

## **Appendix 58 Landscape and Visual Impact Assessment – Huntly Mine, Myara Mine**

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# Landscape and Visual Impact Assessment

**Huntly Mine - Myara Mine Region**

Alcoa of Australia Limited

10 February 2025







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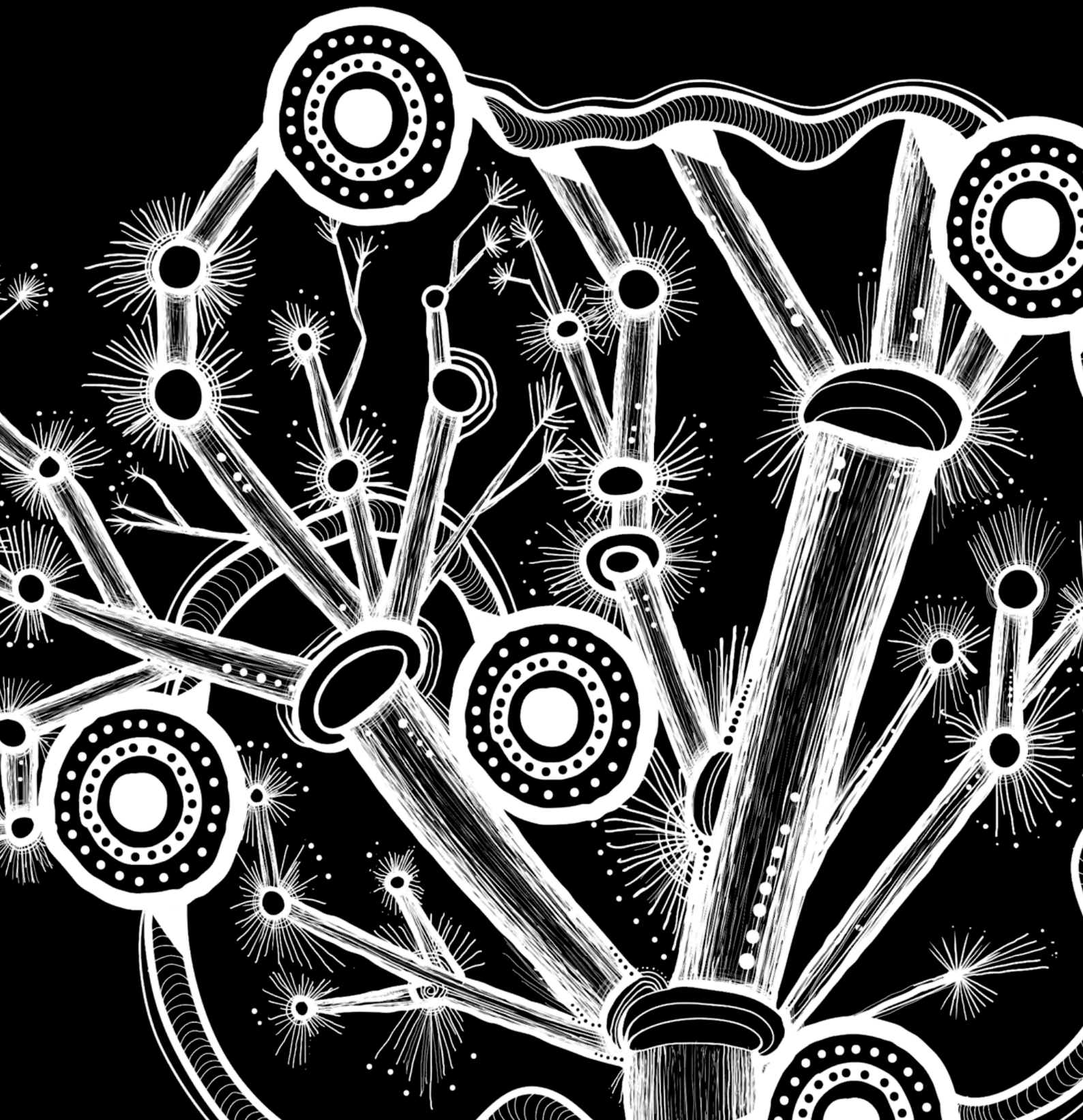
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# Executive summary

## Introduction

Alcoa of Australia Limited (Alcoa) is operating the Huntly Mine in the Myara Mine Region in accordance with a Mining Management Program (MMP) assessment under Alcoa's State Agreements. The MMP is subject to progressive update and approval on an annual basis by the Independent Technical Advisory Group (ITAG) and is then endorsed for Ministerial approval with the Bauxite Strategic Executive Committee (BSEC) advising the Minister as part of this process. Alcoa commits to undertake a Social Surroundings Impact Assessment (SSIA) to support this MMP. A Landscape and Visual Impact Assessment (LVIA, this report) is one of the technical studies required as part of the SSIA.

