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT
UPC AC Renewables AUSTRALIA

CONSULTANT
RAMBOLL

DESIGNER
BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

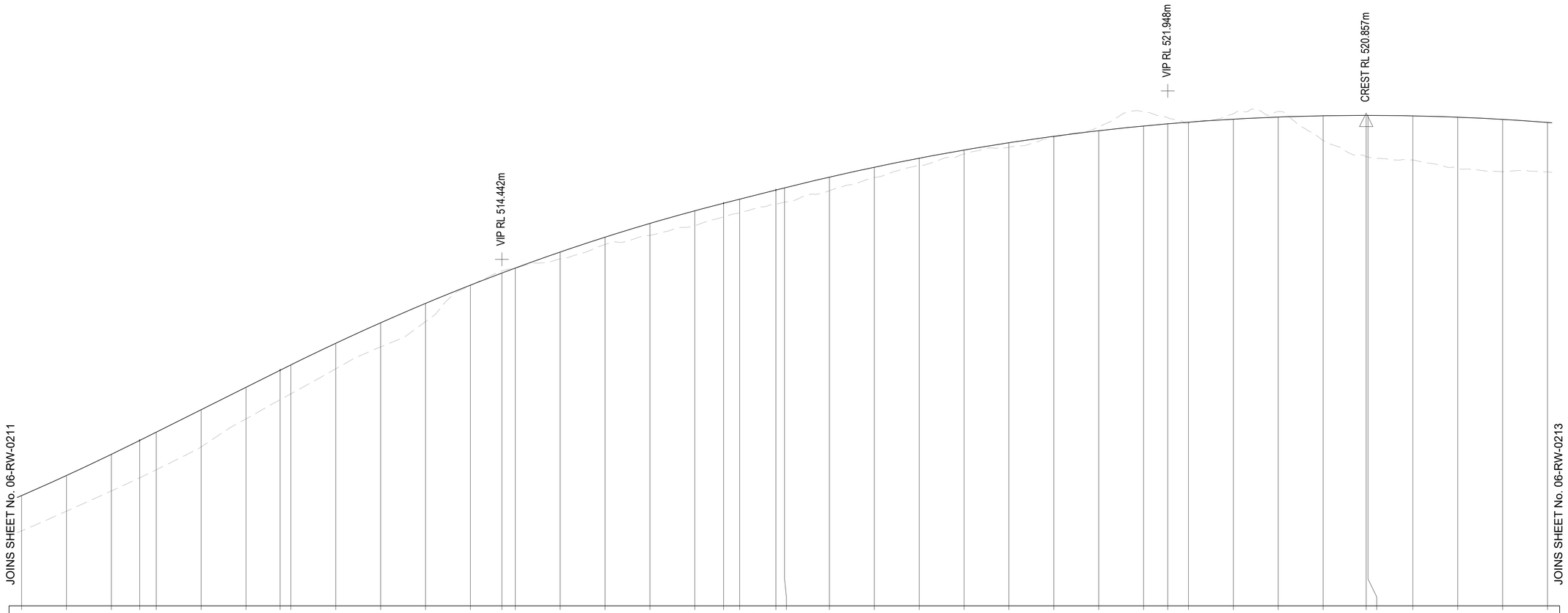
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 11 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0211	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0212.DWG

LAST MODIFIED: 3/24/2024 6:23 PM



DATUM R.L 499

VERTICAL GEOMETRY

HORIZONTAL GEOMETRY

L = 1007.577

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
3740	1.569	503.914	502.344
3750	1.588	504.807	503.219
3760	1.630	505.750	504.120
3766.315	1.664	506.372	504.708
3770	1.680	506.741	505.060
3780	1.658	507.741	506.083
3790	1.410	508.741	507.331
3797.599	1.317	509.500	508.184
3800	1.291	509.739	508.448
3810	1.139	510.702	509.563
3820	1.074	511.615	510.541
3830	0.812	512.478	511.666
3840	0.015	513.291	513.276
3847.01	-0.093	513.831	513.924
3850	0.010	514.054	514.044
3860	0.305	514.767	514.462
3870	0.325	515.430	515.105
3880	0.530	516.043	515.513
3890	0.663	516.606	515.943
3896.421	0.600	516.941	516.342
3900	0.615	517.122	516.507
3908.07	0.618	517.530	516.912
3910	0.636	517.627	516.991
3920	0.608	518.107	517.498
3930	0.454	518.547	518.093
3940	0.326	518.950	518.624
3950	0.176	519.314	519.138
3960	0.200	519.639	519.438
3970	0.040	519.926	519.886
3980	-0.166	520.174	520.341
3990	-0.633	520.384	521.017
3995.383	-0.274	520.481	520.755
4000	0.057	520.556	520.499
4010	-0.246	520.689	520.935
4020	-0.243	520.784	521.027
4030	1.100	520.840	519.739
4039.601	1.835	520.857	519.022
4040	1.861	520.857	518.997
4050	1.965	520.837	518.872
4060	2.276	520.777	518.502
4070	2.330	520.680	518.349
4080	2.207	520.544	518.337

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3 (1 0 1 2 3 4m)
1 : 1000 FULL SIZE A3 (5 0 5 10 15 20m)

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

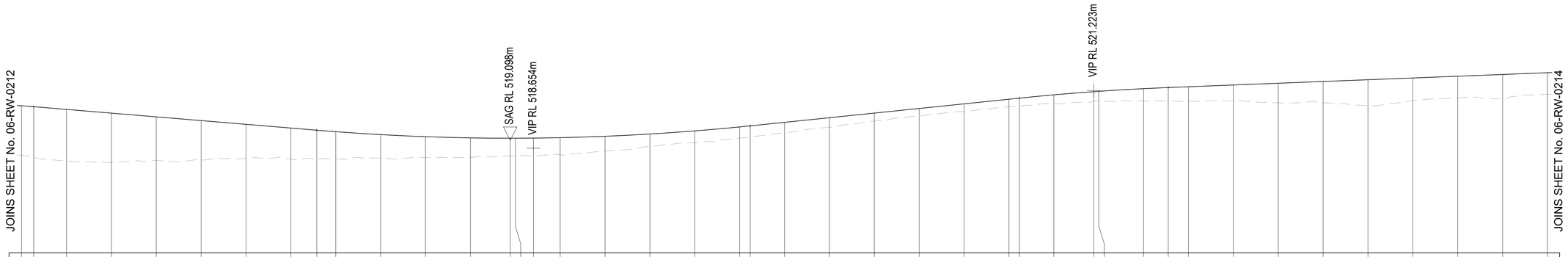
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 12 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0212	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0213.DWG

LAST MODIFIED: 3/24/2024 6:23 PM



DATUM R.L 514

VERTICAL GEOMETRY: K = 26.00 L = 17.825; G = -1.66%; K = 26.00 L = 96.575; G = 2.06%; K = 26.00 L = 33.178; G = 0.78%

HORIZONTAL GEOMETRY: L = 1007.577

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
4080	2.207	520.544	518.337
4082.695	2.264	520.500	518.236
4090	2.300	520.379	518.079
4100	2.195	520.214	518.019
4110	1.935	520.048	518.113
4120	1.746	519.882	518.136
4130	1.509	519.716	518.207
4140	1.384	519.551	518.166
4145.775	1.261	519.455	518.193
4150	1.211	519.388	518.177
4160	1.035	519.258	518.223
4170	0.931	519.166	518.235
4180	0.868	519.113	518.244
4188.869	0.785	519.098	518.313
4190	0.790	519.098	518.308
4194.062	0.798	519.103	518.305
4200	0.751	519.122	518.370
4210	0.662	519.184	518.521
4220	0.558	519.284	518.727
4230	0.529	519.423	518.894
4240	0.497	519.600	519.104
4242.35	0.506	519.648	519.142
4250	0.464	519.805	519.341
4260	0.426	520.011	519.585
4270	0.352	520.216	519.865
4280	0.328	520.422	520.094
4290	0.352	520.628	520.276
4300	0.336	520.834	520.497
4302.322	0.348	520.881	520.533
4310	0.395	521.028	520.633
4318.911	0.427	521.170	520.742
4320	0.421	521.185	520.764
4330	0.561	521.303	520.742
4335.5	0.592	521.352	520.760
4340	0.648	521.387	520.739
4350	0.707	521.465	520.758
4360	0.872	521.543	520.671
4370	0.945	521.621	520.677
4380	1.162	521.700	520.538
4390	0.998	521.778	520.780
4400	0.966	521.856	520.889
4410	1.075	521.934	520.859
4420	0.962	522.012	521.050

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

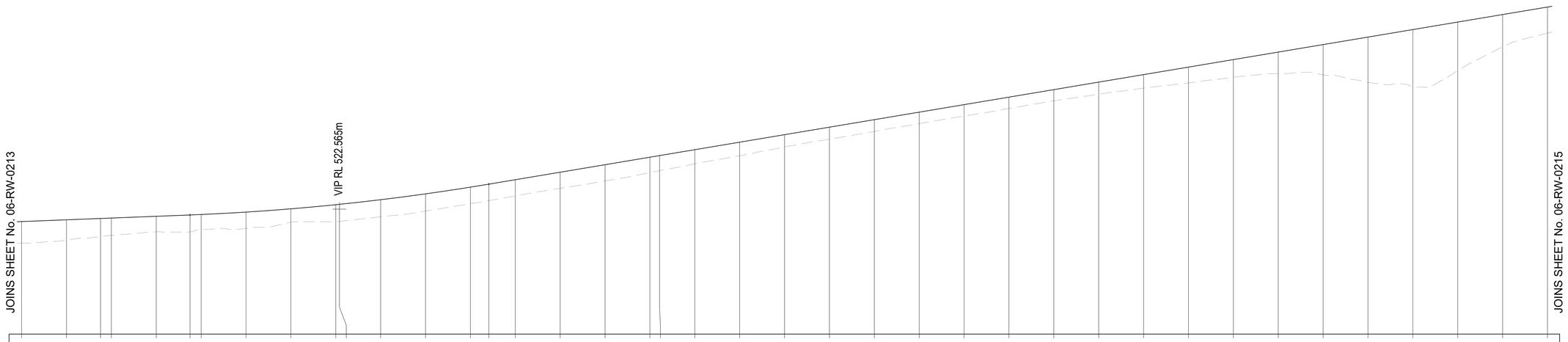
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 13 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0213	STRATEGIC DESIGN

CAD REF: P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0214.DWG

LAST MODIFIED: 3/24/2024 6:23 PM



CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
4420	0.962	522.012	521.050
4430	0.907	522.090	521.183
4437.582	0.809	522.149	521.340
4440	0.774	522.168	521.394
4450	0.691	522.246	521.555
4457.521	0.755	522.305	521.550
4460	0.664	522.325	521.662
4470	0.722	522.432	521.710
4480	0.597	522.578	521.980
4490	0.761	522.761	522.000
4490.819	0.761	522.778	522.017
4500	0.758	522.984	522.226
4510	0.762	523.244	522.482
4520	0.741	523.543	522.802
4524.117	0.735	523.678	522.942
4530	0.722	523.874	523.153
4540	0.717	524.209	523.491
4550	0.725	524.543	523.818
4560	0.687	524.877	524.190
4562.147	0.670	524.949	524.279
4570	0.630	525.211	524.581
4580	0.601	525.546	524.945
4590	0.548	525.880	525.332
4600	0.536	526.214	525.678
4610	0.525	526.548	526.023
4620	0.511	526.882	526.371
4630	0.508	527.217	526.709
4640	0.504	527.551	527.047
4650	0.498	527.885	527.387
4660	0.536	528.219	527.684
4670	0.600	528.554	527.953
4680	0.706	528.888	528.181
4690	0.790	529.222	528.432
4700	0.959	529.556	528.598
4710	1.347	529.891	528.543
4720	2.014	530.225	528.211
4730	2.541	530.559	528.017
4740	2.169	530.893	528.724
4750	1.439	531.227	529.788
4760	1.163	531.562	530.398

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

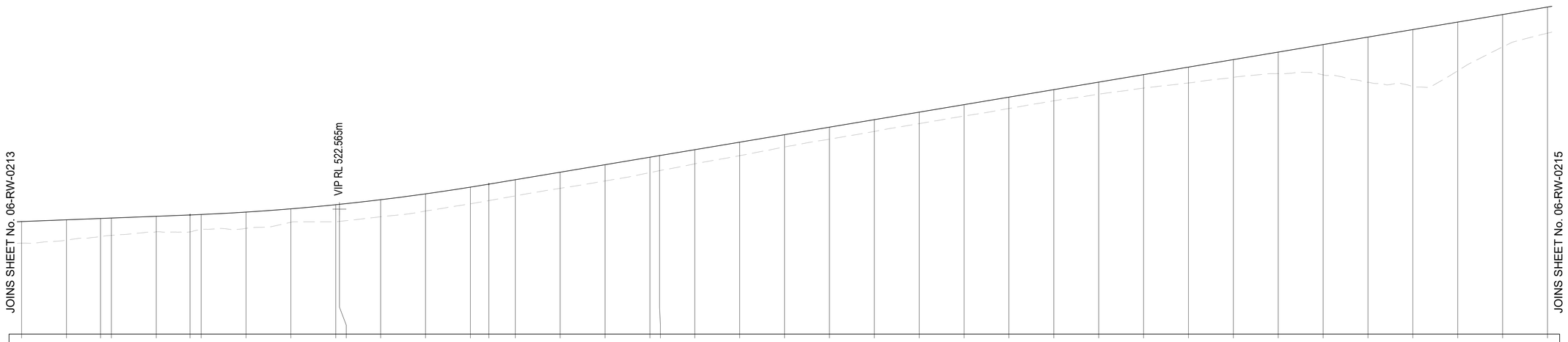
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 14 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0214	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0215.DWG

