Wambo Wind Farm Connection Project

Visual Impact Assessment

Powerlink Queensland

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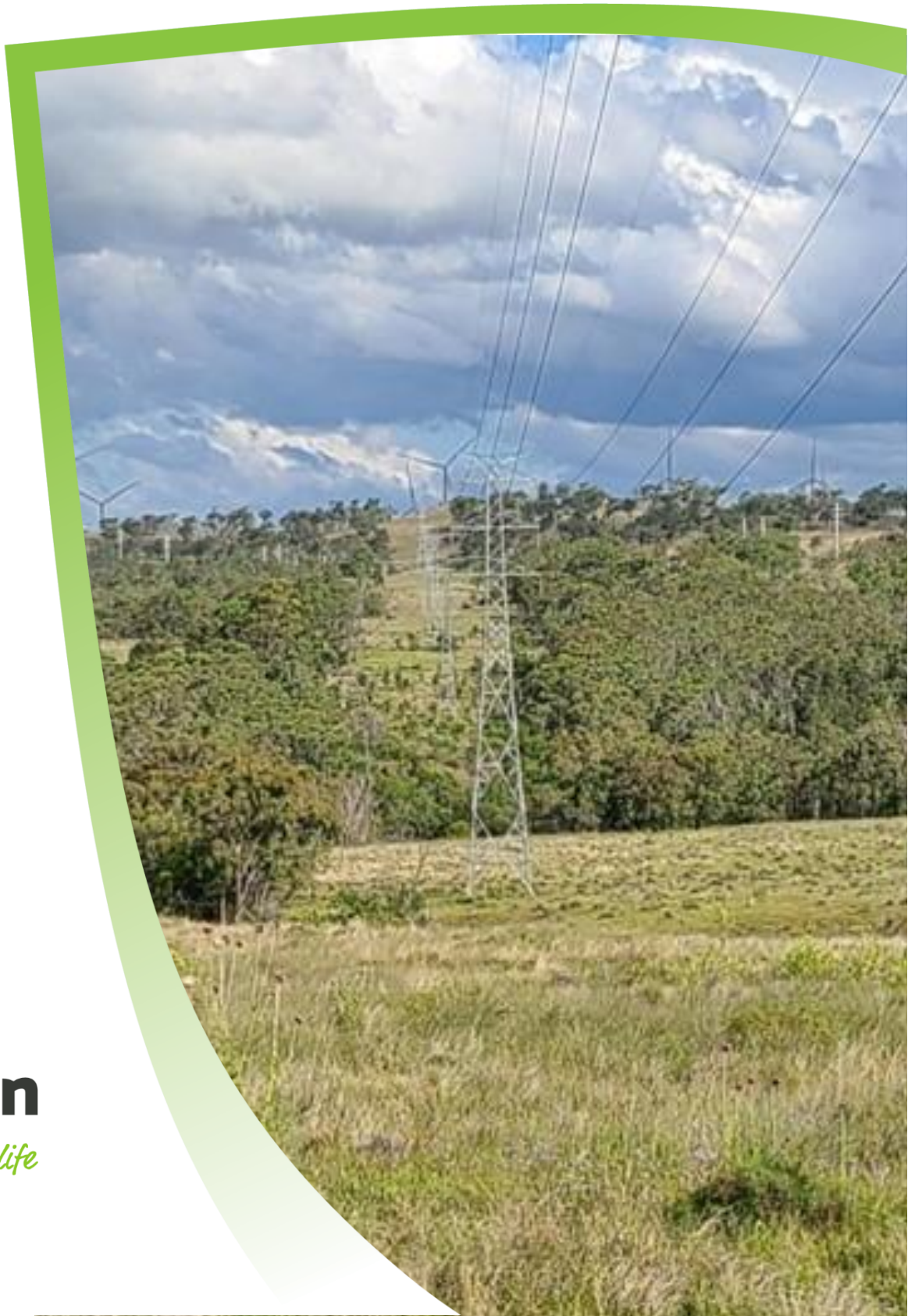
Revision: 0

2022-12-15



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Appendices

Figures

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1 Introduction

Powerlink is proposing the construction of a 275 kV high voltage transmission line which extends approximately 47 km between the proposed Diamondy Substation, located at the proposed Wambo Wind Farm and the existing Halys Substation. The preferred alignment will utilise the existing Tarong-Chinchilla transmission easement and will result in a widening of the existing easement by 10 m, from 50 m to 60 m.

The project will affect 73 land parcels, of these 27 landholders will be impacted.

There is an 132kV existing corridor with a width of 50m which will be decommissioned as it at the end of its operable life, and the new corridor will be approximately 60m.

The purpose of this Visual Impact Assessment (VIA) is to:

- Undertake a high level base line assessment of the current project location with regards to environmental and landscape features, and the existing transmission line and easement.
- Describe the existing sensitive receivers and identify the likely people who will be impacted by the proposed transmission line based upon desktop assessment and photographs provided to Aurecon by Powerlink.
- Identify key project risks on visual values.
- Evaluate the potential significance of the impacts of project activities upon views and visual receptors during construction, operation and closure.

The location of the transmission line in context of the region is illustrated in Figure 1**Error! Reference source not found.**. **Appendix A** provides an overview of the sensitive receptors (i.e., dwellings) in relation to viewpoints to the transmission line.