This LVIA considers existing mined areas and proposed mining areas within the Myara Mine Region five-year mine plan (2023-2027) (the Proposal) and assesses sensitive receptors within 10 km of mining operations, including recreational trails and facilities, public roads and elevated viewpoints. This has resulted in a Study Area, generally confined to the likely extent of visibility of the mine areas within the surrounding context, that extends approximately 10 km to the north, east and south of Myara Mine Region and to the Darling Scarp to the west. Land west of the Darling Scarp is excluded from the Study Area due to the topographic shielding of views of the Myara Mine Region by the scarp.

Myara Mine Region is located within the shires of Murray, Serpentine-Jarrahdale and Wandering within the Metropolitan and Peel Region of Western Australia. The Study Area takes in a component of the Shire of Boddington and the townsites of Jarrahdale (within the north-west of the Study Area), Boddington, to the south-east, and Serpentine and North Dandalup to the west.

## Method

This LVIA is informed by a desktop review, site inspection (8-9 May 2024), identified landscape character units and values, and review of previous studies within a similar landscape context. The LVIA assesses potential landscape and visual impacts from eight viewpoints (sensitive receptor locations). The findings of the assessment, including mitigation and management measures, are related to both the landscape character units and viewpoints.

Sensitive receptors of varying degrees of significance were identified, including residents, users of state forest, tracks, trails, camps, and roads. These receptors are associated with the Darling Plateau's natural setting values, the quality of the surrounding forest and landscape, and the results of community and stakeholder engagement indicating concerns in relation to visual impact on the nearby communities, state forests, and roads.

## Proposal summary

The Proposal, that will be used as the basis for this LVIA, includes existing mined areas and proposed mining areas, as identified in Myara Mine Region five-year mine plan (2023-2027). Existing mined areas comprise both ceased mine pits and secondary haul roads (yet to be rehabilitated) as well as active mine pits and haul roads. Proposed mining areas comprise components of Myara Mine Region five-year mine plan yet to be implemented. Mining activities included within this stage of work consist of vegetation clearing, mining earthworks (e.g. mine pits and secondary haul roads) and active mining (ore extraction). In addition, the Proposal also includes staged rehabilitation. The baseline used for this LVIA is the pre-mining landscape of the Myara Mine Region being Darling Plateau forest characterised by open forest within an undulating landscape.

## Findings

A variety of established vegetation is present within the Study Area, which are predominantly native Jarrah forest that has previously been subject to intermittent timber harvesting and regrowth, mine site rehabilitation and areas of pine plantations. The vegetated landscape is dissected by steep river valleys and interspersed with granite outcrops.

Two landscape character units within the Study Area were identified and assessed:

- **LCU1 Darling Plateau forest** - the magnitude of change and overall significance of impact from the Proposal was assessed as low as no mining activities occur within LCU1.

- **LCU2 Mining activities** – the magnitude of change and overall significance of impact from the Proposal was assessed as negligible. Although the baseline used for this LVIA is the pre-mining landscape of the Myara Mine Region the anticipated changes associated with the Proposal would not be out of character within LCU2.

Of the eight viewpoint locations chosen for visual assessment there would be a high-moderate impact to views from VP1 North Dandalup Dam, VP2 Kingsbury Drive, VP3 Kingsbury Drive, VP5 Serpentine Dam Picnic Area, VP6 Mount Vincent and VP8 Mount Cooke. Impacts are reflective of the sensitivity of the viewpoint to change and the impact of the Proposal on the existing view.

Visual impacts are considered medium – long term as staged rehabilitation within existing mined areas and proposed mining areas would commence three years from clearing and would become established to a mature stage at 16-30 years from completion.

### **Mitigation and management measures**

Visual management objectives defined for the Study Area include:

- Best practice siting and design to locate the Proposal away from sensitive locations, including the Bibbulmun Track and Serpentine Dam.
- Protection and maintenance of existing landscape character, such as the valued views of the native Jarrah forest.
- Restoration or enhancement of degraded landscape character, seeking opportunities for planned rehabilitation of the original landform and vegetation.