LAST MODIFIED: 3/24/2024 6:24 PM



CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
4420	0.962	522.012	521.050
4430	0.907	522.090	521.183
4437.582	0.809	522.149	521.340
4440	0.774	522.168	521.394
4450	0.691	522.246	521.555
4457.521	0.755	522.305	521.550
4460	0.664	522.325	521.662
4470	0.722	522.432	521.710
4480	0.597	522.578	521.980
4490	0.761	522.761	522.000
4490.819	0.761	522.778	522.017
4500	0.758	522.984	522.226
4510	0.762	523.244	522.482
4520	0.741	523.543	522.802
4524.117	0.735	523.678	522.942
4530	0.722	523.874	523.153
4540	0.717	524.209	523.491
4550	0.725	524.543	523.818
4560	0.687	524.877	524.190
4562.147	0.670	524.949	524.279
4570	0.630	525.211	524.581
4580	0.601	525.546	524.945
4590	0.548	525.880	525.332
4600	0.536	526.214	525.678
4610	0.525	526.548	526.023
4620	0.511	526.882	526.371
4630	0.508	527.217	526.709
4640	0.504	527.551	527.047
4650	0.498	527.885	527.387
4660	0.536	528.219	527.684
4670	0.600	528.554	527.953
4680	0.706	528.888	528.181
4690	0.790	529.222	528.432
4700	0.959	529.556	528.598
4710	1.347	529.891	528.543
4720	2.014	530.225	528.211
4730	2.541	530.559	528.017
4740	2.169	530.893	528.724
4750	1.439	531.227	529.788
4760	1.163	531.562	530.398

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 15 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0215	STRATEGIC DESIGN

CAD REF: P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-06-RW-0216.DWG

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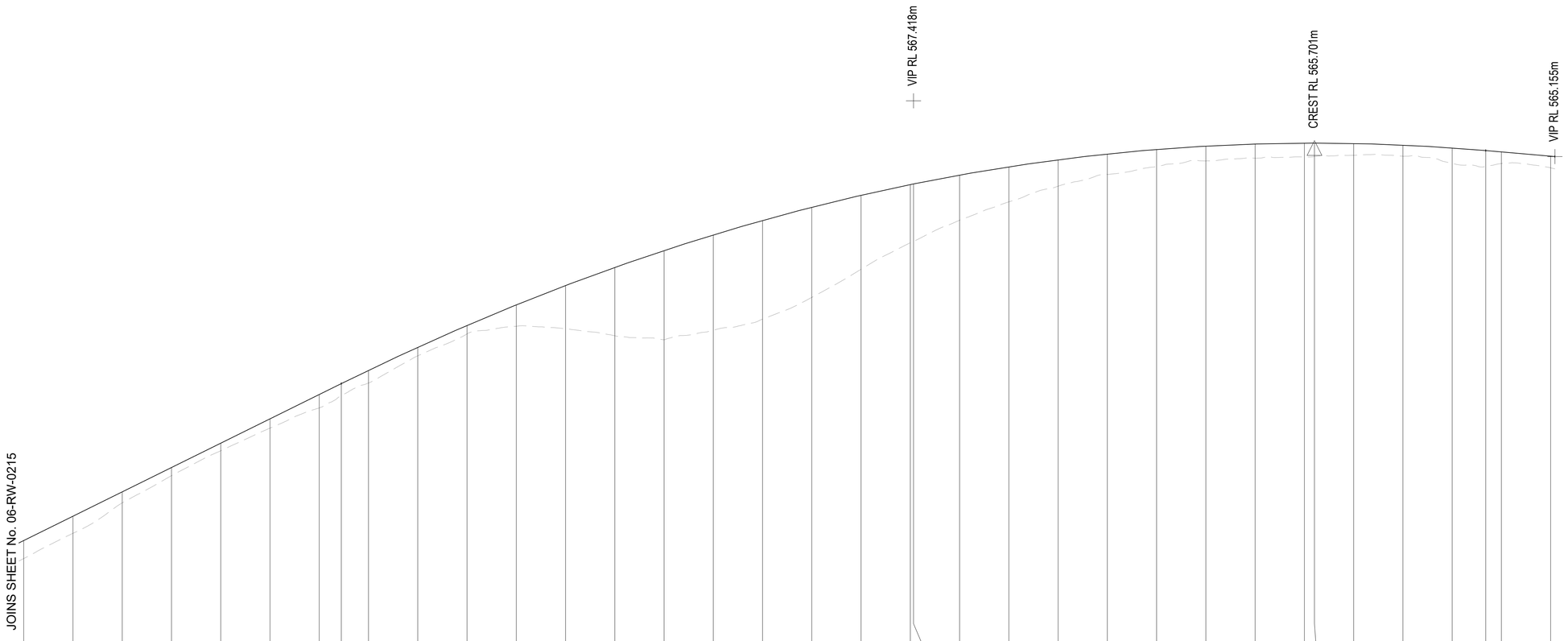

DATUM R.L 545

VERTICAL GEOMETRY

HORIZONTAL GEOMETRY

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
5100	0.730	549.574	548.843
5110	0.692	550.561	549.870
5120	0.447	551.549	551.103
5130	0.330	552.537	552.207
5140	0.308	553.525	553.217
5150	0.377	554.513	554.136
5160	0.544	555.501	554.957
5164.481	0.487	555.943	555.456
5170	0.513	556.481	555.967
5180	0.346	557.416	557.070
5190	0.342	558.301	557.959
5200	0.870	559.136	558.267
5210	1.753	559.922	558.169
5220	2.774	560.657	557.882
5230	3.622	561.342	557.720
5240	3.869	561.977	558.109
5250	4.004	562.563	558.558
5260	3.658	563.098	559.440
5270	3.001	563.583	560.582
5280	2.360	564.018	561.658
5280.646	2.329	564.045	561.716
5290	1.831	564.404	562.573
5300	1.420	564.739	563.319
5310	1.070	565.024	563.954
5320	0.827	565.259	564.432
5330	0.697	565.444	564.747
5340	0.602	565.580	564.978
5350	0.576	565.665	565.089
5360	0.562	565.700	565.138
5362.047	0.546	565.701	565.156
5370	0.479	565.685	565.207
5380	0.453	565.621	565.168
5390	0.629	565.506	564.877
5396.812	0.645	565.399	564.754
5400	0.469	565.344	564.875
5410	0.473	565.170	564.697

ACCESS ROAD - MCT01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02	TB	06.04.23	ISSUED FOR INFORMATION	TB
01	TB	03.04.23	ISSUED FOR INFORMATION	TB

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

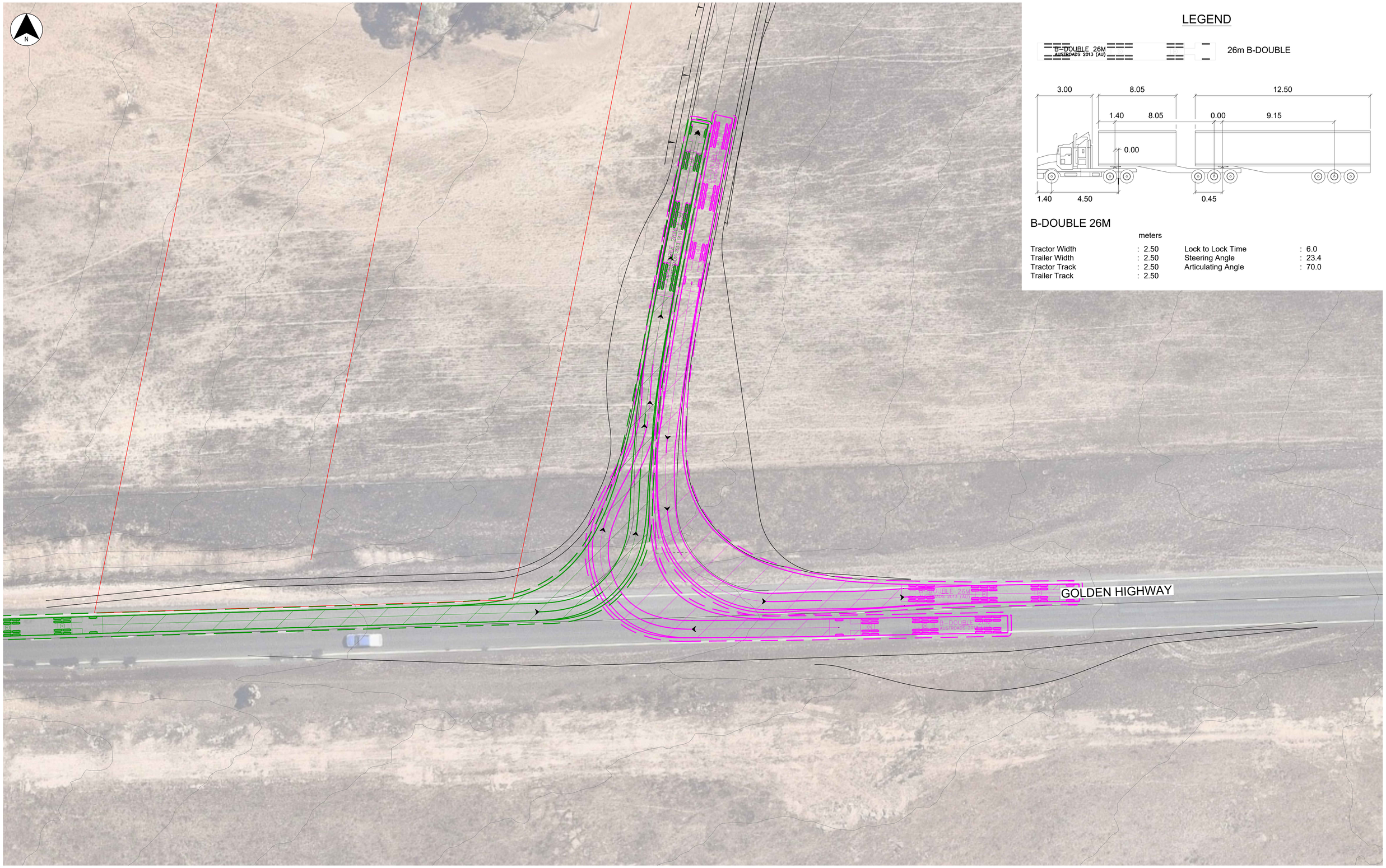
SCALE	AS SHOWN	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
UARBRY - ENERGY CO CORRIDOR
LONGITUDINAL SECTION - MCT01
SHEET 16 OF 16

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-RW-0216	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWING\S01-SHEETS\BTE-220034-SHT-06-MS-0001.DWG

LAST MODIFIED: 3/24/2024 6:24 PM



LEGEND

B-DOUBLE 26M
AUSTROADS 2013 (AU)

26m B-DOUBLE

B-DOUBLE 26M

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

NOT FOR CONSTRUCTION

© COPYRIGHT BTE CONSULTING PTY LTD

No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02			NOT ISSUED	
01			NOT ISSUED	

SCALES

2.5 0 2.5 5 7.5m
1 : 500 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:500	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
VEHICLE TURNPATH PLAN
SHEET 1 OF 2

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-MS-0001	STRATEGIC DESIGN

CAD REF P:\BTE-220034\41 - DRAWING\SD01-SHEETS\BTE-220034-SHT-06-MS-0002.DWG

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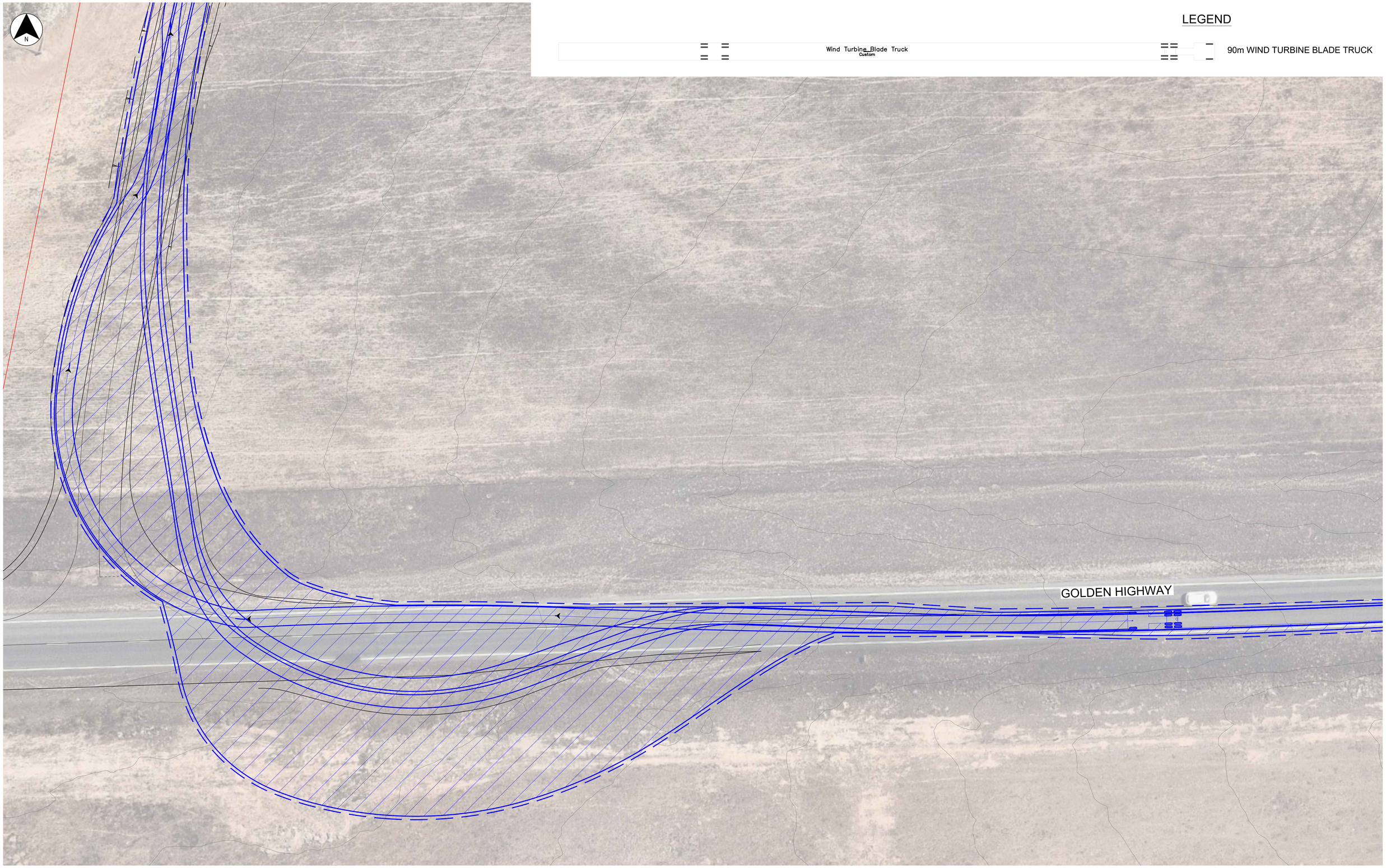

