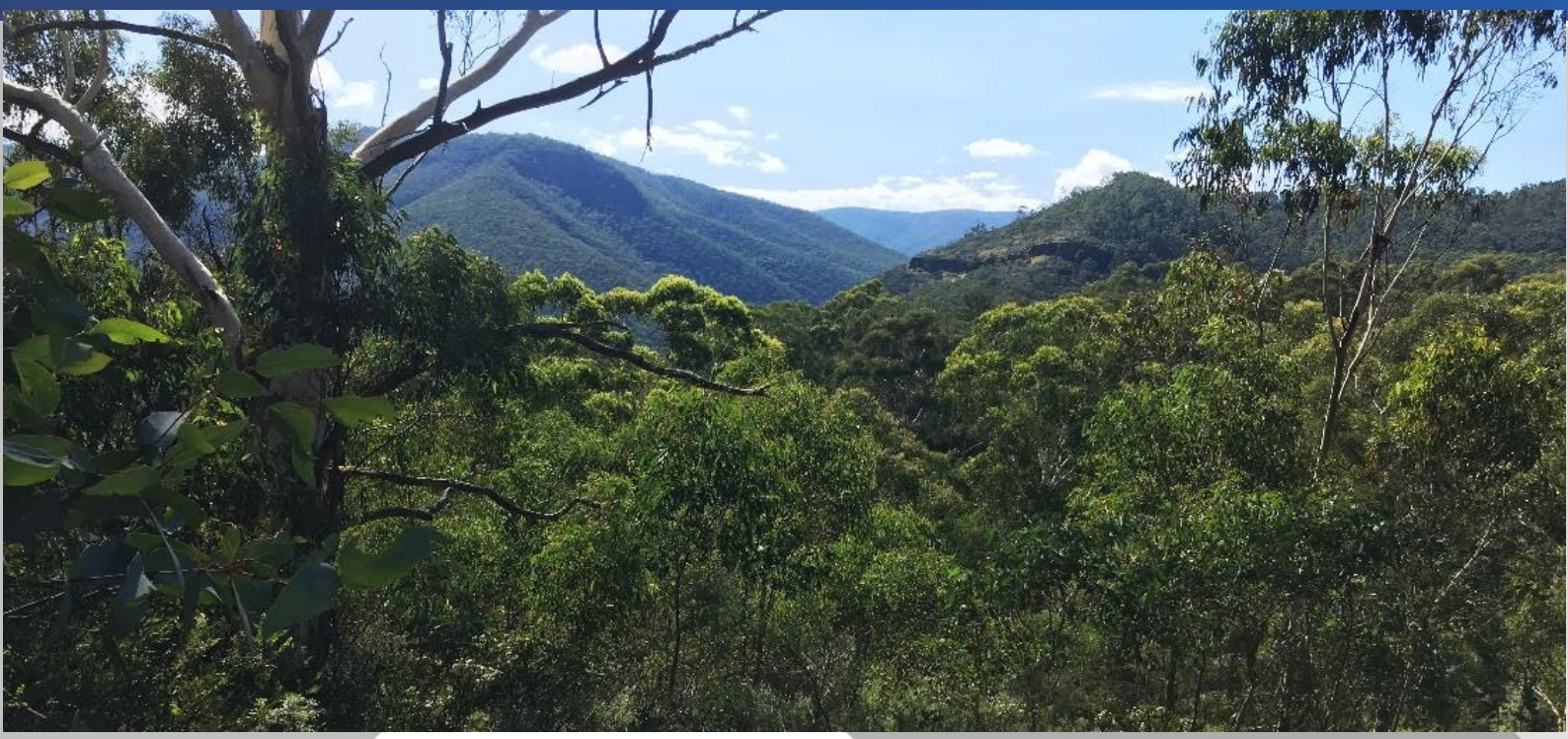
Appendix H Landscape character visual impact assessment

Snowy 2.0 Transmission Connection Project

Environmental Impact Assessment

(February 2021)



Snowy 2.0 Transmission Connection Project

Landscape Character and Visual Impact Assessment

Rev 04

December 2020

TransGrid

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Executive Summary

TransGrid is the manager and operator of the major high-voltage electricity transmission network in New South Wales (NSW) and the Australian Capital Territory (ACT).

TransGrid is seeking approval under Part 5 Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction and operation of a new overhead transmission connection and substation to enable the grid connection of the Snowy 2.0 pumped hydro generation project (Snowy 2.0).

A quantitative and qualitative assessment of the potential visual and landscape amenity impacts has been undertaken for the Snowy 2.0 Transmission Connection Project (the project). An initial assessment was conducted following a site visit undertaken in May 2019. Following the 2019/2020 summer bushfires, areas that were accessible were revisited to document the changes to the landscape and re-assess the project within the new landscape context.

The project is located within Kosciuszko National Park (KNP) and Bago State Forest and traverses the Talbingo Reservoir, approximately 88 kilometres south west of Canberra. The landscape within the study area is topographically diverse and includes several existing high voltage transmission lines and water storage facilities that were established as part of the original Snowy Hydro Scheme. Prior to the bushfires, the site was heavily vegetated. Following the bushfires, impacts to onsite vegetation vary across the study area. Existing transmission lines associated with the Snowy Hydro Scheme are included in many journeys and routes through this area. Although the sensitivity of the landscape as a national park is determined as 'high', the obvious presence of a number of transmission lines reduces this sensitivity for some areas where similar infrastructure to that of the project is already visible.

The assessment has determined that areas potentially impacted by loss of landscape amenity or through views afforded to the project would largely be limited to short sections of Elliott Way to the west and south of the project, and along some sections of the Lobs Hole-Ravine 4WD trail and tracks that navigate the KNP. The impact to views and landscape areas from locations that look along sections of cleared transmission corridor would experience a higher level of impact than views that are perpendicular or oblique to the alignment. The clearing of canopy vegetation in these view aspects would modify the landscape character. The visual impacts would include the obviousness of the cleared vegetation as well as the insertion of the transmission line infrastructure. The impact to locations perpendicular to the transmission corridor would take in features that define the character of the area such as topography, vegetation, ridgelines, open water and in some instances existing transmission lines, albeit modified to include new overhead transmission lines.

The greatest visual impact would occur where the creation of transmission corridors results in the clearing of vegetation in proximity to publicly accessible roads. These areas are generally in proximity to existing transmission crossings within the area.

In areas along the Lobs Hole-Ravine 4WD trail where project elements would be visible, views are often limited by intervening topography, existing vegetation or existing transmission infrastructure in the foreground.

Opportunities for the mitigation of visual impacts are limited due to the nature of the existing topography and vegetation limiting the introduction of landscape screening.

1. Introduction

1.1 Overview

TransGrid is the manager and operator of the major high-voltage electricity transmission network in New South Wales (NSW) and the Australian Capital Territory (ACT).

TransGrid is seeking approval under Part 5 Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction and operation of an overhead transmission connection and substation to enable the grid connection of the Snowy 2.0 pumped hydro generation project (Snowy 2.0).

The Snowy 2.0 Transmission Connection Project (the project) has been declared critical State Significant Infrastructure (SSI) under the *State Environmental Planning Policy (State and Regional Development) 2011* and is subject to assessment and determination by the Minister for Planning. This landscape character and visual impact assessment (LCVIA) has been developed in support of the Environmental Impact Statement (EIS) for the project.

1.2 Purpose of this report

This Landscape Character and Visual Impact Assessment (LCVIA) has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) issued for the project on 1 November 2019 by the Planning Secretary of the NSW Department of Planning, Industry and Environment (DPIE).

The SEARs relevant to this LCVIA are presented in **Table 1-1**, along with a reference to where these requirements are addressed in this working paper.

Table 1-1: Secretary's environmental assessment requirements – Landscape and visual impact

Requirement	Where addressed
Amenity – an assessment of the visual impacts of the project, including lighting impacts and potential impacts on views of the project from key vantage points in the Kosciuszko National Park	**Section 6**

1.3 Structure of the document

The report has been structured into the following sections:

- **Section 1** introduces the project
- **Section 2** provides an overview description of the project
- **Section 3** provides an overview of the visual assessment methodology
- **Section 4** provided an overview of the strategic and statutory context
- **Section 5** provides an overview of the existing environment
- **Section 6** documents the visual assessment of the construction and operational impacts of the project
- **Section 7** outlines management measures to be considered to mitigate the visual impacts of the project
- **Section 8** provides conclusions and summary of findings recommendations of the LCVIA.

2. Description of the project

This section provides an overview of the components of the project and modifications to the landscape required to be undertaken for the construction and operation of the new transmission connection. The purpose of this section is to describe the elements of the project relevant to an LCVIA of the project, and for the reader to gain an understanding of elements described within the assessment sections that follow.

2.1 Project components

The project would involve the construction and operation of an overhead transmission connection and substation to connect Snowy 2.0 to the National Electricity Market.

The key elements of the project include:

- A new 500/330 kV substation located within the Bago State Forest adjacent to TransGrid's existing Line 64, which forms a 330 kV connection between Upper Tumut and Lower Tumut switching stations. The existing substation switchyard would occupy a footprint of approximately 300 metres (m) wide 600 m long inclusive of an approximate 25 m to 45 m wide cleared asset protection zone (APZ) surrounding the switchyard.
- Upgrade and widening of an existing access road off Elliott Way to the new substation including the construction of new driveways into the 330 kV and 500 kV switchyards.
- Two new 330 kV overhead double-circuit transmission lines from the Snowy 2.0 cable yard to the new substation:
  - Total length of each line is approximately nine kilometres (km)
  - Located in a transmission corridor ranging in width from approximately 120 m to 200 m
  - Each line would comprise approximately 21 steel lattice structures up to 75 m in height
- Short overhead 330 kV transmission line connection (approximately 300 m in length) comprising both steel lattice structures and pole structures as required between the substation and Line 64.
- Construction of up to 10 km of new access tracks (Option A) or 8 km (Option B) to the transmission structures and upgrade to existing access tracks where required. Option A minimises disturbance within a mapped high risk naturally occurring asbestos (NOA) zone. The access tracks would remain following completion of construction to service ongoing maintenance activities along the transmission lines.
- Establishment of a helipad (approximately 30 m wide by 30 m long) to support the transmission line construction activities carried out at higher elevations.
- Ancillary activities, including the establishment of tensioning and pulling sites for conductor and earth wire stringing, crane pads, site compounds, and equipment laydown areas.

The project location and key components of the project are shown **Figure 2-1** and in **Figure 2-2** respectively.

A complete project description which includes a consolidated summary and discussion of the construction and operation of the project is provided in Chapter 5 of the EIS.

2.2 Project location

The eastern extent of the project is defined by the location of the Snowy 2.0 cable yard at Lobs Hole in Kosciuszko National Park (KNP). The cable yard serves as the transition point between the underground cables carrying electricity generated by Snowy 2.0 to the overhead transmission connection. The cable yard forms part of Snowy 2.0.

From the cable yard, the transmission connection extends west through KNP and up Sheep Station Ridge which is characterised by steep, mountainous terrain before traversing Talbingo Reservoir. The transmission connection then continues west, passing over Elliott Way at three locations before entering Bago State Forest to the proposed substation site. The location of the project is shown in **Figure 2-1**.

2.3 Project area

For the purposes of predicting environmental impacts of the project, a **disturbance area** has been defined. The disturbance area encompasses the extent of physical disturbance likely to be required to accommodate construction activities and infrastructure needed to build the overhead transmission line, the permanent substation and access roads and vegetation clearing along the transmission corridor.

A broader **project area** has also been defined. The project area represents the limits of where disturbance may occur during construction to allow for flexibility for the final siting of project infrastructure. Final siting of the infrastructure (i.e. the disturbance area) can move within the assessed project area subject to recommended environmental management measures and provided it does not exceed the limits defined by the project area.

The project traverses Talbingo Reservoir, which naturally splits the project area into two. When defining the area of works, the terms 'project area east' and 'project area west' have been used where required for the purpose of the EIS. These are defined as follows:

- Project area east: includes the project area and existing surrounding access roads in the area east of Talbingo Reservoir
- Project area west: includes the project area and existing surrounding access roads in the area west of Talbingo Reservoir.

The existing landscape character of much of the project area consists of undisturbed and mountainous terrain, forested valleys, and is the only true alpine environment in NSW (NPWS 2003). This landscape contains limited human disturbance, however existing transmission line easements, minor access tracks, and infrastructure associated with the Talbingo Reservoir are located within and surrounding the project area.

The project area and disturbance area are shown in **Figure 2-2**.

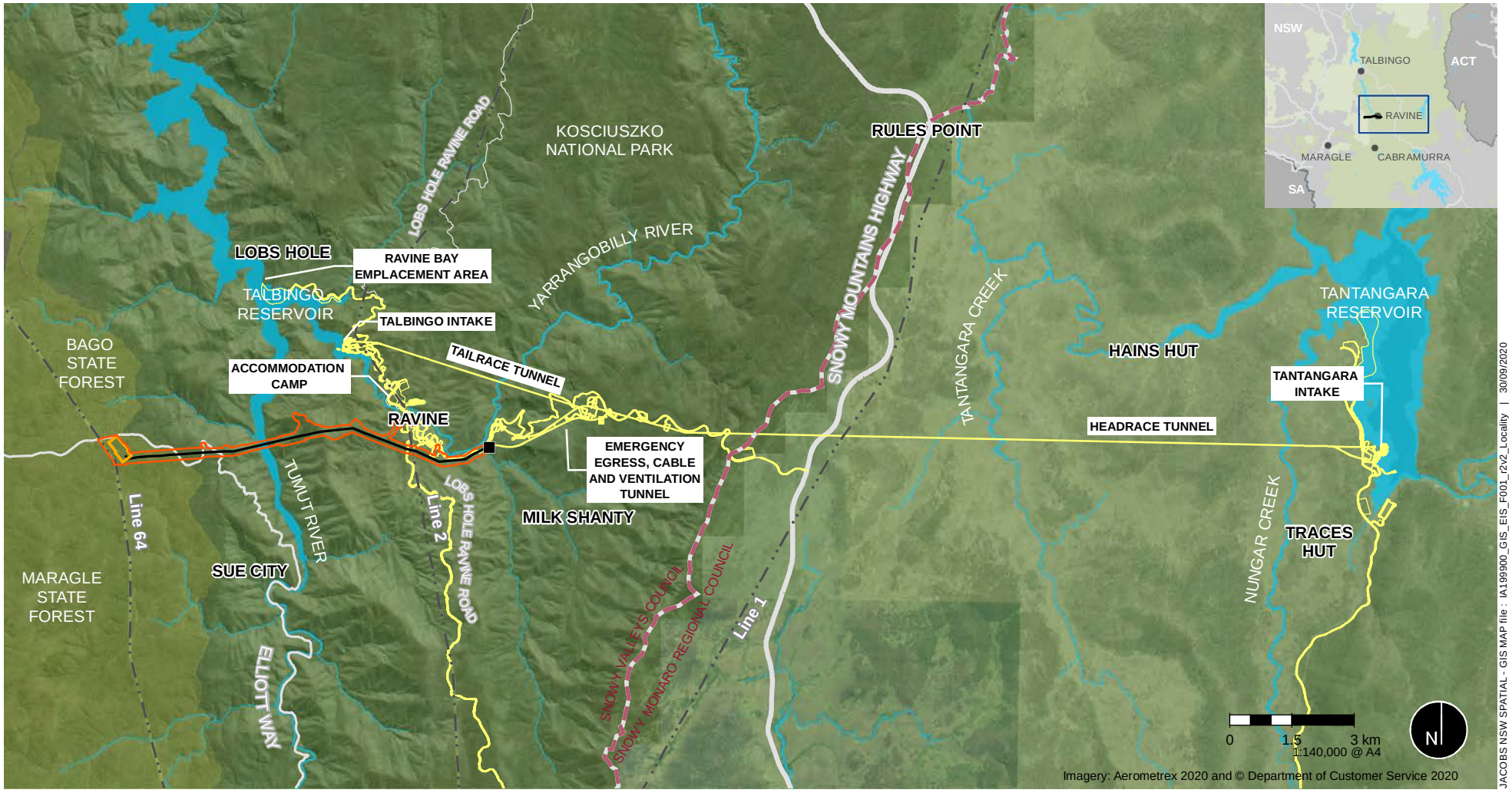


Figure 2-1 | Project location

Data source:
Jacobs 2020, TransGrid, EMM 2020
© Department Finance, Services and Innovation 2018

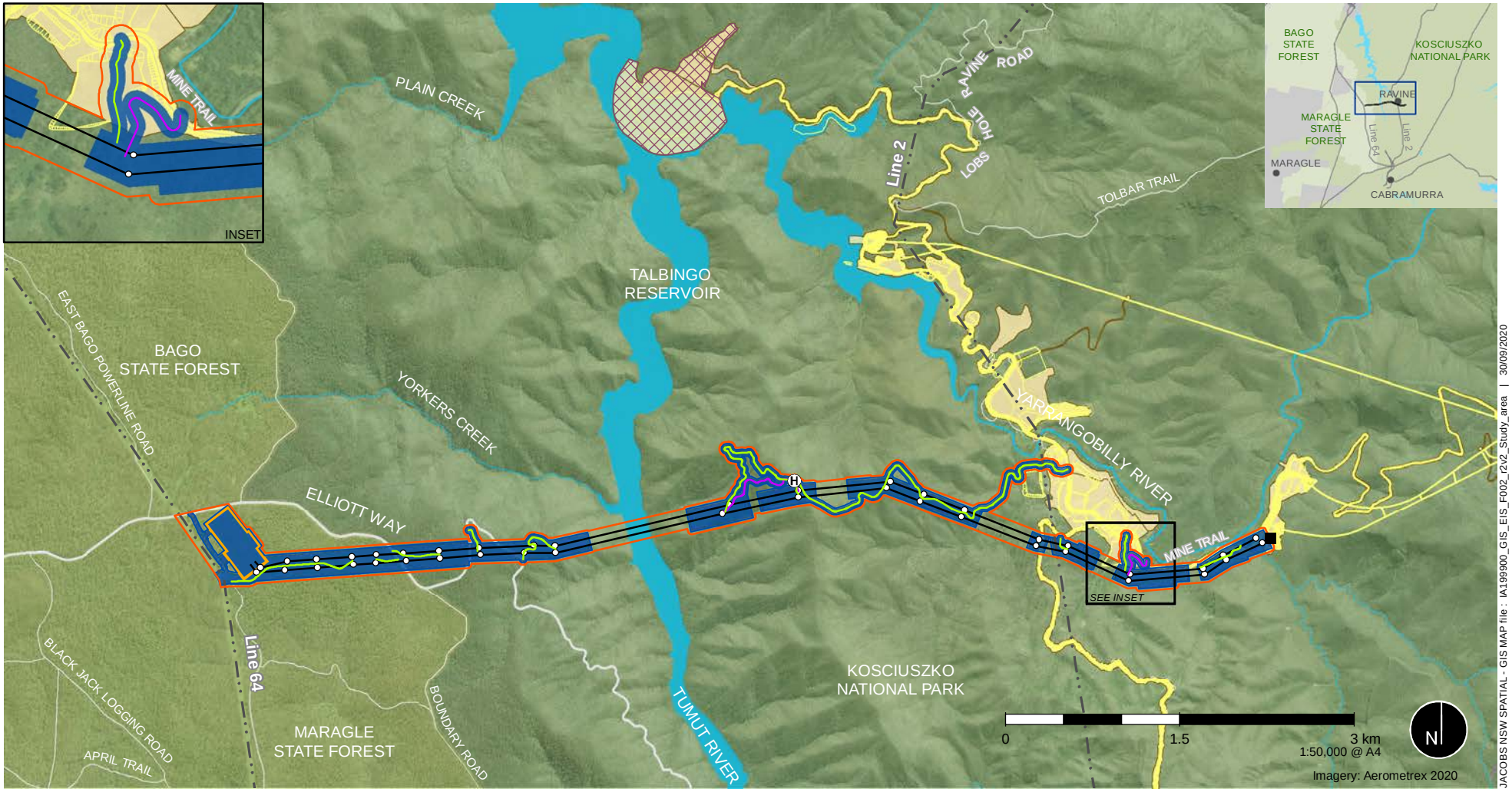


Figure 2-2 | Project overview

Data source:
Jacobs 2020, TransGrid, EMM 2020,
© Department Finance, Services and Innovation 2018

2.4 Key project infrastructure

This section includes a description of the transmission and distribution power lines required to complete the connection between the Snowy 2.0 cable yard and the NSW electricity grid.

2.4.1 Transmission structures

Each transmission line would comprise approximately 21 steel lattice structures (42 in total). Each structure would be up to 75 m in height supporting two circuits comprising up to twelve conductors and two overhead earth wires and/or optical ground wires. The transmission structures supporting each double-circuit transmission line would generally be located adjacent to each other and supported at ground level on a combination of concrete pile, rock anchor and mass concrete style footings.

To be conservative, this LCVIA is based on a structure height of 75 m. This will allow for any footings or foundations that might be required to be constructed above the existing ground level.

A concept image of a steel lattice structure is shown in **Figure 2-3**.

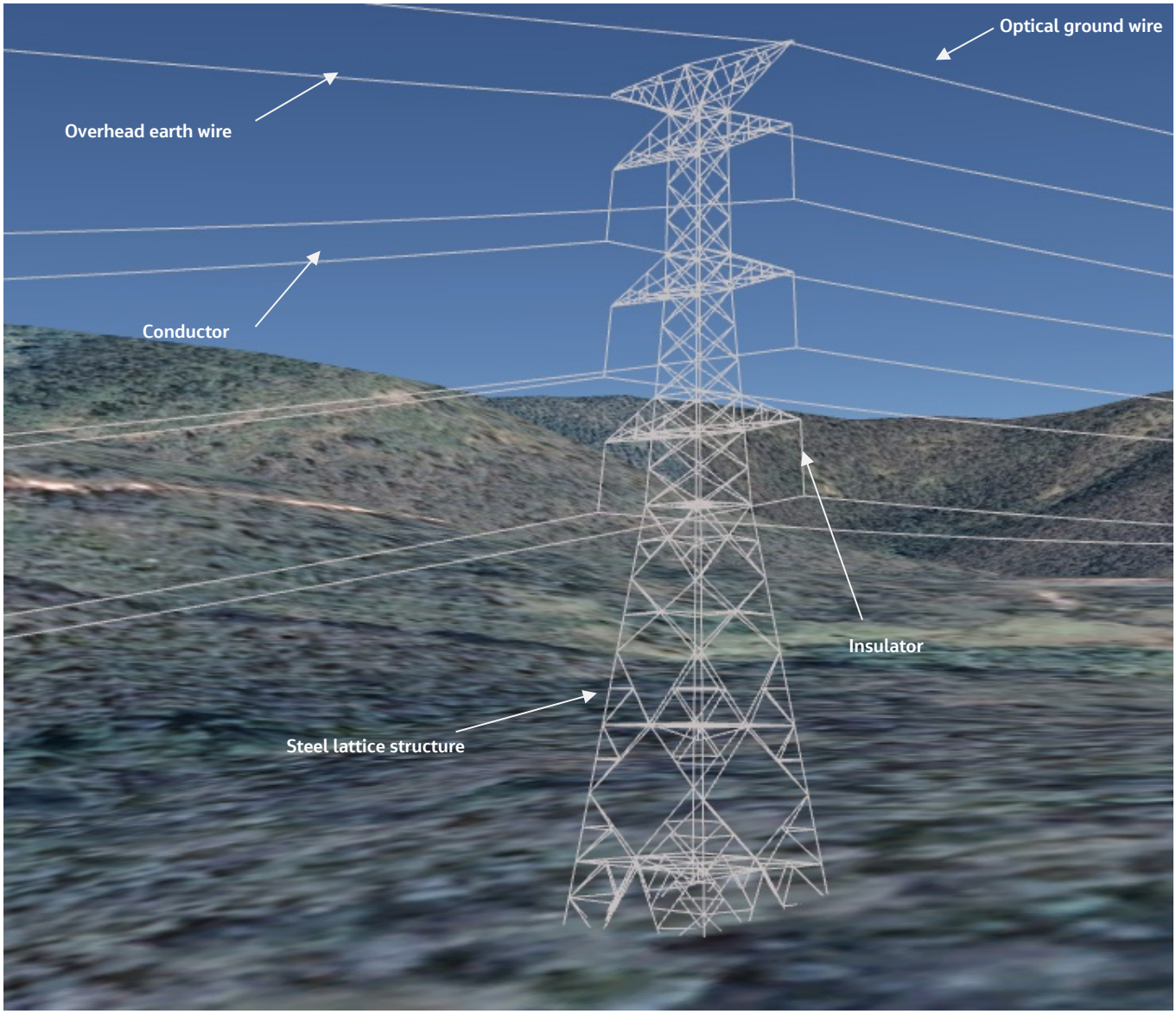


Figure 2-3: Indicative concept design for the transmission structures

An example of existing transmission structures in the area is shown below in **Photo 2-1**. This transmission line is located within the Bago State Forest, and this view is experienced by road users along Elliott Way.

Photo 2-1: Existing transmission structures and cleared corridor within Bago State Forest

2.4.2 Transmission corridor

The transmission corridor varies in width and is generally 120 m to 200 m wide. The disturbance area includes the transmission corridor. The transmission corridor requires the clearing of all tall vegetation such as trees, for the safe operation of the transmission lines. The transmission corridor would include sections of continuous removed vegetation in flatter areas such as within project area west. Within project area east, isolated patches of vegetation would be removed, rather than a continuous corridor due to the variation in topography.

2.4.3 Aviation sight balls

Aviation sight balls, or aircraft markers, would be required at the section of the transmission line that crosses the Talbingo Reservoir. These markers are coloured plastic balls that are spaced out along the transmission cables. By nature, these markers will increase the visibility of the transmission elements. An example of these aircraft markers is shown below in **Photo 2-2.**

Photo 2-2: Example aircraft markers (Source: TransGrid)

2.4.4 Substation

The substation is expected to occupy an area of about 300 m by 600 m inclusive of an APZ and laydown area for materials and equipment during construction.

The substation would generally be orientated in a north-south direction and would be set back approximately 70 m from Elliott Way.

The substation switchyard would comprise a level benched area on which all high voltage and ancillary substation equipment and buildings would be located. This would generally include the following:

- Up to three 500/330 kV 3-phase or up to nine single-phase transformers to convert the voltage from 330 kV to 500 kV to support future 500 kV transmission line augmentations to TransGrid's network
- Approximately three auxiliary transformers to provide low voltage supplies
- Two 500 kV reactors
- 330 kV and 500 kV switchbays
- Onsite buildings to house substation controls, secondary systems equipment and amenities
- Oil containment and stormwater system (including bunding and containment tank(s))
- Lightning masts
- Steel gantries
- Security fencing.

Security fencing would be installed around the perimeter of the substation yard. This would include generally 3 m high palisade/security fencing, comprised of a galvanised steel (or similar) material and topped with barbed or razor wire, on all sides of the switchyard.

The external lighting would be installed in a manner that aims to minimise light spill to areas beyond the substation boundary fence.