Key landscape character recommendations include minimising vegetation removal through consolidation of proposal haul roads and mine pits throughout the Jarrah forest.

Key visual recommendations include minimising the location of proposed haul roads and mine pits away from Kingsbury Drive and other minor roads within the mine region and establishing distances and requirements for the retention of existing vegetation between public road corridors and proposed haul roads and mine pits.

### **Conclusion**

By implementing the recommended mitigation and management measures, in addition to proposed rehabilitation of key locations, there is potential to further reduce the landscape and visual impacts of the Proposal.

This report is subject to, and must be read in conjunction with, the limitations set out in Section 1.4 and the assumptions and qualifications contained throughout the report.

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# Terminology

Terminology	Definition
Alcoa of Australia Limited	The proponent of the Proposal.
Cumulative impact	The incremental impact of the Proposal when added to other current and known likely future developments.
Landscape character	The combined quality of built, natural and cultural aspects that make up an area and provide its unique sense of place.
Landscape character unit	Areas of homogenous (similar) patterns of visual characteristics such as landform, vegetation, water form and land use as well as individual features.
Landscape impacts	Changes in the character and quality of the landscape that occur as a result of change and development, while <i>visual impacts</i> relate to the appearance of these changes.
Magnitude	The measurement of the scale, form and character of a development proposal when compared to the existing condition. In the case of visual assessment this also relates to how far the proposal is from the viewer. Combines with sensitivity, magnitude provides a measurement of impact.
Receptor	An aspect of the landscape or view that could be impacted, such as physical resources or viewer groups.
Study Area	Consists of land in the vicinity of, and including, the Proposal site. The study area is a wider area surrounding the Proposal site as defined in this assessment, including landscape that has the potential to be indirectly impacted by the Proposal.
Susceptibility to change	The capacity of the landscape to accommodate a change of a particular type or scale, without adverse effects on the existing landscape character.
The Proposal	Existing mined areas and proposed mining areas within the Myara Mine Region five-year mine plan (2023-2027)
View	Comprises a portion of a landscape seen by an observer.
Viewpoint	The point from which a view is observed.
Visual amenity	The overall quality of views that people enjoy of their surroundings.
Visual impact assessment	The analysis of changes in the appearance of the landscape as a result of development. Impacts may be either negative or positive.
Visual receptor	Individuals and/or defined groups of people who have the potential to be affected by the Proposal.

# Abbreviations

Abbreviations	Definition
Alcoa	Alcoa of Australia Limited
BSEC	Bauxite Strategic Executive Committee
DBCA	Department of Biodiversity, Conservation and Attractions
EP Act	Environmental Protection Act (1986) Western Australia
EPA	Environmental Protection Authority Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
GHD	GHD Pty Ltd
GPS	Global Positioning System
ha	Hectares
ITAG	Independent Technical Advisory Group
km	Kilometres
LCU	Landscape Character Unit
LDA	Limited Disturbance Area
LGA	Local Government Area
LPS	Local Planning Strategy
LVIA	Landscape and Visual Impact Assessment
MAZ	Mining Avoidance Zone
m	Meters
MSZ	Mining Sensitivity Zone
SSIA	Social Surrounds Impact Assessment
VP	Viewpoint
WA	Western Australia
ZTV	Zone of Theoretical Visibility

# 1. Introduction

## 1.1 Background

Alcoa of Australia Limited (Alcoa) mining operations comprise the Huntly and Willowdale bauxite mines, which are located in Alcoa's Mining Lease 1SA within the Northern Jarrah Forest, interim biogeographical regionalisation for Australia subregion, within south-west Western Australia (WA).

Alcoa's Huntly Mine supplies bauxite to the Pinjarra Alumina Refinery. It currently operates within Myara Mine Region, the majority of which is located within the Shire of Serpentine-Jarrahdale and Shire of Murray, traditional lands of the Binjareb people. Located within the Metropolitan and Peel regions approximately 100 km south-east of Perth, Myara Mine Region is situated north-east of the townsite of Pinjarra, east of North Dandalup and Keysbrook, south-east of Serpentine, and south of Jarrahdale.

## 1.2 Purpose and scope of this report

This Landscape and Visual Impact Assessment (LVIA) will inform a Social Surrounds Impact Assessment (SSIA) to support the Mining and Management Program (MMP) approval of the Huntly Mine under Alcoa's State Agreements. The SSIA is to be conducted in accordance with Environmental Protection Authority (EPA) Environmental Factor Guideline – Social Surroundings (EPA 2023).