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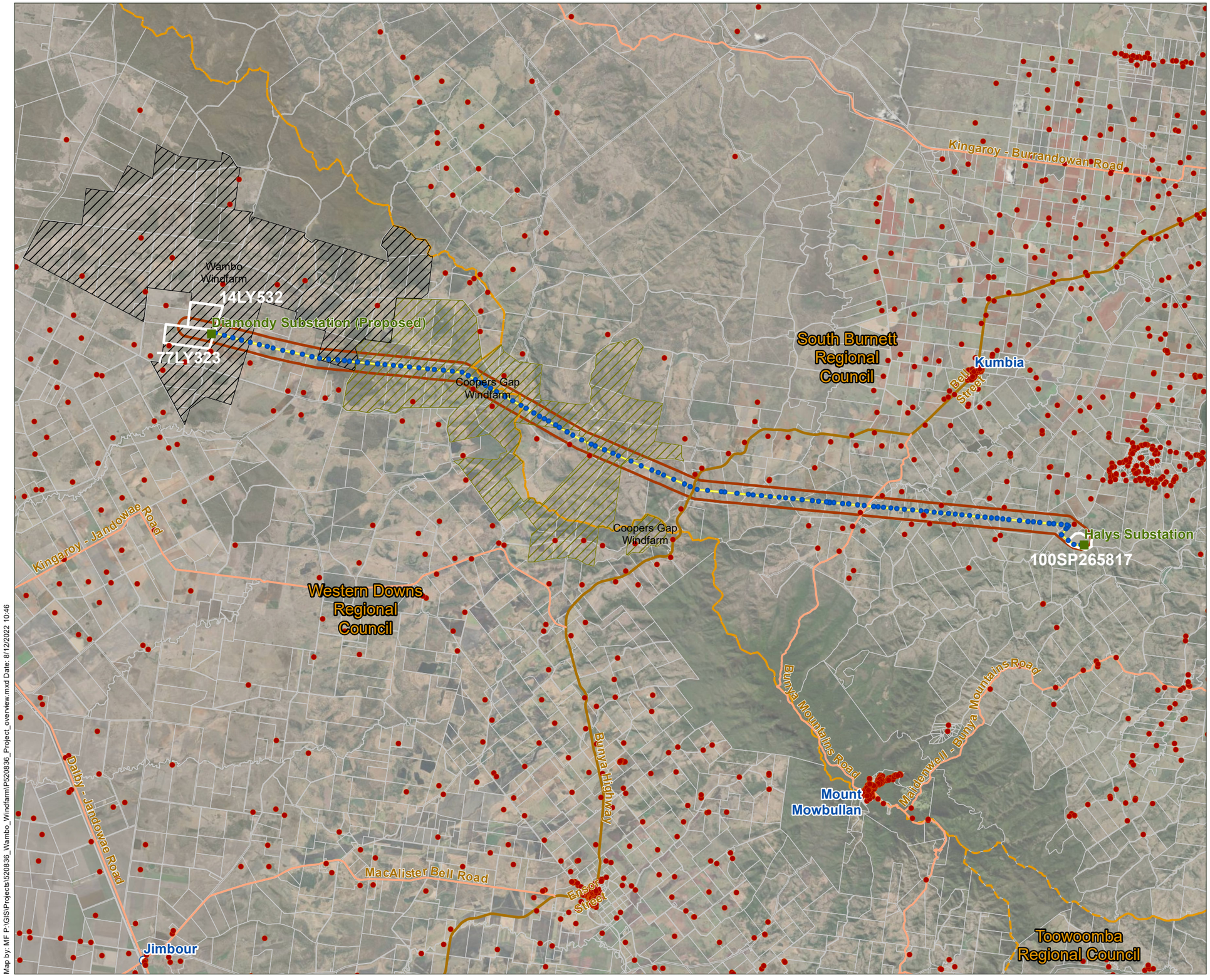

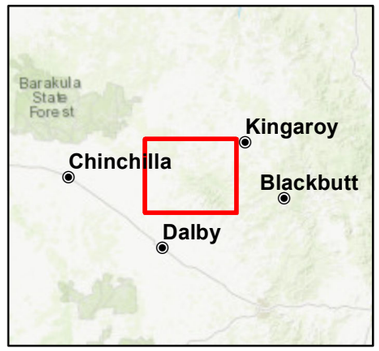

Legend

- Sensitive receptors (dwelling houses)
- Locality
- Substations
- Tower structures
- Highway
- Secondary Road
- Cadastre
- Cadastre
- Coopers Gap Windfarm
- Wambo Windfarm
- Local_Government_Areas
- Project corridor
- Study area

Date: 8/12/2022 Version:0

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A3 scale: 1:200,000

0 1 2 3 4 5 km

Job No: 520836

Projection: MGA Zone 56

Powerlink Wambo transmission line

Figure 2.2: Project corridor overview

2 Methodology

2.1 Overview

The methodology used for this VIA is illustrated in Figure 2-1 below.

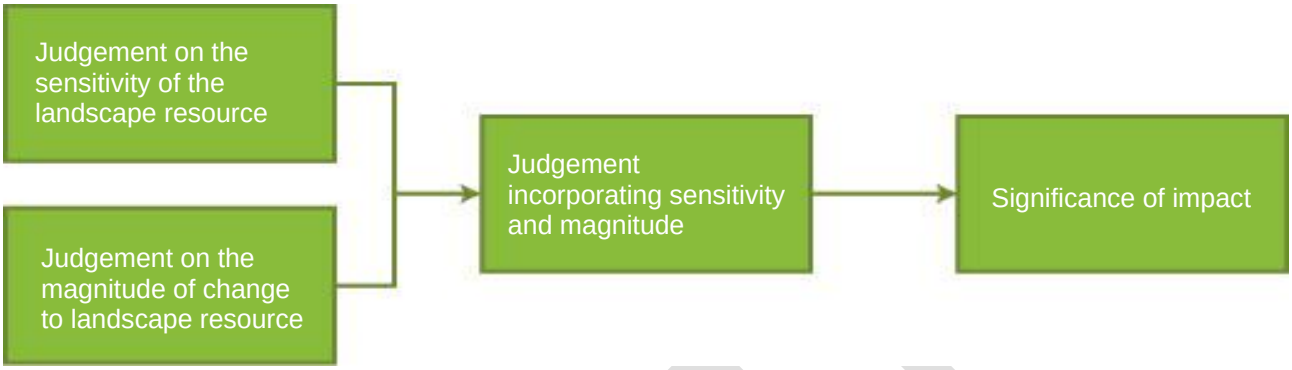


Figure 2-1 Approach to evaluating significance of impact on landscape and visual values