Landscaping of the substation site is proposed to be limited to typically grassland from the substation security fence inclusive of an approximate 25 m to 45 m wide cleared APZ. Existing trees along Elliott Way are expected to be retained to screen views of the substation from the road.

An example of a typical terminal substation is shown in **Photo 2-3**.

Photo 2-3: Typical substation

2.4.5 Lighting

Lighting would be required for security purposes at the new substation. There is no other permanent project lighting proposed as part of the project.

2.4.6 Access tracks

New access roads and tracks would be required to allow for vehicles, plant, machinery and equipment to be transported to the work locations, including all transmission structures and the helipad during the construction phase. The access tracks would be approximately 5 m wide and would be retained to facilitate ongoing maintenance activities of the transmission lines and provide access during emergency events such as bushfire.

The new access tracks and roads would be of suitable grade to allow deliveries of large equipment and plant (such as transmission structures, concrete trucks, cranes, elevated work platforms etc) and allow for the turning radius of the vehicles. Where required, adequate sediment retention basins would be included in the access track design to manage erosion sedimentation and associated impacts on receiving waters.

Visually, these new access tracks would appear similar to the unsealed fire tracks and 4WD trails in the area.

2.5 Construction activities

The construction works would commence with the construction of the access tracks to the substation and structure locations. Construction of the helipad is also expected to commence in the initial stages. Once suitable access has been established, construction of the substation and transmission line would commence and occur concurrently. A summary of the construction activities is provided in **Table 2-1**.

Table 2-1: Project construction overview

Construction activity	Description
Pre-construction, site establishment and vegetation clearance	▪ Site mobilisation once relevant approvals have been granted, property acquisitions have been finalised with Forestry Corporation of NSW (FCNSW) and National Parks and Wildlife Service (NPWS) and agreements with construction contractors have been achieved ▪ Surveying and marking out the approved disturbance area and any environmental avoidance areas ▪ Installation of appropriate stormwater and diversion drainage and erosion and sedimentation control works prior to ground disturbance and vegetation clearing ▪ Inform recreational users of KNP, Bago State Forest and Talbingo Reservoir of the construction activities, the extent of work areas and the locations of environmental exclusion areas with project notifications, including warning signs of construction activities and notifications of access restrictions ▪ Establishment of the construction compound and equipment laydown areas at the substation site and at Lobs Hole*.
Access tracks	▪ Vegetation clearing within the approved corridor. This is expected to be carried out both manually in the areas of steeper slopes and machine clearing where access can be safely achieved ▪ Grubbing and bulk earthworks (cut and fill) using an excavator ▪ Installation of suitable drainage structures and sediment retention basins where required ▪ Laying and compaction of a suitable rock aggregate/road base ▪ Grading and/or reshaping of existing tracks where required, within the existing access track width (no road widening) ▪ Minor excavations followed by laying and compaction of crushed rock or gravel, to improve the existing track surface and drainage.
Substation	▪ Vegetation clearing across the substation site and surrounding APZ. This would involve the stripping and stockpiling of topsoil for later use. Vegetation clearing is expected to be carried out utilising a bulldozer with a tree pusher, however would be confirmed in consultation with FCNSW ▪ Establishment of a site compound and laydown area within the cleared APZ. The site compound would be in place throughout the construction period and is expected to contain demountable offices, meal rooms, toilet/shower facilities, equipment laydown areas, vehicle and equipment storage, maintenance sheds, chemical/fuel stores and stockpile areas ▪ Minor earthworks to establish the site amenities; which would include cut and fill to establish a level area for the site facilities and temporary storage areas and establishment of the permanent site access road ▪ Earthworks: - Excavation works to remove excess material, provide a level surface, and create the required trenches for drainage, earthing, and electrical conduits. Some spoil from the excavation may be reused on site for filling and compaction (including benching areas of the site where required). Excavation works would be carried out using equipment such as excavators, dozers and crushing plant. Furthermore, depending on the underlying geology, blasting may be required to facilitate the break-up of rock, should it be present - Bulk earthworks to establish the level surface for the substation bench - Approximately 11,300 cubic metres of excess spoil would be generated from the levelling of the substation site and construction of the access road. Any soil which cannot be reused onsite as fill material, landscaping or other means would be disposed of off-site at a suitably licenced facility and/or at a location(s) as agreed with FCNSW - Where excavated spoil is not appropriate for reuse on site, additional appropriate spoil would be imported to site. ▪ Civil and building works: - Civil works involving the establishment of concrete footings for the high voltage equipment and buildings, construction of stormwater drainage and oil containment infrastructure and cable trenches and subsurface cables - Construction of onsite buildings (e.g. control room) and services installed including general lighting, power and ventilation.

Construction activity	Description
Transmission line	▪ Vegetation clearing within the approved corridor where the overhead conductors would not meet safe clearance heights above the underlying vegetation ▪ Grading and/or reshaping of existing access tracks ▪ Vegetation clearing and bulk earthworks to establish the level helipad ▪ Establishment of the transmission structure work sites involving: - Clearing of an approximate 40 m by 60 m area around each transmission structure location to allow for the laydown of materials and equipment and facilitate access for vehicles, plant and machinery during structure construction - Bulk earthworks (cut and fill) to establish level construction benches within the worksite to allow for the safe operation of plant and equipment (namely elevated works platforms and cranes) during structure construction - Geotechnical investigation works using a mobile drill rig at each structure location to determine the most appropriate footing design - Bulk earthworks and excavations to establish the structure footings involving the installation of steel framework and backfilling with concrete or pile type footings involving boring four boreholes at each structure leg location and backfilling with concrete - Steel lattice structures would be transported to each structure location via heavy vehicle in parts and assembled on site using mobile cranes ▪ Stringing of conductor and overhead earth wire which would involve: - Establishment of level tensioning and pulling sites within the approximate 40 m by 60 m structure worksite or at suitable locations within the transmission corridor - Attachment of sheaves (or pulleys) to the top of the structures in readiness for stringing work using an elevated work platform - Pulling out a light weight draw wire across the section of line being strung using a drone or, vehicle/machine (such as dozer), followed by the placement of the draw wire through the sheaves - Attachment of the draw wire to the earth wire or conductor drum (depending on which is being strung) and pulling it through the sheaves under tension using specialised tensioning and pulling equipment - Termination of the conductor/earth wire at each end clipping it into position followed by the removal of the sheaves.
Commissioning	▪ Testing of all high voltage equipment at the substation and ensuring all protection, control and metering equipment is operating correctly ▪ Completion of all necessary cut-in works to Line 64 and relevant testing undertaken ▪ Placement of the new transmission lines and substation into standby in readiness for Snowy 2.0 to be completed ▪ Once Snowy 2.0 becomes operational, energisation of the high voltage equipment and the project placed into service.
Rehabilitation and demobilisation	▪ Removal of all non-permanent infrastructure and equipment from the work sites and site compounds ▪ Decommissioning and dismantling of the site compounds at the substation and Lobs Hole ▪ Site stabilisation and landscaping involving: - Stabilisation of exposed areas and slopes - Installation and maintenance of erosion and sediment controls at the work sites to manage impacts post-construction - Seeding soil slopes to assist stabilisation - Planting vegetation on any higher risk slopes - Mulching of stabilised and revegetated areas where required.

*The site compound at Lobs Hole would be located within the approved disturbance footprint of Snowy 2.0

2.5.1 Construction staging and timing

Construction of the project is anticipated to commence in late 2020 and take approximately 39 months to complete. Estimated timing for the main construction activities is set out in **Table 2-2**. Further details on the estimated timing and staging of the main project activities is described in Section 5.3 of the EIS.

Table 2-2: Indicative timing for the construction of key project components

Construction works	2022				2023				2024				2025
Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Access tracks, roads and helipad													
330 kV Switchyard													
500 kV Substation													
Transmission connection													

2.5.2 Construction working hours

Given the isolated location and the construction of Snowy 2.0 occurring in parallel, construction works are expected to be carried out 12 hours per day, seven days per week between the hours of 6 am and 6 pm.

2.6 Operation and maintenance

The substation and transmission connection would be inspected by field staff on a regular basis. Key activities undertaken during operation would include:

- Regular inspection and maintenance of electrical equipment at the substation including structural integrity of all footings and support structures
- General inspection and maintenance of other components within the substation including the stormwater management system, fire detection system, onsite buildings and drainage infrastructure
- Regular inspection and maintenance of the transmission structures, footings, fittings, conductors and overhead earth wires
- Vegetation removal and trimming along the transmission corridor and APZ surrounding the substation to maintain appropriate clearances between ground vegetation and the overhead transmission lines and around the substation to manage bushfire risk
- Removal of trees which have the potential to strike the overhead conductors if they were to fall (referred to as hazard trees) as required.

It is expected that only light vehicles and small to medium plant would need to access the substation site and the transmission corridor for these activities. The substation would not accommodate full-time staff or contractors, and the regular collection of waste would not be required. Any waste generated during operation of the substation would be minimal and disposed of on an 'as needed' basis.

3. Assessment methodology

3.1 Methodology

The methodology adopted for the visual impact assessment of the project is based upon a quantitative analysis and qualitative assessment of views from the surrounding landscape.

This visual impact assessment is based solely on views from the publicly accessible locations, namely for visitors to KNP from key vantage points in the public domain from which to determine potential impacts to users of the surrounding area and includes the following steps.

3.1.1 The viewshed

The viewshed is the extent of the study area to be considered by the LCVIA. The extent of the viewshed is determined by the parameters of human vision and the height of the tallest component of the project, which are the lattice transmission structures supporting the high-tension transmission conductors and wires.

3.1.2 Landscape character units and sensitivity

Landscape units are derived from physical characteristics, visual features and land-use patterns within the defined project viewshed. Characteristics that assist to define landscape units include geology, topography, vegetation, land-use designation and purpose within the relevant planning scheme as well as modifications or changes that may have been made to the landscape.

The sensitivity of landscape character units to changes is in part an assessment of the landscape character unit to accept or absorb further change and in part the intended use or purpose of these areas.

Generally, the greater the extent of modification already made to a landscape, the lesser its sensitivity will be to further visual or landscape change.

3.1.3 Seen area analysis

A Seen Area Analysis (SAA) utilises a Geographical Information System (GIS) to map the Zones of Visual Influence (ZVI) and theoretical visibility of the project infrastructure. These studies are based solely on topographical data and project information. The SAA is a conservative analysis tool as it does not take into account other factors affecting visibility, such as intervening vegetation or built forms.

3.1.4 Assessment of publicly accessible viewpoints

When assessing the visual impact of a project to the public domain, the assessment is based on four criteria, namely visibility, distance, landscape character and viewer sensitivity and the number of viewers.

An assessment of the visual impact from indicative viewpoints (VPs) within the public domain is partly based on photomontages that show views of the landscape and the possible alteration brought about by the project to these views and its associated infrastructure. These photomontages assist in the qualitative analysis of the overall visual impact.

- **Visibility:** The visibility of project elements can be affected by intervening vegetation and topography.

- **Distance:** Visibility decreases as distance from the project increases. Determining the ZVI gives an indication of the impact based solely on distance.
- **Landscape character and viewer sensitivity:** Landscape character considers physical and natural attributes of an area such as topography, vegetation, natural water bodies and watercourses and aspects such as land-use, modifications and classification or status within planning schemes or statutory documents. Sensitivity may be altered or influenced by previous landscape modifications (eg; cleared farmland has a lesser sensitivity to landscape change than a pristine landscape such as a national park), as well as the land use type (eg residential sites will always be rated a sensitivity value of 'high', whereas industrial areas may be rated as 'low' sensitivity).
- **Viewer numbers:** The overall level of visual impact will decrease where there are few people who may be present to view the project; the level of visual impact may increase where there are a high number of people to see the project. For this project, viewing locations may include trails and tracks, known vantage points and other destinations within the KNP such as lookouts where viewers are inclined to stop and take in the view. Viewer numbers for static locations or recognised vantage points would be rated as 'high', which recognises the potential for views to include an extended duration, whereas views from trails and tracks would be rated as either medium or low. This lower rating recognises the transient nature of these views and the relatively short duration that these views would be taken in by the viewer.

Each of these criteria must be considered in the assessment of each VP. The ratings of each criterion are not numerically based and cannot be simply added together and averaged to arrive at an overall rating.

The resultant scale of effects ranges from Negligible to High, and will also recognise whether a visual change may have a positive or a nil impact.

3.1.5 Scale of effects

The overall visual impact for each VP is based upon on the scale of effects described below, which rates the four quantitative criterion described above and qualitative aspects of each view. The overall visual impact from an assessed VP may range from no impact (nil) to High. In rare cases, there may be the potential for a potentially positive visual impact or outcome, due to a Project element. Potentially positive outcomes are discussed within the individual viewpoints, where relevant. Negative visual impacts are graded from Negligible to High, refer to **Table 3-1**.

Table 3-1: Scale of effects

Grade	Description
Nil	There is no perceptible visual change.
Negligible	A minute level of effect that is barely discernible over ordinary day-to-day effects. The assessment of a 'negligible' level of visual impact is usually afforded where the project is at such a distance that it would be barely discernible or when features in the landscape such as intervening vegetation or topography would screen or filter views.
Low	Visual impacts that are noticeable but will not cause any significant adverse impacts. The assessment of a 'low' level of visual impact can be derived if the rating of any one of four criteria, (visibility, distance, viewer numbers and landscape sensitivity) is assessed as low. The reasoning for this "minor" assessment is as follows: ▪ If the distance to the project is great (i.e. towards the edge of the viewshed) then even if the viewer numbers and the landscape sensitivity were high, the overall visual impact would be minor because the project would be a small and potentially barely noticeable element in the landscape. ▪ If viewer numbers were low (i.e. few people can see the project from the VP), then even if the project is close to the VP and the landscape sensitivity is high, the overall visual impact would be low because the change to the landscape is not seen by many viewers. In a visual assessment, it is important to differentiate between a "visual impact" and a "landscape impact". Viewer numbers are important in the assessment of a visual impact, because if no one sees a particular project then the visual impact is nil, even though there may be a significant change to the landscape and, hence, a large landscape impact.

Grade	Description
	▪ If landscape sensitivity is low (i.e. within a highly human-modified landscape) then even if the project is close to the VP and is visible to a large number of viewers, the overall visual impact would be low because the VP is not in a landscape of such sensitivity that further change would be unacceptable.
Medium	The assessment of a 'medium' visual impact will depend upon all four assessment criteria being assessed as higher than 'low'. Significant effects are also such that they may be mitigated/remedied.
High or unacceptable adverse effect	Extensive adverse effects that cannot be avoided, remedied or mitigated. The assessment of a 'high or unacceptable adverse effect' from a publicly accessible VP requires the assessment of all four criteria to be high. For example, a highly sensitive landscape, viewed by many people, with the project in close proximity and therefore largely visible, would lead to an assessment of an unacceptable adverse effect.

3.1.6 Photomontage production

Photomontages are used within the report to show the anticipated change to the existing landscape created by the project.

The transmission infrastructure modelled during the preparation of the photomontages contained in this report is based on the technical information outlined in **Table 3-2**. In order to provide an indication of the 'worst case' scenario for the assessment, the maximum dimensions have been used e.g. maximum height and maximum width. It should be noted that the exact design and model of the steel lattice structures used for the purpose of preparing the photomontages may differ from those selected for installation. Notwithstanding, the photomontages were prepared based on a height of each structure being 75 m.

Lens size and photos used within the photomontages

Photomontages typically show the changes in a 60º horizontal field of view. The 60º horizontal field of view represents the central cone of view in which symbol recognition and colour discrimination can occur. When defining vertical field of view, either 10º or 15º can represent the central field of view of human vision as shown in **Figure 3-1**.

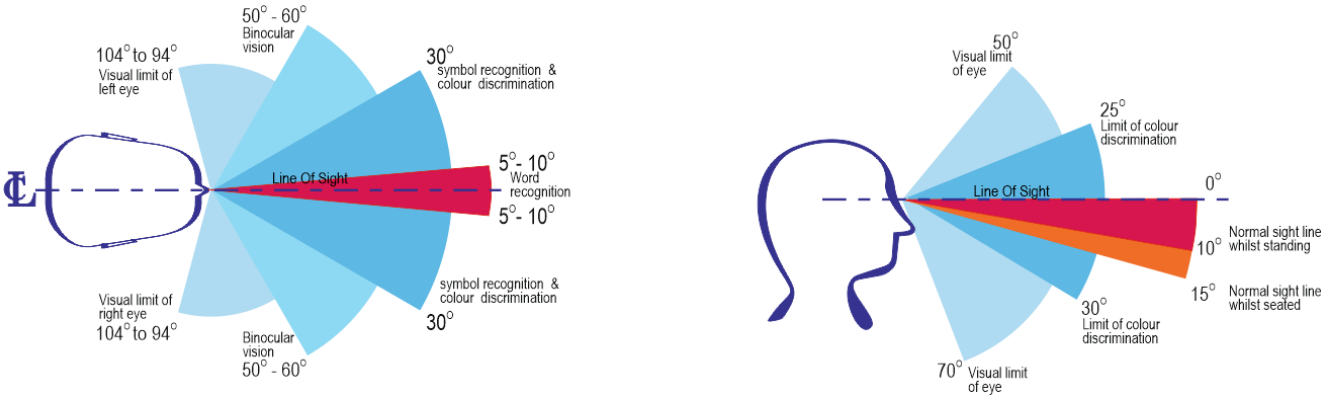


Figure 3-1: Horizontal and vertical field of view (Human Dimension and Interior Space, Julius Panero & Martin Zellnik, Witney Library of Design,1979)

Similar data can be found in the more recent publication entitled 'The Measure of Man and Woman, Revised Edition' (Henry Dreyfuss Associates, John Whiley & Sons, 2012).

The 60º horizontal field of view is important if the photomontage images represent the change in the landscape. The A3 photomontages, which are appended to this report in Annex A, include a 60º horizontal field of view. The wireframe view of the computer model to illustrate how the photomontages were derived is also shown. Vertical 'poles' within this wireframe are merely points on the landscape such as existing transmission structures, which allow the computer model (prepared in 3D Studio Max) and the photograph to be accurately aligned. This

ensures that the project elements are accurately located within the photograph and then the rest of the model is removed, and the structure and the proposed landscape are rendered into the image.

Photographs

A 70 mm lens on a Nikon D850 digital camera has a picture angle of 26.5° and a horizontal angle of view of approximately 21.3°. https://imaging.nikon.com/lineup/dslr/basics/19/01.htm.

Four photographs overlapped 1/3 to create an image approximately the same as the central cone of view of human vision, i.e. 50-60° horizontal and 15° vertical. **Figure 3-2** demonstrates this theory.

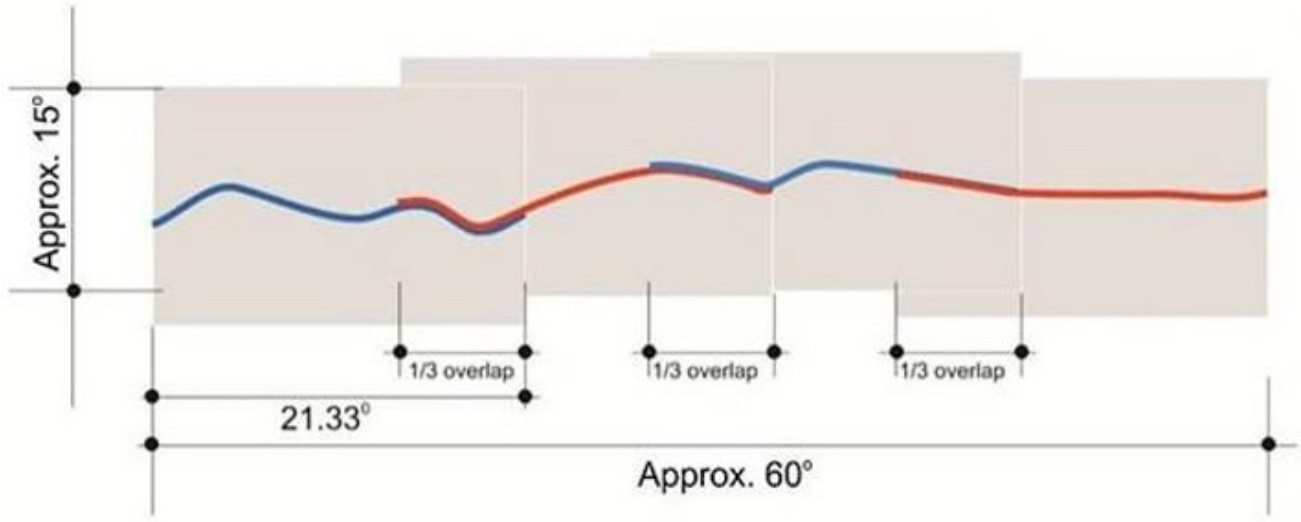


Figure 3-2: Photomontage layout

Computer modelling and the wireframe model

Topographical data as well as the project are modelled within a computer program (3ds Max). A virtual camera is set up in the model at the GPS coordinates for each of the photographs that are being used within the panorama.

The digital model or wireframe view is then overlaid on the photographic panorama. Known points within survey information such as topography or infrastructure are registered into the base photographs (or other predetermined points). For technical accuracy, these points must align. This verifies the location and apparent height and scale of the project.

After the background reference points have been aligned, the wireframe is removed, leaving only the proposed transmission line elements, which are rendered, either to match the lighting conditions at the time the photographs were taken or, more typically, to maximise their visibility by increasing their contrast against the background sky.

Photomontages are prepared with a 60° field of view, which follows the parameters of human vision.

GPS coordinates and distance to the project

The Nikon D850 camera also records the GPS coordinates as part of the metadata. GPS coordinates are also taken based on a separate hand-held GPS and the locations from which the photographs were taken is also marked on a digital map at the location of each photograph.

Photomontages

Photomontages have been prepared from five viewpoint locations. These VPs are located at varying distances from the project and are indicative of the views from the road network or clearings within the viewshed. These photomontages are appended to this report (refer to **Appendix A** for A3 size photomontages with a 60° field of view).

It is recognised that the small photographs and the A3 photomontages included within this assessment are not indicative of the actual visual impact. The A3 photomontages, which are appended to this report (Appendix A), are clearer than the smaller images in the text.

However, to view the photomontages in a way that they appear perceptually accurate, they need to be printed and viewed on A0 sized sheets and held at arms' length. When viewed at A0, the photomontages are representative of the level of visual alteration.

3.2 LCVIA viewshed and study area

3.2.1 Viewshed

The area that may potentially be visually affected by a project is called the viewshed. The viewshed is not the same as the extent of visibility, as it may be possible to see a transmission structure from areas outside the viewshed. Rather, the viewshed is the area from which there could be a visual impact.

The central field of view in human vision is approximately 10° (15° whilst sitting). An object which takes up less than 5% of this 10° cone of view, may be discernible, but is an insignificant element in a landscape which has other signs of human modification.

The viewshed for the project is based on the distance at which a 75 m high transmission structure takes up just 0.5° of the vertical field of view.

Figure 3-3 shows the vertical field of view and the assumption made to calculate the viewshed for the project.

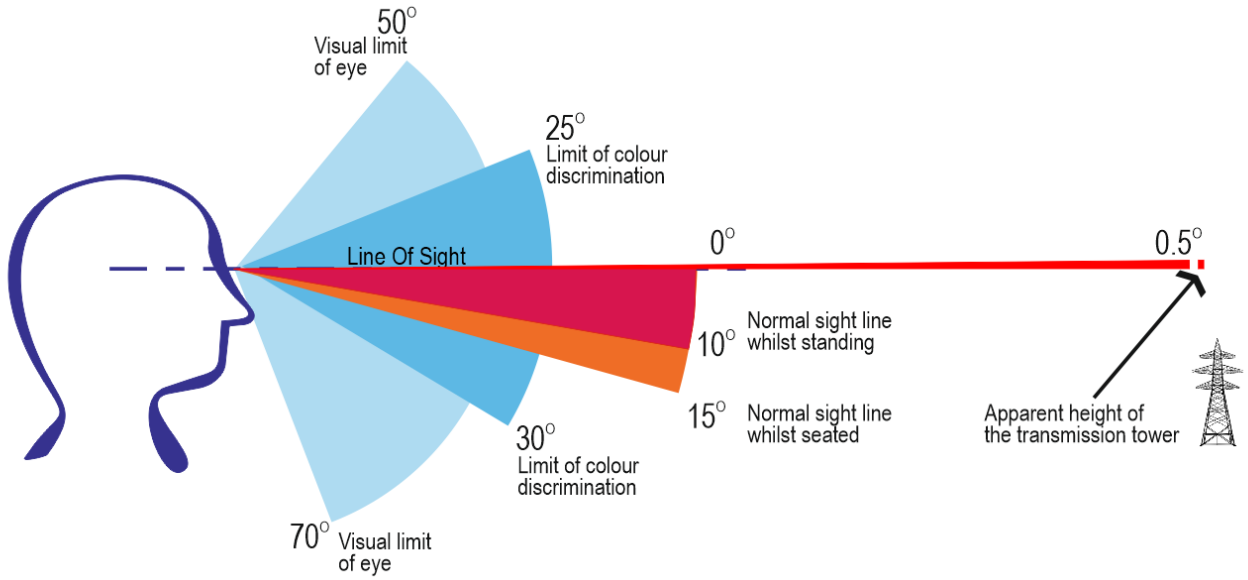


Figure 3-3: Vertical field of view

3.2.2 Extent of viewshed

The transmission structures may vary in height along the project, but would have a maximum height of 75 m. The indicative structure is shown above in **Figure 2-3**. For this project, the largest tower type, being 75 m to the top of the catenary wire, has been assumed for all structures to apply a conservative approach in determining the viewshed extent. At 75 m in height, the transmission structures would take up 0.5° of the vertical field of view when viewed from 7.84 km, assuming an average eye level of 1.6 m in height.

3.2.3 Zones of visual influence

Zones of visual impact (ZVI) can be determined based upon the distance of the viewer to a transmission structure. As a person moves toward or away from a structure, the visual impact will differ as the apparent height and scale of the structure would change.

Various ZVI have been calculated based upon the parameter of the human vision. The ZVI are outlined in **Table 3-2**.

Table 3-2: Zones of visual influence

Distance to transmission structure	Vertical angle of view (°)	Zones of visual influence
>7.84 km	<0.5	**Visually insignificant** A very small element in the viewshed, which is difficult to discern and will be invisible in some lighting or weather circumstances.
3.92-7.84 km	0.5-1.0	**Potentially noticeable, but will not dominate the landscape - Extent of the project viewshed** The degree of visual intrusion will depend on the landscape sensitivity and the sensitivity of the viewer; however, the transmission structures do not dominate the landscape.
1.57-3.92 km	1.0-2.5	**Potentially noticeable and can dominate the landscape** The degree of visual intrusion will depend on the landscape sensitivity and the sensitivity of the viewer.
782 m- 1.57 km	2.5-5.0	**Highly visible and will usually dominate the landscape** The degree of visual intrusion will depend on the transmission structures' placement within the landscape and factors such as foreground screening.
782 m	>5.0	**Will always be visually dominant in the landscape** Dominates the landscape in which they are sited.