This LVIA considers existing mined areas and proposed mining areas within the Myara Mine Region five-year mine plan (2023-2027) (the Proposal) and assesses sensitive receptors within 10 km of mining operations, including recreational trails and facilities, public roads and elevated viewpoints. This has resulted in a Study Area, generally confined to the likely extent of visibility of the mine areas within the surrounding context, that extends approximately 10 km to the north, east and south of Myara Mine Region and to the Darling Scarp to the west. Land west of the Darling Scarp is excluded from the Study Area due to the topographic shielding of views of the Myara Mine Region by the scarp.

## 1.3 Report structure

The report is comprised of the following sections as shown in Figure 1.

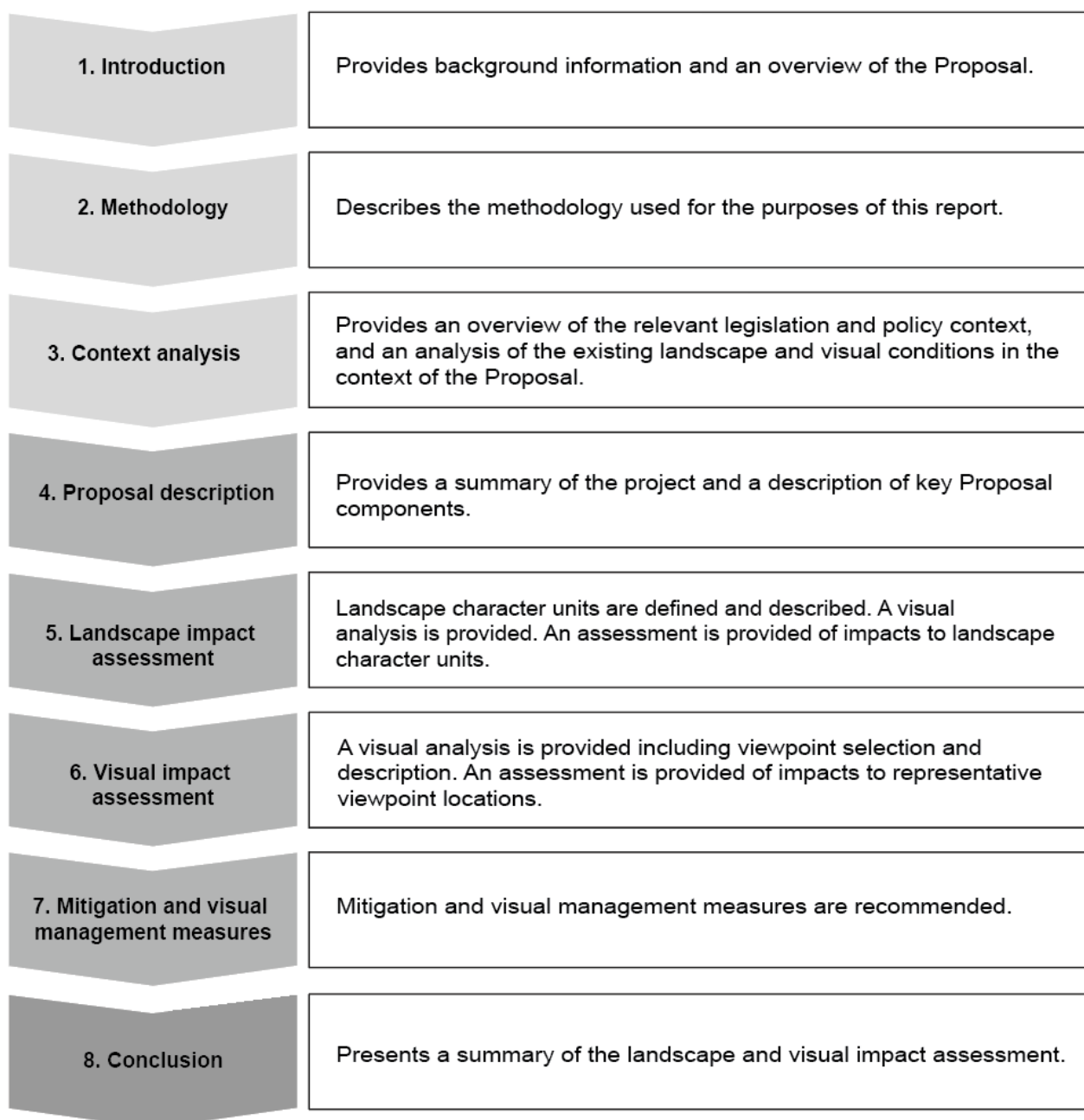


Figure 1 Report structure

## 1.4 Limitations

This report: has been prepared by GHD Pty Ltd (GHD) for Alcoa and may only be used and relied on by Alcoa for the purpose agreed between GHD and Alcoa as set out in Section 1.2 of this report. GHD otherwise disclaims responsibility to any person other than Alcoa arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