2.2 Visual amenity assessment methodology

Visual receptor audiences are assessed and described by the terms of the views that can be obtained and selected from representative viewpoints within the project area. Representative viewpoints have been identified and described in this assessment. The visual receptors are identified within these parameters:

- Proximity of the receptor to the project.
- Type of visual receptor experiencing the view – e.g., residents, people passing through the area in vehicles, recreational users or workers.

2.2.1 Visual sensitivity

The criteria used determine the visual sensitivity from viewpoints used for this VIA is provided in Table 2-1 below.

Table 2-1 Defining viewpoint sensitivity

Sensitivity of viewpoint	Attributes of viewpoint sensitivity categories
High	Large numbers of viewers or proprietary interest and prolonged viewing opportunities, such as residents and users of well-used recreational facilities. Views from regionally important locations with uses focussed on landscape, e.g., national park.
Medium	Medium numbers of residents (e.g., rural communities and townships) and moderate numbers of visitors with an interest in their environment e.g., visitors to state forests, including bush walkers, horse riders, trail bikers. Larger numbers of travellers with an interest in their surroundings e.g., local designated scenic routes.
Low	Small numbers of visitors with a passing interest in their surroundings or transient views e.g., those travelling along principal roads. Viewers whose interest is not specifically focussed on the landscape e.g., workers, commuters, truck drivers.
Negligible	Very occasional numbers of viewers with a passing interest in their surroundings e.g., those travelling along minor roads and views from the air.

2.2.2 Magnitude of change to visual amenity from representative viewpoints

The magnitude of change to visual amenity is dependent on a number of factors including, the nature, scale and duration of the changes expected to occur.

The criteria used to define the magnitude of change to visual amenity from representative viewpoints is provided in Table 2-2 below.

Table 2-2 Defining magnitude of change to visual amenity

Magnitude of change	Typical examples
High	**Dominant change:** Major changes in view at close distances, affecting a substantial part of the view, continuously visible for a long duration, or obstructing a substantial part or important elements of view. Generally, short distances (typically < 500m) to the nearest transmission tower and one or more transmission towers visible in their entirety.
Medium	**Considerable change:** Clearly perceptible changes in views at intermediate distances, resulting in either a distinct new element in a significant part of the view, or a wider ranging, less concentrated change across a wider area. Generally, short to medium views (typically 500m – 1 km) to the nearest transmission towers.
Low	**Noticeable change:** Minor changes in views at long distances or visible for a short duration, and/or are expected to blend in with the existing view to a moderate extent. Generally, medium to long distance views (typically 1 – 2.5 km to the nearest transmission tower).
Negligible	**Barely perceptible change:** Change which is barely visible at a very long distance or visible for a very short duration, and/or is expected to blend with the existing view. Distant views (generally, >2.5 km) to the nearest transmission towers.

2.2.3 Overall significance of impact on visual amenity from representative viewpoints

The overall significance of impact on visual amenity from representative viewpoints is based on the sensitivity of the viewpoint and the magnitude of change to visual amenity.

The criteria used to define the overall significance of impact on visual amenity from the project is provided in Table 2-3 below.

Table 2-3 Determining level of effect on visual amenity

Sensitivity of change	Level of effect	Magnitude of change of views			
		High (dominant change)	**Medium (considerable change)**	**Low (noticeable change)**	**Negligible (barely perceptible change)**
	High	Major	Moderate to major	Moderate	Minor to moderate
	Medium	Moderate to major	Moderate	Minor to moderate	Minor
	Low	Moderate	Minor to moderate	Minor	Minor to negligible
	Negligible	Minor to moderate	Minor	Minor to negligible	Negligible

	Significant impact
	Not significant impact

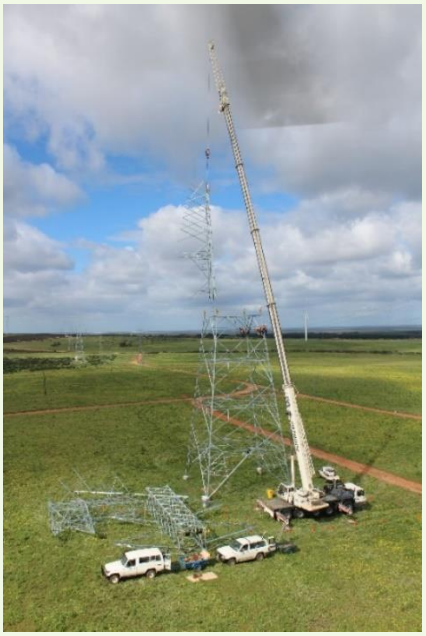
2.3 Limitations and assumptions

- The overall scope of this assessment is limited as the transmission line is replacing an transmission line.
- This assessment aims to be objective and factually accurate, however it relies upon qualitative judgements to be made.
- Information contained in the assessment is based upon a desktop assessment via photography provided by Powerlink or online sources. A site visit has not been conducted.
- A night-time assessment of lighting has not been undertaken. The development is not likely to have a noticeable increased impact at night-time due to the limited extent of the new transmission line replacing the existing line.

3 Project impacts

Table 3-1 summarises the potential impacts anticipated by the construction and operation which are relevant to the landscape and visual impacts caused by the proposed development.