These ZVI provide a guide to the potential visual impact of a transmission structure(s) based solely on distance. However, it is recognised that the apparent size of the nearest transmission structure may not dramatically change when a viewer moves from 3.9 km to 4.1 km, for example. It is also noted that distance bands are only one parameter that must be included within the visual assessment. The overall assessment will also consider visibility, the number of viewers and the sensitivity of the landscape at the VP.

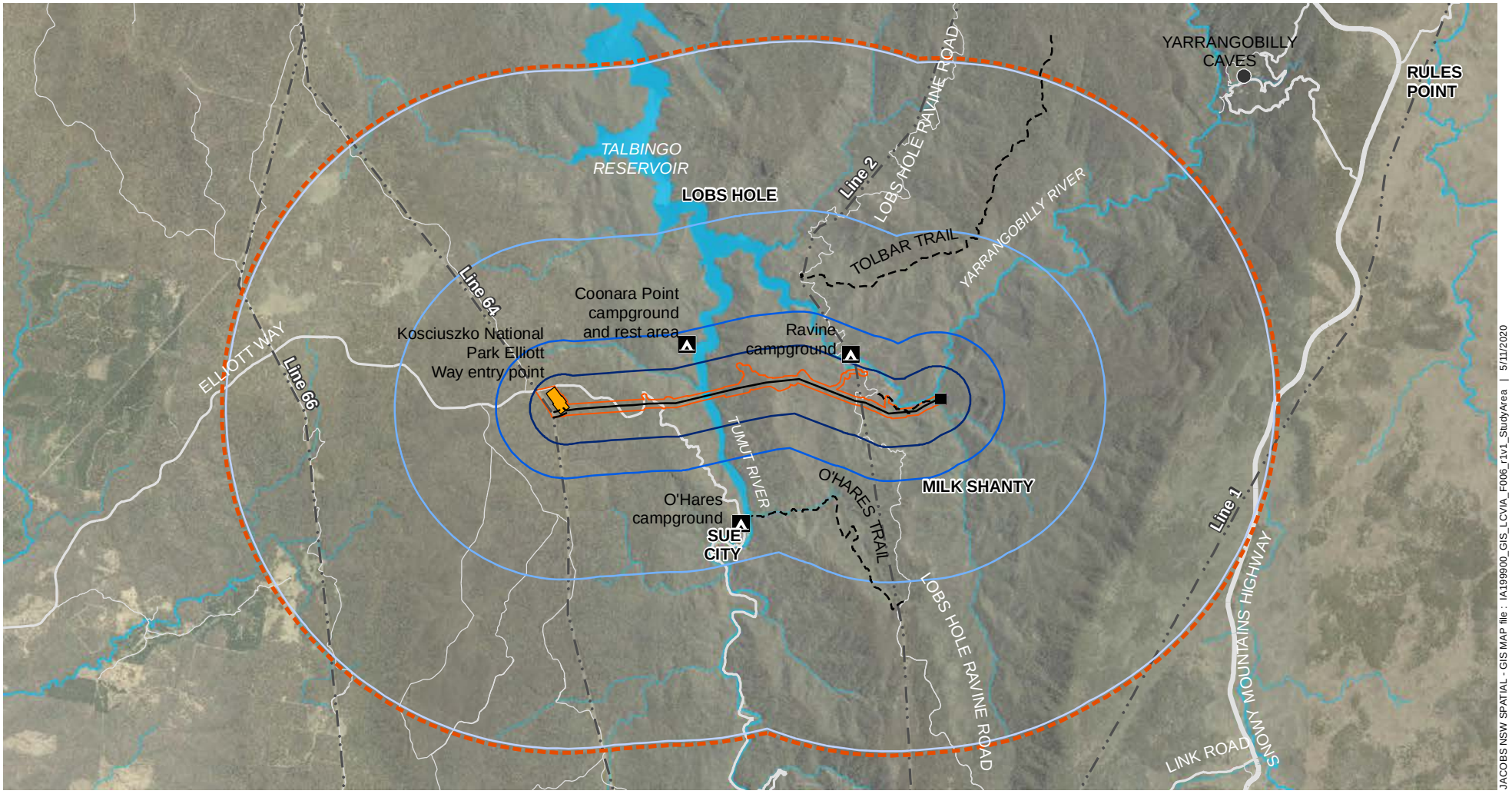
The ZVI and study area (which is determined by the outer 7.84 km band) are shown below in **Figure 3-4**.

3.2.4 Visibility mapping

A SAA identifies locations where the project may be visible. The project visibility depends on the character of the landscape, such as intervening topography and vegetation that may filter or screen views toward the project.

GIS can map theoretical project visibility based on topography. This method does not take into account potential intervening vegetation, existing structures or minor topographic changes that may further filter or screen views to project components. For this reason, GIS analysis is a conservative visibility map and is useful to determine locations from which to assess the potential visual impacts of the project.

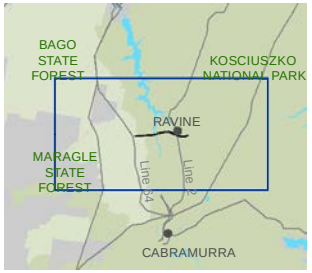
Figure 3-5 shows the theoretical visibility mapping for the project. **Figure 3-5** also indicates that some areas of the Lobs Hole-Ravine 4WD Trail have the greatest potential for transmission structure visibility, in terms of the number of transmission structures potentially visible from a publicly accessible area.



Project area
Proposed transmission line
500kV substation
Snowy 2.0 cable yard
Visual study area
Zones of visual influence (ZVI)
782 m
782 m - 1.57 km
1.57 - 3.92 km
3.92 - 7.84 km
Point of interest
Campground
Electricity transmission line
Major road
Track
Waterway
Water body

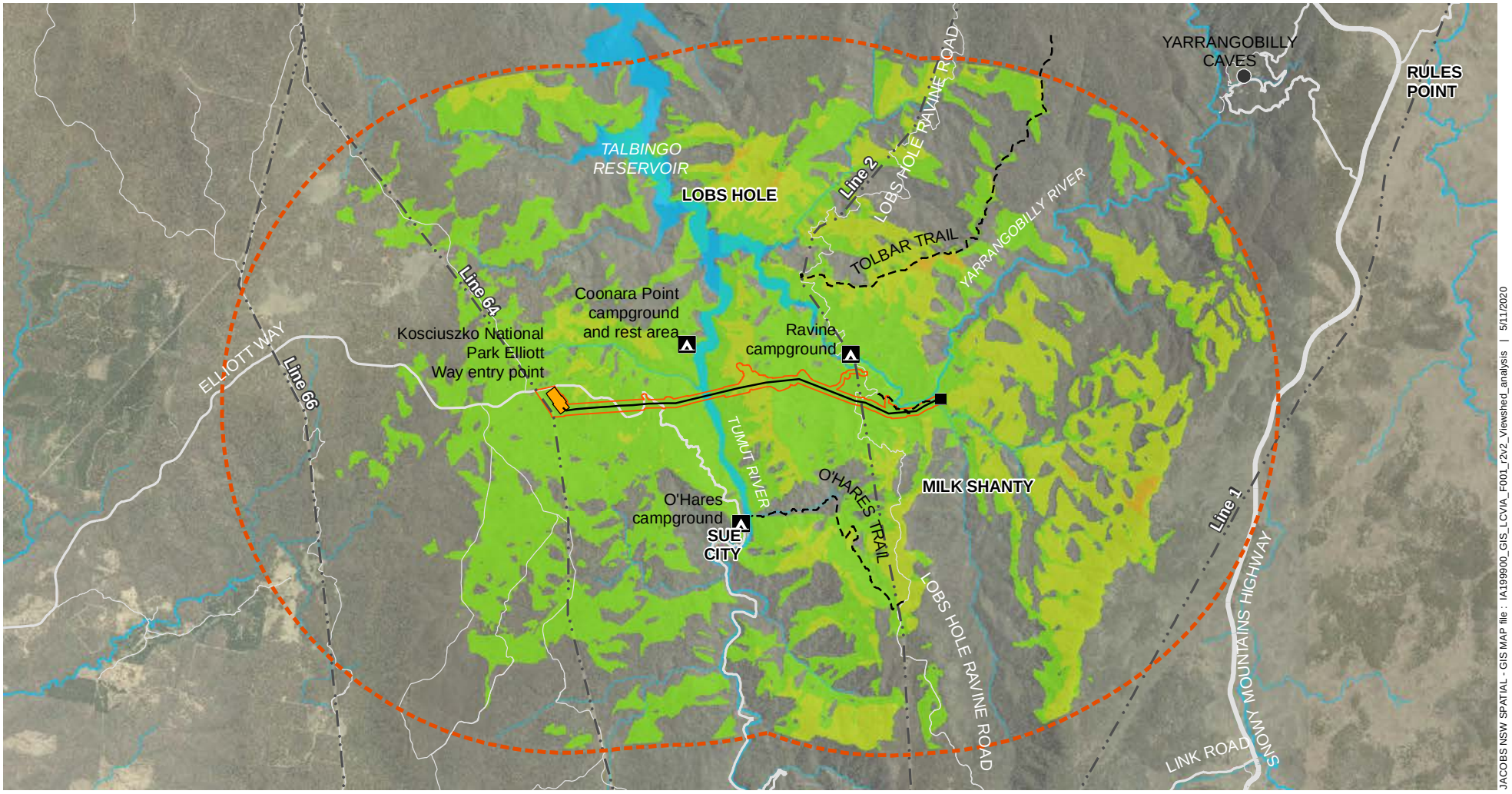
0 1.5 3 km
1:135,000 @ A4

N



Data source:
Jacobs 2020, TransGrid,
© Department of Customer Service 2020

Figure 3-4 | LCVIA study area and Zones of Visual Influence



Project area
Proposed transmission line
500kV substation

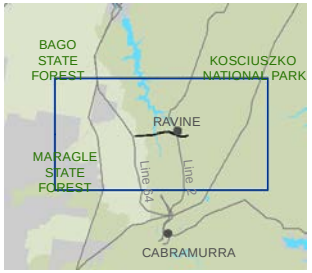
Snowy 2.0 cable yard

Visual study area
Visibility (tower height 75m)
0
1 - 20%
20 - 40%
40 - 60%

Point of interest
Campground
Electricity transmission line
Major road
Track
Waterway
Water body

0 1.5 3 km
1:135,000 @ A4

N



Data source:
Jacobs 2020, TransGrid,
© Department of Customer Service 2020

Figure 3-5 | Viewshed analysis

4. Strategic and statutory context

This section describes the local and state planning instruments relevant to landscape character and visual impacts.

4.1 Kosciuszko National Park Plan of Management 2006

The majority of the project is within KNP. *The Kosciuszko National Park Plan of Management 2006* (KNP PoM) (NPWS, 2006) provides a framework for the management and protection of natural values within the national park.

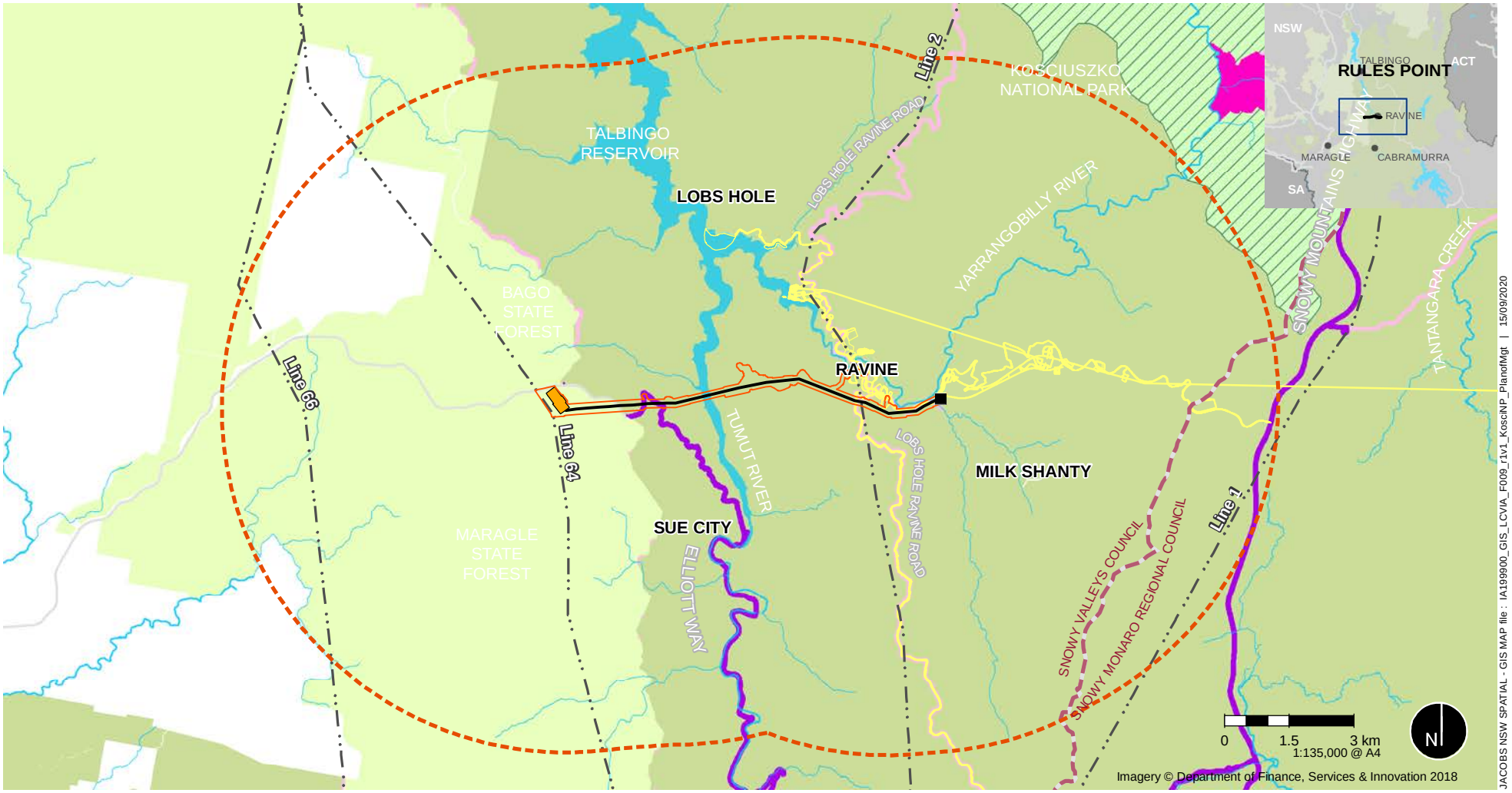
The KNP PoM recognises that while the scenic quality of the park is generally high, many landscapes include infrastructure and works associated with the generation and distribution of electricity that are considered visually intrusive developments. The KNP PoM notes that the existing collective infrastructure of the Snowy Mountains Hydro-Electric Scheme, in the form of roads, transmission lines, powers stations, aqueducts and impoundments, represent the single most visually intrusive element in the landscape.

4.1.1 Kosciuszko National Park Plan of Management 2006: Zoning

The KNP PoM provides a zoning scheme to divide the park into a number of 'Management Zones'. The purpose of the zoning scheme is to:

- Protect the values of the park
- Optimise opportunities for a wide range of recreational activities and visitor experiences
- Minimise conflict between participants in different recreational activities, and between visitors, management operations and other authorised uses.

Three management zones or corridors are included within the study area as shown on **Figure 4-1**. These include back country zone, major road corridors and minor road corridors. The PoM states that "despite any other provision of KNP PoM, the management objectives of the KNP and all management units within KNP include the objective of providing for the continuation of the works, activities or things proclaimed under section 40 of the *Snowy Hydro Corporation Act 1997* and approved developments and activities related to the operations of the Scheme within KNP (NPWS, 2006).



Project area
Visual study area
Proposed transmission line
500kV substation
Snowy 2.0 cable yard
Snowy 2.0 element
Electricity transmission line
Local Government boundary
Waterway
Water body
State forest

Kosciuszko National Park Plan of Management 2006
Management zones
Back country zone
Major road corridor
Minor road corridor
Visitor services zone
Management units
Areas of exceptional natural and cultural significance (management unit)

Figure 4-1 | KNP PoM zoning map

Data source:
Jacobs 2020, TransGrid, EMM 2020, OEH 2019,
© Department Finance, Services and Innovation 2018

Back country zone

The majority of the project is within the back country zone which covers parts of the park that are without public vehicular access and not included in declared wilderness areas. The KNP PoM describes this place within this zone as relatively remote and displaying high degrees of naturalness. Most of the infrastructure of the Snowy Hydro Scheme is contained within this zone.

The management focus for the back country zone is to primarily retain these parts of the park free from further development and, where appropriate, restore their ecological integrity.

Minor road corridors

This zone comprises the unsealed minor roads in the park that are open for public vehicular use, which range from two lane roads to narrow trails in steep terrain. The corridors in this zone extend 25 m either side of the centre-line of each road, except where:

- Adjacent statutory or lease boundaries impinge on these corridors; or
- A variation in the corridor boundary is required for the incorporation of certain visitor nodes or facilities.

Within the study area, areas within this zone include:

- Lobs Hole-Ravine Road and associated camping areas
- O'Hares access.

The management objective for this zone is outlined within the KNP PoM under 5.4.1:

The Minor Road Corridors will be managed so as to provide a range of day and night recreational opportunities in which people can enjoy and appreciate the values of the park while still experiencing a sense of isolation. To this end:

- *Encounters with other visitors in the park will vary in number from moderate to low depending on the road and season; and*
- *Infrastructure will be designed and sited so as to be unobtrusive.*

Major road corridors

This zone comprises the major public road network in the park and associated visitor facilities. The corridors in this zone extend 40 m either side of the centre-line of each road, except where:

- Adjacent statutory or lease boundaries impinge on these corridors; or
- A variation in the corridor boundary is required for the incorporation of certain visitor nodes or facilities.

Within the study area, Elliott Way is included within this zone. The management objective for this zone is outline within the KNP PoM under 5.5.1:

The Major Roads Corridors will be managed so as to provide a range of high quality interlinked recreational facilities which:

- *Principally cater to the needs and interests of vehicle-based visitors;*
- *Are designed and sited to cater for relatively large numbers of people;*
- *Provide opportunities for all visitors to gain first-hand experience of a range of the values of the park; and*
- *Are of a consistently high standard designed to showcase the park and its values.*

Views from these roads are generally less sensitive to those experienced from minor roads as they do not portray the same sense of isolation and naturalness as minor roads.

5. Existing landscape character and sensitivity

This section seeks to identify the landscape character within the viewshed of the project components. This section includes observations from visits to the study area both prior to and after the 2019/2020 bushfires. The visits were conducted in late May in both 2019 and 2020.

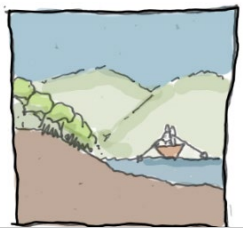
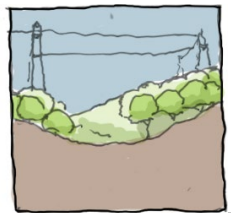
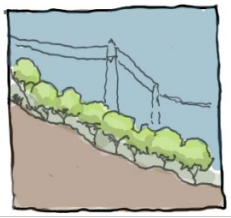
5.1 Existing landscape character: prior to bushfires

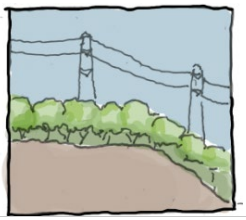
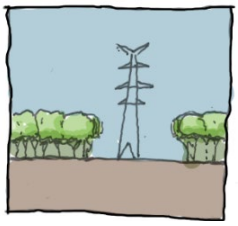
With the exception of the reservoir surface, the majority of the project area was heavily vegetated, prior to the 2019/2020 bushfires and Snowy 2.0 construction works. The majority of the project is within an area zoned under the Local Environmental Plan (LEP) as E1 National Parks and Nature Reserves which is recognised as a sensitive area both visually and environmentally. Elements of the project within the Bago State Forest are within the zone RU3 Rural Use Zone.

With respect to landscape character, the LCVIA study area (refer to **Figure 3-4**) includes an area with a variety of topographical features including the valley holding the Tumut River, and peaks, slopes and plateaus either side of the valley. The LCVIA study area includes the KNP, Bago and Maragle State forests, and the roads and trails within these areas.

Broadly the landscape character zones can be classified as river, valley, slope and plateau based on landform. These character zones have been categorised by the physical landscape characteristics that play a major role in forming the visual amenity. These landscape character types are described below in **Table 5-1**. The project viewshed includes several roads which include Elliott Way, a sealed, two-lane road used to access the alpine region from the west. The KNP PoM recognises and zones Elliott Way as a Major Road Corridor with a high scenic value. Unsealed roads associated with the Lobs Hole-Ravine 4WD Trail, which experiences low and seasonal volumes of traffic, are also within the viewshed.

Table 5-1: Landscape character types

Landscape character type	Description	Sensitivity
River 	The Tumut River and Yarrangobilly River are situated with the LCVIA study area. These areas are associated with recreational uses, such as boating, fishing and water skiing within Talbingo Reservoir.	High
Valley 	The valleys are characterised by more gentle slopes to flattening areas, surrounded by the upper slopes.	High
Upper Slope 	The upper slopes are characterised by continual areas of steep topography, between the plateau and valley.	High

Landscape character type	Description	Sensitivity
Plateau 	Plateaus are characterised as the flattening of topography above the upper slopes. These areas may be afforded views and vistas due to their elevated position.	High
Transmission corridor 	Transmission corridors are characterised by a clearing of vegetation along a corridor, and containing transmission infrastructure. The clearing of vegetation may open long-range views that otherwise may not have been present.	Low

5.2 Existing landscape character: post-bushfires

The study area was revisited in late May 2020. Bushfires occurred at the site in late 2019/early 2020 and affected the study area and beyond extensively. Affected areas have received varying degrees of damage or destruction to vegetation, as well as damage to slopes and roads that, at the time of writing, restrict access to and around parts of the study area.

Access to areas within the study area was limited largely to the project area east due to landslides affecting Elliott Way. Some areas within project area east visited prior to the bushfires were inaccessible due to construction works associated with Snowy 2.0.

The visual change to the landscape as observed upon revisiting the site is predominantly the change in vegetation cover and colour as shown in **Photo 5-1**, which is located along Lobs Hole Ravine Road, and discussed further at **Section 6.2**.

Photo 5-1: Bushfire impact to landscape character, located along Lobs Hole Ravine Road

The extent of modification to the landscape character following the bushfires is discussed within each relevant viewpoint in **Chapter 6**.

5.3 Land use

The project is located within Bago State Forest and KNP. The predominant land uses within this area include:

- State/national parks
- Recreational uses (particularly, boating, camping, hunting and 4WD trails)
- Water storage
- Electricity infrastructure (particularly, transmission corridors).

5.4 Landscape sensitivity

Landscape sensitivity is in part a measure of the ability of a landscape to absorb visual change based and attributes of a particular landscape. The sensitivity of the previously described landscape units will depend upon a number of attributes, such as:

- **Location.** The sensitivity of a potential viewer varies according to location. For example, visitors to a national park where the landscape appears untouched or pristine will be more sensitive to the imposition of new or artificial elements within that landscape. The same viewer travelling along a rural highway, which contains existing examples of modifications and artificial elements, will be less sensitive to the presence of new elements. Modifications or artificial elements are not confined to vertical structures or built form, they also include removal of native vegetation; visibility of roads, tracks, fences and other rural infrastructure all of which decrease the sensitivity of a landscape to further change
- **The rarity of a particular landscape.** Landscapes that are considered rare or threatened are valued more highly by viewers
- **The scenic qualities of a particular landscape.** Landscapes that are considered scenic are also those that are considered sensitive. They often contain dramatic topographical changes, the presence of water, coastlines, and other comparable features. The presence of modifications or artificial elements (including built form, roads, tracks, fences, and silos), as well as farming practices including land clearing, cropping and burning can decrease the sensitivity of a landscape's scenic qualities
- **Heritage values.** It is recognised that the Lobs Hole Ravine area has both Indigenous and historical heritage significance. There are several historical heritage elements within and surrounding an informal campground including water races associated with the former mining activities, residential dwellings (no longer extant but which have left archaeological signatures), smoking ovens, kilns etc. It is expected that these areas may retain significance for the families of those who worked on the construction of the original scheme.

It is recognised that the KNP and surrounding area has been established in the context of the original Snowy Hydro scheme. The KNP PoM also acknowledges that although the Snowy Hydro Scheme is surrounded by a national park, that there will be impacts associated with the establishment, generation and distribution of electricity in this area. There are also a number of existing transmission corridors that bisect areas of KNP. Visual sensitivity in proximity to these features is considered to be low.

6. Viewpoint selection and visual assessment

This section contains the analysis of viewpoints selected following field studies and the application of the LCVIA methodology.

The visual assessment of the project was carried out from locations within the LCVIA study area (refer to **Figure 3-4**), with the exception of VP 6, which is located outside the study area, but is the only formal vantage point (lookout) in proximity to the project. Viewpoints are selected from a range of locations within the public realm, such as roads, campgrounds or vantage points, where the public is likely to view the project.

Thirteen VPs were selected from locations that are accessible by the general public and from where the project is potentially visible. The VPs encompass potential locations to view the project to the east and west of Talbingo Reservoir, and at a range of distances from the project.

All viewpoints and viewing locations around the project were identified through a series of analyses under desktop study, and then refined following site visits that confirmed actual visibility toward the project. NPWS were also consulted as part of the viewpoint selection process. The onsite assessment took into account elements not assessed by the viewshed model, particularly existing vegetation, localised topography and factors such as the likely viewer numbers and context of views.