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## 1.5 Assumptions

There is no national guidance on the assessment of landscape and visual impacts specific to Australia. However, in WA, the industry typically refers to *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design* (Western Australian Planning Commission, 2007). This assessment has also referred to:

- Guidelines for Landscape and Visual Impact Assessment, Third Edition (Landscape Institute, 2013)
- Environmental Factor Guideline: Social Surroundings (Environmental Protection Authority, 2023)

The assessment aims to be objective and describe any potential changes factually. While potential impacts resulting from the Proposal are defined, the significance of these changes requires qualitative (subjective) judgements. The conclusion of this assessment therefore combines objective measurement and professional interpretation. While this assessment aims to be objective, it is recognised that LVIA can be subjective, and individuals are likely to associate different visual experiences to the Study Area.

This assessment is based on the Proposal and receptor information provided to GHD at the time of writing. The scope of this assessment does not include consideration of landscape and visual impacts from lighting or during nighttime conditions.

The Proposal, that will be used as the basis for this assessment, includes existing mined areas and proposed mining areas, as identified in Myara Mine Region five-year mine plan (2023-2027). Existing mined areas comprise both ceased mine pits and secondary haul roads (yet to be rehabilitated) as well as active mine pits and haul roads. Proposed mining areas comprise components of Myara Mine Region five-year mine plan that have yet to be implemented. Mining activities included within this stage of work consist of vegetation clearing, mining earthworks (e.g. mine pits and secondary haul roads) and active mining (ore extraction). In addition to existing mined areas and proposed mining areas the Proposal includes staged rehabilitation. The baseline used for this assessment is the pre-mining landscape of Myara Mine Region being the Darling Plateau forest characterised by open forests within an undulating landscape.

Aboriginal cultural heritage has not been considered with this report.

## 2. Methodology

This section outlines the methodology used to assess the impacts of the Proposal on the landscape character and visual amenity. Refer to Figure 2 for an overview of the methodology.

Steps	Description / Outcomes
<p><b>1</b> Define the scope of assessment / set the context</p>	<p>Define the study area boundary and set the context to the project. Review background information including:</p> <ul style="list-style-type: none"> <li>• Legislation and policy context</li> <li>• Existing landscape context including: topography and hydrology data, land use zoning and cadastral data, vegetation maps and CALM landscape character types</li> </ul>
<p><b>2</b> Describe the visual landscape character</p>	<p>Identify and describe the landscape character units based on uniform patterns of vegetation, topography, water form, and land use. Determine the value associated with each landscape unit</p>
<p><b>3</b> Evaluate the way the visual landscape character is viewed, experienced and valued</p>	<p>Undertake visual analysis including identifying and describing:</p> <ul style="list-style-type: none"> <li>• Key views</li> <li>• Viewing locations and their significance</li> <li>• Visual character preferences</li> </ul>
<p><b>4</b> Determine visual management objectives</p>	<p>Determine objectives for managing visual landscape character, including annotated maps and photographs as required, identifying the location of any priority areas or sites.</p>
<p><b>5</b> Describe proposed development</p>	<p>Analyse, describe and illustrate the main visual components of the project. Illustrations, drawings or simulations of the project should be realistic and comprehensive.</p>
<p><b>6</b> Describe the potential Landscape impacts</p>	<p>Identify and describe likely changes to the landscape character including:</p> <ul style="list-style-type: none"> <li>• List likely changes in landscape character, based on the outcome of Step 2</li> <li>• Extent of the area likely to be affected by the project</li> <li>• Likely changes to the landscape character throughout the staging of the project.</li> </ul> <p>Evaluate likely changes and/or impacts including:</p> <ul style="list-style-type: none"> <li>• Assess the magnitude, duration and significance of each specific landscape impact</li> <li>• Assess the capacity of the landscape to accommodate change</li> <li>• Determine if an impact will be temporary or permanent and whether the effect will be beneficial, neutral or adverse</li> <li>• Identify uniqueness or rarity of the affected landscapes</li> <li>• Determine the significance of impacts by considering both magnitude of change and sensitivity of the landscape.</li> </ul>
<p><b>7</b> Describe the potential Visual impacts</p>	<p>Identify and describe likely changes to the visual landscape and views including:</p> <ul style="list-style-type: none"> <li>• List likely changes in views, based on the outcome of Step 3</li> <li>• Extent of the area likely to be affected by the project</li> <li>• Likely changes to views throughout the staging of the project.</li> </ul> <p>Evaluate likely changes and/or impacts of each project option including:</p> <ul style="list-style-type: none"> <li>• Assess the magnitude, duration and significance of each specific visual impact</li> <li>• Determine if an impact will be temporary or permanent and whether the effect will be beneficial, neutral or adverse</li> <li>• Identify value placed onto the impacted views</li> <li>• Determine the significance of impacts by considering both magnitude of change and sensitivity of view</li> </ul>
<p><b>8</b> Develop visual management measures</p>	<p>Determine whether visual management objectives can be achieved Identify measures that reduce negative impacts; and facilitate positive impacts</p>
<p><b>9</b> Prepare final recommendations</p>	<p>Summarise the findings and describe any mitigation measures</p>