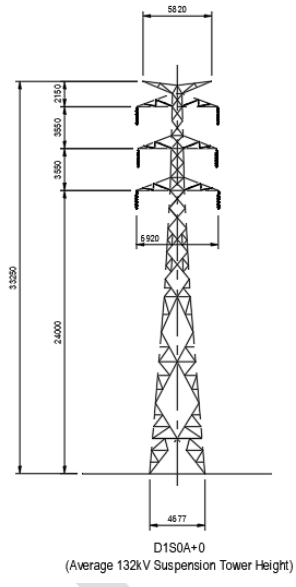
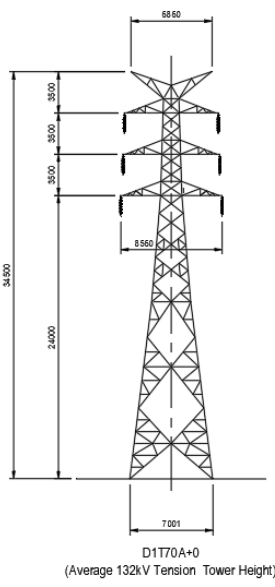
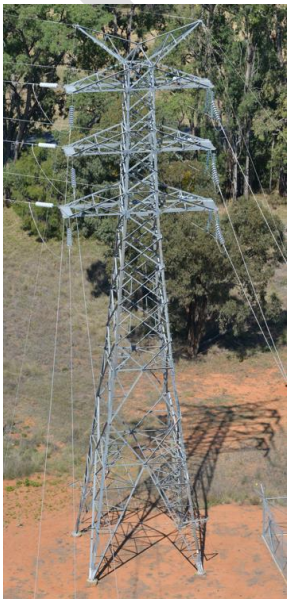
Table 3-1 Potential project impacts

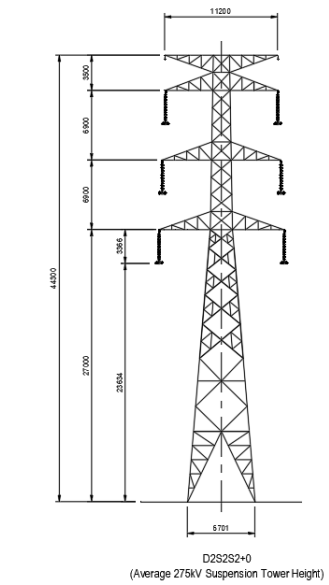
Development activities and infrastructure	**Typical imagery** (source: Powerlink)
Construction phase	
Construction of infrastructure ■ Expansion of the existing transmission line easement by 10m ■ Creation of a new 60 m easement ■ Construction of transmission structures and associated foundations	
Stringing of high voltage overhead transmission lines ■ To be undertaken with the aid of a helicopter or drone	
Operation phase	

Easement and Access Tracks	

The development will also involve replacing the existing 132kV transmission line with a 275kV line. This will necessitate installation of taller transmission towers which will be approximately 10m taller (refer Figure 3-10).

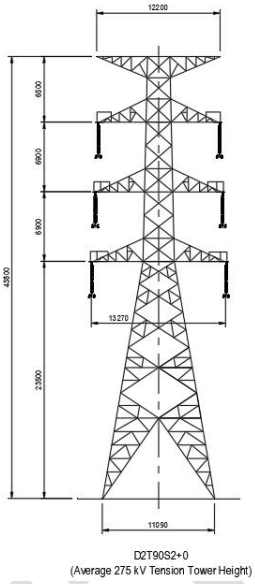
The average span required between towers will not change. The layout of the transmission line is provided in project plans.

  *Average span: 400-500m* *Average height: 33.25m*	  *Average span: 400-500m* *Average height: 34.5m*
Existing 132kV Suspension Tower	**Existing 132kV Tension Tower**



Average span: 400-500m
Average height: 44.5m

New 275kV Suspension Tower



Average span: 400-500m
Average height: 43.5m

New 275kV Tension Tower

Figure 3-1 Comparison of existing and new towers

4 Project area context

The project corridor traverses both the Western Downs Region and Darling Downs Region and is located approximately 150 km north west of Brisbane. These regions are characterised by predominantly rural land used for farming with some mining and renewable energy activities occurring.

The land immediately surrounding the project corridor is characterised by primarily, rural and agricultural land. The closest townships to the project corridor are Jandowae which is located approximately 18 km south west and Kumbia which is located approximately 11 km to the north west.

For approximately 45 km the project corridor will utilise the existing 132 kV Tarong-Chinchilla transmission line which is to be decommissioned and removed prior to the construction of the project. To accommodate the new transmission line the existing easement will be widened by 10 m to allow for the 60 m easement required for the project. At Ellesmere Road, the project corridor diverts south of the Tarong-Chinchilla transmission line easement for 2 km, prior to reaching the Halys Substation.

5 Legislative context

The project is subject to various Commonwealth, regional, State and local planning instruments. From Commonwealth to local level, these instruments include *the Environmental Protection and Biodiversity Conservation Act 1999; The Darling Downs Regional Plan 2013; The Wide Bay-Burnett Regional Plan 2011; The Planning Act 2016; The Planning Regulation 2017; The Nature Conservation Act 1992; The Western Downs Regional Council Planning Scheme 2017;* and *The South Burnett Regional Council Planning Scheme 2017*. Each instrument and the relevant policies applicable to this project are further detailed in the Ministerial Infrastructure Designation (MID) proposal.

6 Visual Impact Assessment

The visual impact assessment has been conducted from viewpoints where the development intersects with publicly accessible roads.

As previously noted, the scope of this assessment is narrow due to the generally accepted minimal impact caused by the new transmission line that is replacing an existing transmission line. This assessment considers the added impacts of the new transmission towers from these viewpoints and receivers.