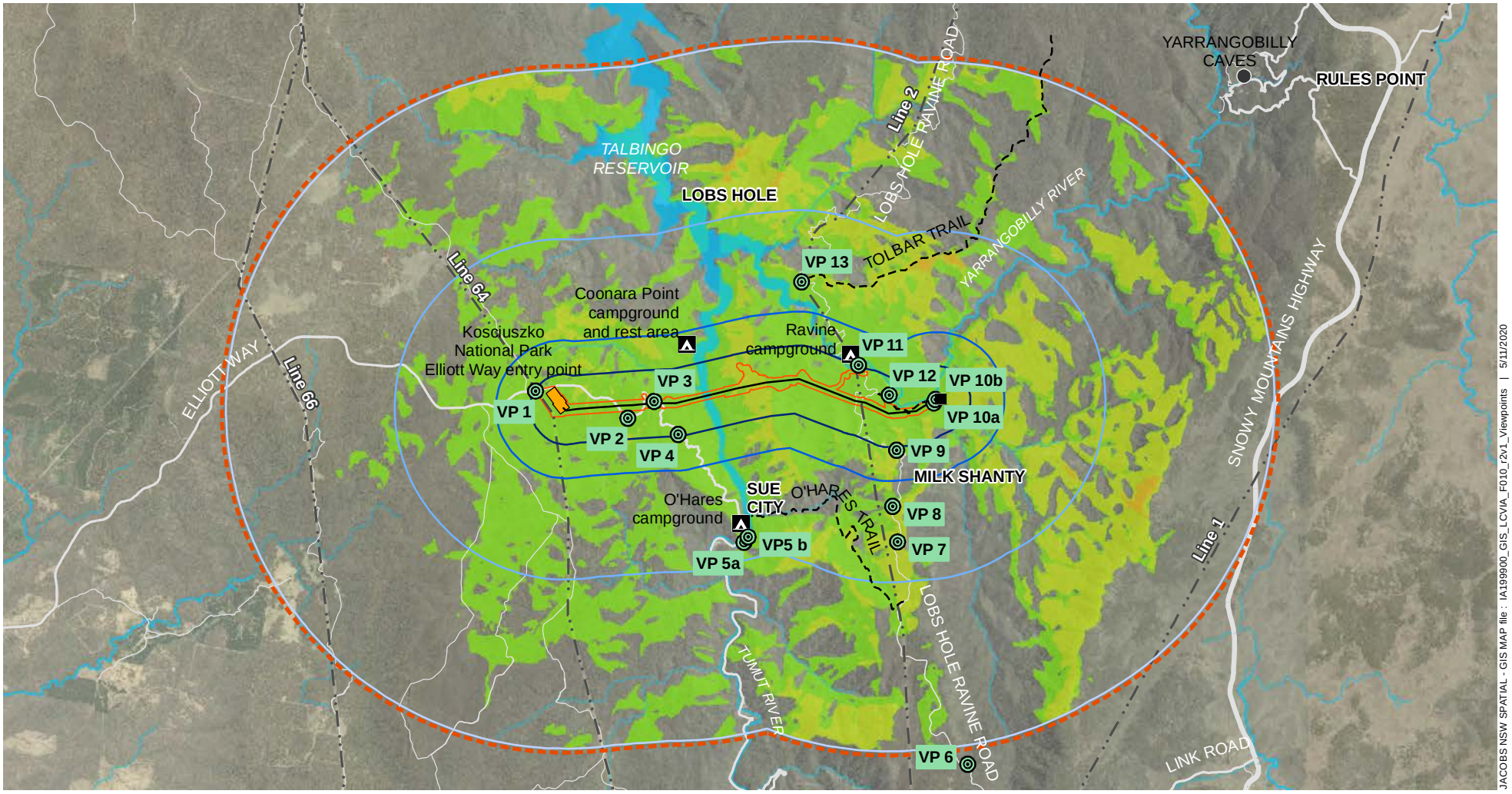
All potentially sensitive VPs within the LCVIA study area were examined in a visibility matrix (refer to **Section 3.1.4**) and then assessed using the scale of effects. This assessment resulted in visual impact rating showing scale of the impact.

The VPs used in this assessment are summarised **Table 6-1** and shown on **Figure 6-1** and further discussed below.

Table 6-1: Assessed VP summary

VP	Category of viewer	Approx. distance to project elements	Sensitivity	Overall visual impact
Project area west:				
VP 1 – Elliott Way transmission corridor	Vehicular traffic	300 m – Substation	Low	Low
VP 2 – Elliott Way / Boundary Road	Vehicular traffic	340 m – Nearest transmission corridor edge	High	Low - Moderate
VP 3 – Elliott Way	Vehicular traffic	Within transmission corridor. Approx. 140 m to nearest structure	High	Potentially positive Moderate-High
VP 4 – Elliott Way	Park users, campers, vehicle rest area	760 m – Nearest structure	High	Negligible
Project area east				
VP 5a – O'Hare's Campground	Campers, tourists, vehicular rest area	3.5 km - Suspended transmission lines	High	Nil
VP 5b – O'Hare's Campground boat ramp	Boat users	3.4 km – Suspended transmission lines	High	Nil
VP 6 – Wallace's Creek Lookout	Tourist stopping point	8.6 km – Nearest structure	High	Nil
VP 7 – Lobs Hole Ravine Road	Vehicular traffic	2.9 km – Nearest structure	High	Low - Negligible
VP 8 – Lobs Hole Ravine Road	Vehicular traffic	2.1km - Nearest structure	High	Low
VP 9 – Lobs Hole Ravine Road	Vehicular traffic	840m – Nearest structure	High	Low-Moderate
VP 10a – Mine Trail Campground	Camping users	Within transmission corridor. 170 m to nearest structure.	High	High

VP	Category of viewer	Approx. distance to project elements	Sensitivity	Overall visual impact
VP 10b – Near Mine Trail Campground	Camping Users	Within transmission corridor	High	High
VP 11 – Lobs Hole-Ravine Road: Ravine Campground	Vehicular traffic/ stopping location, camping	800 m – Nearest structure.	High	Moderate
VP 12 – Mine Trail Clearing	Vehicular traffic/stopping location	400m – Nearest structure	High	High
VP 13 – Lobs Hole-Powerline Road	Vehicular traffic	2.2 km – Nearest structure	High	Low - Moderate



Project area
Proposed transmission line
500kV substation

Snowy 2.0 cable yard

Visual study area
Viewpoint

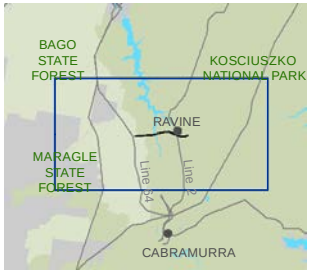
Zones of visual influence (ZVI)
782 m
782 m - 1.57 km
1.57 - 3.92 km
3.92 - 7.84 km

Visibility (tower height 75m)
0
1 - 20%
20 - 40%
40 - 60%

Point of interest
Campground
Electricity transmission line
Major road
Track
Waterway
Water body

0 1.5 3 km
1:135,000 @ A4

N



Data source:
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Figure 6-1 | Viewpoints map

6.1 Project area west

6.1.1 Local road – Elliott Way VPs

Elliott Way is a sealed road connection into KNP from the west and is currently crossed twice by transmission lines and associated transmission corridors upon entering the alpine region from the west. As the road turns south, it winds along the western slope of the valley holding the Talbingo Reservoir. Elliott Way ends at the bridge connection at the southern extend of the reservoir, near O'Hare's Campground and the Talbingo Reservoir Boat Ramp.

VPs were selected along this road within areas highlighted as having potential visibility due to topography, outlined in the viewshed model. Further refinement of selecting VPs was undertaken during the site visit, as potential areas to stop and view the potential project elements was restricted by the low number of safe road reserve locations and lack of any designated viewing locations, such as lookouts.

Following the 2019/2020 bushfires, the section of Elliott Way along the upper slopes of the ravine were damaged by landslides, causing the road to be closed at the KNP edge.

VP 1 – Elliott Way existing transmission corridor

VP 1 is located near Elliott Way at the crossing of TransGrid's Line 64.

Photo 6-1 shows the view taken at this location prior to the bushfires. **Photo 6-2** shows the same view post-bushfires.

Photo 6-1: VP 1 – Elliott Way transmission corridor – prior to bushfires

Photo 6-2: VP 1 – Elliott Way transmission corridor – post bushfires

VP 1 is the first location where views toward the project may be possible. At this location, views are available to an existing transmission line along a transmission corridor, which travels north-south, perpendicular to Elliott Way. The sensitivity of this location is high, as it is the entrance to the KNP. The presence of existing infrastructure in the area lessens the sensitivity somewhat.

The project cuts into Line 64 approximately 670 m south east of the VP, behind an elevated cutting. The new substation would also be close to this location and would be set-back about 70 m from Elliott Way, located just behind existing vegetation. The northeast corner of the APZ would extend right up to Elliott Way, which will result in a thinning of intervening vegetation between potential viewers and the substation infrastructure. The majority of vegetation to the south of Elliott Way would be retained to allow screening of the substation.

Due to the existing vegetation and low setting of the road in comparison to the road cutting and transmission line to the south, it is unlikely that any elements of the project would be visible from this VP. Views toward the substation will be filtered through the existing stands of trees to the south of Elliott Way. The substation is the only element of the project that requires night lighting. Lighting impacts are considered negligible due to the substation being located behind existing vegetation, and not located near sensitive receptors such as residential dwellings or formal recreation sites. Views of the substation and lighting will be filtered by existing vegetation. Where the corner of the APZ extends to Elliott Way, a small view toward the substation would be opened up approximately 450m east of this VP. This may allow a brief glimpse toward the substation, but would be perpendicular to the line of sight for road users, and only viewed for a short duration.

Following the bushfires, trees in this area have been damaged, but not killed or felled. Vegetation in this area observed five months after the bushfires has begun to re-emerge via epicormic re-sprouting. This process results in new vegetative growth sprouting from the trunk and branches of the eucalypts. While filtered views have opened up somewhat through the trees, the emergence of vegetation suggests that this landscape will recover to conditions similar to that observed pre-bushfires. As this vegetation develops, it will provide for the filtering and screening of views toward the substation site.

The visual impact at this location is assessed as Low.

VP 2 – Elliott Way / Boundary Road

VP 2 is located at the intersection of Boundary Road and Elliott Way. **Photo 6-3** and **Photo 6-5** show the view from this location prior to the bushfires. **Photo 6-4** and **Photo 6-6** shows the view five months after the bushfires. Within this VP, views along Elliott Way are framed by the existing vegetation on either side of the road.

Photo 6-3: VP 2 – Elliott Way / Boundary Road looking west- prior to 2019 bushfire

Photo 6-4: VP 2 – Elliott Way / Boundary Road looking west – post bushfire

Photo 6-5: VP 2 – Elliott Way / Boundary Road looking east – prior to 2019 bushfire

Photo 6-6: VP 2 – Elliott Way / Boundary Road looking east – post bushfire

Following the 2019/2020 bushfires, vegetation in this area has been similarly damaged and begun to re-emerge as seen at VP 1. The density of the remaining vegetation at this location allows filtered views through the trees. Within this context, lattice-tower structures, if visible, would not be an obvious or stark feature in views from this location. As the emerging vegetation develops, it would provide for the filtering and screening of views towards the transmission structures from this VP.

In the context of a journey along Elliott Way, existing vegetation would filter or screen project elements the majority of the time. Project elements would be most prominent at locations where the transmission corridor crosses Elliott Way. The change in views at these locations would include overhead transmission lines, removal of vegetation and views along the transmission corridor perpendicular to the direction of travel.

In proximity to this VP, the transmission lines would cross Elliott Way at three points, shown below in **Figure 6-2**. At these locations, the visual change may be likened to the two existing transmission corridors to the west.

Figure 6-2: Points of crossing near Boundary Road. Source: Google Earth

At these points of crossing, project elements would bring about a change in views. However, this change would be short lived, perpendicular to the viewing direction of travel and similar to existing transmission corridors to the west. At the VP location, existing vegetation within the view, screens or filters views towards the project.

Although the landscape sensitivity of this location is high, this change in views and visual impact would be experienced by few viewers for a short duration along this section of the road. For these reasons, the visual impact is considered to be low to moderate. Because of the requirement for the transmission corridor to be cleared, this impact is unlikely to be mitigated.

VP 3 – Elliott Way

VP 3 is located at a small roadside clearing, within proximity to the point of crossing of the transmission connection and the valley of the Talbingo Reservoir. The view from this VP is shown in **Photo 6-7** and **Photo 6-8**. Due to landslides, the following assessed locations along Elliott Way were inaccessible at the time of writing to capture views within the post bushfire landscape. At the time of writing, Elliott Way was closed to the public until further notice.

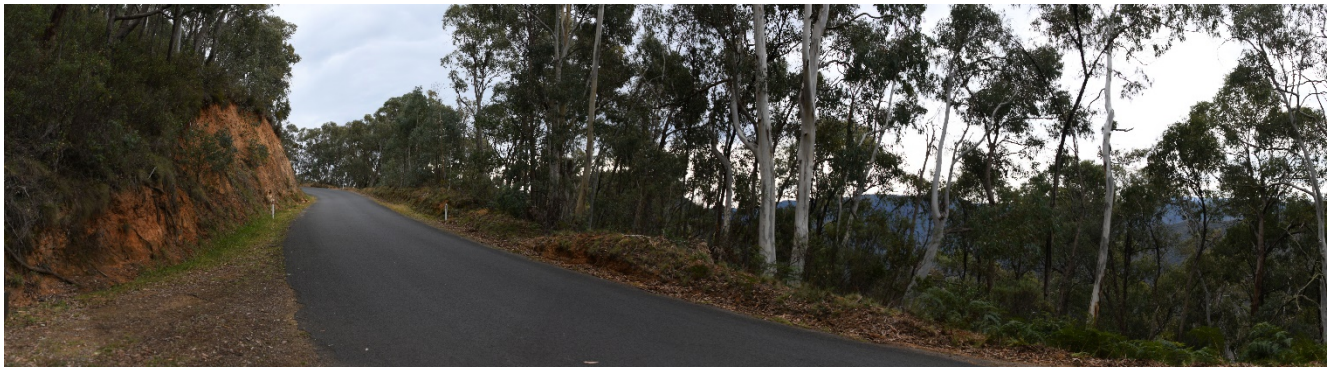


Photo 6-7: VP 3 – Elliott Way, looking north – prior to 2019 bushfire

Photo 6-8: VP 3 – Elliott Way, looking east to south – prior to 2019 bushfire

The existing view is one that is currently confined to the road due to existing vegetation which screens or filters views to the surrounding landscape, including the Talbingo Reservoir and ranges to the east. It is expected that following the bushfires, these views have temporarily opened up to reveal broader views across the reservoir and beyond as vegetation has been damaged or felled. It is unknown whether these trees remain or have been felled due to landslides.

The new transmission lines would pass overhead at this location. The change in this view would include removal of remaining canopy vegetation for the purposes of constructing the transmission corridor, the presence of new overhead transmission lines which will include aircraft markers and new transmission structures. The break in vegetation would enable long distance views along the valley which did not exist prior to the bushfires.

The disturbance area of this vegetation clearing is likely to extend to approximately 260 m along Elliott Way, extending south from this location.

Four structures are proposed to the east of Elliott Way before the alignment crosses the Talbingo Reservoir. Due to the change in topography, three of these structures will not appear dominant due to being located at an altitude approximately 70 m below Elliott Way. One structure is located approximately 60 m to the south east of Elliott Way, and is located at an altitude approximately 20 m below the road. This structure will appear to be dominant and will intervene the opened views.

These changes are likely to bring about a high magnitude of change to the landscape character of this section of Elliott Way, to a restricted viewing corridor. This is due to the removal of vegetation over an extended area which would otherwise filter views to the reservoir, and the imposition of a nearby transmission structure in the foreground of newly opened views. Although transmission corridor crossings are relatively common within the broader area, the positioning of a transmission structure relatively close in height and distance to the road is not common and will bring about an imposing change in this setting. In the context of a journey for road users, this will be a dramatic, yet short-lived change.

This change in views, although modified, has the potential for a positive visual impact, as a new expansive vista would open up views across the reservoir and beyond that would otherwise be restricted to filtered views through the treed corridor. This positive outcome would be modified by the visibility of the new transmission lines, aircraft markers and structures. This change in views would be similar to **Photo 6-8** below which is located at Goat Ridge Road and approximately 10 km south from this location.

Photo 6-9: Existing transmission line crossing at Goat Ridge Road – prior to 2019 bushfire

Project elements to the west would be largely screened from this location by the elevated cutting and existing vegetation not within the transmission corridor.

In the context of the journey along this road, existing vegetation and topography would filter views of the project elements from most locations. As road users travel along Elliott Way, winding roads and the lack of designated viewing locations, such as lookouts, means that views to the valley from this road are short lived and often interrupted by changing topography and existing vegetation.

Although the landscape sensitivity of this location is high, this change in views and visual impact would be experienced by few viewers, for a short duration along this section of the road. For the time being, as Elliott Way is closed, viewer numbers are expected to be nil until such time as the road can be restored to a safe condition.

The landscape character type at this location will be modified from upper slopes to a cleared corridor character type. The consideration of the impact of this change balances the presence of modifications and infrastructure and the creation of expanded vistas to the broader landscape.

For these reasons, the visual impact is considered to be moderate to high, but also potentially positive, due to the opening of a new vista across the Talbingo Reservoir. Because of the requirement for the transmission corridor to be cleared, this impact is difficult to mitigate.

VP 4 – Elliott Way

VP 4 is located in a clearing on the western road edge of Elliott Way, refer to **Photo 6-10**. This VP was chosen as a potential point for road users to stop along a journey.

Photo 6-10: VP 4 – Elliott Way, looking north to east – prior to 2019 bushfire

The nearest structure would be approximately 720 m north. This structure would suspend the transmission lines across the valley to the next structure to the east, approximately 1730 km north east of the VP. From this VP, views toward the project are largely filtered by existing vegetation along the east of the road. This vegetation would not be impacted by the project.

For road users travelling north toward this location, views toward the project are also obscured by the rising topography of the road as it slopes upward.

The project infrastructure potentially visible from this location would include the transmission lines suspended above the valley and structures to the north and north east. These project elements would be at such a distance that intervening vegetation in the foreground would largely screen views, rendering them an indiscernible element within the view.

Photo 6-11 below shows an existing view to suspended transmission lines across a valley through a break in vegetation along Goats Ridge Road, approximately 10.8 km south of VP5 toward Cabramurra.

Photo 6-11: Existing transmission lines, south of the project – prior to 2019 bushfire

As vegetation is not being removed any further south along Elliott Way than near VP3, views toward project elements would be largely screened or filtered by existing vegetation. While views toward suspended transmission lines along this road are possible, the filtering of views through vegetation would not result in a prominent visual change. The extent of damage to this vegetation following the bushfires is unknown.

As Elliott Way is closed until further notice, viewer numbers along this section of road are expected to be nil until such time as the road can be restored to a safe condition.

The overall visual impact at this location is assessed as negligible.

6.1.2 O'Hare's Campground picnic area

VP 5a – O'Hare's Campground picnic area

VP 5a is located near the entrance to O'Hare's Campground picnic area, refer to **Photo 6-12**. The nearest project elements would be the suspended transmission lines approximately 3.5 km north of this location.

Photo 6-12: VP 5a – O'Hare's Campground picnic area – prior to 2019 bushfire

O'Hare's Campground is the first stopping point along Elliott Way once entering the alpine region from the west. The area includes toilets, area to camp and picnic tables. Access to the Talbingo Reservoir is provided by a boat ramp approximately 180 m north of this VP. A further area to camp is present past the boat ramp.

Intervening topography and vegetation along ranges to the north would largely screen views of the project elements. As this VP is further than the 3km radius defined as the viewshed, project elements would be barely discernible in the context of the view.

The overall visual impact at this location is assessed as nil.

VP 5b – O'Hare's Campground Boat Ramp

VP 5b is located at the boat ramp adjacent to O'Hares campground, shown in **Photo 6-13** below. The nearest project infrastructure is located approximately 3.4 km north of this location.

Photo 6-13: VP 5b – O'Hare's Campground Boat Ramp – prior to 2019 bushfire

The range visible within the background of this view sits between the VP and the project. Views toward the project would be largely screened from this location.

There is the potential for long range views to the transmission lines suspended above the valley from this VP. But at 3.3 km in range, it is unlikely to expose any views of the project and would not constitute a discernible feature in the view.

It is also noted that users of the boat ramp, who travel by boat north via Talbingo Reservoir may experience views of the project including the structures, cleared transmission corridor and transmission lines.

The overall visual impact at this location is assessed as nil.

6.2 Project area east

6.2.1 Lobs Hole Ravine 4WD Trail VPs

The Lobs Hole Ravine 4WD Trail extends approximately 37 km with winding, unsealed roads. The southern access is located at Link Road, and the northern access at the Snowy Mountains Highway. The project and the 4WD trail are in proximity to an existing transmission line. The existing transmission line runs generally north to south, somewhat parallel to the entire length of the 4WD trail at varying distances from the trail. Ravine Track and Lobs Hole-Powerline Road make up the official 4WD trail. Other unsealed roads and fire-trails exist as part of the broader network through the valley area.

As part of the Snowy 2.0 works, sections of the Lobs Hole Ravine 4WD trail have been upgraded to allow for heavy vehicle access for the construction of Snowy 2.0 works, and associated works including this project. Due to these upgrade works, NPWS are expecting an increase in visitor numbers to Lobs Hole, including camping and caravanning visitors, once the road and site is opened up post-construction.

This area has been visited both prior to and five months following, the bushfires of 2019/2020. Construction of Snowy 2.0 had begun at the time of the second visit. These works have restricted some access to previously visited VPs. These works, in addition to the bushfires, have caused some degree of landscape change that will be discussed in each relevant VP below.

The roads within this area are currently occupied by Snowy 2.0 construction works and there will be no public access until the construction of Snowy 2.0 is completed.

VP 6 – Wallace's Creek Lookout

VP 6 is located at the Wallace's Creek Lookout viewing platform, refer to **Photo 6-14**. The nearest project infrastructure would be approximately 8.3 km to the north. The sensitivity of this VP is high. Following the bushfires, this lookout was destroyed. It is unknown whether the lookout will be restored.

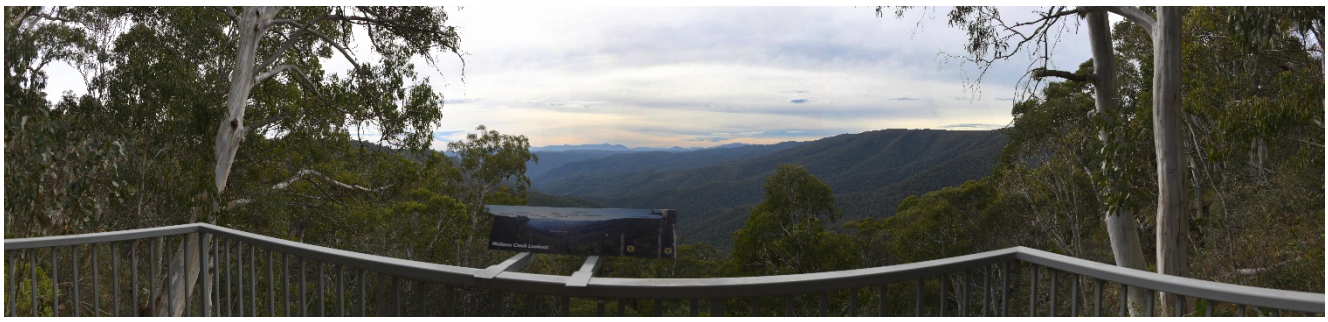


Photo 6-14: VP 6 – Wallace's Creek Lookout – prior to 2019 bushfire

Following the 2019 bushfire, this lookout structure was destroyed, and unable to be visited to be reassessed. Vegetation in the area also thinned as a result of the fires. This assessment assumes that the lookout will be rebuilt, and that views may be through thinned vegetation.

This VP was selected as the closest identified scenic viewing location (lookout) in proximity to the project. The combination of distance from the project, orientation of the viewing platform generally to the east and existing vegetation and topography intervening views toward the project results in no views of the project infrastructure from this location. The visual impact is assessed as nil.

VP 7 – Lobs Hole Ravine Road

VP 7 is located along Lobs Hole Ravine Road approximately 3.1 km south of the project. **Photo 6-15** shows the view from this location prior to the bushfires, and **Photo 6-16** shows the view post-bushfire. A photomontage has been prepared from this VP, which is shown in **Photo 6-17** and is included within the appendices.

Photo 6-15: VP 7 – Ravine Road looking west to north – prior to 2019 bushfire

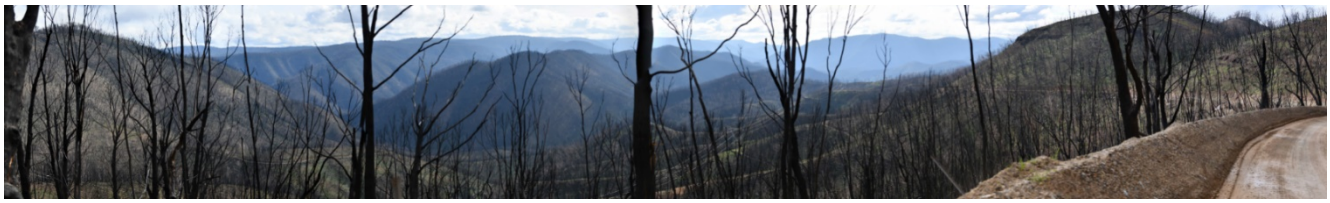


Photo 6-16: VP 7 – Ravine Road looking west to north – post 2019 bushfire

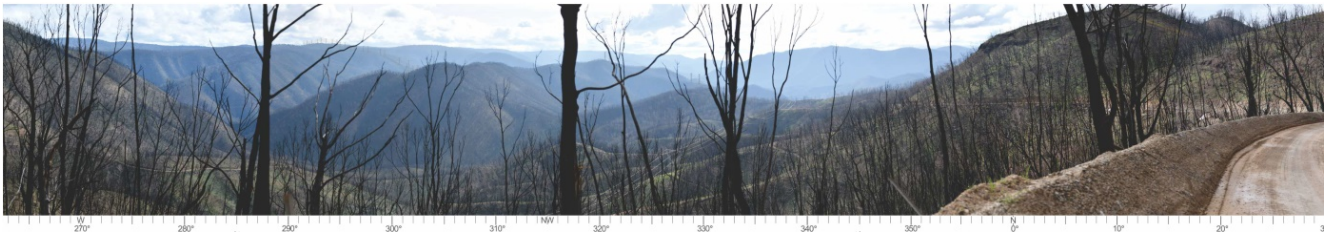


Photo 6-17: VP 7 – Photomontage

While the nearest structure is approximately 3 km to the north, due to intervening topography the nearest theoretically visible structure is approximately 4.1 km to the north east.

The existing transmission line runs relatively parallel to this section of road and is located approximately 300 m to the west. They are visible in the middle of **Photo 6-16**, filtered through the remaining roadside vegetation.

Five months following the bushfires, vegetation in this area has been greatly damaged. Trees that have survived and are producing new vegetative shoots from trunks or branches are very few. Some trees have been observed re-sprouting via the lignotuber. This type of vegetative re-sprouting occurs at the base of the tree. Lignotuber re-sprouting indicates that the trees have died above-ground but will recover eventually from the ground up.

The bushfires have resulted in an opening up of views along this section of road, including toward project elements.

An enlargement of the photomontage is shown below in **Photo 6-18** for the following discussions of project visibility.