LEGEND

Wind Turbine Blade Truck
Custom

90m WIND TURBINE BLADE TRUCK

NOT FOR CONSTRUCTION

© COPYRIGHT BTE CONSULTING PTY LTD

No.	BY	DATE	DESCRIPTION	APPD
03	TB	24.03.24	STRATEGIC DESIGN ISSUE	TB
02			NOT ISSUED	
01			NOT ISSUED	

SCALES

2.5 0 2.5 5 7.5m

1 : 500 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:500	REVISION	03
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

UARBRY - ENERGY CO CORRIDOR
VEHICLE TURNPATH PLAN
SHEET 1 OF 2

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-06-MS-0001	STRATEGIC DESIGN

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-GN-0001.DWG

LAST MODIFIED: 3/24/2024 5:50 PM

WARRUMBUNGLE SHIRE COUNCIL

GOLDEN HIGHWAY / SHORT STREET INTERSECTION

ROAD DESIGN

80% CONCEPT DESIGN

© GOOGLE (2022)

LOCALITY PLAN

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	N.T.S.	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
COVER SHEET

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-GN-0001	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-GN-0002.DWG

LAST MODIFIED: 3/24/2024 5:50 PM

DRAWING INDEX AND AMENDMENT REGISTER

SHEET No.	SHEET NAME	SHEET DESCRIPTION	DRAWING FILE	ISSUE		
				01	02	03
1	53-GN-0001	COVER SHEET	BTE-220034-SHT-53-GN-0001	24.03.24		
2	53-GN-0002	DRAWING INDEX	BTE-220034-SHT-53-GN-0002	24.03.24		
3	53-GN-0101	GENERAL ARRANGEMENT PLAN	BTE-220034-SHT-53-GN-0101	24.03.24		
4	53-RW-0001	TYPICAL SECTIONS - SHEET 1 OF 2	BTE-220034-SHT-53-RW-0001	24.03.24		
5	53-RW-0002	TYPICAL SECTIONS - SHEET 2 OF 2	BTE-220034-SHT-53-RW-0002	24.03.24		
6	53-RW-0101	DETAIL PLAN	BTE-220034-SHT-53-RW-0101	24.03.24		
7	53-RW-0201	LONGITUDINAL SECTION - MCD01	BTE-220034-SHT-53-RW-0201	24.03.24		
8	53-RW-0211	LONGITUDINAL SECTION - MCE01	BTE-220034-SHT-53-RW-0211	24.03.24		
9	53-RW-0301	CROSS SECTION - MCD01 - SHEET 1 OF 8	BTE-220034-SHT-53-RW-0301	24.03.24		
10	53-RW-0302	CROSS SECTION - MCD01 - SHEET 2 OF 8	BTE-220034-SHT-53-RW-0302	24.03.24		
11	53-RW-0303	CROSS SECTION - MCD01 - SHEET 3 OF 8	BTE-220034-SHT-53-RW-0303	24.03.24		
12	53-RW-0304	CROSS SECTION - MCD01 - SHEET 4 OF 8	BTE-220034-SHT-53-RW-0304	24.03.24		
13	53-RW-0305	CROSS SECTION - MCD01 - SHEET 5 OF 8	BTE-220034-SHT-53-RW-0305	24.03.24		
14	53-RW-0306	CROSS SECTION - MCD01 - SHEET 6 OF 8	BTE-220034-SHT-53-RW-0306	24.03.24		
15	53-RW-0307	CROSS SECTION - MCD01 - SHEET 7 OF 8	BTE-220034-SHT-53-RW-0307	24.03.24		
16	53-RW-0308	CROSS SECTION - MCD01 - SHEET 8 OF 8	BTE-220034-SHT-53-RW-0308	24.03.24		
17	53-RW-0311	CROSS SECTION - MCE01 - SHEET 1 OF 5	BTE-220034-SHT-53-RW-0311	24.03.24		
18	53-RW-0312	CROSS SECTION - MCE01 - SHEET 2 OF 5	BTE-220034-SHT-53-RW-0312	24.03.24		
19	53-RW-0313	CROSS SECTION - MCE01 - SHEET 3 OF 5	BTE-220034-SHT-53-RW-0313	24.03.24		
20	53-RW-0314	CROSS SECTION - MCE01 - SHEET 4 OF 5	BTE-220034-SHT-53-RW-0314	24.03.24		
21	53-RW-0315	CROSS SECTION - MCE01 - SHEET 5 OF 5	BTE-220034-SHT-53-RW-0315	24.03.24		
22	53-MS-0001	VEHICLE TURNPATH PLAN - SHEET 1 OF 2	BTE-220034-SHT-53-MS-0001	24.03.24		
23	53-MS-0002	VEHICLE TURNPATH PLAN - SHEET 2 OF 2	BTE-220034-SHT-53-MS-0002	24.03.24		

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	N.T.S.	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

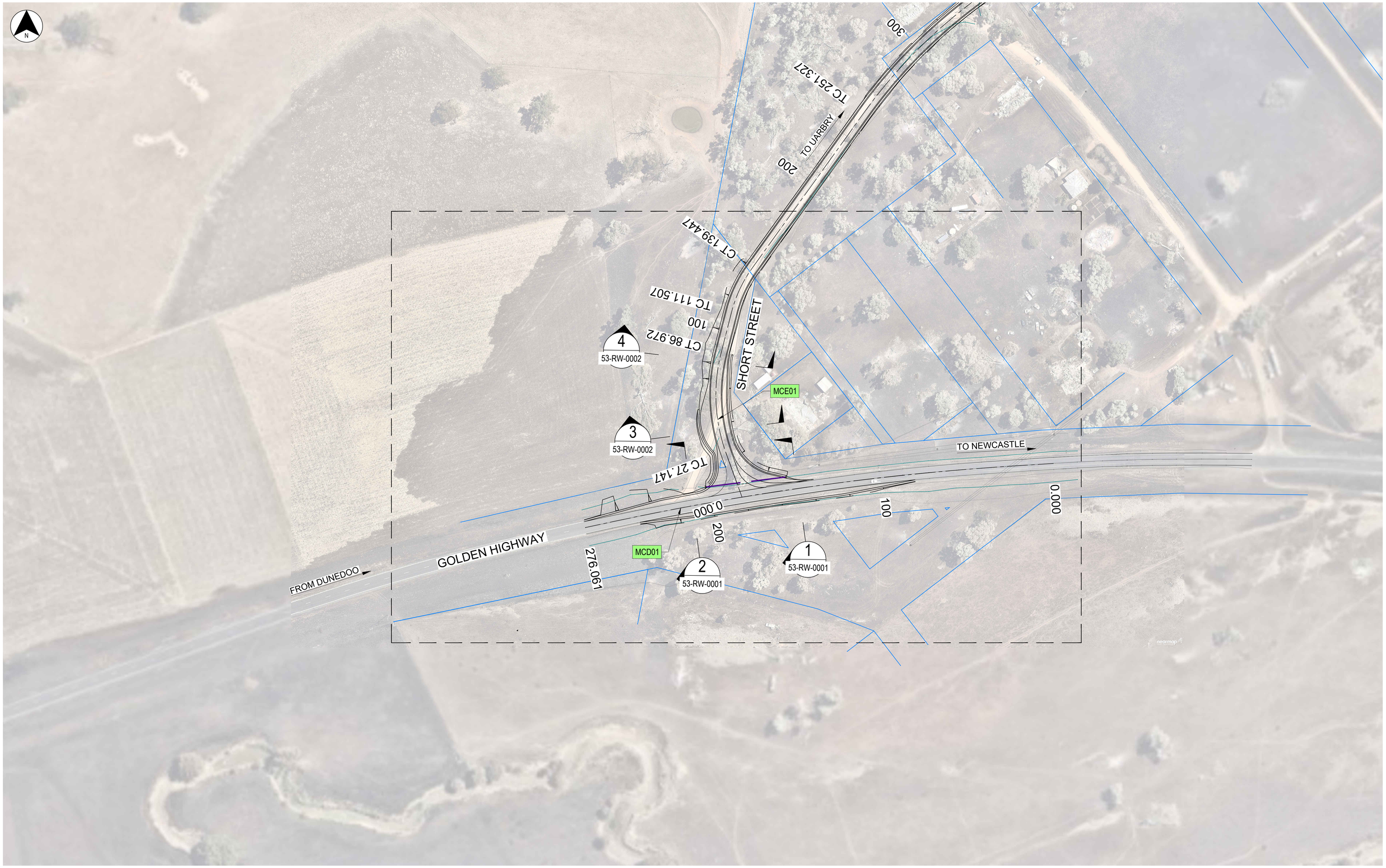
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
DRAWING INDEX

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-GN-0002	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-GN-0101.DWG

LAST MODIFIED: 3/24/2024 5:50 PM



NOT FOR CONSTRUCTION

© COPYRIGHT BTE CONSULTING PTY LTD

No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

5 0 5 10 15 20m

1 : 1000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:2000	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

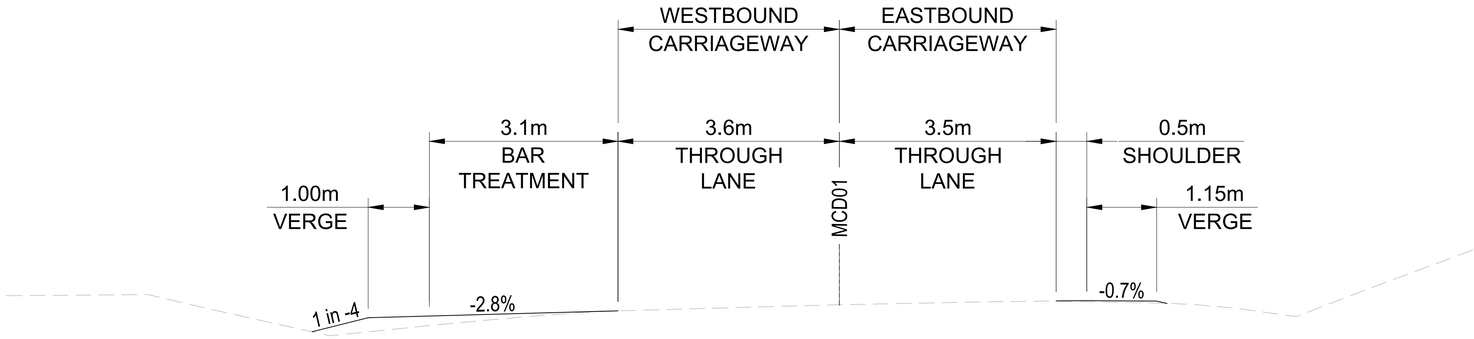
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
GENERAL ARRANGEMENT PLAN

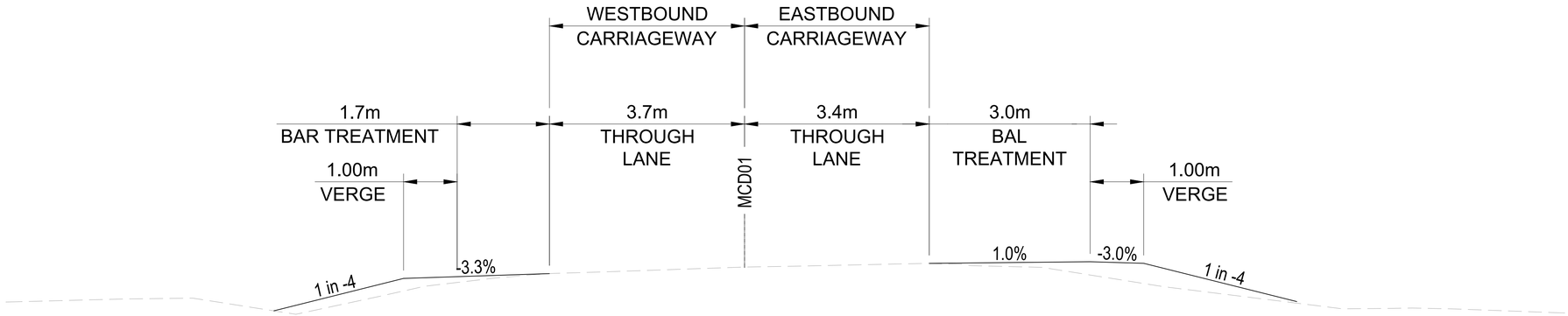
PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-GN-0101	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0001.DWG

LAST MODIFIED: 3/24/2024 5:50 PM



SECTION 1
SCALE 1:100
53-GN-0101



SECTION 2
SCALE 1:100
53-GN-0101

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES
0.5 0 0.5 1 1.5 2m
1 : 100 FULL SIZE A3