As noted in the traffic report, the transmission line is not visible from the air as there are no nearby air traffic routes / airports.

The viewpoints chosen as part of this VIA are listed below and illustrated on Figure 6-1.

1. Diamondy Road
2. Niagra Road 1
3. Niagra Road 2
4. Niagra Road 3
5. Niagra Road 4
6. Niagra Road 5
7. Bunya Highway
8. Bunya Mountains Road
9. Alice Creek Road
10. Glencliffe Road
11. Ellesmere Road

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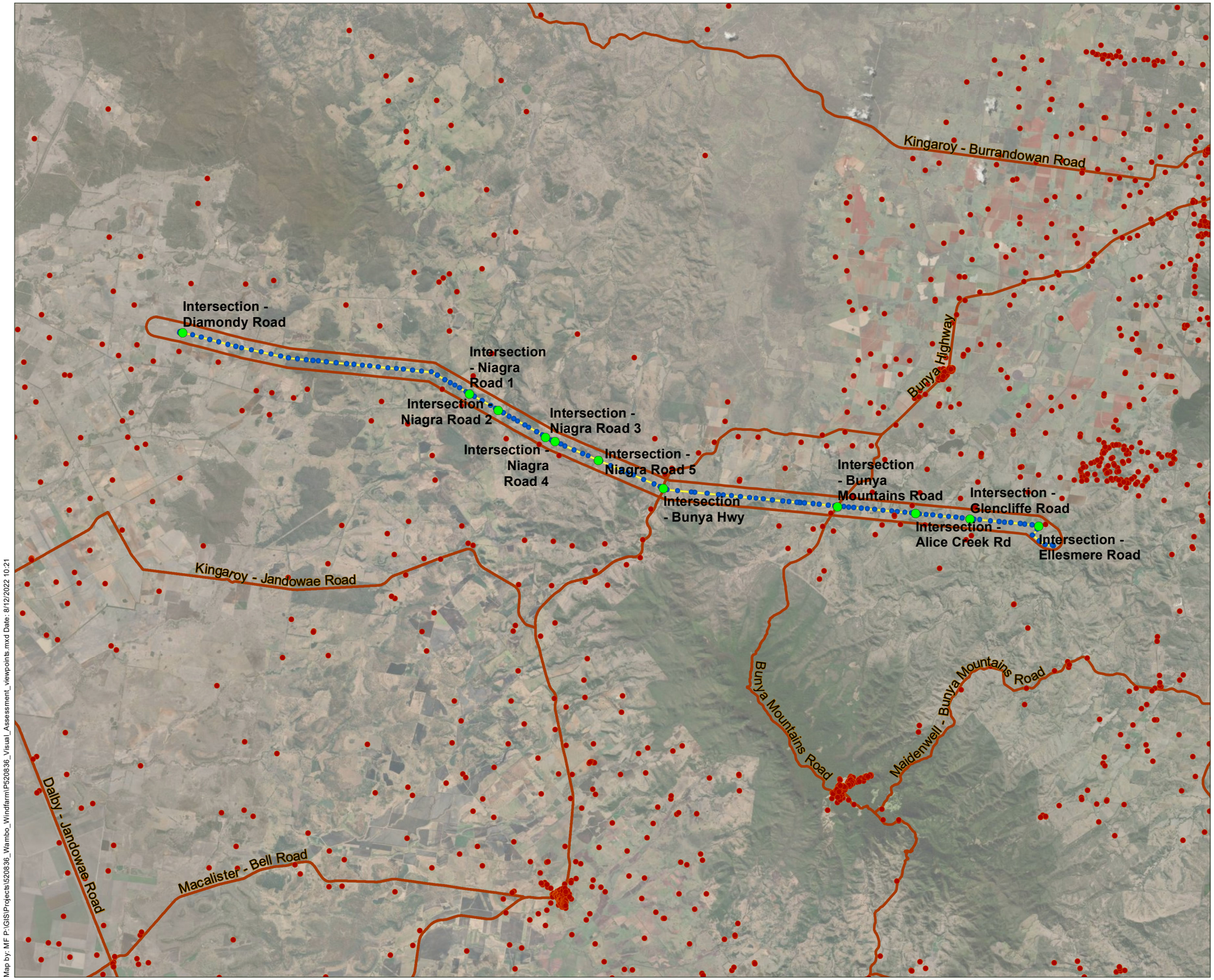

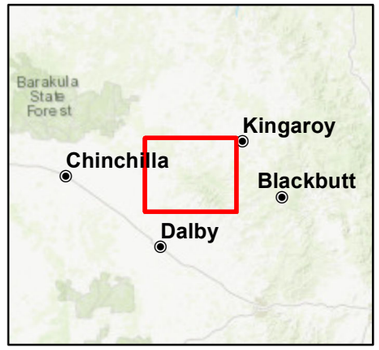

Legend

- Viewpoints
- Sensitive receptors (dwelling houses)
- Tower structures
- State controlled roads
- Project corridor
- Study area

Notes:

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A3 scale: 1:200,000

0 1 2 3 4 5 km

Job No: 520836

Projection: MGA Zone 56

Powerlink Wambo transmission line

Visual assessment viewpoints

6.1 Viewpoint evaluation

Viewpoint 1

The visual context and level of visual impact the Project will have on viewpoint 1 is detailed in Table 6-1.