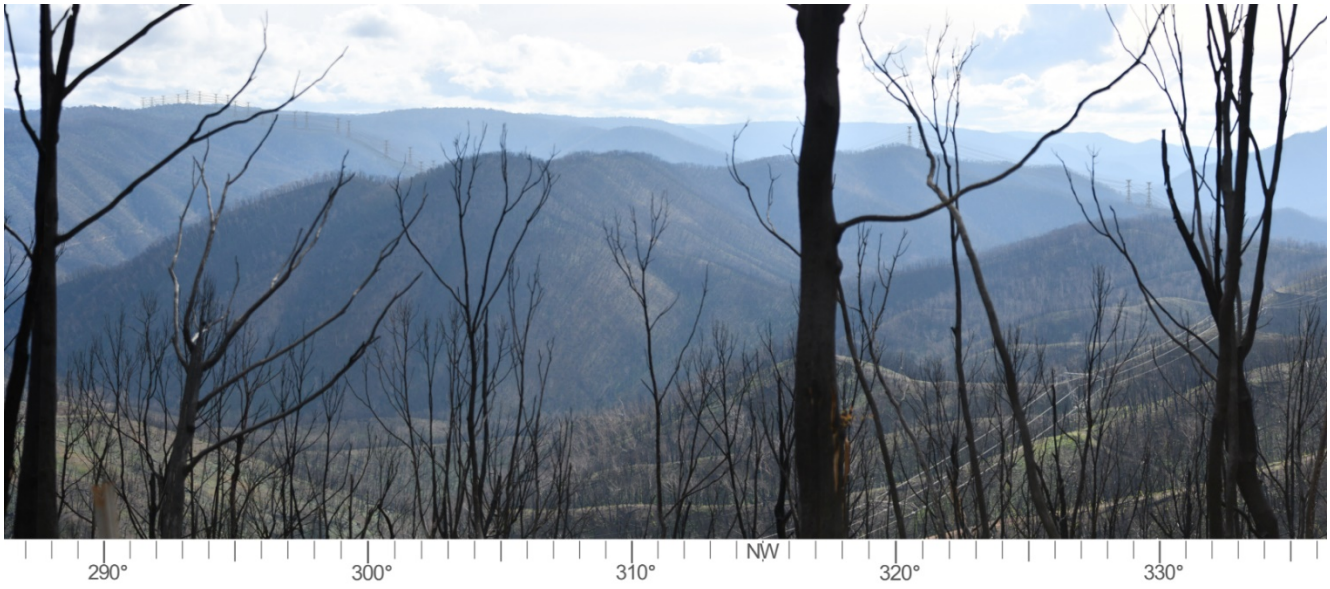


Photo 6-18: VP 7 – Photomontage (Enlargement)

Structures within the project area east are visible within this view, and are shown in the photomontage, see **Photo 6-18** (refer to 320° - 330°). These structures will be at such a distance that will be potentially noticeable, but not dominant elements within the landscape.

Structures within the project area west, to the west of Elliott Way, may be visible on the horizon above the ridgeline in the background of this view, and are shown in the photomontage along the horizon of the ridgeline in the background (refer to 290° - 300°). These structures will be at a distance of 6.6 km and greater. Vegetation observed in this area is more intact than at this VP and will filter or screen views to the structures from this VP as the vegetation develops. This vegetation will obscure the bulk of the structures from being visible elements along the horizon, but parts of the structures above the tree-line may be visible. Due to distance, these structures may be noticeable, but will not dominate views and will recede into the transmission corridor as the lines travel west.

Viewer numbers along this road are nil due to construction activities and are expected to be low thereafter. As it will be several years until public access is granted to the road, regrowth is expected to progressively filter views toward the project by the time visitors return to the Lobs Hole Ravine 4WD trail.

Due to intervening topography, low road users, expected vegetation recovery, distance to theoretically visible structures and the presence of a much closer existing transmission line, the visual impact is assessed as low-negligible.

VP 8 – Lobs Hole Ravine Road

VP 8 is located along Lob Hole Ravine Road approximately 2.25 km south of the project, refer to **Photo 6-19**. Due to construction activities, this VP was not accessed to be reassessed following the bushfires. The imagery from preceding and following VPs will be used for discussion purposes regarding visibility following the bushfire landscape change.

Photo 6-19: VP 8 – Ravine Road, looking west to north – prior to 2019 bushfire

From this VP, views along the valley to the north west are afforded. In the context of a journey, these views are filtered by the existing roadside vegetation on the lower slope to the road.

The nearest project infrastructure would be about 2.25 km to the northeast. Due to topography, the nearest possibly visible structure would be approximately 3.3 km to the north west. In the context of VP 7, the closest structures would be located low in the view, near the 'blue' centre of the valley. However, due to existing vegetation and distance from the VP, views toward these project elements are likely to be indiscernible in the context of the view.

Bushfire damage has opened up views from this location, similar to as seen in VP 7. The previous discussion regarding damage, observed regrowth and expected recovery is relevant to this VP.

The existing 'Line 2' transmission line runs parallel to the general direction of Ravine Road. The closest existing structure is approximately 350 m to the west of this VP. The structure and transmission lines are visible, though filtered by the roadside vegetation in the foreground.

Due to existing transmission lines within the foreground of this view, and the degree of distance between the VP and potentially visible project infrastructure, the visual impact at this location is assessed as low.

VP 9 – Ravine Road

VP 9 is located along the Ravine Road. This area is one of the few locations offering expansive vistas to the north, refer to **Photo 6-20** and **Photo 6-21**. **Photo 6-22** shows the view captured at this VP following the bushfires. A photomontage has been prepared from this VP and is shown at **Photo 6-23** and included in the appendices. The nearest part of the project would be approximately 950 m north of this VP.

Photo 6-20: VP 9 – Ravine Road, looking west to north – prior to 2019 bushfire

Photo 6-21: VP 9 – Ravine Road, looking north to east – prior to 2019 bushfire

Photo 6-22: VP 9 – Ravine Road, looking west to north – post bushfire

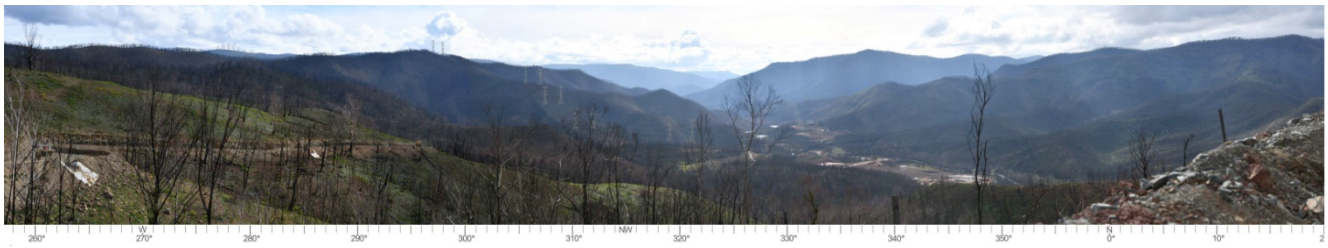


Photo 6-23: VP 9 – Photomontage

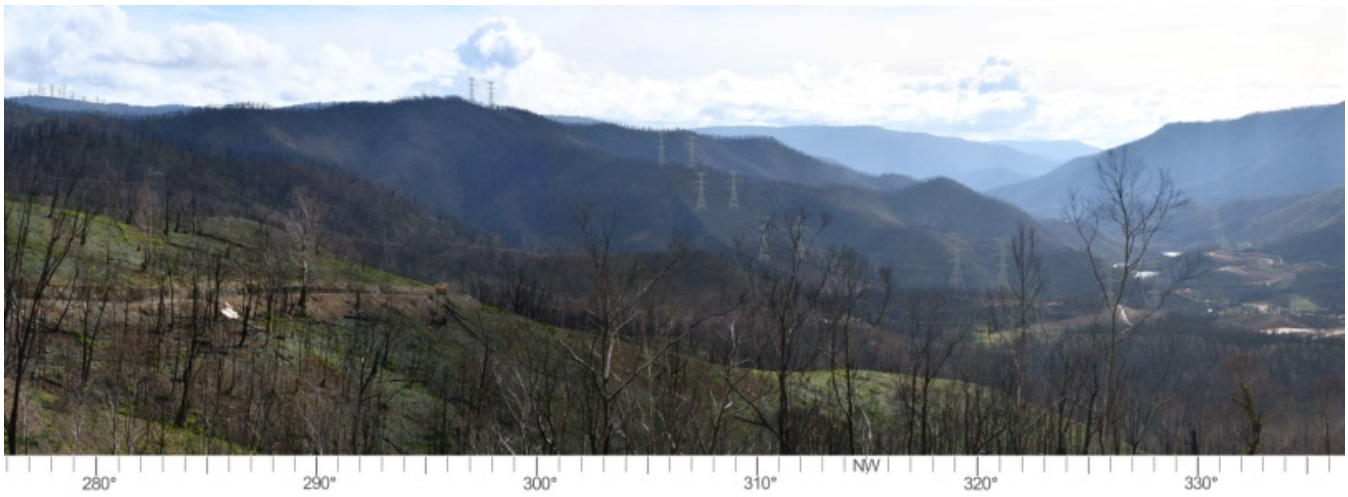


Photo 6-24: VP 9 – Photomontage (enlargement)

The transmission corridor would travel east to west across this view, set somewhat low in the landscape after descending a slope within the left of this view. The most prominent visual features of the project would likely be the descent of the transmission corridor down a ridge near the centre of this overall view, which would meet the existing transmission corridor of Line 2 before heading further east, where topography would obscure views to more eastern structures.

Existing transmission lines are visible within this view. The nearest existing transmission structure is approximately 730 m west of this VP. These transmission lines travel generally north to south and can be seen diverting northwest as they reach the Ravine Campground. Whilst visible, the existing transmission lines are a relatively minor feature in the view.

Prior to the bushfires, existing vegetation along the descending side of the road edge somewhat filtered views across the landscape from this location. However, screening to the transmission corridor is more likely to be achieved by the forested areas surrounding the project.

Following the bushfires, vegetation at this location has been destroyed above-ground. An enlargement of the post bushfire view, shown below in **Photo 6-25**, reveals that many trees have begun re-sprouting via the lignotuber.

Photo 6-25: Lignotuber regrowth post bushfires

As a point along the 4WD trail that offers unique panoramic views across the ranges, the sensitivity of this VP is assessed as high. Although it must be considered that viewer numbers in this location would be nil until construction onsite has ceased and the roads reopened to the public, and then low thereafter. No points of stopping are available outside of the trafficable road near this location. The presence of existing transmission infrastructure within this view lessens the VP sensitivity to visual change.

The overall visual impact at this location is assessed as low to moderate at such time that public visitation can recommence, and nil prior.

VP 10a – Mine Trail Campground (Prior to bushfire/construction)

This VP is located at the eastern end of Mine Trail, at the informal Mine Trail Campground, refer to **Photo 6-26** and **Photo 6-27**. This VP would be located near the middle of the transmission corridor.

During the second visit to this area, the original VP area has been largely cleared to allow for Snowy 2.0 construction works, and the exact VP location was an active construction site at the time of visiting. The post bushfire VP was captured approximately 300m to the north east of the original VP, and will be shown as VP 10b.

Photo 6-26: VP 10a – Mine Trail Campground, looking east to south west – prior to 2019 bushfire

Photo 6-27: VP 10a – Mine Trail Campground, looking west – prior to 2019 bushfire

Near this location, an informal, unmarked campsite existed at a clearing near the end of the publicly accessible section of Mine Trail. This campsite has been removed at the time of writing as part of Snowy 2.0 works. A section of creek connected to the Yarrangobilly River is within 15 m of the clearing to the north.

At this location, the transmission lines would pass overhead, with the final eastern structure approximately 180m to the east, and the next structure approximately 200 m south west.

The removal of vegetation for the transmission corridor would create views looking southwest and northeast. Toward the east, further project infrastructure may be visible. This view is likely to be similar to the Ravine Campground, which is cleared and contains transmission infrastructure. The 2020 site visit revealed that this vegetation has largely been damaged following the bushfires. Other vegetation surrounding Mine Trail has also largely been cleared for machinery access related to Snowy 2.0 works. With this in mind, the landscape setting of this site has since changed from one that is relatively enclosed and well vegetated, to one that is more open with vegetation that is regenerating. The creation of a transmission corridor in this area would further open up a more permanent view corridor, but would not be within an area that could be considered a pristine forested setting.

Following construction of both the project and Snowy 2.0, the Lobs Hole Ravine area would be rehabilitated (aside from the areas containing permanent infrastructure) and returned to a recreational area as a requirement of Snowy 2.0. As such, new camping areas would be established, which would likely be positioned away from permanent infrastructure, including the new transmission lines with the aim to provide some degree of offset to the loss of amenity.

Overall viewer numbers at this location are expected to be low upon re-opening of the Lobs Hole Ravine area. This is due to the unmarked nature of the site as a campground, and small size of the cleared area available for camping, and the chance that the site will no longer be utilised as a campsite by visitors to the KNP following the landscape changes described above. Mine Trail is also not part of the Lobs Hole-Ravine 4WD trail. The time between the bushfire and the reopening of the Lobs Hole Ravine area to the public will allow for vegetation in this area to regenerate and provide some filtering of screening of views to project.

The overall visual impact at this location would be high. This is due to:

- Vegetation removal around the campsite and adjacent waterway
- Overhead dual transmission lines
- Potential for views directly along the transmission corridor in two directions from the campground
- Potential loss of campground location due to proximity of transmission lines and their effect on amenity of the area
- High sensitivity of the area as a national park.

As the number of potential visitors to this location is restricted while the site is hosting construction works, this visual impact will be nil until such time as visitation recommences.

The overall visual impact once visitation re-commences is assessed as high.

VP 10b – Mine Trail: post bushfire

VP 10b is located along Mine Trail, beyond the location of the former informal Mine Trail campground. This VP was captured after the bushfires as the Mine Trail Campground site was no longer accessible. This section of Mine Trail is newly formed for the construction of Snowy 2.0. The view from VP 10b is shown below in **Photo 6-28**.

Photo 6-28: VP 10b – Mine Trail: post bushfire, looking south to west

Within this view, the transmission line will pass over the slope to the right of the peak visible in the background of this view and head towards the VP. The transmission line will terminate to the east of this VP, with the final structure located approximately 200m to the south east.

Following the bushfires, the vegetation in the local area has largely begun to re-sprout via epicormic shoots. The slopes to the right of the peak in this view have largely been destroyed above-ground, and are re-sprouting via lignotuber regrowth. Vegetation on the slopes in the background, that include structure locations, have largely been destroyed above ground, and are re-sprouting via lignotuber regrowth.

While VP 10a contemplates impacts of the project to the informal campground at Mine Trail, the campground no longer exists due to construction works. As suggested in the VP 10a discussion, the public may benefit from a new campground designated within an area further away from the project alignment, but still with access to the Yarrangobilly River.

This section of Mine Trail will be an access road for elements of Snowy 2.0 infrastructure and does not lead to publicly accessible locations beyond the former campsite. For this reason, the viewer numbers for this location are expected to be very low to none upon reopening of the Lobs Hole Ravine area.

The visual impact at this location along Mine Trail would be low-moderate, depending on viewer numbers.

The visual impact of the Mine Trail campsite overall is rated as high.

VP 11 – Lobs Hole-Powerline Road, Ravine Campground

VP 11 is located along Lobs Hole - Powerline Road, where it reaches the unmarked, informal Ravine Campground, refer to **Photo 6-29** and **Photo 6-30**. This area has similarly been modified following the initial visit by construction of Snowy 2.0 and the bushfires. The post bushfire view is shown below in **Photo 6-31**. A photomontage has been prepared from this VP and is shown below in **Photo 6-32** and included within the appendices.

Photo 6-29: VP 11 – Lobs Hole-Powerline Road, Ravine Campground, looking east to south – prior to 2019 bushfire

Photo 6-30: VP 11 – Lobs Hole-Powerline Road, Ravine Campground, looking south to west – prior to 2019 bushfire

Photo 6-31: VP 11 – Lobs Hole-Powerline, Ravine Campground – post bushfire

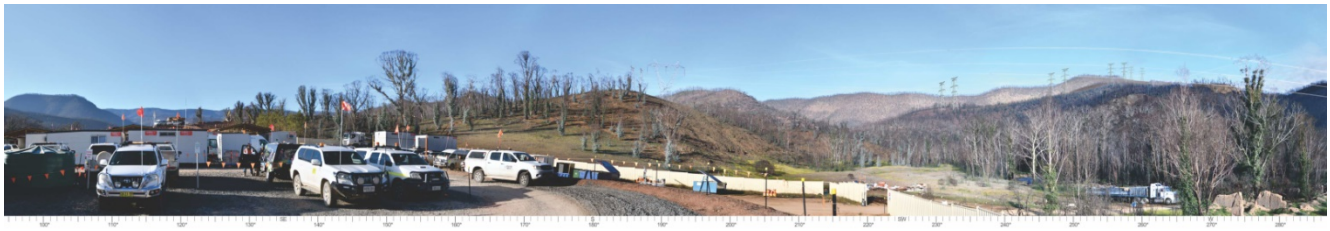


Photo 6-32: VP 11 – Photomontage

Photo 6-33: VP 11 – Photomontage (enlargement)

Construction infrastructure in the foreground of this view is temporary and related to Snowy 2.0.

From this VP, views are likely to be afforded to the transmission lines descending the slope to the west, as seen in **Photo 6-33**. These structures will likely form elements on the horizon even following the re-establishment of surrounding vegetation.

This view has the existing transmission lines in the immediate foreground, which pass over the road approximately 120 m to the west. Elements of the project to the south and east would be screened by topography and existing vegetation.

Following the bushfires, vegetation in this area and beyond within this view has been damaged. Elevated vegetation on the slopes in the foreground have begun to re-sprout via epicormic shoots. This vegetation will continue to develop to provide filtering or screening of views toward the project from locations within this area. As the structures will be elevated and traverse a ridgeline, they will still be somewhat visible above this vegetation.

Although the landscape sensitivity is high, the prominence of existing transmission infrastructure within this view lessens the sensitivity to visual change.

Due to the upgrade works of Lobs Hole-Ravine Road that will allow for more vehicle types to access this area, viewer number are expected to increase. It must also be recognised that the combination of a nearby creek, ruins from early settlement and cleared, flat land generally in the middle of the 4WD trail increase the likelihood of visitors stopping in this location.

The overall visual impact is assessed as moderate-high. The moderate rating recognises that the existing transmission lines bisect the campsite, and the high rating recognises the recreational amenity for park visitors as a key site.

VP 12 – Mine Trail clearing

This VP is located at a clearing along Mine Trail where several local vehicular trails intersect. This clearing affords open views to the surrounding enclosing slopes that form the ravine. The nearest structure will be approximately 400 m south of this VP.

The view shown from this VP prior to the bushfires is shown below in **Photo 6-34** and **Photo 6-35**. The view following the bushfires is shown below in **Photo 6-36** and **Photo 6-37**. A photomontage has been prepared from this VP and is shown below in **Photo 6-38** and included within the appendices.

Photo 6-34: VP 12 – Mine Trail clearing, view looking east to south – prior to 2019 bushfire

Photo 6-35: VP 12 – Mine Trail clearing, view looking south to west – prior to 2019 bushfire

Photo 6-36: VP 12 – Mine Trail clearing, view looking east to south – post bushfire

Photo 6-37: VP 12 – Mine Trail clearing, view looking south to west – post bushfire

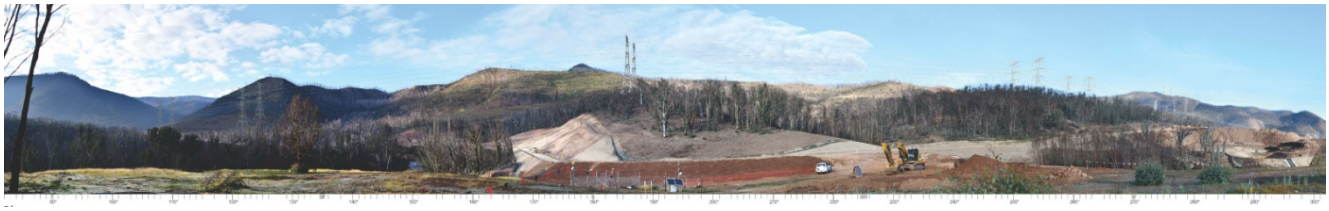


Photo 6-38: VP 12 – Photomontage

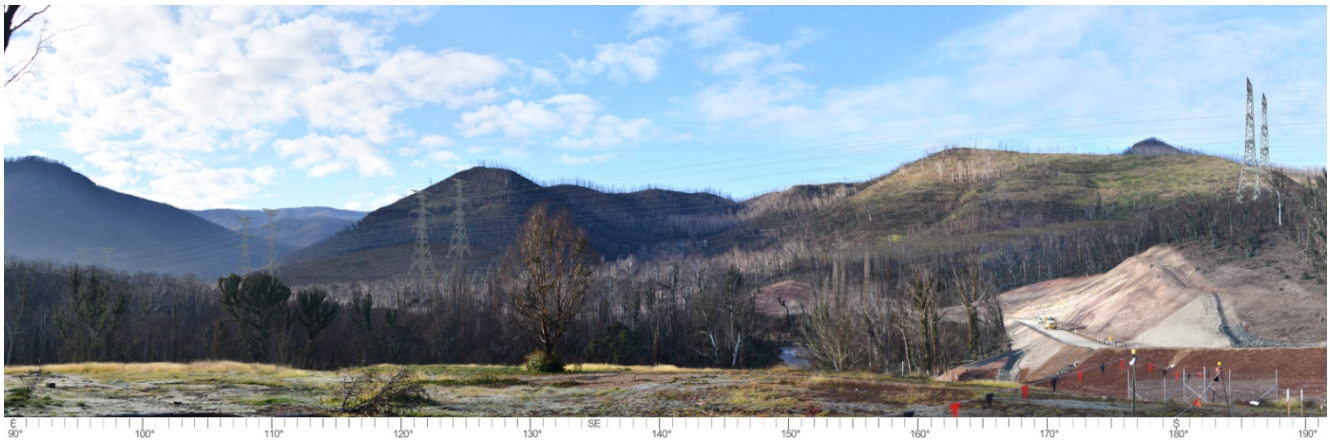


Photo 6-39: VP 12 – Photomontage (enlargement) looking east to south

VP 12 is located at a junction of trails and a clearing that affords views to the landforms that make up the Lobs Hole ravine. The location serves as a point of stopping along either side of the 4WD trail as it descends into the ravine.

From this VP, the new transmission lines would pass approximately 180 degrees from east to west. Structures within this view will pass in front of, and behind the topographical features in this view. The nearest structure is located approximately 400 m south of this VP. Several structures will be within close enough distance to be considered dominant elements within this view.

As shown in the photomontage, structures and vegetation clearing will be highly visible in front of exposed cliff-faces and a valley (refer 100° – 130°), which will obscure longer range views framed by this topography. Due to the proximity of these structures to the eastern point of termination (switchyard), there exists little opportunity to locate these structures elsewhere to mitigate the visual change.

In the post bushfire landscape, vegetation along the slopes has been damaged, revealing in finer detail the geological formations of the slopes. The remnants of the trees still remain and will eventually regenerate, as discussed in previous VPs. Following the bushfires, the previously cleared location has begun to be populated with emerging eucalypts, which will grow to limit views outside the clearing in some areas.

Construction works related to Snowy 2.0 are visible in this view and include the track upgrades and grading along Mine Trail at the base of the slope. Temporary elements of Snowy 2.0, including the works accommodation infrastructure for construction workers, will be located to the north west of this VP. These temporary elements will be removed prior to the reopening of the Lobs Hole Ravine to the public.

Due to the proximity of structures, their intervention in key views along ridgelines and to outstanding topographical features and the likelihood for park visitors to stop at this location, the visual impact at this location is determined to be high.

VP 13 – Lobs Hole-Powerline Road

This VP is along Lobs Hole-Powerline Road, toward the northern extents of the LCVIA study area, refer to **Photo 6-40**. **Photo 6-41** shows the photomontage prepared from this location.

Photo 6-40: VP 13 – Lobs Hole-Powerline Road, looking south to west – prior to bushfire

Photo 6-41: VP 13 – Lobs Hole-Powerline Road, looking south to west – post bushfire

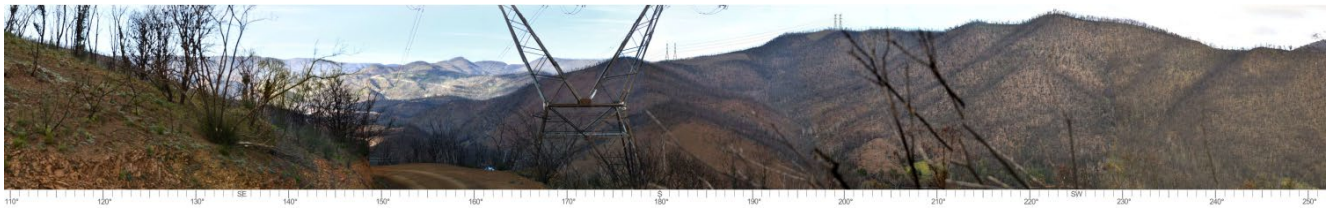


Photo 6-42: VP 13 – Photomontage

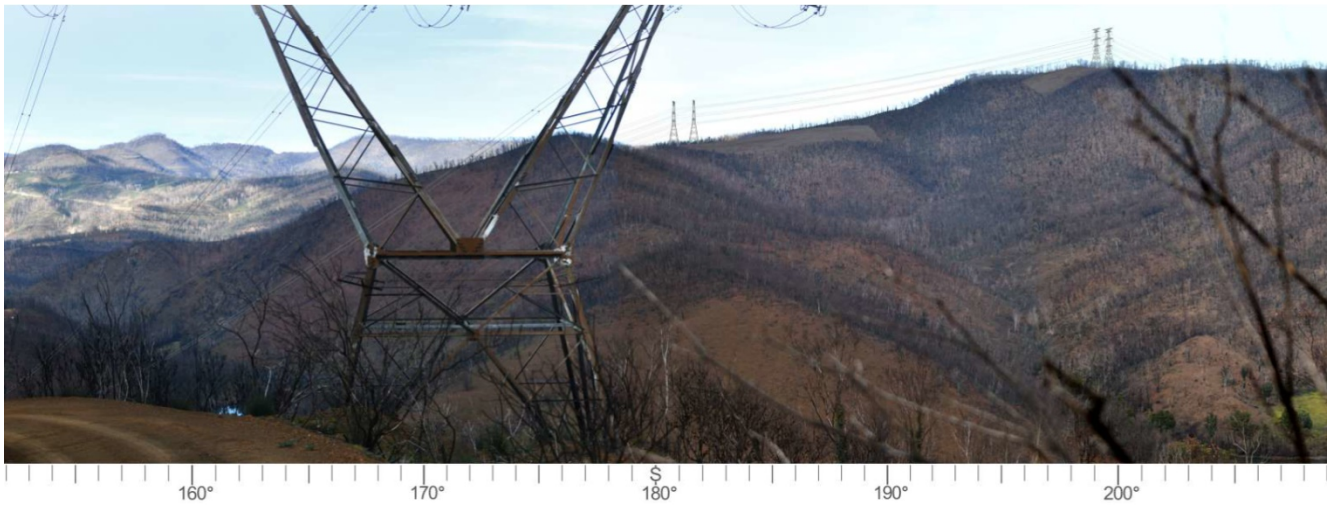


Photo 6-43: VP 13 – Photomontage (enlargement)

Within this VP, long range views are afforded down the ravine to the south, along the existing transmission corridor. To the west, the southern reaches of Talbingo Reservoir can be seen. Talbingo Reservoir is set in the foreground, comparative to the project.