CLIENT
UPC AC Renewables AUSTRALIA

CONSULTANT
RAMBOLL

DESIGNER
BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:100	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

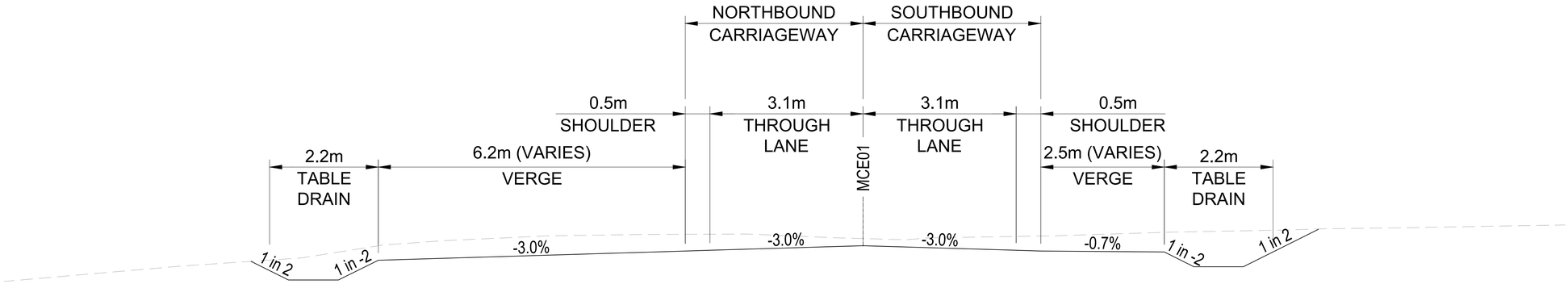
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
TYPICAL SECTIONS
SHEET 1 OF 2

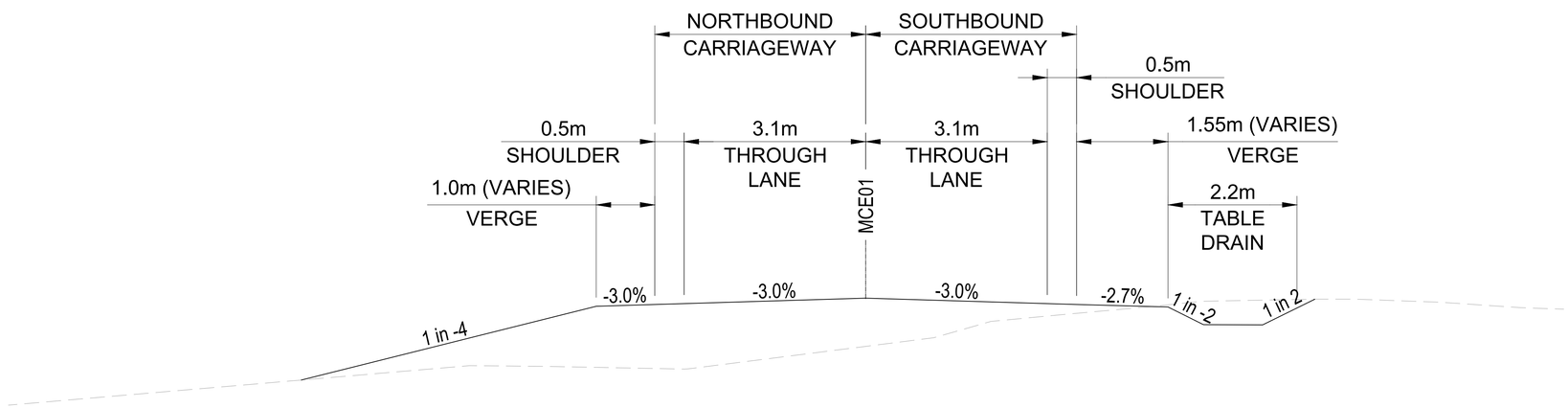
PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0001	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0002.DWG

LAST MODIFIED: 3/24/2024 5:50 PM



SECTION 3
SCALE 1:100
53-GN-0101



SECTION 4
SCALE 1:100
53-GN-0101

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES
0.5 0 0.5 1 1.5 2m
1 : 100 FULL SIZE A3

CLIENT
UPC AC Renewables AUSTRALIA

CONSULTANT
RAMBOLL

DESIGNER
BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

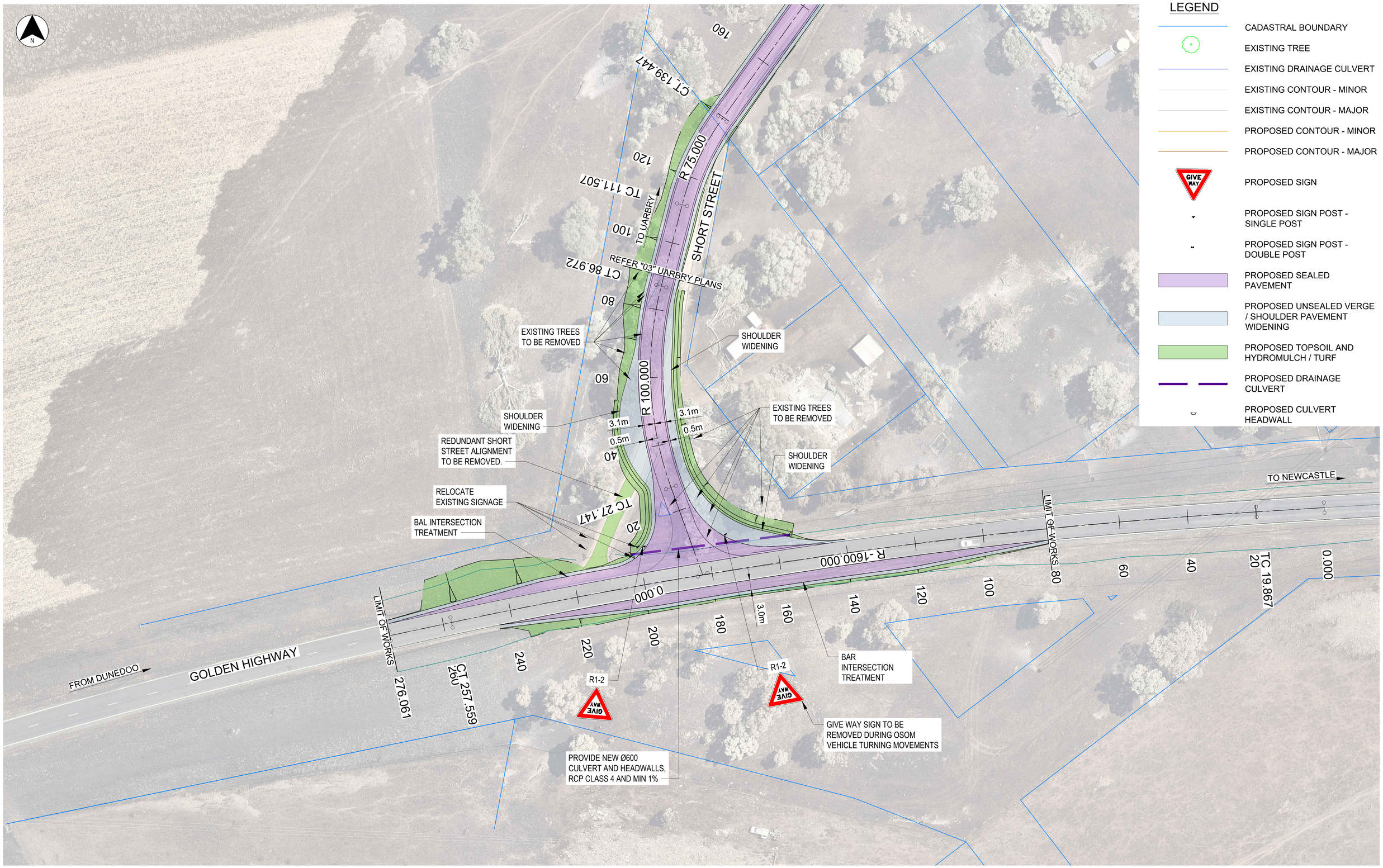
SCALE	1:100	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
GOLDEN HWY / SHORT ST INTERSECTION
TYPICAL SECTIONS
SHEET 2 OF 2

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0002	80% CONCEPT

CAD REF:P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0101.DWG

LAST MODIFIED:3/24/2024 5:51 PM



NOT FOR CONSTRUCTION

© COPYRIGHT BTE CONSULTING PTY LTD

No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES: 5 0 5 10 15 20m — 1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING — BTE CONSULTING PTY LTD ABN 48 641 009 681 ACN 641 009 681

SCALE	1:1000	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

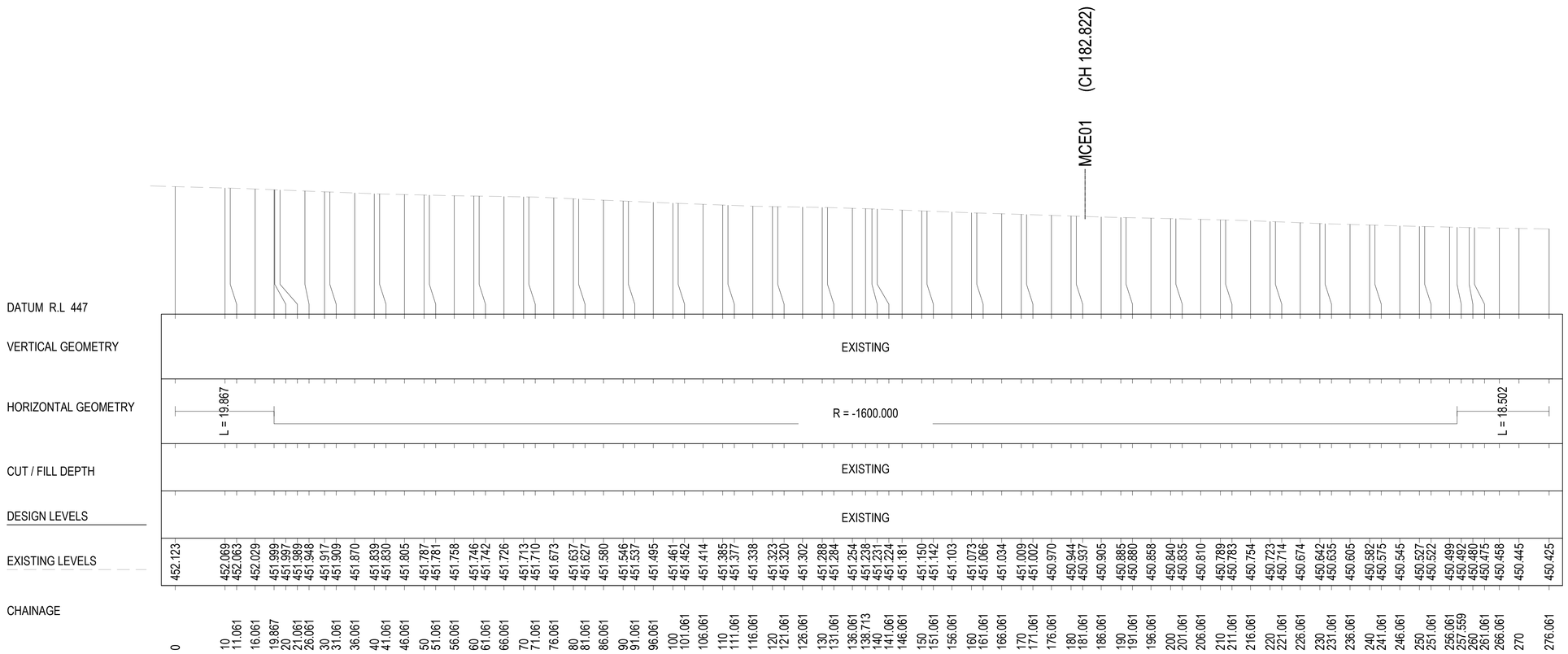
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION DETAIL PLAN

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0101	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0201.DWG

LAST MODIFIED: 3/24/2024 5:51 PM



GOLDEN HIGHWAY - MCD01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

© COPYRIGHT BTE CONSULTING PTY LTD

No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

1 : 200 FULL SIZE A3

1 : 1000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

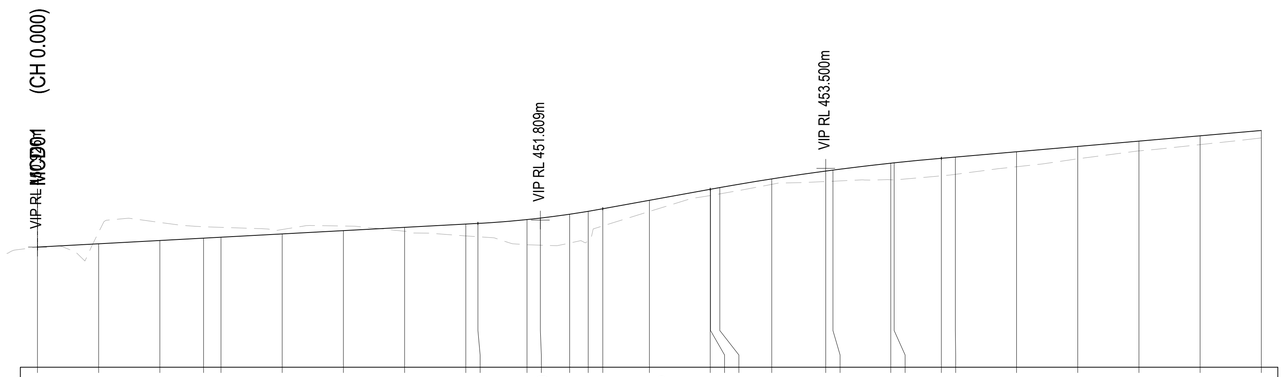
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
LONGITUDINAL SECTION - MCD01
SHEET 1 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0201	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0211.DWG