Table 6-1 Likely visual effect of the project on Viewpoint 1

VP01: Diamondy Road	
Visual baseline assessment	
	
Location and description	■ GPS Location: 26°40'0.06"S 151°15'27.64"E ■ Elevation: 464m
Visual evaluation	
This viewpoint is classed as having low sensitivity, with a small number of visitors travelling through it with only a passing interest in the surroundings or transient views. Diamondy Road is a gravel / unpaved road, and the surrounding land is agricultural and used for grazing purposes. There are no nearby sensitive receptors in proximity to this viewpoint. The magnitude of change is considered minor. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have a minimal additional adverse visual impact at this location.	

Viewpoint 2

The visual context and level of visual impact the Project will have on viewpoint 2 is detailed in Table 6-2.

Table 6-2 Likely visual effect of the project on Viewpoint 2

VP02: Niagra Road 1	
Visual baseline assessment	
	
Location and description	■ GPS Location: 26°41'49.42"S 151°24'23.90"E ■ Elevation: 580m
Visual evaluation	
Viewpoint 2 is from Niagara Road, which provides connection for commuters between the small towns of Jandowae, Kumbia and other surrounding areas. The immediately surrounding area is rural agricultural land. The viewpoint has low sensitivity, with receptors likely to have a passing interest in transient views. The magnitude of change is considered minor. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have a minimal additional adverse visual impact at this location.	

Viewpoint 3

The visual context and level of visual impact the Project will have on viewpoint 3 is detailed in Table 6-3.

Table 6-3 Likely visual effect of the project on Viewpoint 3

VP03: Niagra Road 2	
Visual baseline assessment	
	
Location and description	■ GPS Location: 26°42'17.61"S 151°25'17.74"E ■ Elevation: 592m
Visual evaluation	
Viewpoint 3 is similarly of low viewpoint sensitivity, with visitors likely to have a passing interest and not be focussed on the passing view. The magnitude of change is considered minor. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have a minimal additional adverse visual impact at this location.	

Viewpoint 4

The visual context and level of visual impact the Project will have on viewpoint 4 is detailed in Table 6-4.

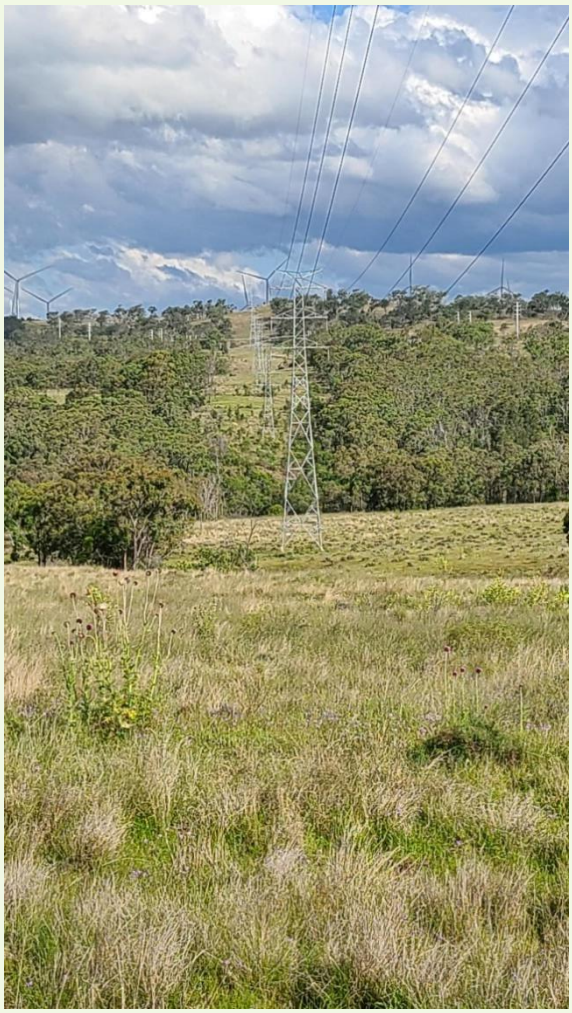
Table 6-4 Likely visual effect of the project on Viewpoint 4

VP05: Niagra Road 3	
Visual baseline assessment	
	
Location and description	■ GPS Location: 26°43'4.40"S 151°26'45.69"E ■ Elevation: 658m
Visual evaluation	
Viewpoint 4 has medium viewpoint sensitivity due to the elevated location of the existing transmission line tower. Passing visitors on this road are likely to have a passing interest and have negligible interest in the view. The magnitude of change is considered minor. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have a minimal additional adverse visual impact at this location.	

Viewpoint 5

The visual context and level of visual impact the Project will have on viewpoint 5 is detailed in Table 6-5.

Table 6-5 Likely visual effect of the project on Viewpoint 5

VP05: Niagra Road 4	
Visual baseline assessment	
	
Location and description	■ GPS Location: 26°43'11.64"S 151°27'3.67"E ■ Elevation: 648m
Visual evaluation	
This viewpoint on Niagara Road has a generally low sensitivity, with passing visitors likely to have only a passing interest. The setting is agricultural, and the road provides connection to Bunya Highway. The existing Coopers Gap Wind Farm is visible from this viewpoint and as such reduces the visual sensitivity. The magnitude of change is considered negligible given the existing Coopers Gap Wind Farm which can be seen from this location. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have a negligible additional adverse visual impact at this location.	

Viewpoint 6

The visual context and level of visual impact the project will have on viewpoint 6 is detailed in Table 6-6.