Following the bushfires, the roadside vegetation in this area that formerly filtered views toward the project has been damaged. Tree species in this area included smaller natives such as banksia, which will regenerate via seed, rather than vegetative regrowth. This means, the regeneration of screening vegetation will occur at a slower rate than in other areas that predominantly contain eucalypt species.

The majority of project infrastructure would sit low in the view. Four transmission structures would likely be visible on the upper slopes to the south west of this VP. These are shown in the photomontage enlargement above in **Photo 6-43.** The presence of new infrastructure along the elevated ridgeline in middle-ground views will be a noticeable, but not dominant visual change in views along this road.

Although structures may be visible from this location, Lobs Hole-Powerline Road is characterised by the existing structures that generally travel parallel to the road toward the Ravine Campground to the south. The existing structures sit in the foreground of views from this road until the proposed transmission lines reach the existing lines, approximately 3.1 km south of this location. Due to this intervening infrastructure, the sensitivity of this location to the project is lower.

The visual impact at this location is assessed as low to moderate.

6.3 Cumulative visual impact considerations

Cumulative visual impact can be defined as the combined effect of changes brought about by a project in conjunction with other similar developments in an area. Cumulative visual impacts may result in changes to the perceptions of the local community or a visitor to the region due to the presence of multiple transmission lines and/or substations in the project viewshed area, or similar associated infrastructure or works, such as those being a part of Snowy 2.0.

Cumulative visual impacts can occur through sequential and/or simultaneous views to one or more projects from publicly accessible viewpoints.

The greatest potential for cumulative visual impacts to occur is in areas where the viewshed (distance at which a project is a discernible visual feature) of one more relevant constructed or approved projects overlap.

6.3.1 Snowy 2.0: Potential cumulative visual impact

The project is associated with the Snowy 2.0 works which have been subject to a separate approvals process, inclusive of a landscape and visual impact assessment, and has received approval. The key elements of Snowy 2.0 and the project are shown on **Figure 2-2**.

The key components of Snowy 2.0 that have the potential to result in cumulative visual impacts have been identified as those within the Lobs Hole area, as these are within the viewshed of the project area east. These components include:

- The emergency egress, cable and ventilation tunnel portal
- The Snowy 2.0 cable yard
- The Snowy 2.0 works accommodation at Lobs Hole and associated infrastructure
- Temporary construction and laydown areas
- Talbingo intake
- Light pollution from operational components of Snowy 2.0.

The visual impact of these components alone have been assessed as part of the Snowy 2.0 Main Works EIS (EMM, 2019). The following section discusses the potential for cumulative visual impacts with the project's transmission components.

The Snowy 2.0 cable yard marks the eastern end of the project, where the transmission infrastructure (this project) would connect to Snowy 2.0. The Snowy 2.0 cable yard is located in proximity to the emergency egress, cable and ventilation tunnel portal. This infrastructure is located within a valley formation near the assessed VP 10b. Due to the enclosed topography of this location, simultaneous views toward these elements from the public realm are limited to a short section of Mine Trail, which ends at the portal location. This road is not part of the nearby 4WD trail, and as such is not considered part of the broader scenic road network. The cumulative impacts of the project would result in a greater industrialisation of a restricted area, and would be experienced by low viewer numbers.

Elements of Snowy 2.0 in proximity to the Lobs Hole campground would be visible from several assessed viewpoints, including VP 9, VP 11, VP 12 and VP 13. These elements are related to the construction stage of Snowy 2.0, including the Snowy 2.0 works accommodation, access roads, construction and laydown areas, other associated infrastructure and vegetation clearing. By nature, these elements are temporary and would generally be present at times that the Lobs Hole campground and the Lobs Hole Ravine 4WD trail are closed to the public, and therefore viewer numbers of these elements will be nil. Residual impacts, such as regenerating vegetation, permanently cleared areas or modified landscapes to allow construction access will likely be visible for several years as the landscape re-establishes. In this instance, cumulative impacts of Snowy 2.0 and the project are limited to the simultaneous views of cleared landscape and residual landscape modifications. These effects will be temporary but located in an area of heightened sensitivity due to the scenic road and campsite. The Lobs Hole Ravine area will be rehabilitated following construction of Snowy 2.0 and recreational area(s) established.

Elements of Snowy 2.0 at Talbingo Reservoir include the Talbingo intake. Cumulative impacts of these elements are restricted to road users of the 4WD trail, which at this location is along Lobs Hole-Powerline Road and includes the assessed VP 13. Views from the Lobs Hole campground toward the Talbingo reservoir are screened by existing retained vegetation. Cumulative impacts of these elements are likely to be sequential, rather than simultaneous, due to the distance between these elements. As discussed at VP 13, the sensitivity of this area is lowered somewhat by the existing transmission lines (Line 2). However, these elements combined will contribute to an overall increase in the industrialisation of the character of this area.

6.4 Visual amenity impacts during construction

Construction elements and activities have been detailed previously in **Section 2.5**.

Visual amenity impacts during construction are limited to the project area west (Elliott Way), as during construction, all publicly accessible areas where project area east may be viewed will be closed to the public. It is assumed that Elliott Way will be repaired and accessible for the public during the construction phase.

Construction elements within project area west will include the works associated with access road works, the substation, creation of the transmission corridor west of Talbingo Reservoir, construction of the transmission structures and stringing and tensioning of the transmission lines.

These activities and elements are potentially visible from publicly accessible locations along Elliott Way, including the assessed VPs: VP 1, VP 2 and VP 3.

At the substation location, construction elements and activities will include the site compound and laydown area within the cleared APZ. The site compound would be in place throughout the construction period and is expected to contain demountable offices, meal rooms, toilet/shower facilities, equipment laydown areas, vehicle and equipment storage, maintenance sheds, chemical/fuel stores and stockpile areas.

As discussed at VP 1, the substation area will largely be screened from Elliott Way by existing vegetation to the south. A section of vegetation would be removed that may allow views toward the substation location for a short section of Elliott Way, for a short duration for road users. Due to the limited visibility of the substation site, the visual amenity impacts of the substation construction are low.

Construction elements of the transmission line from Elliott Way may be experienced by road users along Elliott Way that have visibility of the transmission line crossings. These views will contain elements that would be out of expected character for visitors of the KNP, including:

- Presence of heavy vehicles/construction vehicle traffic, including cranes and helicopters or drones
- Vegetation clearing/felling
- Traffic management signage and traffic stops
- Construction, stringing and tensioning of the transmission structures
- Removal of non-permanent elements following construction and rehabilitation works.

These elements and activities would be visible to the public from within a limited section of Elliott Way where breaks in vegetation at transmission corridors and road crossings allow views through to the Project area, and only visible during the construction period. This section of Elliott Way will extend approximately 9 km, from the first transmission line crossing near Boundary Road, to the point of crossing at Talbingo Reservoir and nearby access road. Along this section of Elliott Way, there will be three points of road crossing, which limits the visibility of these construction activities due to the otherwise forested nature of this plateau landscape. Construction activity at Talbingo Reservoir crossing may be visible further south to road users travelling north. This visibility would be limited due to the winding nature of the road, elevated topography of the upper slopes e, and would be filtered through roadside vegetation.

Due to the nature and scale of these works being out of the expected character within Bago State Forest and KNP, park visitors and road users along this section of Elliott Way would experience a moderate-high level of visual impact, for a short section of a journey, when travelling through these transmission corridor crossings.

7. Mitigation measures

This section provides an overview of the measures to manage the visual impacts of the project's construction and operation.

7.1 Operational visual management measures

Mitigation measures for infrastructure such as transmission structures and cleared corridors is typically applied to viewpoints and viewing locations that are static and/or have the potential for a high level of visual impact, such as for residential dwellings, lookouts and recreation reserves. It is apparent from the preceding assessment of publicly accessible viewing locations for this project that there are no residential viewing locations, due to the location of the project, and there is only one formal lookout which is outside the project viewshed and orientated away from the project. The majority of the viewing locations are from the tracks and trails that navigate the park and would ordinarily be provided with filtered or screened views toward the existing and proposed transmission lines due to intervening topography and vegetation, noting that in the context of a journey, some clear views to these elements. The screening of the remaining views that would include the transmission lines would also remove views of other areas of the National Park. The provision of landscape screening for transmission structures and cleared corridors is also in some cases impractical, due to the requirements to maintain safe vegetation clearances from transmission lines. For these reasons, it is considered that landscape mitigation of the transmission line is either not required or not suitable.

The majority of the substation would be screened or filtered by vegetation south of Elliott Way. A section of this vegetation would be impacted due to clearing required for the APZ, which would open a view toward the substation from Elliott Way. This view would be perpendicular to the view line for road users, and would be experienced for a short duration. The retention of existing vegetation to the greatest extent practicable south of Elliott Way and around the substation would ensure that potential visual impacts from Elliott Way are minimised. As the majority of the substation will be screened by existing vegetation, and potential views limited to a short window, landscape screening of the substation is determined to be not required.

7.2 Summary of construction mitigation measures

Recommended mitigation measures to manage visual impacts of the project's construction are summarised in **Table 7-1.**

Table 7-1: Summary of mitigation management measures

Ref	Impacts	Mitigation measures
Construction		
VIA 1	Visual impact during construction	The following mitigation measures will be implemented as part of the Construction Environmental Management Plan: ▪ All construction plant, equipment, waste and excess materials will be contained within the designated boundaries of the work site and will be removed from the site following the completion of construction ▪ Stockpiles will be stabilised to prevent erosion by wind and water and avoid the development of dust plumes adversely impacting air and visual quality ▪ On completion of the work, disturbed areas will be stabilised and returned to as close to original condition.

8. Conclusion

KNP is characterised by both its natural landscape and visual amenity, and as a clean power generator and energy storage for the grid.

Desktop and onsite landscape and visual studies have determined that areas potentially impacted by loss of landscape amenity or through views afforded to project are largely limited to short sections of Elliott Way to the west and south of the project, and along some sections of the Lobs Hole-Ravine 4WD trail. Existing journeys through these areas are already characterised by a number of transmission corridors crossing roads, running parallel to the 4WD trail or, further south toward Cabramurra, crossing valleys in several instances.

While KNP's landscape sensitivity to change is predetermined as high, the obvious presence of a number of major transmission lines decrease this sensitivity when considering the project is of similar appearance. The addition of further transmission infrastructure will not be out of character with the area but will increase the industrialisation of the landscape character of the national park and Bago State Forest from a limited number of viewing locations.

Impacts to Elliott Way are largely limited to a short section that will experience three new transmission corridor crossings. At VP 3, a significant landscape change will occur, including the opening of views across the Talbingo Reservoir and a structure prominently sited near the road.

Lighting impacts due to the project are restricted to the substation and are considered negligible due to the substation being located behind existing vegetation, and not in proximity to sensitive receptors such as residential dwellings or formal park and recreation sites. Views of the substation and lighting will be filtered by existing vegetation, but visible through a small cleared window for a short duration for road users along Elliott Way. Views of the substation lighting will be restricted to road users travelling at night.

In areas along the Lobs Hole – Ravine 4WD trail where project elements would be visible, views are often limited by intervening topography, existing vegetation or existing transmission infrastructure in the foreground. While the addition of new transmission infrastructure in this area would be visible, it will be similar to views afforded to existing infrastructure. Areas where new transmission infrastructure is in close proximity to publicly accessible locations would be within the vicinity of existing transmission line road crossings.

Two viewpoints at Lobs Hole will experience a high visual impact that is unlikely to be mitigated by vegetation regeneration. These are VP 11, the location of the Lobs Hole campground and heritage site, and VP 12, located at the Mine Trail clearing. These viewpoints will have clear views of sections of the project, and are expected to experience increased visitor numbers due to road upgrades. VP 10, located at the Mine Trail campground is also assessed as high, but will likely not be used as a campground post-construction due to the positioning of the transmission corridor at this location, and provision of upgraded amenities elsewhere at Lobs Hole as part of the Snowy 2.0 site remediation works.

The area has been visited both prior to, and several months following the 2019/2020 bushfires. Areas that were accessible were revisited 5 months following the bushfires and observed in terms of the landscape and vegetation changes. Loss of leafy vegetation has opened views toward project elements in most areas, increasing visibility of the project. Vegetation in many areas is regenerating successfully and it is expected that by the time the assessed areas are reopened to the public, vegetation will have established to a point that provides for the partial screening or filtering of views to the majority of the project as expected prior to the bushfires. This is due to the bushy, mid-storey epicormic shoots that emerge following bushfire events.

9. References

EMM Consulting, 2019. Snowy 2.0 Main Works EIS Henry Dreyfuss Associates, John Whiley & Sons, 2012. The Measure of Man and Woman, Revised Edition'

NSW National Parks and Wildlife Services (NPWS) 2006, Kosciuszko National Park Plan of Management, NSW National Parks and Wildlife Services.

Julius Panero & Martin Zellnik, Witney Library of Design,1979. Human Dimension and Interior Space

SLR Consulting, 2019. Snowy 2.0 Main Works EIS: Rehabilitation Strategy

Spackman Mossop Michaels, 2019. Landscape and Visual Impact Assessment

Appendix A. Photomontages (A3)

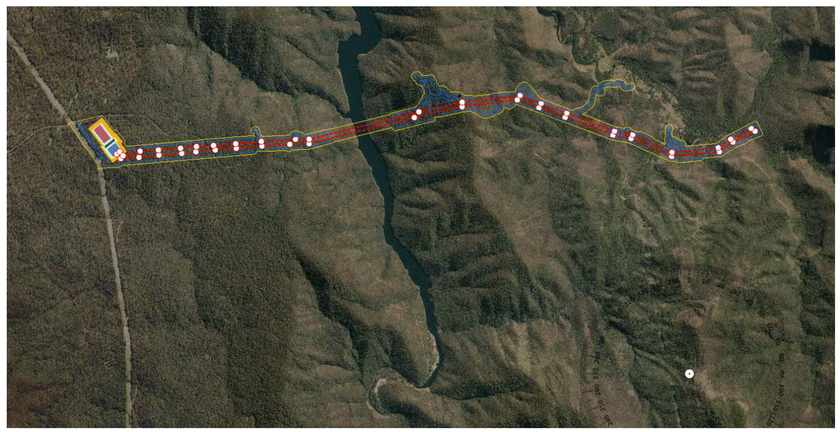
VIEWPOINT 7 - RAVINE ROAD

(GPS 55H 626854.00 m E, 6034841.00 m S)

Existing view

Photomontage

Distance to Project: Approximately 3.0km

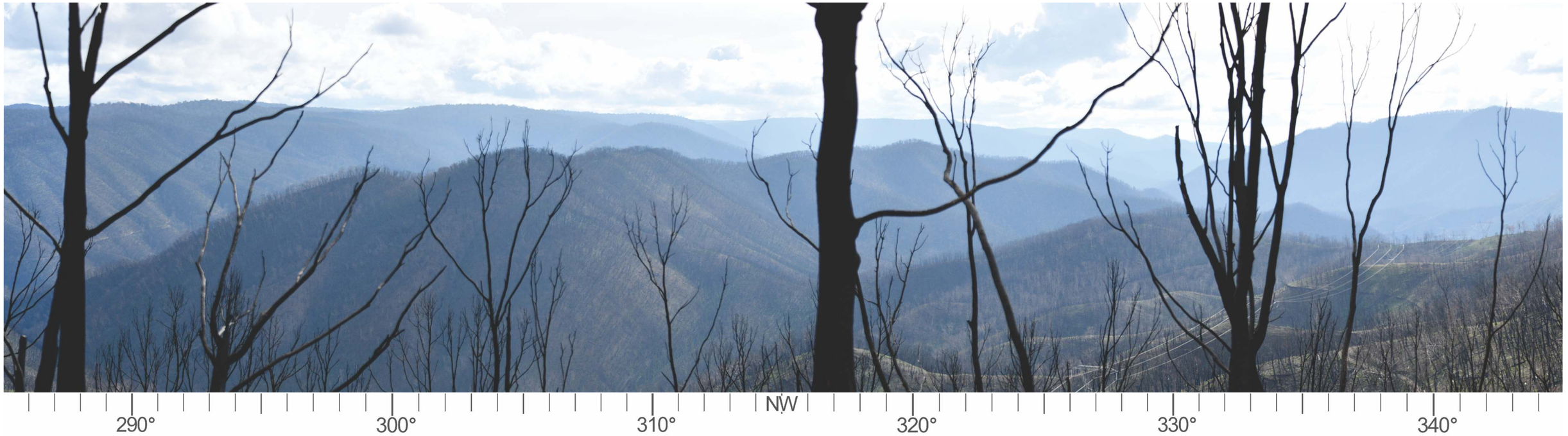


Viewpoint Map

VIEWPOINT 7 - RAVINE ROAD

60 degree view looking north west

(GPS 55H 626854.00 m E, 6034841.00 m S)



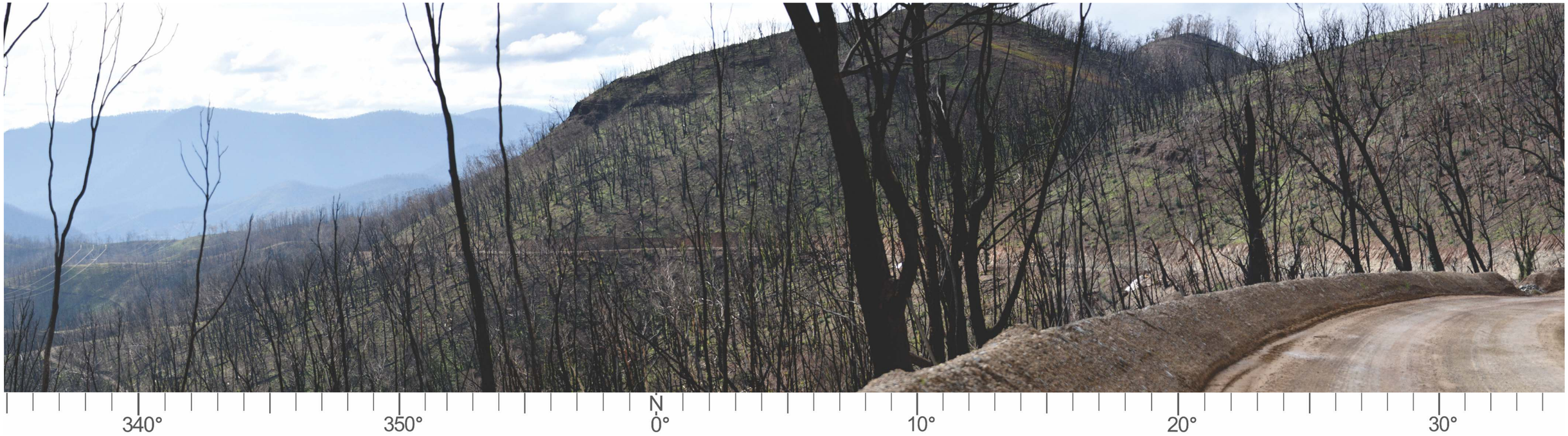
NW
290°
300°
310°
320°
330°
340°

Viewpoint Map

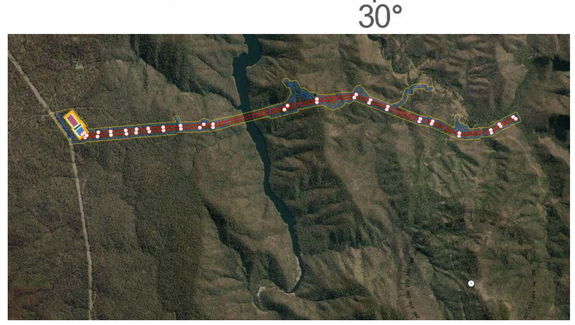
VIEWPOINT 7 - RAVINE ROAD

60 degree view looking north

(GPS 55H 626854.00 m E, 6034841.00 m S)



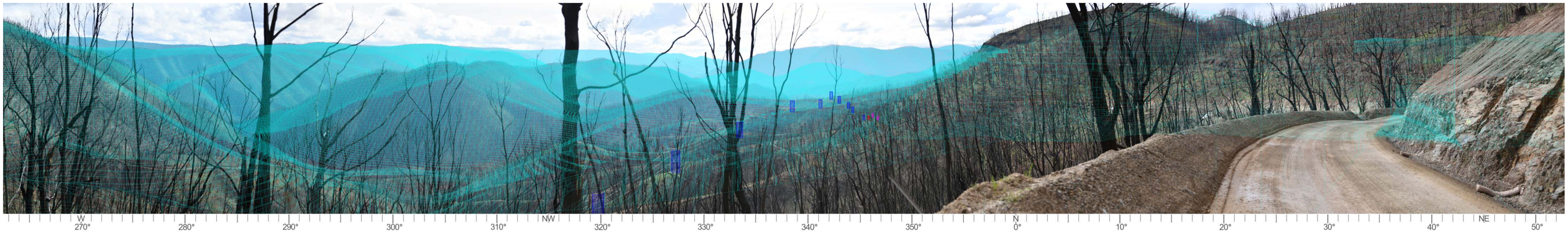
340°
350°
N
0°
10°
20°
30°



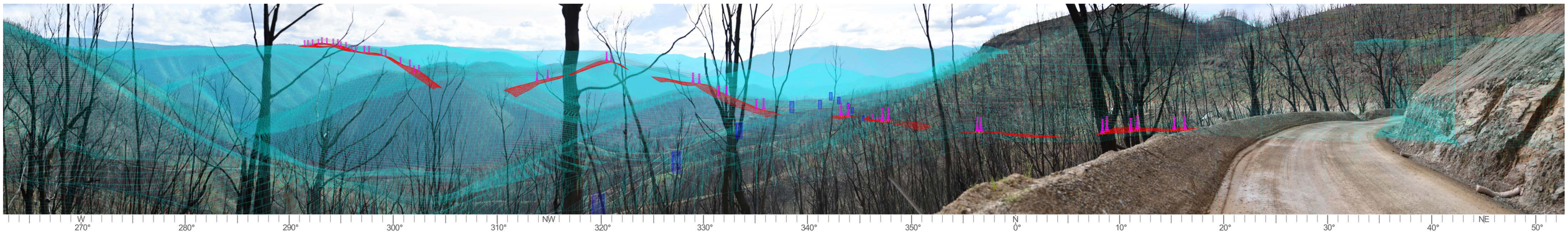
Viewpoint Map

VIEWPOINT 7 - RAVINE ROAD

(GPS 55H 626854.00 m E, 6034841.00 m S)



Wireframe view - Existing



Wireframe view - Proposed

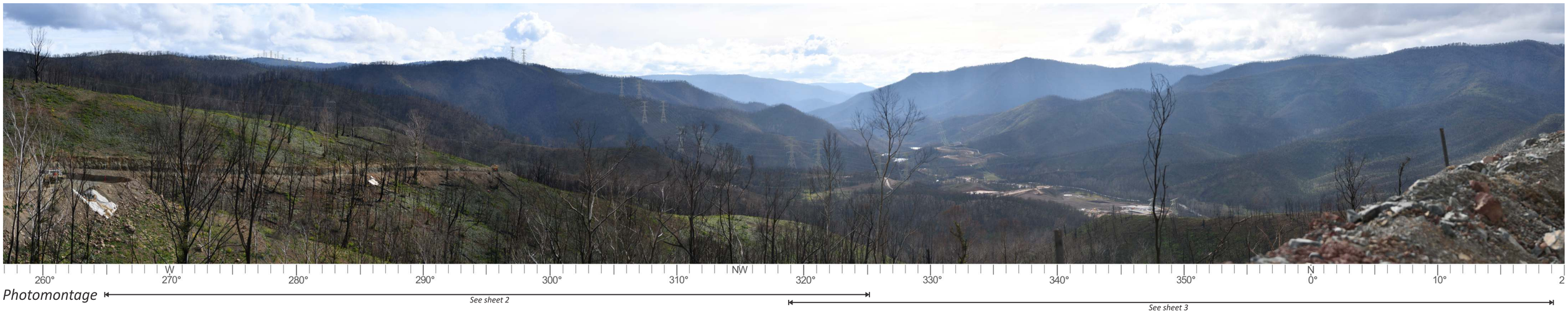
Distance to Project: Approximately 3.0km

Viewpoint Map

VIEWPOINT 9- RAVINE ROAD

(GPS 55H 626830.00 m E, 6036961.00 m S)

Existing view



Photomontage

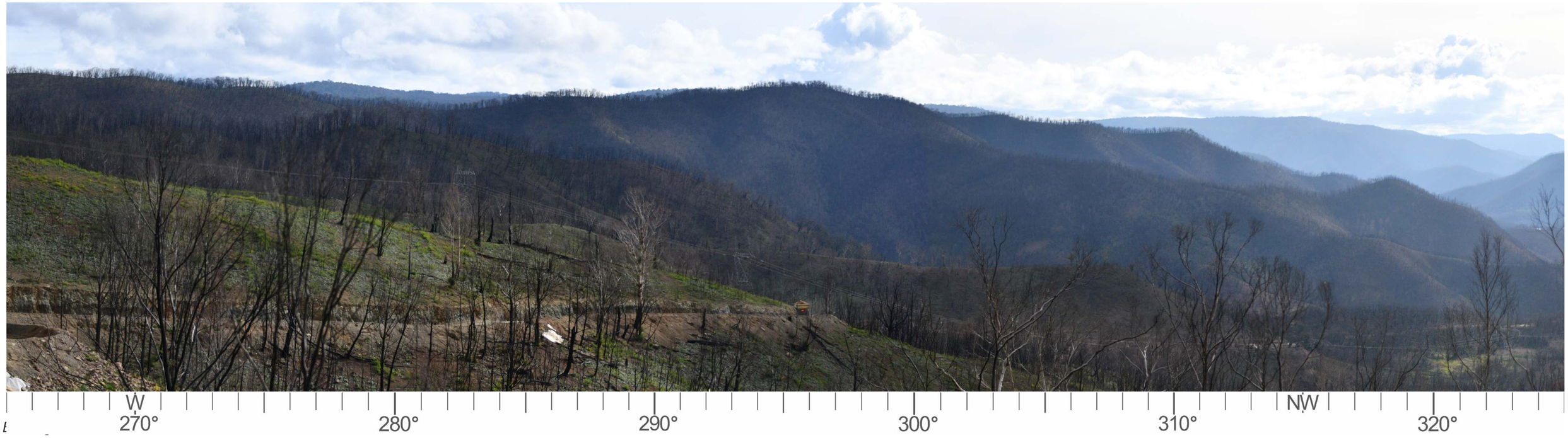
Viewpoint Map

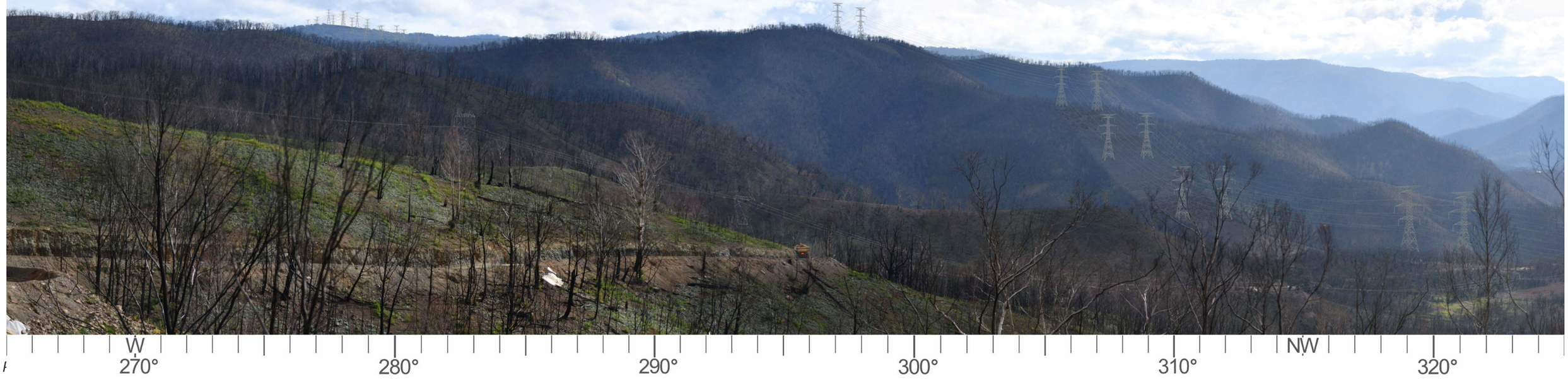
Distance to Project: Approximately 950m

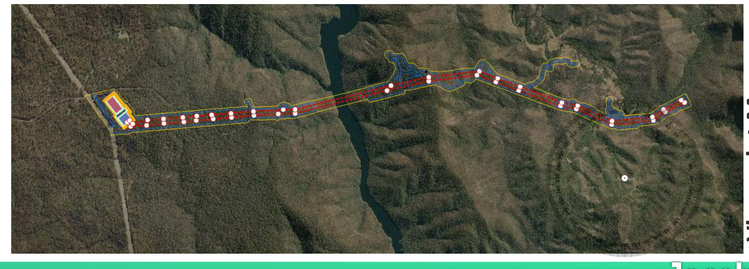
VIEWPOINT 9- RAVINE ROAD

60 degree view looking west to north west

(GPS 55H 626830.00 m E, 6036961.00 m S)