LAST MODIFIED: 3/24/2024 5:51 PM



DATUM R.L 447

VERTICAL GEOMETRY: G = 1.07% | K = 20.00, L = 20.809 | G = 3.63% | K = 20.00, L = 37.766 | G = 1.74%

HORIZONTAL GEOMETRY: L = 27.147 | R = 100.000 | L = 24.536 | R = 75.000 | L = 111.880

CHAINAGE	CUT / FILL DEPTH	DESIGN LEVELS	EXISTING LEVELS
0	0.000	450.926	450.926
10	-0.378	451.033	451.411
20	-0.591	451.141	451.732
27.147	-0.375	451.218	451.593
30	-0.323	451.248	451.571
40	-0.145	451.356	451.500
50	-0.152	451.463	451.615
60	0.127	451.571	451.444
70	0.388	451.678	451.290
71.983	0.436	451.699	451.263
80	0.822	451.826	451.003
82.187	0.869	451.874	450.985
86.972	0.944	452.001	451.057
90	0.974	452.096	451.122
92.392	0.561	452.179	451.618
100	0.365	452.455	452.090
109.943	0.204	452.815	452.611
110	0.204	452.817	452.613
111.507	0.207	452.871	452.665
120	0.180	453.155	452.975
128.826	0.345	453.411	453.066
130	0.364	453.442	453.078
139.447	0.542	453.667	453.126
140	0.557	453.679	453.122
147.709	0.573	453.828	453.255
150	0.564	453.868	453.304
160	0.490	454.042	453.552
170	0.405	454.215	453.811
180	0.319	454.389	454.070
190	0.288	454.563	454.275
200	0.244	454.736	454.492

SHORT STREET - MCE01

A3 Horizontal Scale 1 :1000
A3 Vertical scale 1:200

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES
1 : 200 FULL SIZE A3
1 : 1000 FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
GOLDEN HWY / SHORT ST INTERSECTION
LONGITUDINAL SECTION - MCE01
SHEET 2 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0211	80% CONCEPT

CAD REF: P:\BTE-22003441 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0301.DWG

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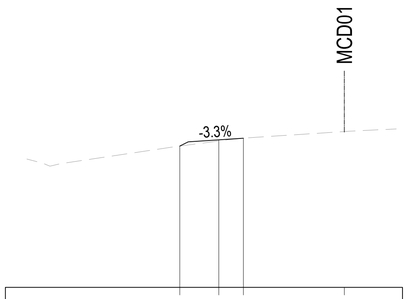
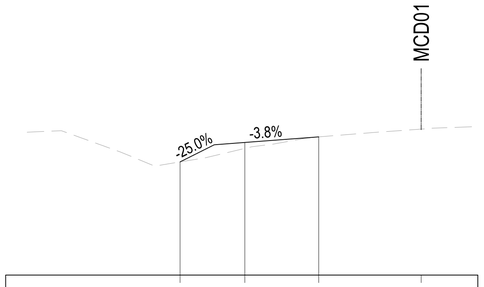


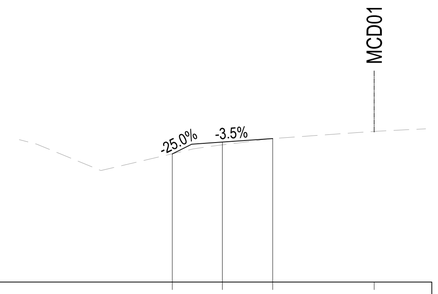
DATUM R.L 449.000			
LEVEL DIFFERENCE	-0.000	0.018	-0.000
DESIGN LEVELS	451.308	451.411	451.437
EXISTING LEVELS	451.308	451.392	451.437	451.546
DESIGN OFFSETS	-5.378	-4.101	-3.299	0.000

CH 90



DATUM R.L 449.000				
LEVEL DIFFERENCE	0.001	0.097	-0.000	
DESIGN LEVELS	450.849	451.167	451.258	
EXISTING LEVELS	450.849	451.070	451.258	451.385
DESIGN OFFSETS	-7.881	-5.762	-3.347	0.000

CH 110



DATUM R.L 449.000				
LEVEL DIFFERENCE	-0.002	0.046	-0.000	
DESIGN LEVELS	451.094	451.288	451.345	
EXISTING LEVELS	451.096	451.242	451.345	451.461
DESIGN OFFSETS	-6.599	-4.963	-3.316	0.000

CH 100

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

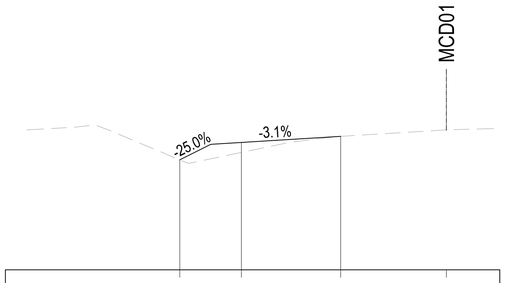
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCD01
SHEET 1 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0301	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0302.DWG

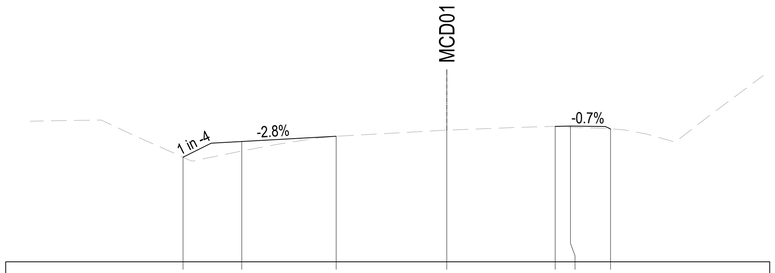
LAST MODIFIED: 3/24/2024 5:51 PM



DATUM R.L 449.000

LEVEL DIFFERENCE	-0.000	0.163	-0.000	
DESIGN LEVELS	450.797	451.081	451.181	
EXISTING LEVELS	450.797	450.918	451.181	451.288
DESIGN OFFSETS	-8.713	-6.700	-3.452	0.000

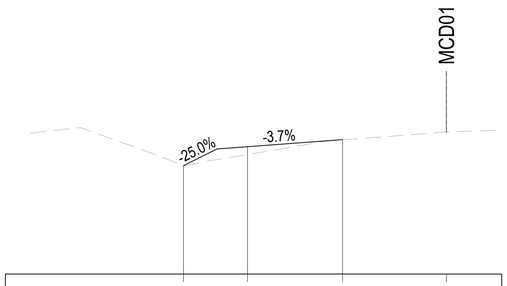
CH 130



DATUM R.L 449.000

LEVEL DIFFERENCE	-0.000	0.156	0.000	-0.018	0.000 0.021	-0.003
DESIGN LEVELS	450.708	450.966	451.051	451.132	451.212 451.217	451.170
EXISTING LEVELS	450.708	450.810	451.051	451.150	451.212 451.197	451.173
DESIGN OFFSETS	-8.618	-6.700	-3.614	0.000	3.543 4.043	5.354

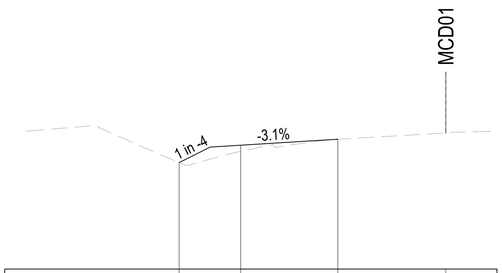
CH 150



DATUM R.L 449.000

LEVEL DIFFERENCE	0.005	0.128	0.001	
DESIGN LEVELS	450.771	451.081	451.197	
EXISTING LEVELS	450.766	450.953	451.196	451.323
DESIGN OFFSETS	-8.592	-6.498	-3.393	0.000

CH 120



DATUM R.L 449.000

LEVEL DIFFERENCE	-0.000	0.100	-0.000	
DESIGN LEVELS	450.739	451.024	451.122	
EXISTING LEVELS	450.739	450.923	451.122	451.231
DESIGN OFFSETS	-8.715	-6.700	-3.526	0.000

CH 140

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3
1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

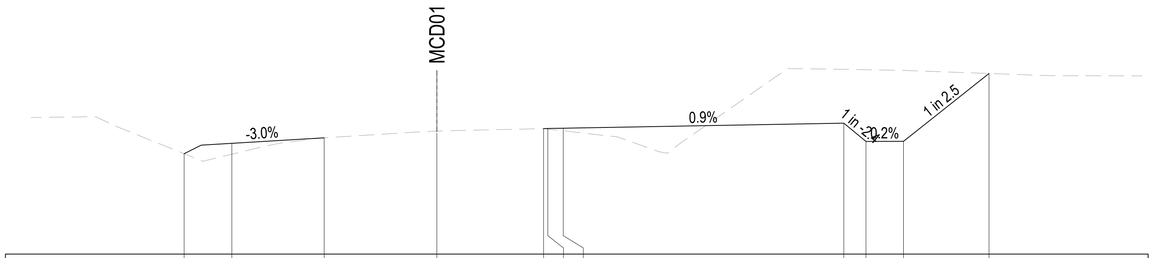
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCD01
SHEET 2 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0302	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0303.DWG

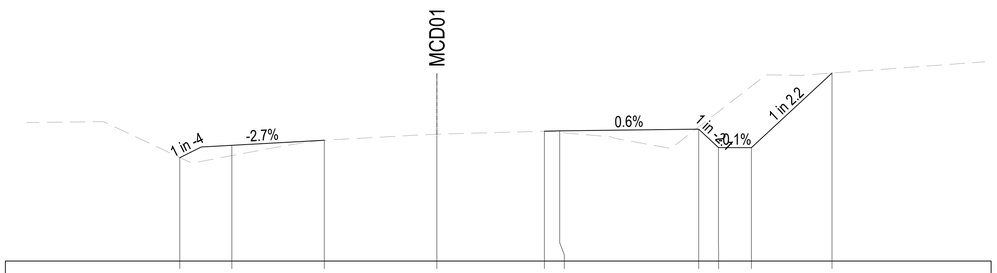
LAST MODIFIED: 3/24/2024 5:51 PM



DATUM R.L 449.000

LEVEL DIFFERENCE	-0.000	0.177	-0.000	-0.033	-0.000	0.009	0.041	-0.880	-1.172	-1.158	0.000
DESIGN LEVELS	450.639	450.809	450.899	450.976	451.049	451.051	451.056	451.139	450.840	450.842	451.951
EXISTING LEVELS	450.639	450.632	450.899	451.009	451.050	451.042	451.015	452.018	452.012	452.000	451.951
DESIGN OFFSETS	-8.260	-6.700	-3.682	0.000	3.488	3.627	4.132	13.300	14.026	15.252	18.046

CH 170



DATUM R.L 449.000

LEVEL DIFFERENCE	-0.003	0.169	0.000	-0.023	0.001	0.024	-0.037	-0.587	-1.004	-0.001
DESIGN LEVELS	450.689	450.892	450.974	451.050	451.123	451.128	451.156	450.855	450.853	452.071
EXISTING LEVELS	450.692	450.723	450.974	451.073	451.122	451.104	451.192	451.442	451.857	452.072
DESIGN OFFSETS	-8.402	-6.700	-3.677	0.000	3.516	4.016	8.558	9.205	10.282	12.914

CH 160

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3
1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCD01
SHEET 3 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0303	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0304.DWG

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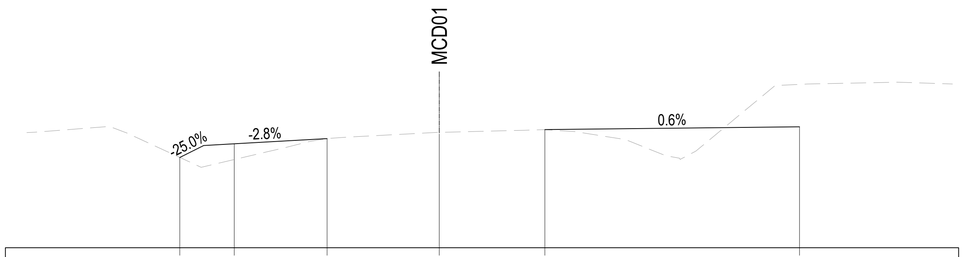
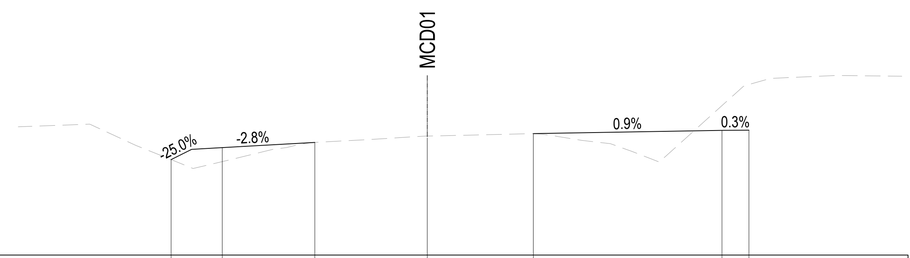


DATUM R.L 449.000

LEVEL DIFFERENCE	-0.000	0.257	-0.000	-0.026	0.001	-0.692
DESIGN LEVELS	450.475	450.698	450.783	450.859	450.930	450.976
EXISTING LEVELS	450.476	450.441	450.783	450.885	450.930	451.669
DESIGN OFFSETS	-8.481	-6.700	-3.665	0.000	3.451	11.775

CH 190



DATUM R.L 449.000

LEVEL DIFFERENCE	-0.000	0.228	-0.000	-0.029	0.000	-0.404	-0.747
DESIGN LEVELS	450.559	450.755	450.841	450.915	450.985	451.038	451.040
EXISTING LEVELS	450.559	450.527	450.841	450.944	450.985	451.442	451.788
DESIGN OFFSETS	-8.371	-6.700	-3.674	0.000	3.466	9.632	10.513