Figure 2 Visual landscape impact assessment methodology

## 2.1 Standards and guidance

Where practicable, the landscape and visual impacts associated with the Proposal have been assessed in accordance with the advice provided in national and state recognised resource documents and in accordance with all relevant legislation. These include but are not limited to the following:

- *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design* (Western Australia Planning Commission, 2007)
- *Environmental Factor Guideline: Social Surroundings* (Environmental Protection Authority, 2023)
- *Guidelines for Landscape and Visual Impact Assessment, 3rd Edition* (Landscape Institute and Institute of Environmental Management & Assessment, 2013).

## 2.2 Context analysis

### 2.2.1 Study Area

A key component of defining the scope of evaluation and setting the context is determination of the Study Area. The extent of the Study Area, for the Proposal, was informed by a desktop review, site inspection in addition to previous studies of a similar type and/or within a similar landscape context. This provided an understanding of the existing landscape context that resulted in a Study Area that is generally confined to the likely extent of visibility of the Myara Mine Region within the surrounding context, as stipulated in Section 3.1.

### 2.2.2 Legislation and policy context

A review of key planning designations, policies and guidance was undertaken in relation to landscape and visual amenity. The emphasis of the review was to identify designations, protections, values, and objectives relevant to the landscape and visual environment of the Study Area, including scenic amenity values.

Relevant planning legislation has been summarised in Section 3.1 to provide context for development within the locality, however, there is no requirement for Alcoa's mining operations to conform with referenced planning schemes and/or to seek development approval. Alcoa's operations are carried out on mining tenure and are subject to state agreements which prevail according to their terms over any other act of law.

### 2.2.3 Landscape context

Relevant background information relating to the Proposal and the Study Area was reviewed and summarised (refer to Section 3.3). This included information regarding to the existing landscape and visual environment such as:

- Topography and hydrology data
- Land use zoning and cadastral data
- Vegetation maps
- *Reading the Remote - Landscape Characters of Western Australia* study. (Department of Conservation and Land Management, 1994).
- Google aerial and street view imagery
- Stakeholder and community feedback on valued landscapes and views.

## 2.3 Landscape character and visual analysis

### 2.3.1 Site inspection

A site inspection was undertaken by a landscape architect and a landscape planner from 8 - 9 May and 21 August 2024 with warm and sunny weather conditions with clear visibility. During the site inspections, the Study Area was walked and driven to gain representative views of the Proposal from publicly accessible viewpoints. The purpose of the inspection was to:

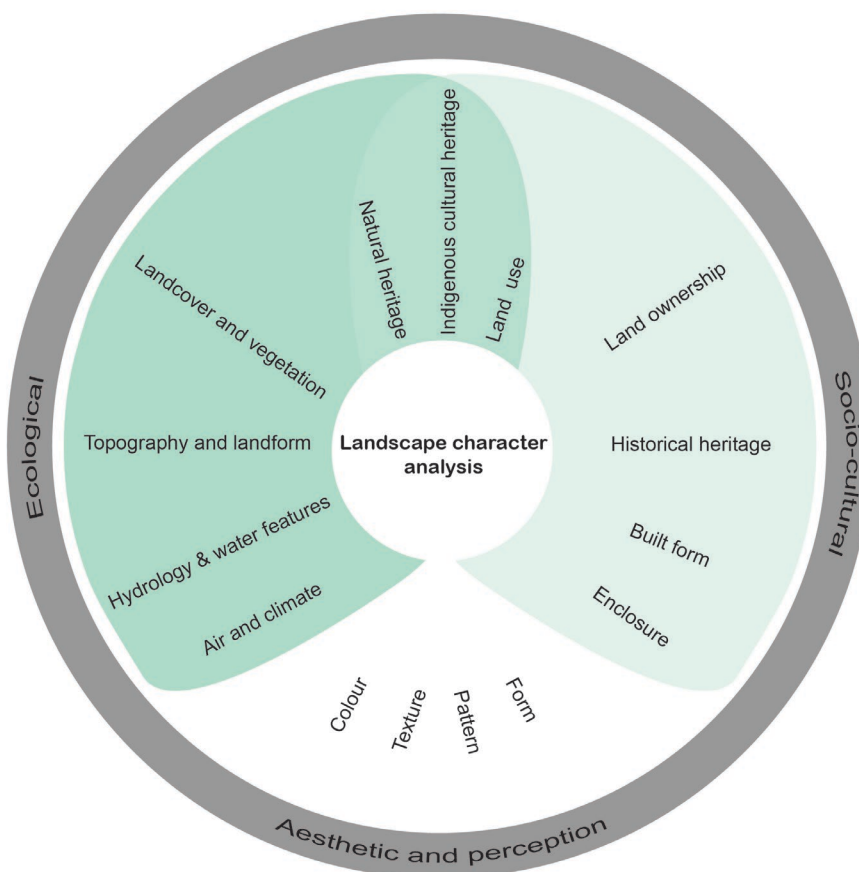
- Inspect the Study Area and appreciate views to / from the Proposal.
- Inspect publicly accessible locations identified in the desktop analysis as likely to provide views of the Proposal.
- Identify sensitive visual receptor locations.
- Assess the landscape character of the Study Area and identify landscape sensitivities.
- Undertake visual assessment site photography.

The coordinates of each viewpoint were recorded during the site inspection in addition to photographic records of landscape features, key views and receptors supported by field notes and sketches.

## 2.3.2 Landscape character units

Landscape Character Units (LCUs) generally comprise homogenous patterns of characteristics such as landform, vegetation, waterform and land use in addition to individual features, as identified via the context analysis, stakeholder and community feedback, and site inspection.

The blend of elements shown in Figure 3 contribute to shaping a landscape character which defines distinct landscapes with unique attributes and sense of place.



(Source: Adapted from An Approach to Landscape Character Assessment (Natural England, 2014))

**Figure 3** Landscape character elements

This approach has been used to establish the existing landscape character within the Study Area and to provide a framework for measuring the impact of the Proposal. This assists in:

- Defining landscape elements that contribute to defining character
- Defining landscape character attributes
- Identifying landscape value

The assessment of the existing environment also considers factors which have influenced landscape change in the past and those that are likely to do so in the future. The landscape character units are defined in Section 3.4.1.

Values associated with the landscape have also been identified for each LCU. Landscape value considers designated and undesignated landscapes and all elements such as environmental, cultural, historical and visual that form the landscape. When defining landscape value, considerations include landscape quality, scenic quality, rarity, representativeness, conservation value, recreation value, and associations. Refer to Table 1 for criteria used to determine landscape character value.

**Table 1** Landscape character value criteria

Landscape value	Criteria
High	Landscape character elements in good or above average condition and/or that make a strong positive contribution to landscape character. May include nationally important features.
Medium	Landscape character elements in reasonably good condition and/or that make an average contribution to the local character, which may include locally important landscape features.
Low	Landscape character elements in below average condition and/or that are not particularly distinctive local features.

### 2.3.3 Visual analysis

How a landscape is viewed is of critical importance in understanding changes in the landscape and how people perceive them. Visual landscapes are related to peoples' sense of place and quality of life. How people view, perceive, experience and interact with landscape can be varied and diverse.

Visual analysis of the existing conditions involves identifying existing viewing location, identifying who viewers are and how they experience the landscape, identifying key views, and determining visibility. This assists in the understanding how the proposed changes may impact the existing viewing experience and values. Stakeholder and community feedback has been reviewed to aid the identification of valued locations and visual elements within the Study Area.