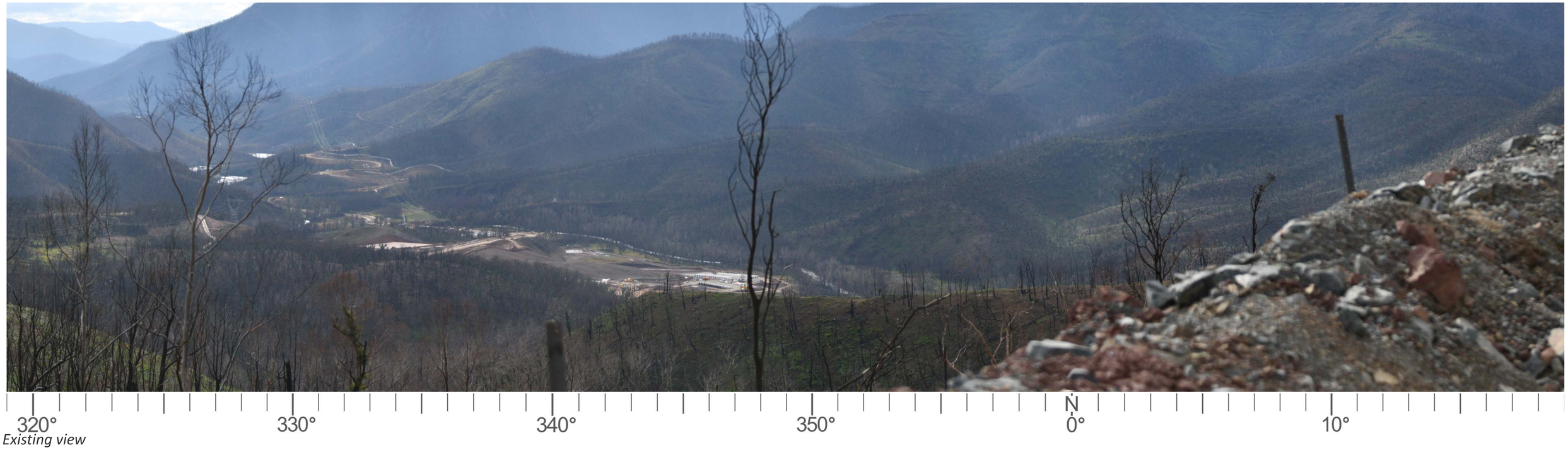


Viewpoint Map

VIEWPOINT 9- RAVINE ROAD

60 degree view looking north west to north

(GPS 55H 626830.00 m E, 6036961.00 m S)



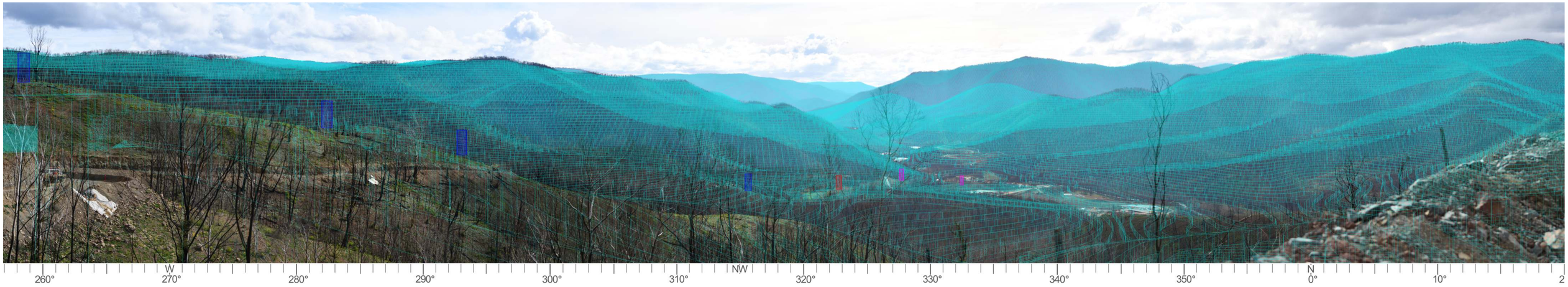
Existing view

Photomontage

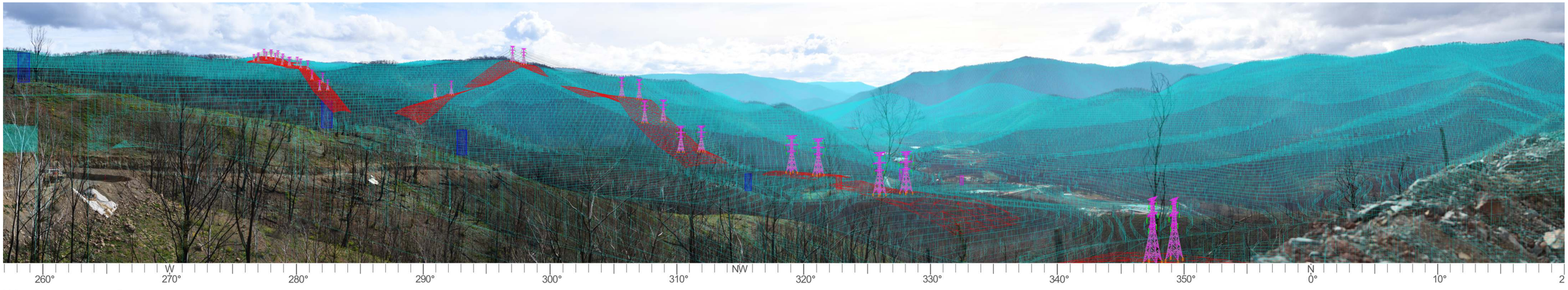
Viewpoint Map

VIEWPOINT 9- RAVINE ROAD

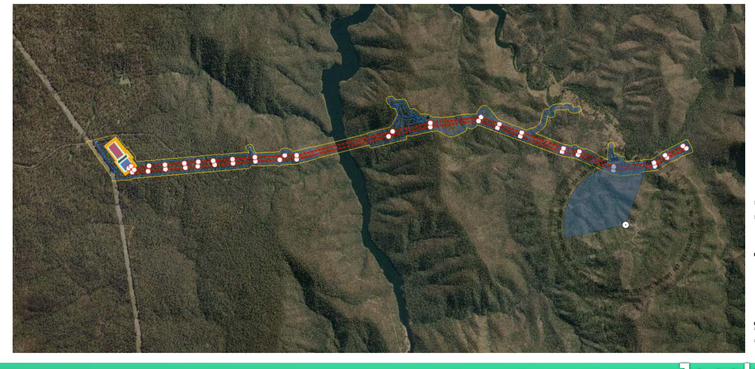
(GPS 55H 626830.00 m E, 6036961.00 m S)



Wireframe view - Existing



Wireframe view - Project

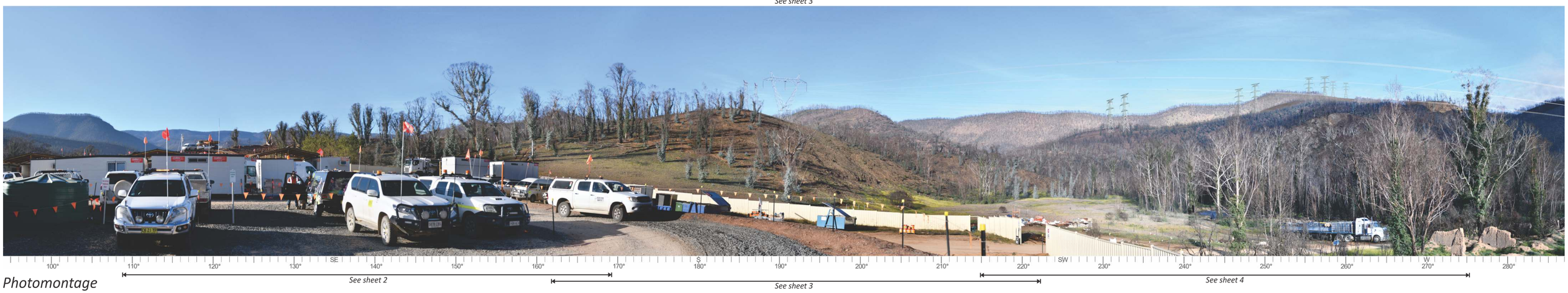


Viewpoint Map

VIEWPOINT 11 - LOBS HOLE

(GPS 55H 625958.00 m E, 6038946.00 m S)

Existing view



Photomontage

Distance to Project: Approximately 730m

Viewpoint Map

SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 625958.00 m E, 6038946.00 m S
PREPARED BY: SM
SHEET: 1/5 DATE: 23/09/2020

Jacobs

VIEWPOINT 11 - LOBS HOLE

View looking south east to south

(GPS 55H 625958.00 m E, 6038946.00 m S)

Existing view

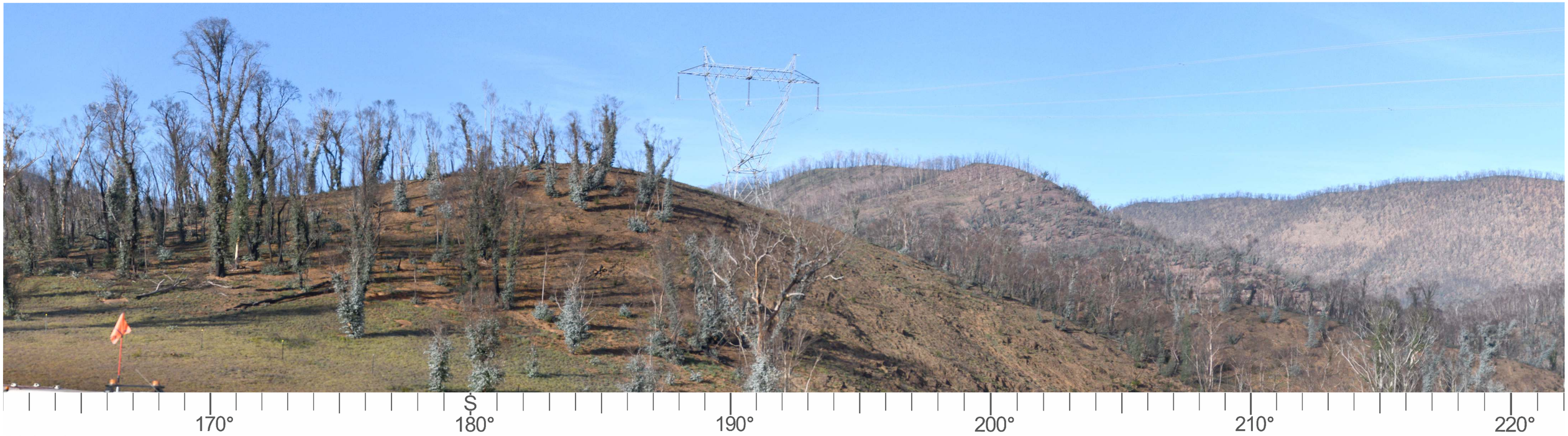
Photomontage

Viewpoint Map

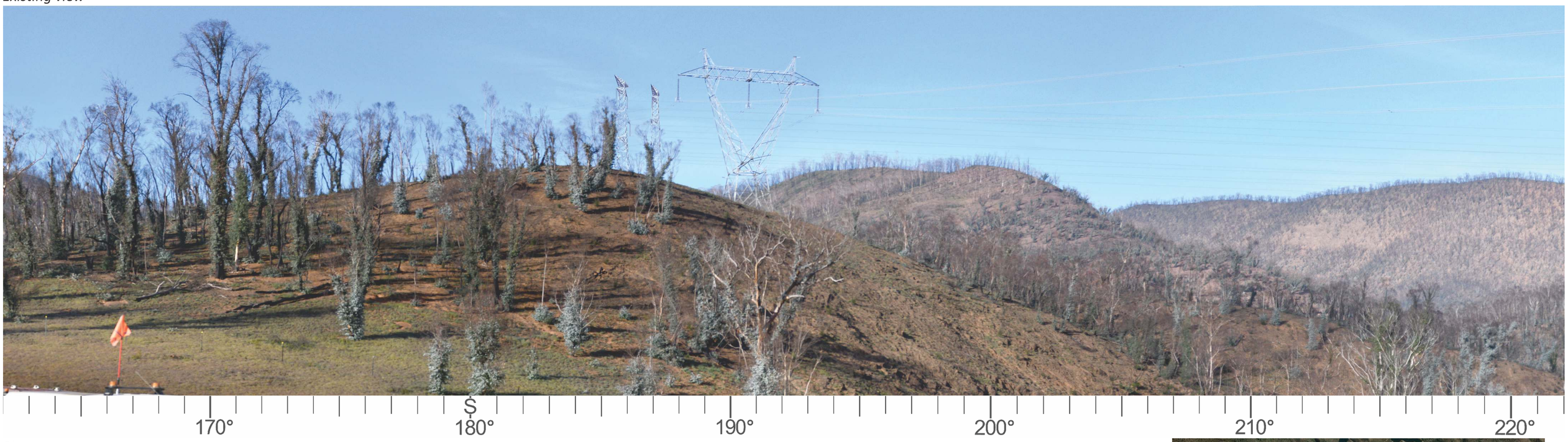
VIEWPOINT 11 - LOBS HOLE

View looking south to south west

(GPS 55H 625958.00 m E, 6038946.00 m S)



Existing view



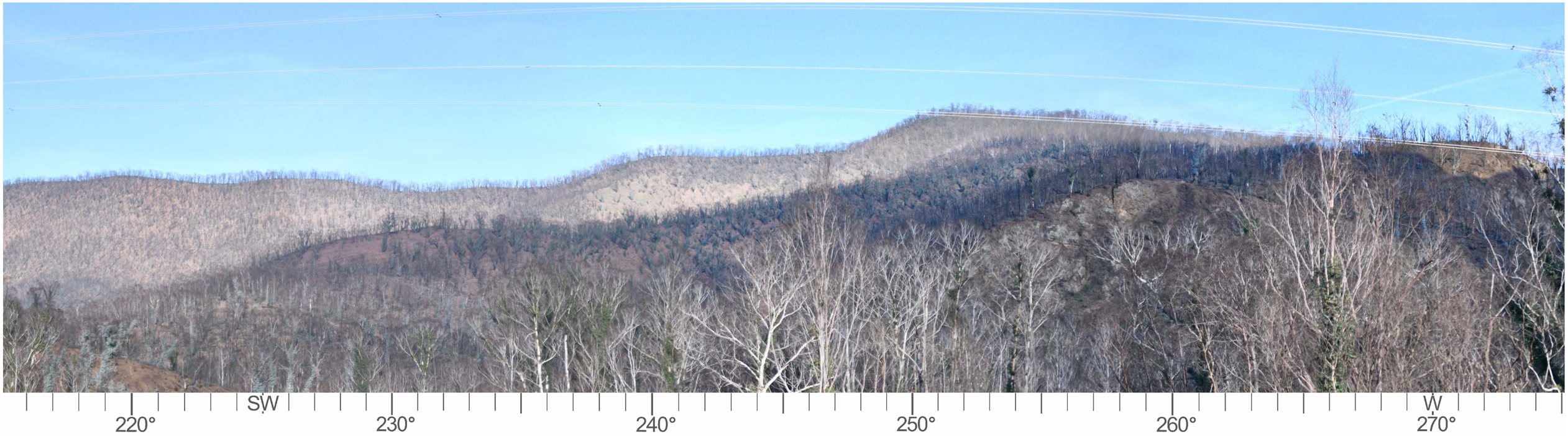
Photomontage

Viewpoint Map

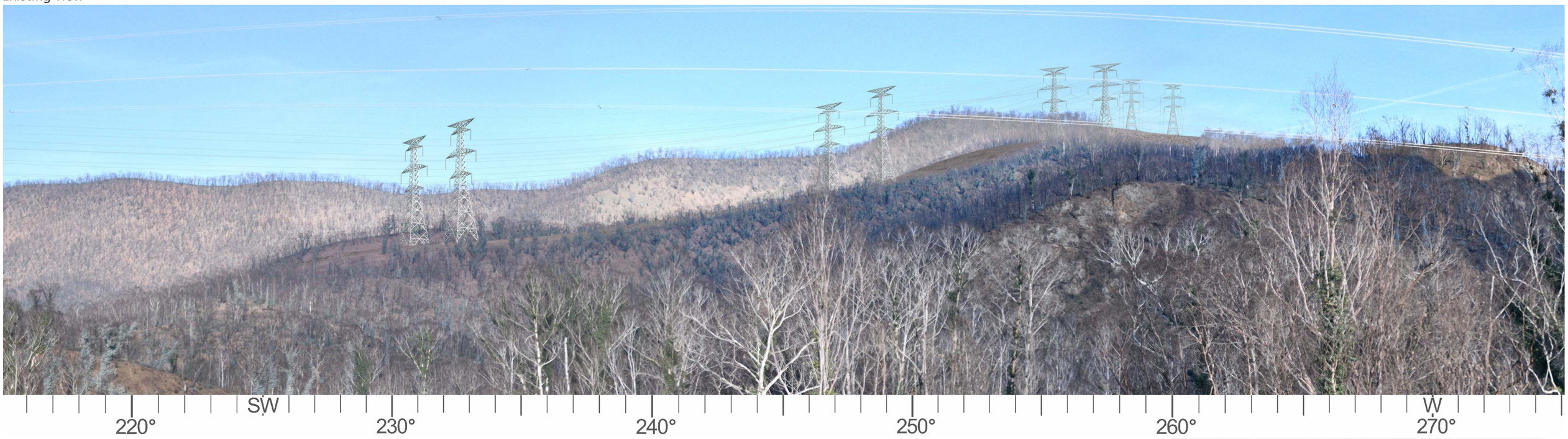
VIEWPOINT 11 - LOBS HOLE

View looking south west to west

(GPS 55H 625958.00 m E, 6038946.00 m S)



Existing view

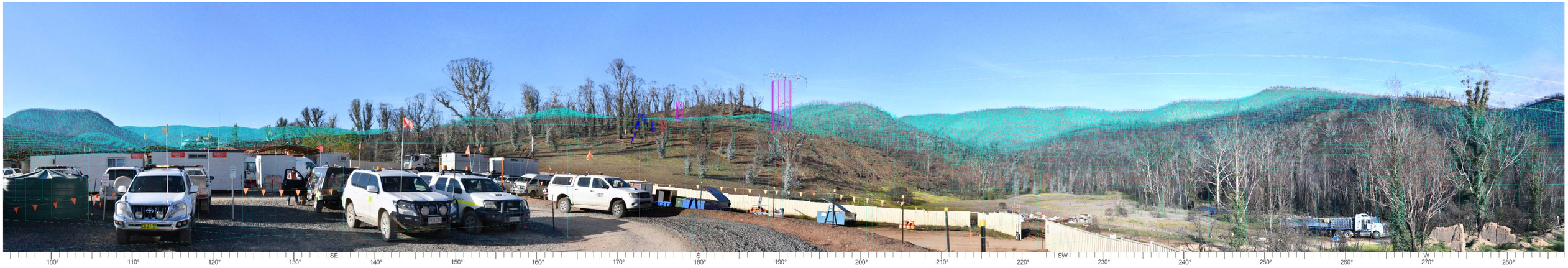


Photomontage

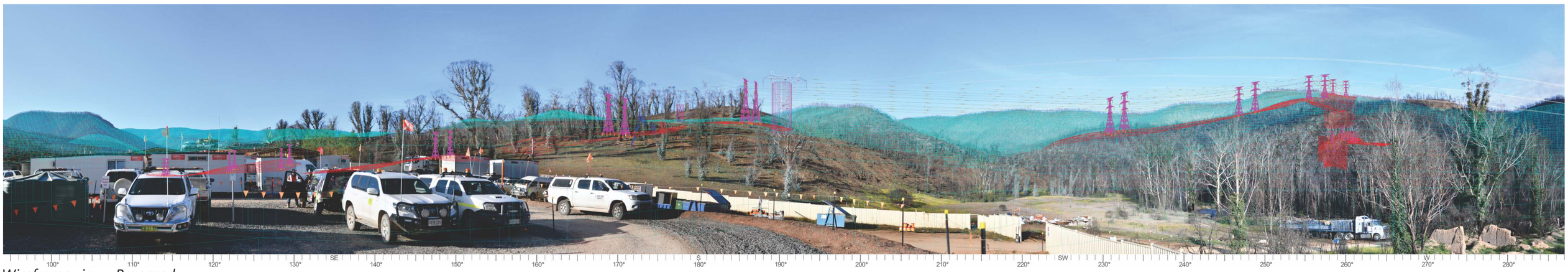
Viewpoint Map

VIEWPOINT 11 - LOBS HOLE

(GPS 55H 625958.00 m E, 6038946.00 m S)



Wireframe view - Existing



Wireframe view - Proposed

Distance to Project: Approximately 730m

Viewpoint Map

SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 625958.00 m E, 6038946.00 m S
PREPARED BY: SM
SHEET: 5/5 DATE: 23/09/2020

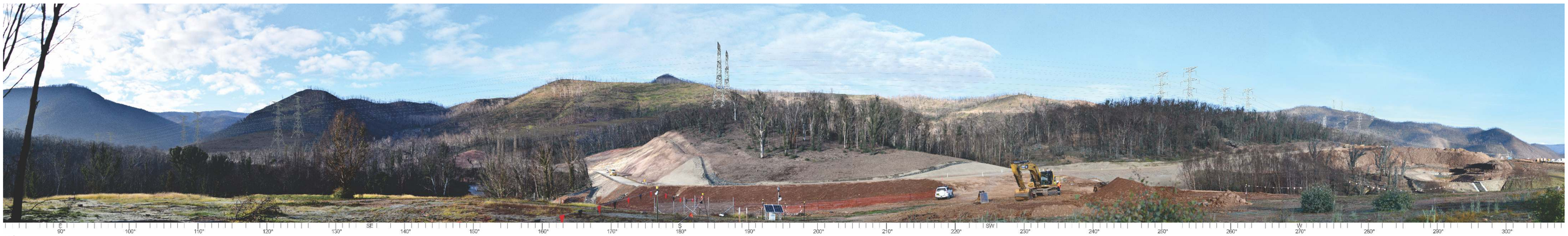
Jacobs

VIEWPOINT 12- MINE ROAD CLEARING

(GPS 55H 626666.63 m E, 6038243.00 m S)

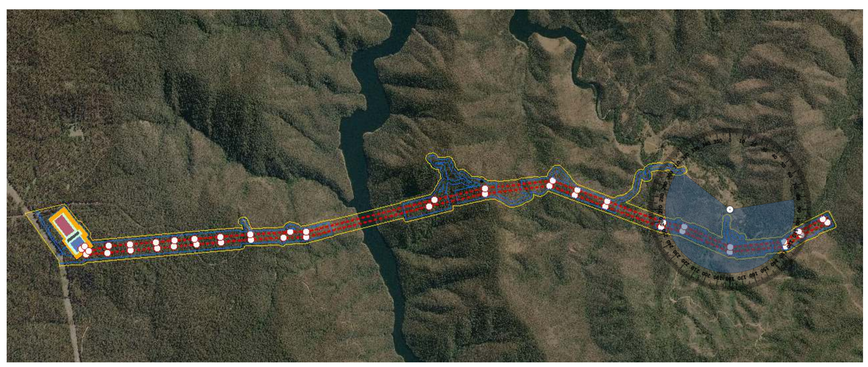
Existing view

See sheet 2 *See sheet 3* *See sheet 4* *See sheet 5*



Photomontage

See sheet 2 *See sheet 3* *See sheet 4* *See sheet 5*



Viewpoint Map

Distance to Project: Approximately 400m

SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 626666.63 m E, 6038243.00 m S
PREPARED BY: SM
SHEET: 1/6 DATE: 23/09/2020

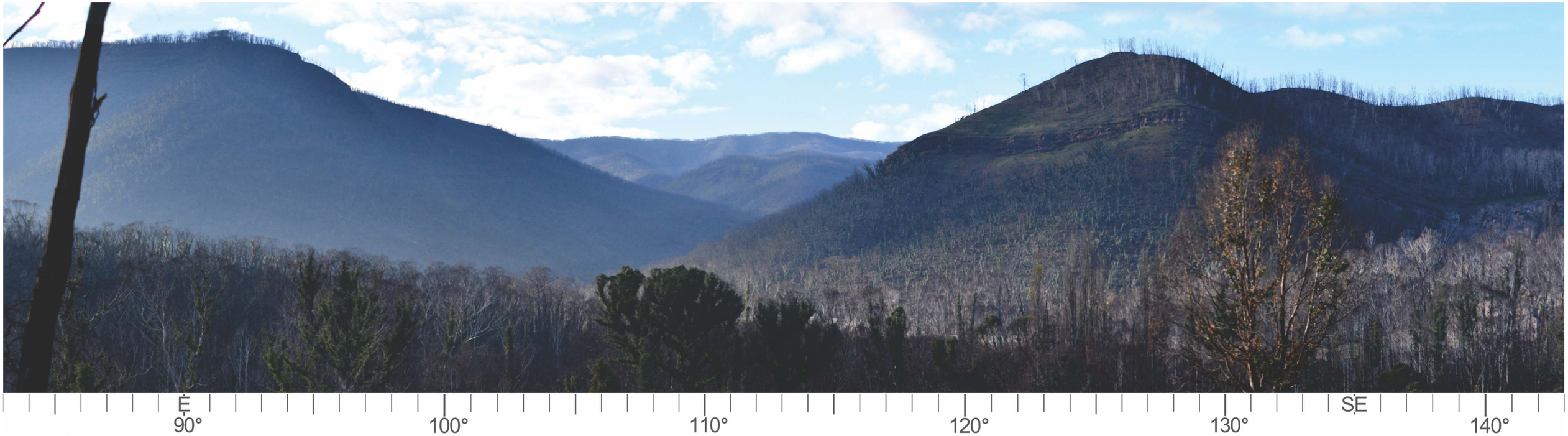
Jacobs

SNOWY 2.0 TRANSMISSION LINE

VIEWPOINT 12- MINE ROAD CLEARING

60 degree view looking east to south east

(GPS 55H 626666.63 m E, 6038243.00 m S)