CH 180

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3
1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

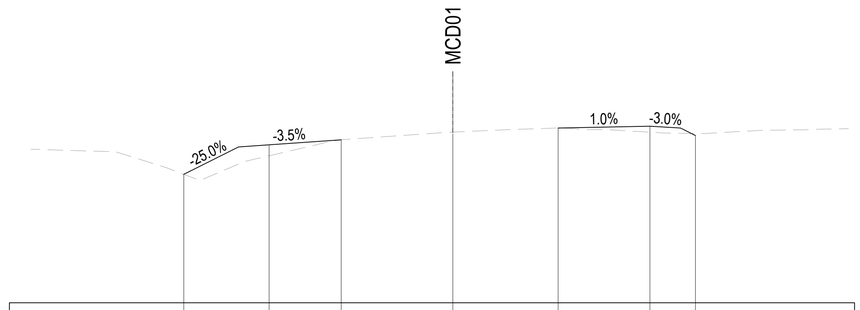
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCD01
SHEET 4 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0304	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0305.DWG

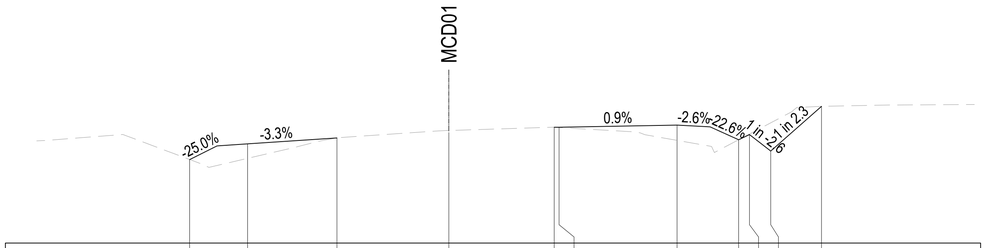
LAST MODIFIED: 3/24/2024 5:51 PM



DATUM R.L 448.000

LEVEL DIFFERENCE	-0.000	0.179	-0.000	-0.028	0.000	0.098	-0.032
DESIGN LEVELS	450.099	450.581	450.663	450.762	450.855	450.885	450.733
EXISTING LEVELS	450.099	450.402	450.663	450.789	450.855	450.787	450.765
DESIGN OFFSETS	-8.794	-6.004	-3.648	0.000	3.441	6.441	7.929

CH 210



DATUM R.L 449.000

LEVEL DIFFERENCE	-0.002	0.236	-0.000	-0.032	0.000 0.005	0.249	-0.000 -0.009	-0.461	-0.000
DESIGN LEVELS	450.364	450.621	450.718	450.808	450.892 450.893	450.927	450.688 450.772	450.503	451.233
EXISTING LEVELS	450.365	450.384	450.718	450.840	450.892 450.888	450.678	450.688 450.781	450.964	451.234
DESIGN OFFSETS	-8.472	-6.576	-3.657	0.000	3.443 3.603	7.460	9.472 9.825	10.520	12.179

CH 200

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

1 : 100 V — FULL SIZE A3

1 : 200 H — FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

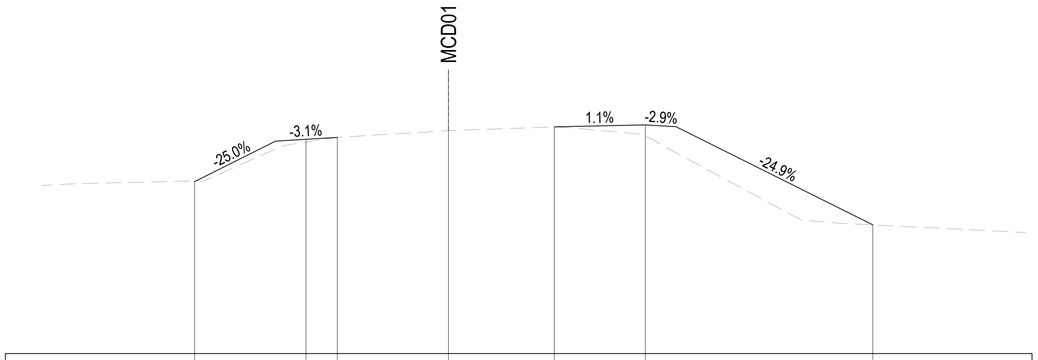
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCD01
SHEET 5 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0305	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0306.DWG

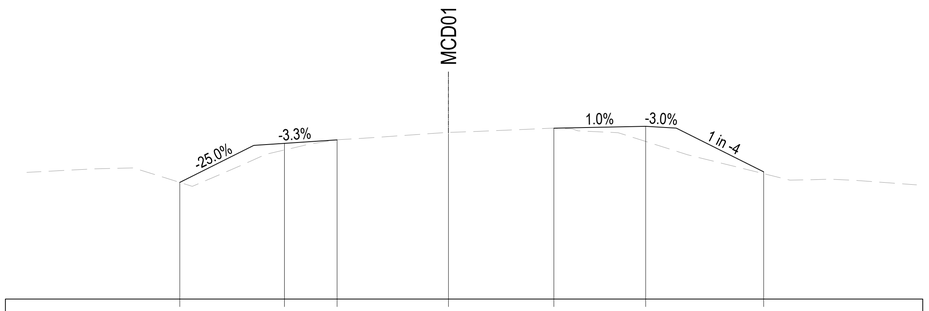
LAST MODIFIED: 3/24/2024 5:51 PM



DATUM R.L 447.000

LEVEL DIFFERENCE	-0.010	0.044	-0.000	-0.022	0.001	0.173	-0.000
DESIGN LEVELS	449.809	450.501	450.532	450.620	450.705	450.736	449.102
EXISTING LEVELS	449.820	450.456	450.532	450.642	450.703	450.564	449.102
DESIGN OFFSETS	-8.297	-4.655	-3.631	0.000	3.459	6.436	13.872

CH 230



DATUM R.L 448.000

LEVEL DIFFERENCE	-0.000	0.108	-0.000	-0.023	0.000	0.247	0.029
DESIGN LEVELS	449.906	450.544	450.602	450.700	450.792	450.823	450.079
EXISTING LEVELS	449.906	450.436	450.602	450.723	450.792	450.575	450.050
DESIGN OFFSETS	-8.781	-5.361	-3.640	0.000	3.447	6.447	10.302

CH 220

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

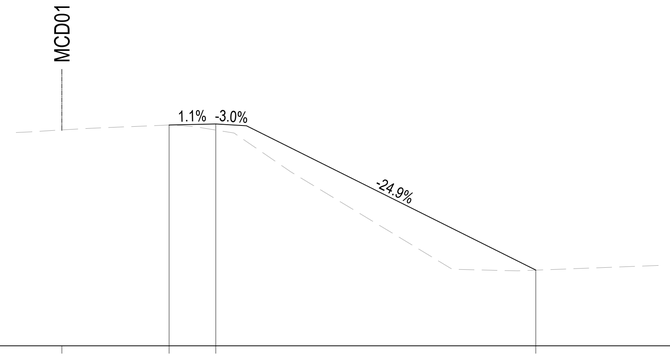
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCD01
SHEET 6 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0306	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0307.DWG

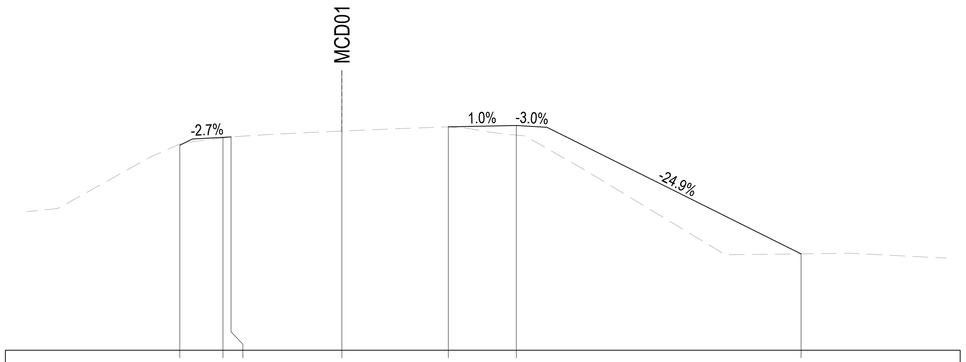
LAST MODIFIED: 3/24/2024 5:51 PM



DATUM R.L 447.000

LEVEL DIFFERENCE		-0.000	0.100		0.002
DESIGN LEVELS		450.607	450.624		448.237
EXISTING LEVELS	450.527	450.607	450.524		448.235
DESIGN OFFSETS	0.000	3.504	5.031		15.489

CH 250



DATUM R.L 447.000

LEVEL DIFFERENCE	-0.022	0.011	-0.000	-0.012	0.000	0.157	-0.000
DESIGN LEVELS	450.349	450.478	450.485	450.569	450.650	450.672	448.575
EXISTING LEVELS	450.371	450.468	450.485	450.582	450.650	450.515	448.575
DESIGN OFFSETS	-5.298	-3.885	-3.622	0.000	3.478	5.702	15.008

CH 240

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES
1 : 100 V — FULL SIZE A3
1 : 200 H — FULL SIZE A3

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

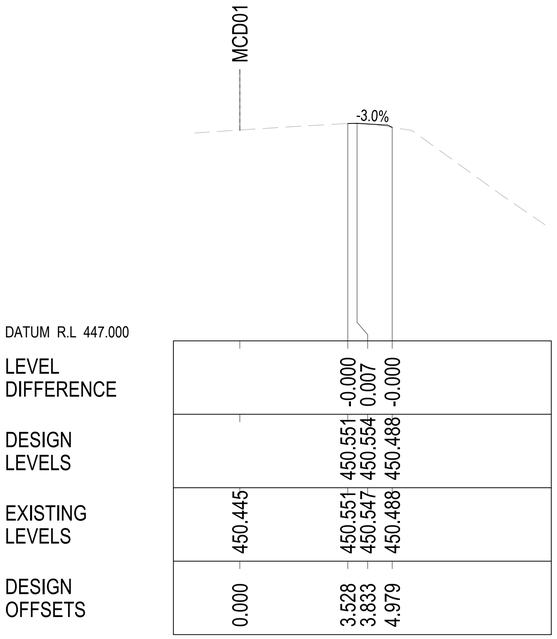
SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCD01
SHEET 7 OF 8

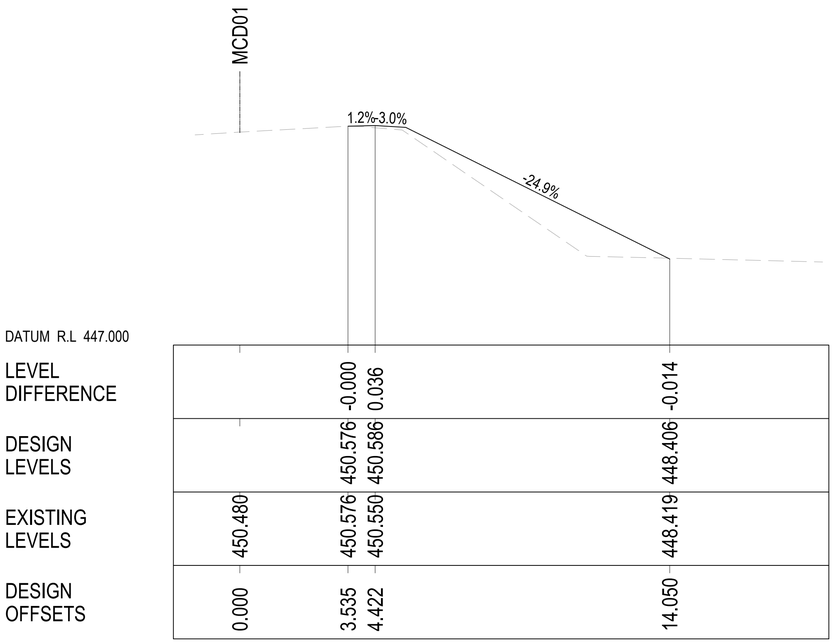
PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0307	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0308.DWG

LAST MODIFIED: 3/24/2024 5:51 PM



CH 270



CH 260

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

1 : 100 V — FULL SIZE A3 (0.5 0 0.5 1 1.5 2m)

1 : 200 H — FULL SIZE A3 (1 0 1 2 3 4m)

CLIENT: UPC AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

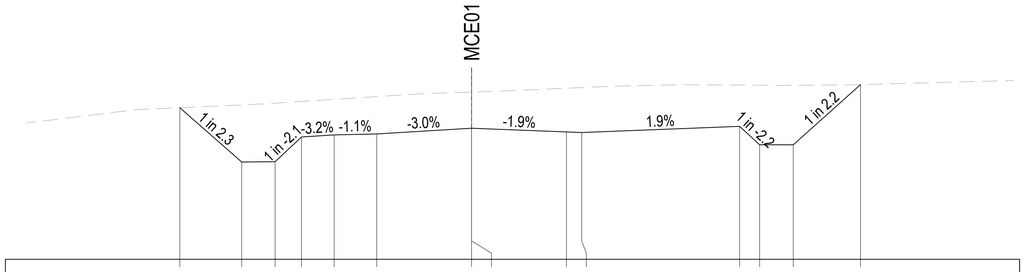
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCD01
SHEET 8 OF 8

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0308	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0311.DWG