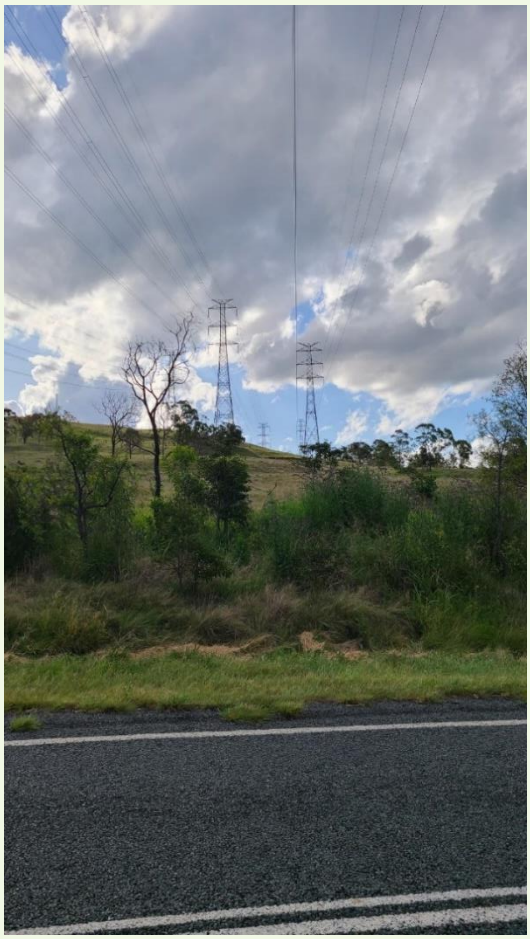
Table 6-6 Likely visual effect of the project on Viewpoint 6

VP07: Niagra Road 5	
Visual baseline assessment	
 	
Location and description	▪ GPS Location: 26°43'43.82"S 151°28'24.61"E ▪ Elevation: 619m
Visual evaluation	
Viewpoint 6 is on Niagara Road and has low sensitivity. It is a local road providing connection to Bunya Highway. Users of this road are likely to have a passing interest and not be focussed on the passing view. The magnitude of change is considered minor. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have minimal additional adverse visual impact at this location.	

Viewpoint 7

The visual context and level of visual impact the Project will have on viewpoint 7 is detailed in Table 6-7.

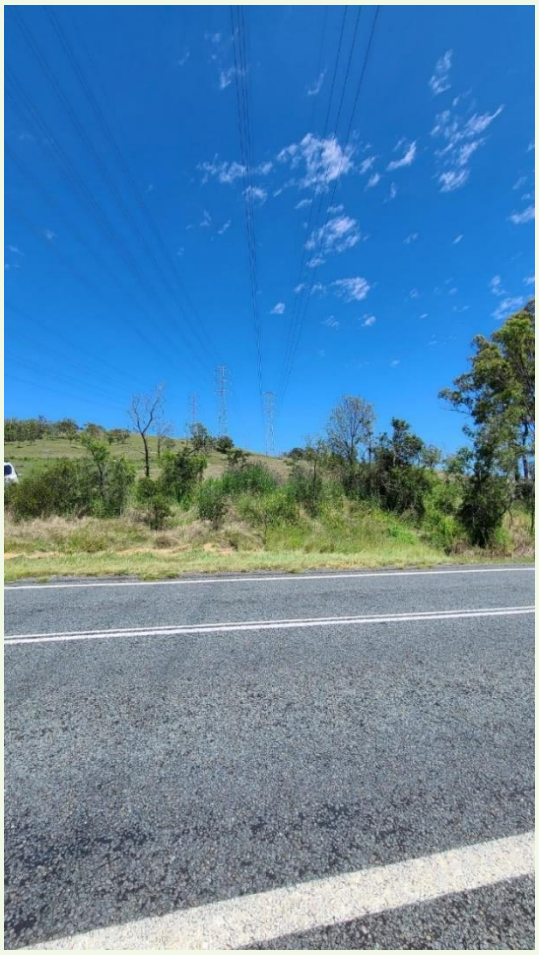
Table 6-7 Likely visual effect of the project on Viewpoint 7

VP08: Bunya Highway	
Visual baseline assessment	
	
Location and description	■ GPS Location: 26°44'32.69"S 151°30'25.90"E ■ Elevation: 627m
Visual evaluation	
Viewpoint 7 is the transmission line's intersection with Bunya Highway, the major connection road between the townships of Bell and Kumbia. The viewpoint is considered to have a medium sensitivity given the towers elevated location. While there is a higher proportion of users to this road, there is no infrastructure encouraging or requiring travellers to stop. The road is not identified as a scenic or tourist location. The magnitude of change is considered minor. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have minimal additional adverse visual impact at this location.	

Viewpoint 8

The visual context and level of visual impact the Project will have on viewpoint 8 is detailed in Table 6-8.

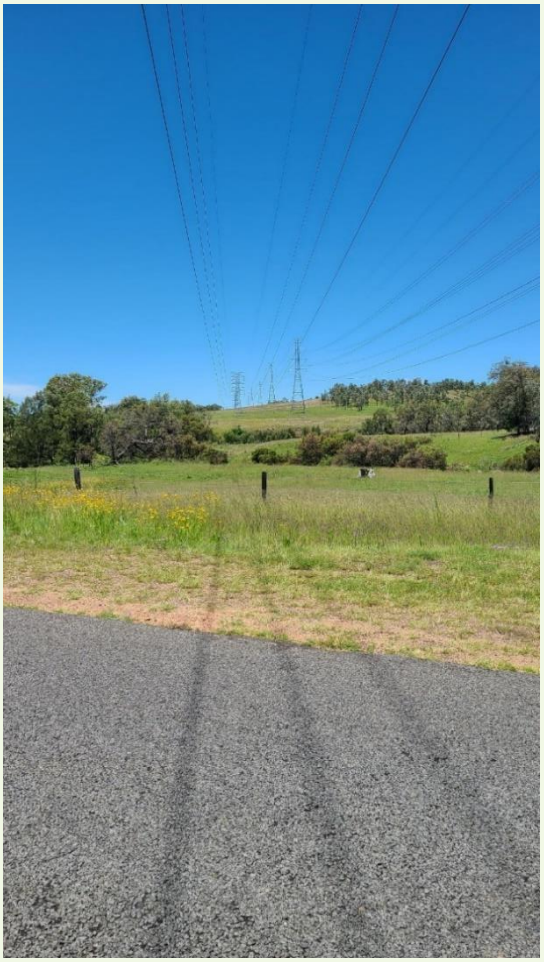
Table 6-8 Likely visual effect of the project on Viewpoint 8