Existing view

Photomontage

Viewpoint Map

SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 626666.63 m E, 6038243.00 m S
PREPARED BY: SM
SHEET: 2/6 DATE: 23/09/2020

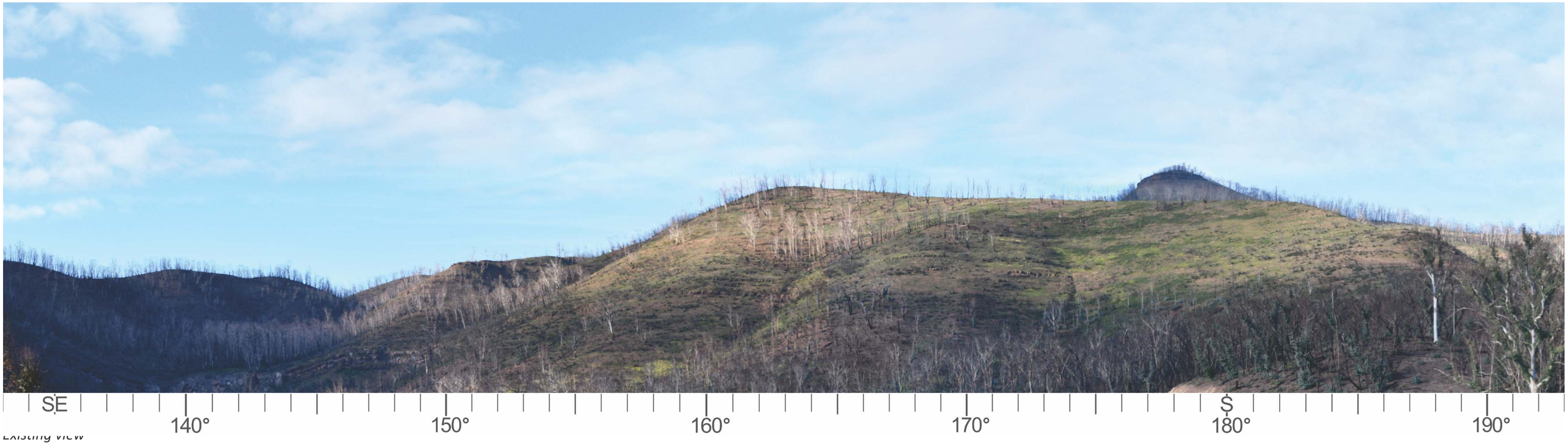
Jacobs

SNOWY 2.0 TRANSMISSION LINE

VIEWPOINT 12- MINE ROAD CLEARING

60 degree view looking south east to south

(GPS 55H 626666.63 m E, 6038243.00 m S)



Existing view

Photomontage

Viewpoint Map

SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 626666.63 m E, 6038243.00 m S
PREPARED BY: SM
SHEET: 3/6 DATE: 23/09/2020

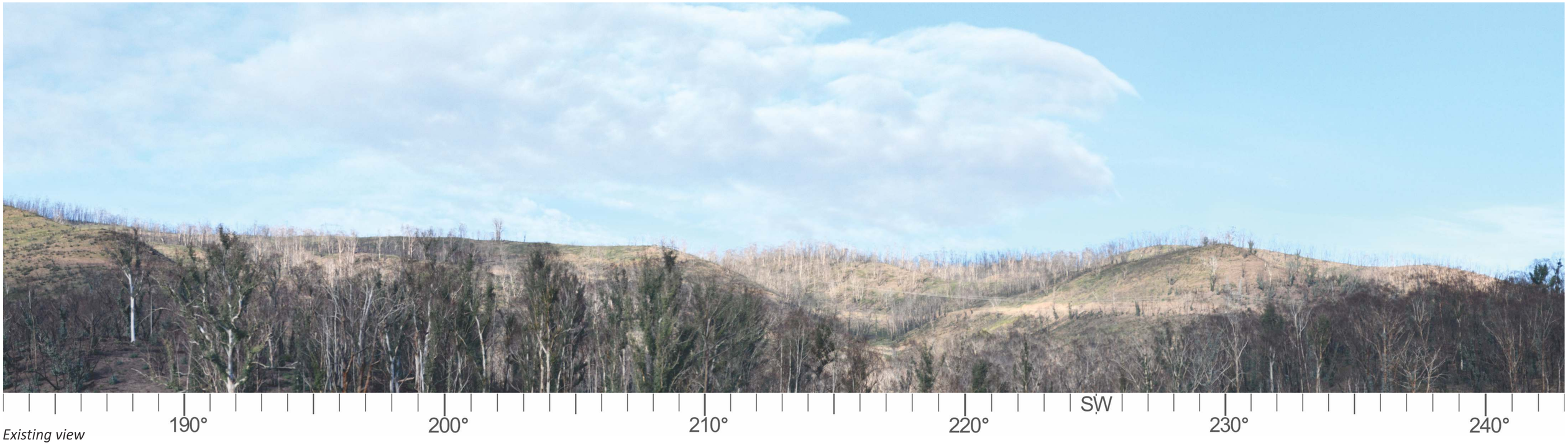
Jacobs

SNOWY 2.0 TRANSMISSION LINE

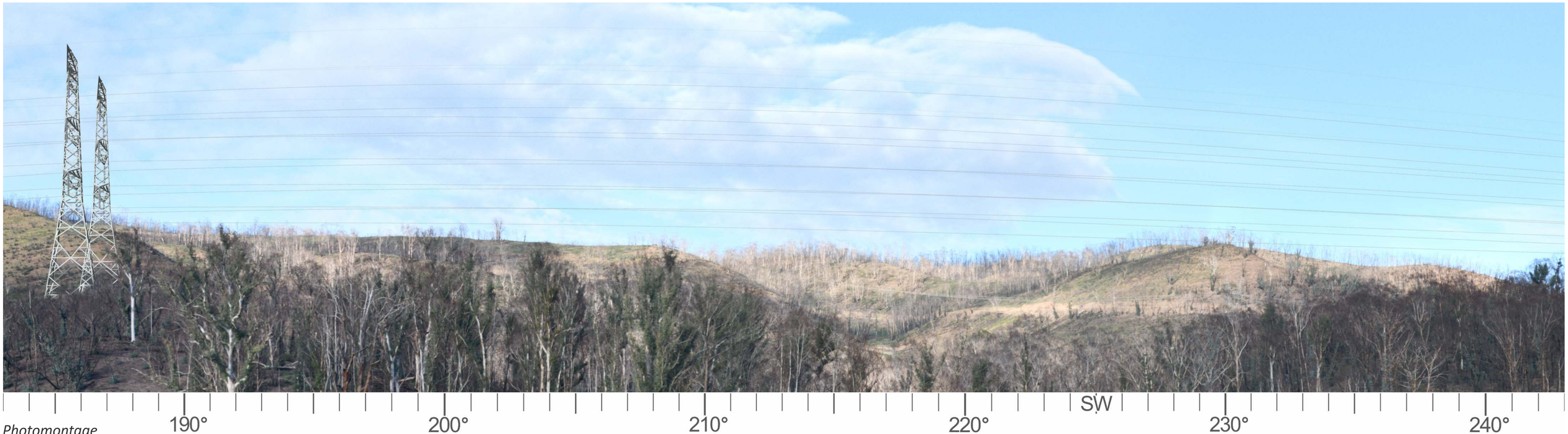
VIEWPOINT 12- MINE ROAD CLEARING

60 degree view looking south to south west

(GPS 55H 626666.63 m E, 6038243.00 m S)



Existing view



Photomontage

Viewpoint Map

SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 626666.63 m E, 6038243.00 m S
PREPARED BY: SM
SHEET: 4/6 DATE: 23/09/2020

Jacobs

SNOWY 2.0 TRANSMISSION LINE

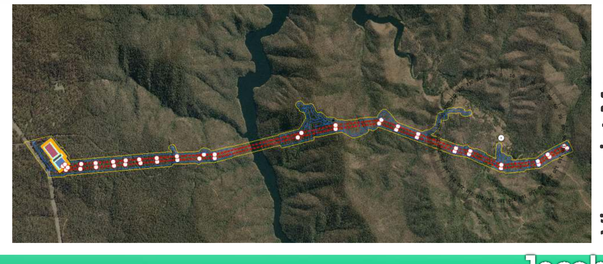
VIEWPOINT 12- MINE ROAD CLEARING

60 degree view looking south west to west

(GPS 55H 626666.63 m E, 6038243.00 m S)

Existing view

Photomontage



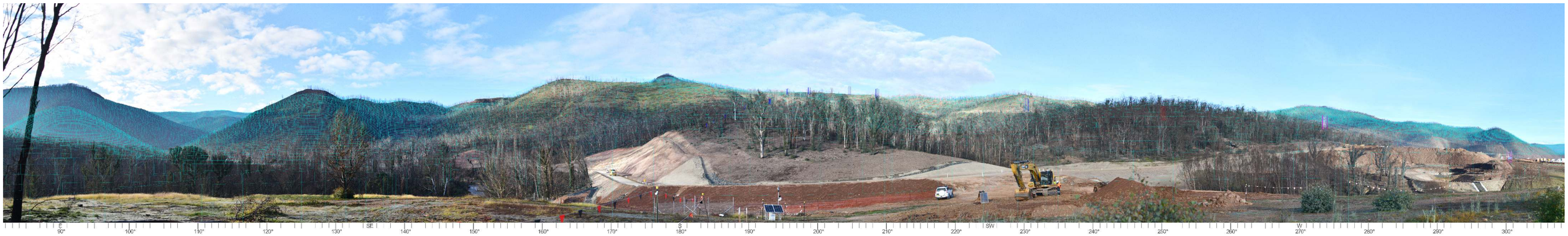
Viewpoint Map

SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 626666.63 m E, 6038243.00 m S
PREPARED BY: SM
SHEET: 5/6 DATE: 23/09/2020

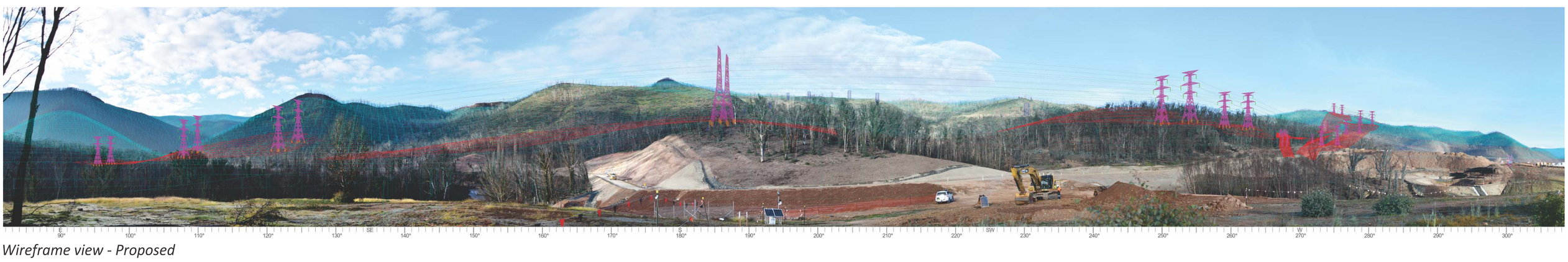
Jacobs

VIEWPOINT 12- MINE ROAD CLEARING

(GPS 55H 626666.63 m E, 6038243.00 m S)



Wireframe view - Existing



Wireframe view - Proposed

Viewpoint Map

Distance to Project: Approximately 400m

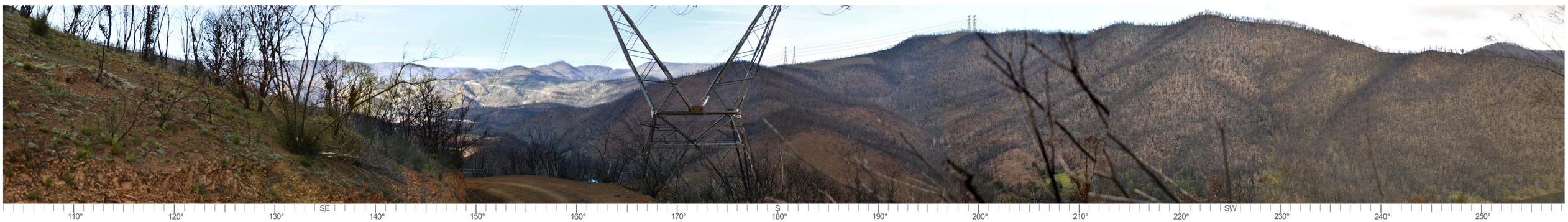
SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 626666.63 m E, 6038243.00 m S
PREPARED BY: SM
SHEET: 6/6 DATE: 23/09/2020

Jacobs

VIEWPOINT 13- RAVINE-POWERLINE ROAD

(GPS 55H 624627.00 m E, 6040881.00 m S)

Existing view



Photomontage

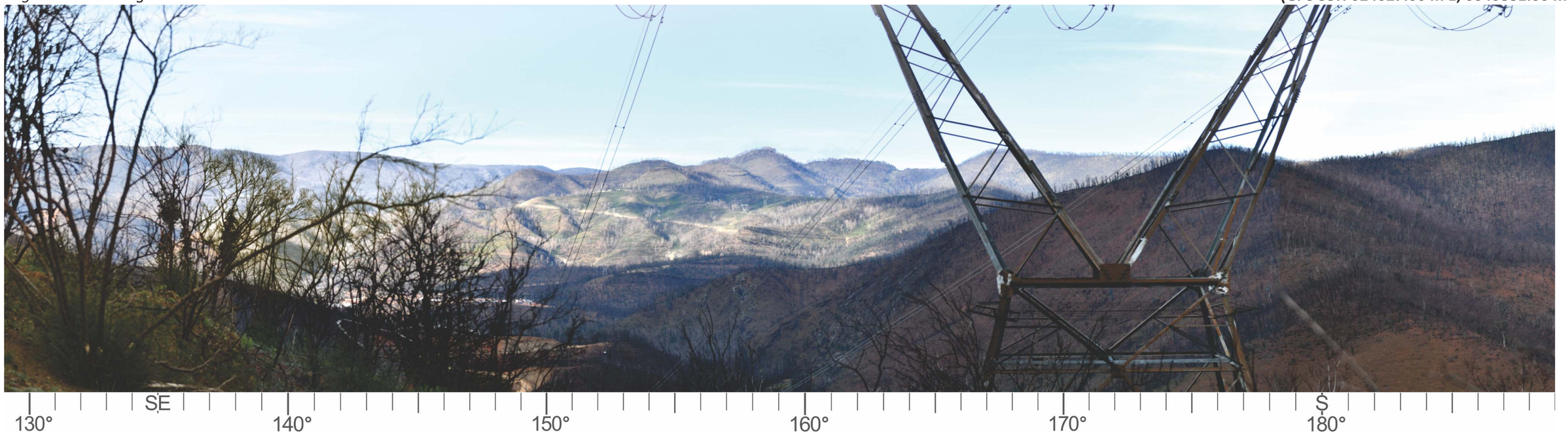
Distance to Project: 2.2km

Viewpoint Map

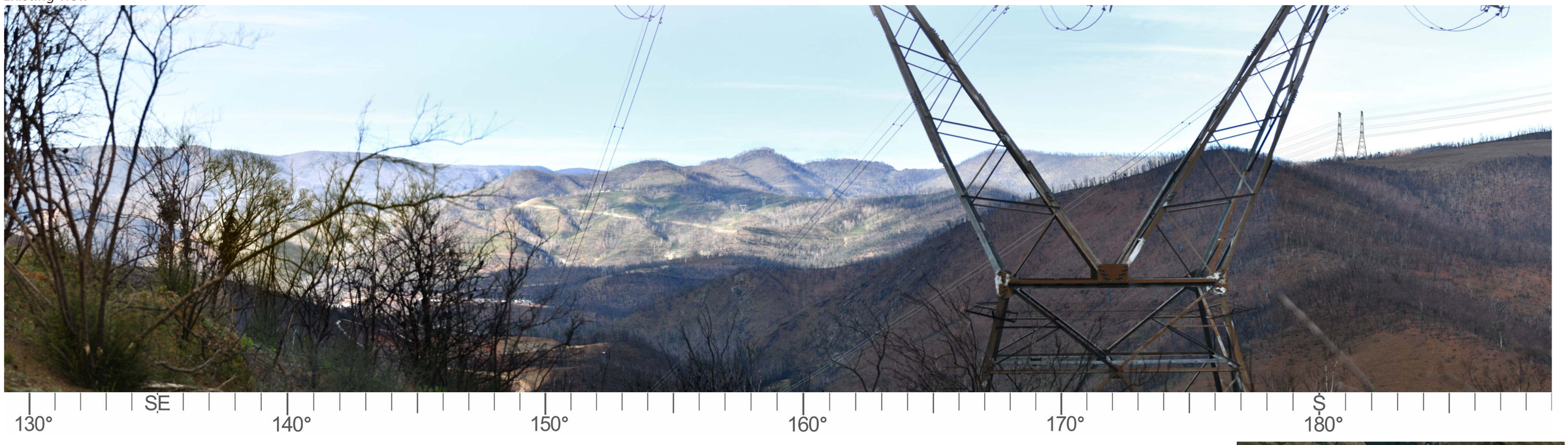
VIEWPOINT 13- RAVINE-POWERLINE ROAD

60 degree view looking south east to south

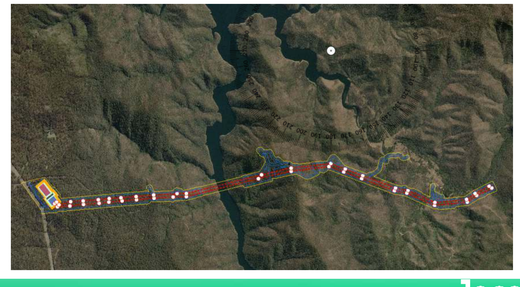
(GPS 55H 624627.00 m E, 6040881.00 m S)



Existing view



Photomontage



Viewpoint Map

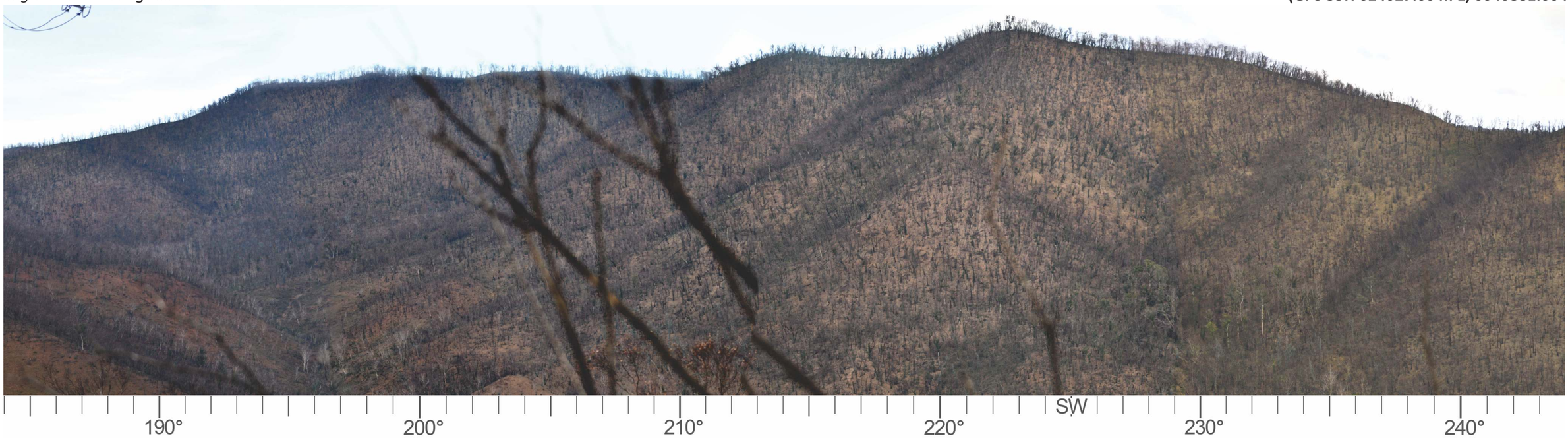
SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 624627.00 m E, 6040881.00 m S
PREPARED BY: SM
SHEET: 2/4 DATE: 24/09/2020

Jacobs

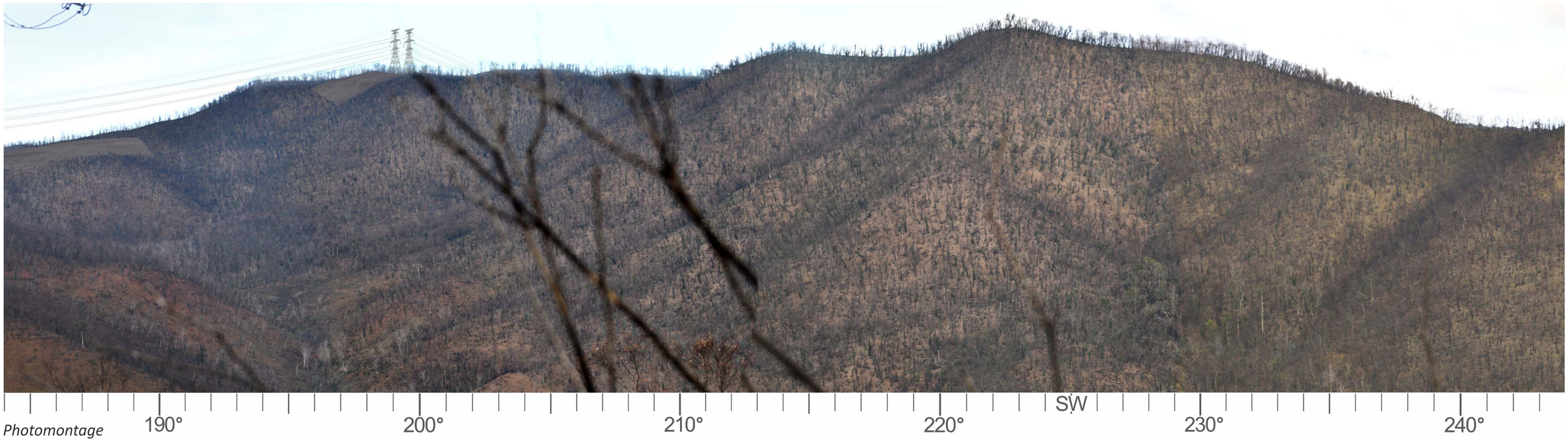
VIEWPOINT 13- RAVINE-POWERLINE ROAD

60 degree view looking south to south west

(GPS 55H 624627.00 m E, 6040881.00 m S)



Existing view



Photomontage

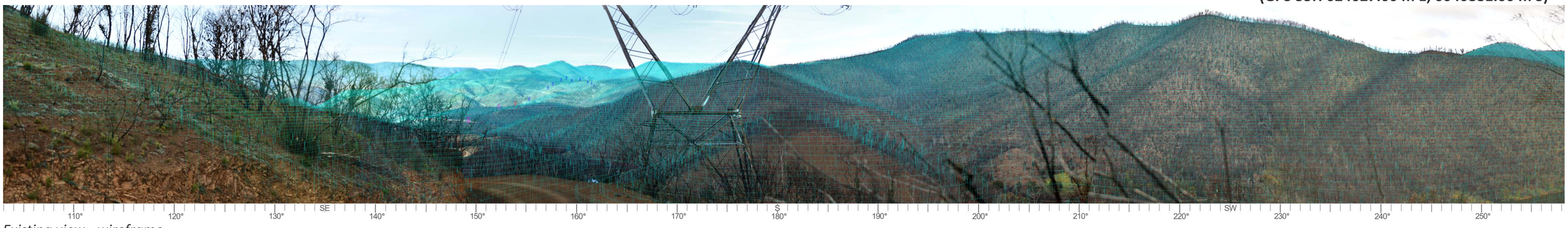
Viewpoint Map

SNOWY 2.0 TRANSMISSION LINE
COORDINATES: 55H 624627.00 m E, 6040881.00 m S
PREPARED BY: SM
SHEET: 3/4 DATE: 24/09/2020

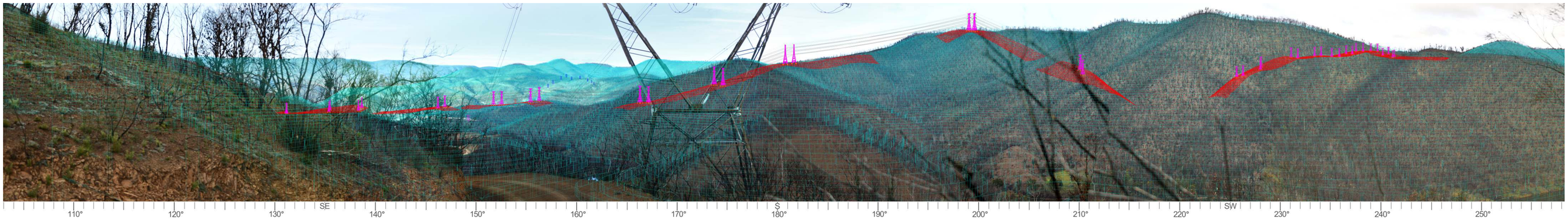
Jacobs

VIEWPOINT 13- RAVINE-POWERLINE ROAD

(GPS 55H 624627.00 m E, 6040881.00 m S)

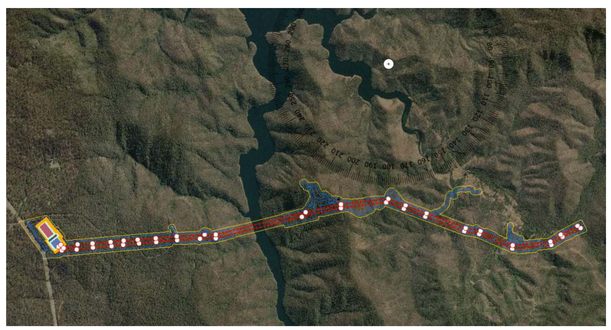


Existing view - wireframe



Wireframe view

Distance to Project: 2.2km



Viewpoint Map


TransGrid