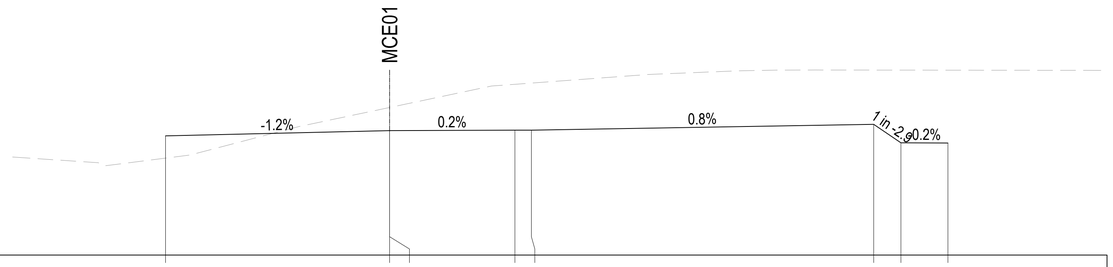
LAST MODIFIED: 3/24/2024 5:51 PM



DATUM R.L 449.000

LEVEL DIFFERENCE	0.000	-0.933	-0.956	-0.580	-0.581	-0.610	-0.591	-0.591	-0.713	-0.734	-0.675	-0.974	-0.972	0.000
DESIGN LEVELS	451.476	450.589	450.594	450.998	451.032	451.048	451.141	451.141	451.081	451.072	451.172	450.871	450.870	451.854
EXISTING LEVELS	451.476	451.522	451.551	451.578	451.613	451.658	451.732	451.732	451.795	451.806	451.847	451.845	451.842	451.854
DESIGN OFFSETS	-9.537	-7.514	-6.422	-5.559	-4.491	-3.100	0.000	0.000	3.100	3.600	8.760	9.415	10.513	12.712

CH 20



DATUM R.L 449.000

LEVEL DIFFERENCE	0.364	-0.378	-0.378	-0.749	-0.769	-0.887	-1.188	-1.190
DESIGN LEVELS	450.948	451.033	451.033	451.041	451.041	451.136	450.834	450.831
EXISTING LEVELS	450.584	451.411	451.411	451.790	451.810	452.022	452.022	452.021
DESIGN OFFSETS	-7.323	0.000	0.000	4.098	4.635	15.822	16.712	18.250

CH 10

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES
0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3
1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT
UPC AC Renewables AUSTRALIA

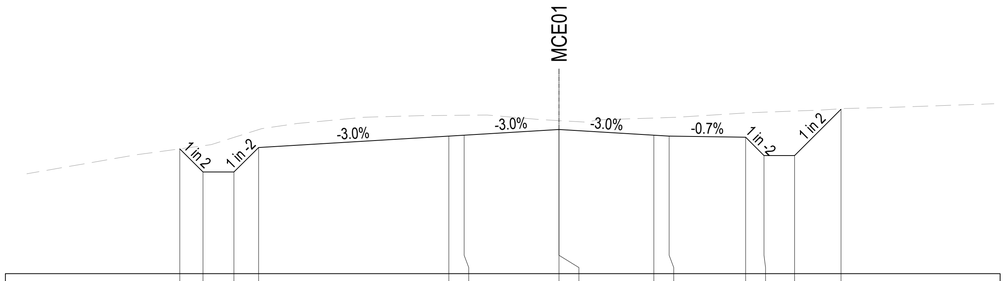
CONSULTANT
RAMBOLL

DESIGNER
BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCE01
SHEET 1 OF 5

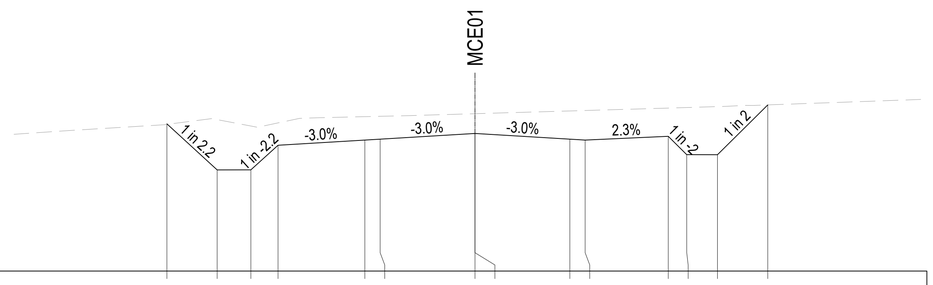
PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0311	80% CONCEPT



DATUM R.L 449.000

LEVEL DIFFERENCE	0.000	-0.428	-0.565	-0.293	-0.338	-0.326	-0.145	-0.145	-0.280	-0.304	-0.397	-0.709	-0.728	-0.008
DESIGN LEVELS	451.039	450.662	450.661	451.061	451.248	451.263	451.356	451.356	451.263	451.248	451.229	450.929	450.929	451.686
EXISTING LEVELS	451.039	451.090	451.226	451.354	451.586	451.588	451.500	451.500	451.543	451.551	451.626	451.639	451.657	451.695
DESIGN OFFSETS	-12.394	-11.635	-10.625	-9.816	-3.600	-3.100	0.000	0.000	3.100	3.600	6.100	6.700	7.700	9.218

CH 40



DATUM R.L 449.000

LEVEL DIFFERENCE	0.008	-0.822	-0.716	-0.366	-0.383	-0.373	-0.323	-0.323	-0.461	-0.483	-0.461	-0.771	-0.786	0.000
DESIGN LEVELS	451.405	450.653	450.654	451.055	451.140	451.155	451.248	451.248	451.155	451.140	451.202	450.902	450.901	451.715
EXISTING LEVELS	451.397	451.475	451.370	451.421	451.523	451.529	451.571	451.571	451.616	451.624	451.663	451.672	451.687	451.715
DESIGN OFFSETS	-10.070	-8.427	-7.325	-6.437	-3.600	-3.100	0.000	0.000	3.100	3.600	6.317	6.920	7.926	9.570

CH 30

NOT FOR CONSTRUCTION

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES
0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3
1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT
UPC AC Renewables AUSTRALIA

CONSULTANT
RAMBOLL

DESIGNER
BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCE01
SHEET 2 OF 5

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0312	80% CONCEPT

CAD REF:P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0312.DWG
LAST MODIFIED:3/24/2024 5:51 PM

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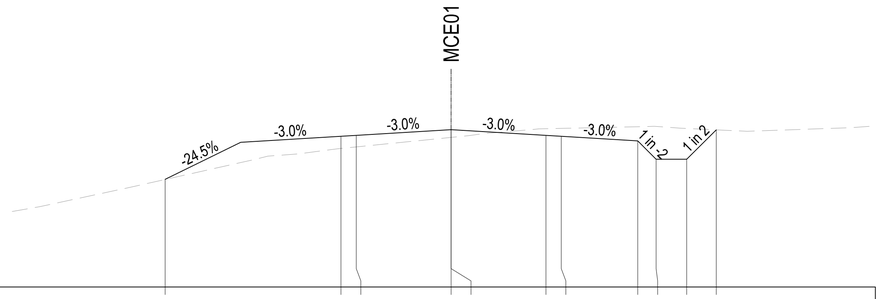
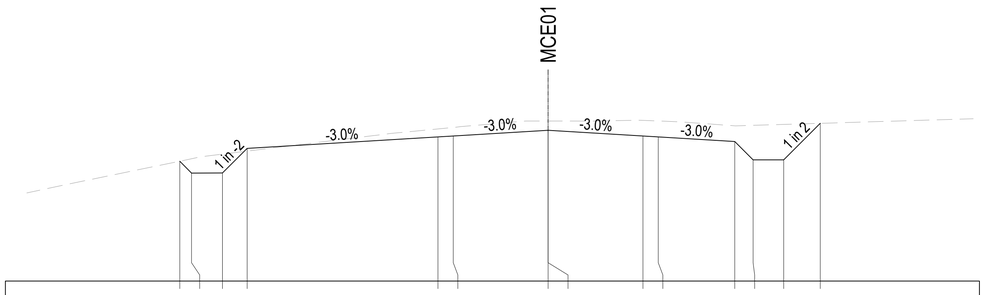
LAST MODIFIED: 3/24/2024 5:52 PM



DATUM R.L 449.000

LEVEL DIFFERENCE	0.002	0.198	0.188	0.127	0.127	-0.108	-0.129	-0.231	-0.536	-0.502	0.000
DESIGN LEVELS	450.759	451.463	451.478	451.571	451.571	451.478	451.463	451.388	451.088	451.088	451.568
EXISTING LEVELS	450.757	451.264	451.289	451.444	451.444	451.586	451.591	451.619	451.624	451.590	451.568
DESIGN OFFSETS	-9.346	-3.600	-3.100	0.000	0.000	3.100	3.600	6.100	6.700	7.700	8.667

CH 60



DATUM R.L 449.000

LEVEL DIFFERENCE	0.000	-0.234	-0.308	0.045	-0.130	-0.140	-0.152	-0.152	-0.256	-0.261	-0.256	-0.564	-0.579	0.000
DESIGN LEVELS	450.958	450.765	450.767	451.168	451.355	451.370	451.463	451.463	451.370	451.355	451.280	450.980	450.980	451.577
EXISTING LEVELS	450.958	450.998	451.074	451.124	451.486	451.510	451.615	451.615	451.626	451.616	451.536	451.545	451.560	451.577
DESIGN OFFSETS	-12.038	-11.653	-10.644	-9.835	-3.600	-3.100	0.000	0.000	3.100	3.600	6.100	6.700	7.700	8.896

CH 50

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3
1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

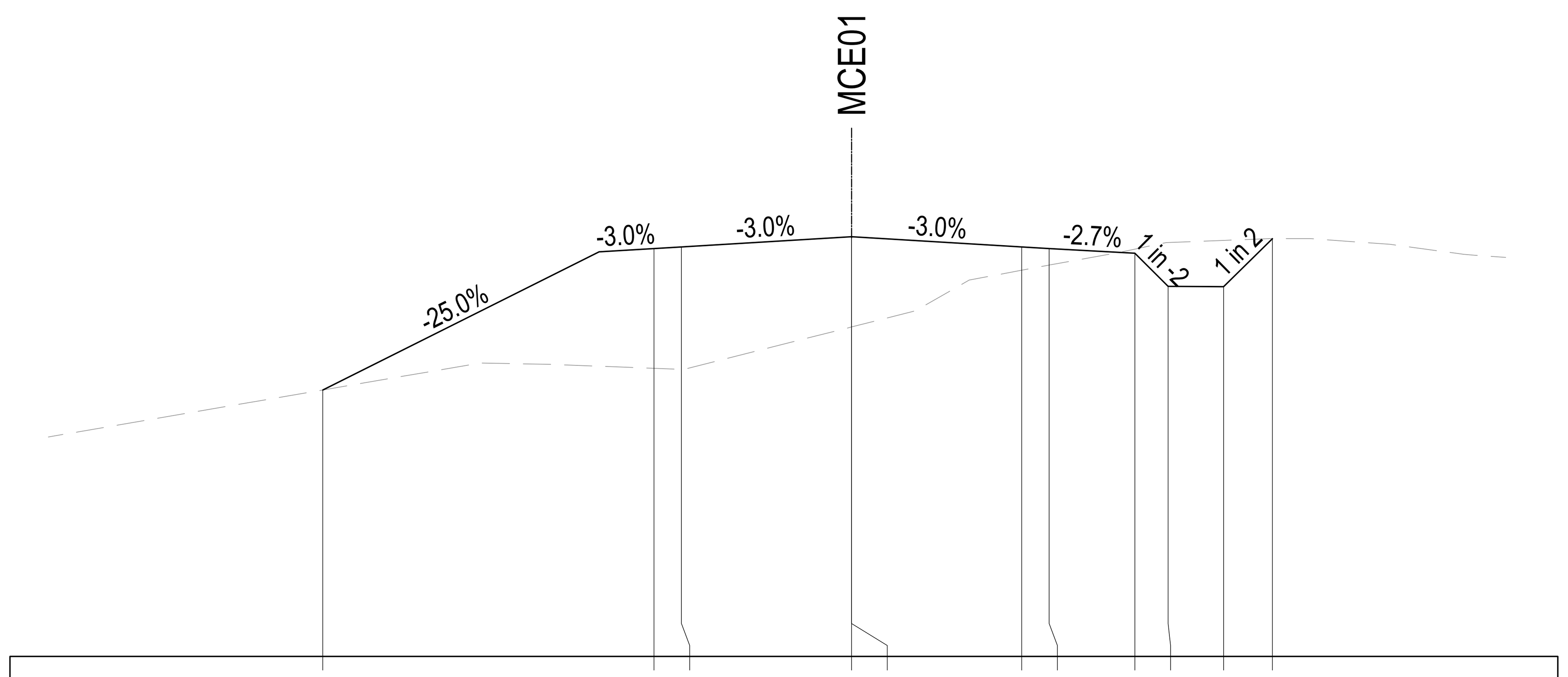
VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCE01
SHEET 3 OF 5

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0313	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0314.DWG