VP09: Bunya Mountains Road	
Visual baseline assessment	
 	
Location and description	■ GPS Location: 26°45'6.39"S 151°35'52.21"E ■ Elevation: 514m
Visual evaluation	
Bunya Mountains Road is a main road with transient viewpoints. The road provides connection to local areas and towns. Viewers are mainly focussed on the road and not specifically the view. Sensitivity is considered low. The magnitude of change is considered minor. Given the setback of towers from the road in this location, the upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have minimal additional adverse visual impact.	

Viewpoint 9

The visual context and level of visual impact the Project will have on viewpoint 9 is detailed in Table 6-9.

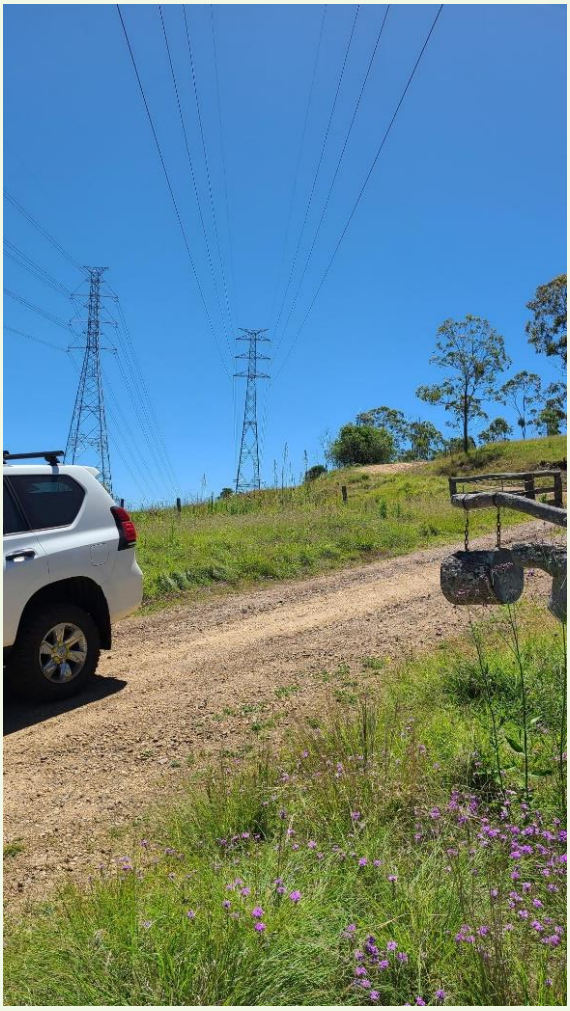
Table 6-9 Likely visual effect of the project on Viewpoint 9

VP10: Alice Creek Road	
Visual baseline assessment	
 	
Location and description	▪ GPS Location: 26°45'19.86"S 151°38'18.46"E ▪ Elevation: 556m
Visual evaluation	
Alice Creek Road is a minor local road with few local users. The viewpoint is in an agricultural and rural setting, with visitors only likely to have a minimal passing interest in the area. Sensitivity of this view is considered negligible. The magnitude of change is considered negligible. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have minimal additional adverse visual impact at this location.	

Viewpoint 10

The visual context and level of visual impact the Project will have on viewpoint 10 is detailed in Table 6-10.

Table 6-10 Likely visual effect of the project on Viewpoint 10

VP11: Glencliffe Road	
Visual baseline assessment	
 	
Location and description	■ GPS Location: 26°45'29.83"S 151°40'0.92"E ■ Elevation: 542m
Visual evaluation	
Sensitivity of Glencliffe Road is low. It is an unsealed road with few local users in a very rural setting. An existing 275 kV transmission line is also visible from this location. The magnitude of change is considered minor. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have minimal additional adverse visual impact at this location. Further, the presence of an existing 275 kV transmission line will further reduce visual impacts from the project at this location.	

Viewpoint 11

The visual context and level of visual impact the Project will have on viewpoint 11 is detailed in Table 6-11.

Table 6-11 Likely visual effect of the project on Viewpoint 11

VP12: Ellesmere Road	
Visual baseline assessment	
	
Location and description	■ GPS Location: 26°45'43.46"S 151°42'9.65"E ■ Elevation: 571m
Visual evaluation	
This viewpoint has a negligible sensitivity, being a unsealed back road with few regular users. The magnitude of change is considered negligible. The upgrade of transmission towers in terms of height (suspension tower increase by 11.25m and tension tower increase by 9m) is expected to have minimal additional adverse visual impact at this location.	

7 Conclusion

The primary source of visual amenity impacts of the project will be the increase in tower hight, resulting in a small increase in the overall size of the transmission towers. Notwithstanding the minor scale of increase to height, the project will result in a permanent change to the visual landscape, however this is considered to be minimal impact from ground viewpoint. The majority of viewpoints affected are local roads with few regular users, or roads that connect rural areas and small townships.

As illustrated in the VIA, the project will have a minor visual impact on the landscape character and the visual amenity of the region due to the Project's distance from publicly accessible areas and residential dwellings, screening effect of the native vegetation and the presence of existing transmission lines and wind turbines.

Given the above, the changes to the landscape and visual amenity are considered to be consistent with the existing landscape character and as such the project is considered to have a negligible impact on the visual amenity of the surrounding area.

Appendix A
Viewpoints and sensitive receptors

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