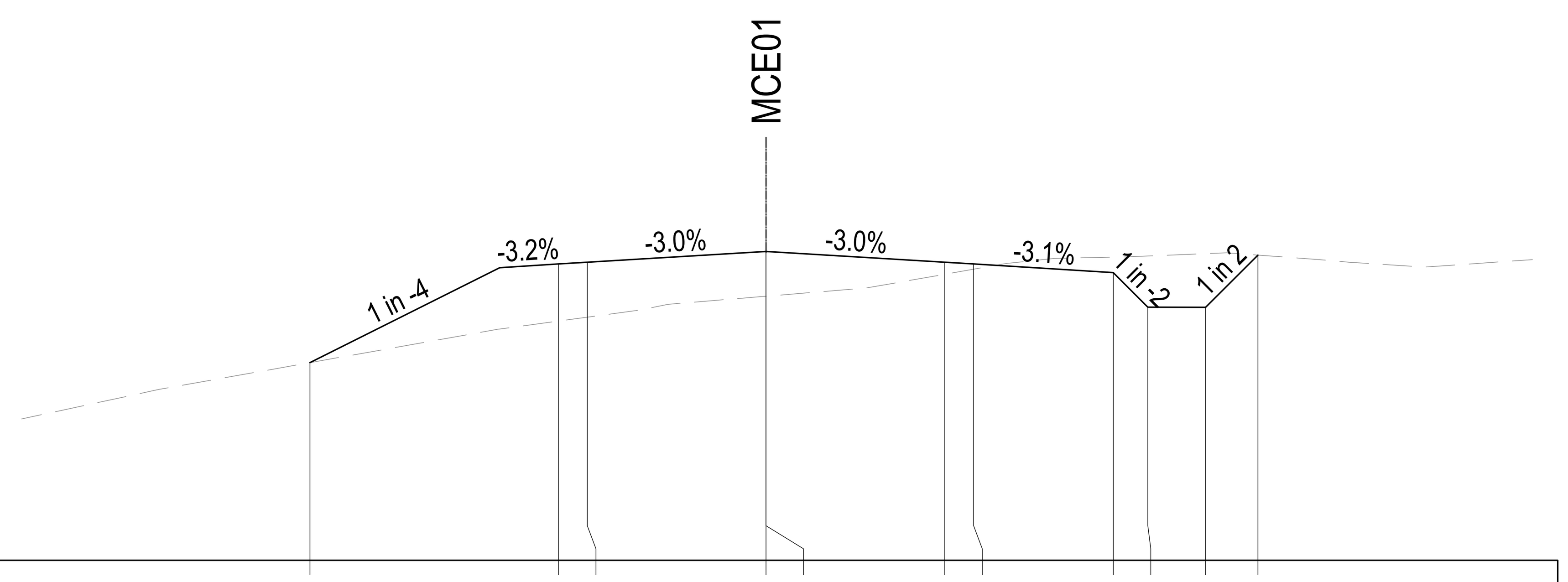
LAST MODIFIED 3/24/2024 5:52 PM



DATUM R.L 448.000

LEVEL DIFFERENCE	-0.000	1.092	1.116	0.822	0.822	0.212	0.151	-0.037	-0.399	-0.422	-0.001
DESIGN LEVELS	450.429	451.718	451.733	451.826	451.826	451.733	451.718	451.676	451.374	451.370	451.808
EXISTING LEVELS	450.429	450.626	450.616	451.003	451.003	451.520	451.567	451.713	451.773	451.792	451.809
DESIGN OFFSETS	-9.636	-3.600	-3.100	0.000	0.000	3.100	3.600	5.161	5.767	6.777	7.668

CH 80



DATUM R.L 449.000

LEVEL DIFFERENCE	-0.000	0.495	0.476	0.388	0.388	0.104	0.045	-0.134	-0.444	-0.465	0.000
DESIGN LEVELS	450.714	451.570	451.585	451.678	451.678	451.585	451.570	451.495	451.195	451.195	451.647
EXISTING LEVELS	450.714	451.075	451.109	451.290	451.290	451.481	451.525	451.629	451.639	451.660	451.647
DESIGN OFFSETS	-7.911	-3.600	-3.100	0.000	0.000	3.100	3.600	6.022	6.622	7.623	8.530

CH 70

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES
0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3
1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT: UPC\AC Renewables AUSTRALIA

CONSULTANT: RAMBOLL

DESIGNER: BTE CONSULTING
BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS
GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCE01
SHEET 4 OF 5

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0314	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-RW-0315.DWG

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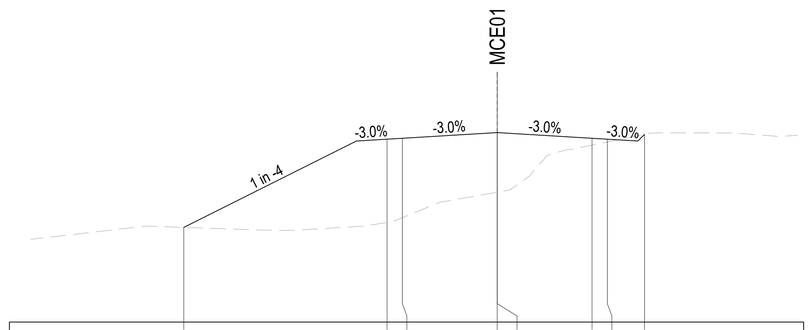

DATUM R.L 449.000

LEVEL DIFFERENCE	-0.000	1.360 1.297	0.974 0.974	0.112 0.046	0.000	
DESIGN LEVELS	450.547	451.988 452.003	452.096 452.096	452.003 451.988	452.066	
EXISTING LEVELS	450.547	450.627 450.706	451.122 451.122	451.891 451.942	452.066	
DESIGN OFFSETS	-10.242	-3.600 -3.100	0.000 0.000	3.100 3.600	4.816	

CH 90

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

0.5 0 0.5 1 1.5 2m
1 : 100 V FULL SIZE A3

1 0 1 2 3 4m
1 : 200 H FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	AS SHOWN	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
CROSS SECTION - MCE01
SHEET 5 OF 5

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-RW-0315	80% CONCEPT

CAD REF: P:\BTE-220034\41 - DRAWINGS\01-SHEETS\BTE-220034-SHT-53-MS-0001.DWG

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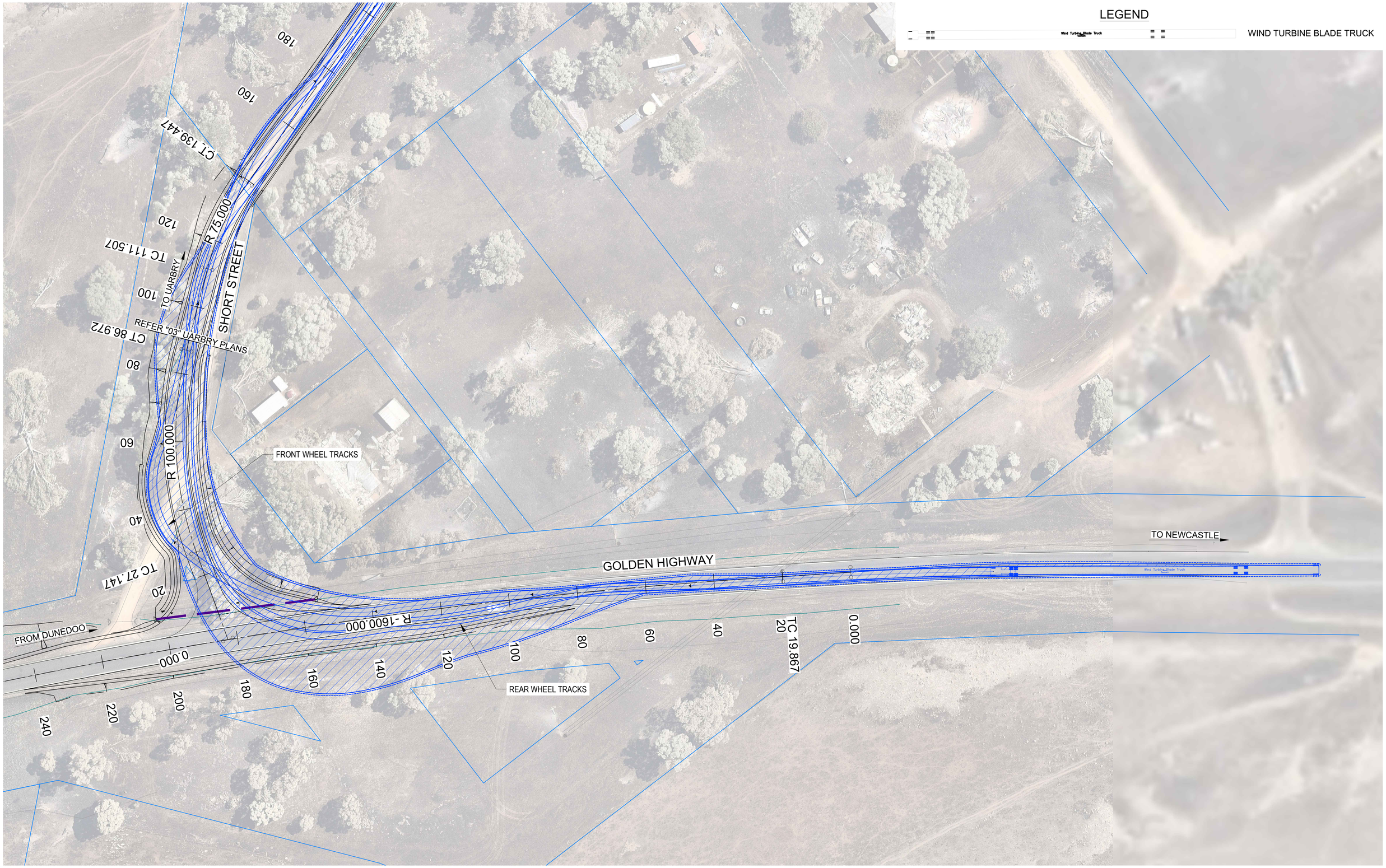

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

5 0 5 10 15 20m

1 : 1000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:1000	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
VEHICLE TURNPATH PLAN
SHEET 1 OF 2

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-MS-0001	80% CONCEPT

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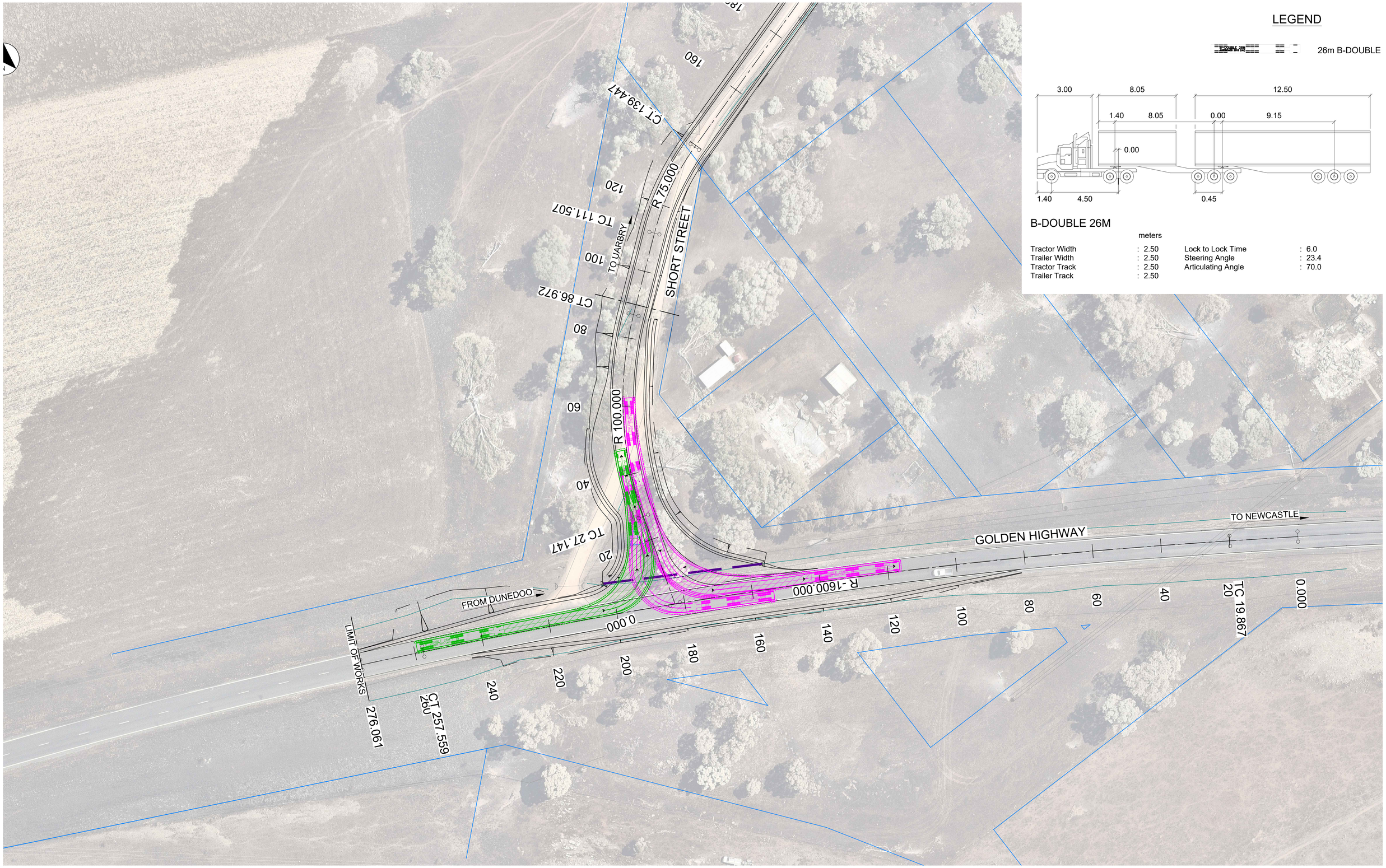

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No.	BY	DATE	DESCRIPTION	APPD
01	TB	24.03.24	80% CONCEPT DESIGN	BS

SCALES

5 0 5 10 15 20m

1 : 1000 FULL SIZE A3

CLIENT

UPC AC Renewables AUSTRALIA

CONSULTANT

RAMBOLL

DESIGNER

BTE CONSULTING

BTE CONSULTING PTY LTD
ABN 48 641 009 681 ACN 641 009 681

SCALE	1:1000	REVISION	01
DESIGNED	TB	CHECKED	BS
DRAWN	TB	CHECKED	BS
APPROVED		DATE	
SIGNED			

VALLEY OF THE WINDS

GOLDEN HWY / SHORT ST INTERSECTION
VEHICLE TURNPATH PLAN
SHEET 2 OF 2

PROJECT NO	SHEET NO	STATUS
BTE-220034	SHT-53-MS-0002	80% CONCEPT

Thoughtful Transport Solutions

Suite 4.03, Level 4, 157 Walker Street, North Sydney NSW 2060
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