A visual analysis of the Study Area was mapped, including identification of viewing locations. Sensitive visual receptors (sensitive receptors) were identified, and their level of significance given, in line with guidance provided within the *Visual Landscape Planning in Western Australia* guidelines (Western Australia Planning Commission, 2007) (refer to Table 2 for criteria). Level of significance generally increases with the importance of the view, the degree of sensitivity of the viewers, the degree to which experiencing the landscape is integral to the enjoyment of a travel route or site, and the length of duration of a view. These criteria were used to assist in determining which sensitive receptor locations to consider for assessment. Refer to Section 3.5 for the visual analysis of the Study Area.

**Table 2** Sensitive receptor level of significance

Rating	Criteria
Level 1: national / state significance	State highways and other main roads (sealed or unsealed) with high levels of vehicle usage; designated tourist routes, scenic drives; recreation, conservation, cultural or scenic sites, areas, viewpoints and lookouts of state or national significance, including their access routes; walking, cycle or bridle tracks of national or state significance; towns, settlements or residential areas; passenger rail lines; navigable waterways of national or state recreation importance; ocean sites of national or state recreation importance, e.g. surf breaks; and views of national or state importance.
Level 2: regional significance	Main roads with moderate levels of vehicle usage (sealed or unsealed); recreation, conservation, cultural or scenic sites, areas, viewpoint, and lookouts of regional or high local significance (including their access routes); navigable waterways of regional recreation significance; walking, cycle or bridle paths of regional significance; and views of regional importance.
Level 3: local significance	All remaining roads with low levels of vehicle usage; locally significant roads or tracks; recreation and other use areas of local significance; navigable waterways of local recreational significance; walking, cycle or bridle paths of local significance; and views of local importance.

## 2.4 Visual management objectives

The purpose of visual management objectives is to manage the visual character of the landscape within the Study Area. The legislation and policy review, context analysis, LCUs and visual analysis form a basis for the development of appropriate management objectives and strategies, refer to Section 3.6.

Visual management objectives were developed for each LCU and are generally categorised as follows:

- Best practice siting and design
- Protection and maintenance of visual landscape character
- Restoration of degraded character or enhancement of opportunities, for example, for viewing.

## 2.5 Proposal description

The main visual components of the Proposal were identified and described, for both existing mined areas, proposed mined areas, and staged rehabilitation (refer to Section 4).

## 2.6 Landscape and visual impact assessment

This section includes an assessment of impacts to landscape character, with an assessment provided for each LCU defined within the Study Area. Following this, an assessment of visual impacts was undertaken from key viewpoint locations.

### 2.6.1 Assessment of impacts to landscape character

Assessment of impacts to landscape character deals with the effect of change and development on landscape as a resource. The assessment focuses on how the development would affect the elements that make up the landscape, including the aesthetic and perceptual aspects of the landscape and its distinctive characteristics.

The consideration of potential impacts to landscape character is determined based on the sensitivity of the existing landscape to the proposed change, and the magnitude of change that is likely to occur.

The sensitivity of a landscape is determined on the capacity of the landscape to accommodate the change (susceptibility to change) of a particular type and scale, without adverse effects on existing landscape character, and the value of the existing landscape. A judgement on the level of sensitivity is made and a rating of high, medium or low applied.

The magnitude of change to landscape character depends on the nature, scale and duration of the change expected to occur. It also depends on the loss, change or addition of any feature to the existing landscape.

The sensitivity and magnitude of landscape effects address the following specific criteria:

- Sensitivity of landscape to proposed change, is based on the landscapes susceptibility to change, and the value of the landscape (refer to Table 1 for landscape value criteria and Table 3 for capacity to accommodate change criteria).
- Magnitude of landscape effect, based on the size, scale of change, the geographical extent of effects, and the duration and reversibility of effects (refer to Table 4).

Refer to Section 5 for the assessment of impacts to landscape character.

**Table 3**      *Susceptibility to change (landscape character)*

<b>Landscape susceptibility</b>	<b>Definition</b>
High susceptibility to change	The type of development proposed could have a detrimental effect on the landscape character, condition or value. Mitigation measures are unlikely to reduce the impacts of the change.
Moderate susceptibility to change	Any change caused by the type of development would be unlikely to have a significant adverse effect on the landscape character, condition or value that could not be mitigated.
Low susceptibility to change	Development of this type is unlikely to have an adverse effect on the landscape character, condition or value. Mitigation measures would be effective in neutralising adverse effects.

**Table 4**      *Magnitude of change criteria (landscape character)*

<b>Rating</b>	<b>Criteria</b>
High	A substantial/obvious change to the landscape character due to total loss of, or change to, elements, features or characteristics of the landscape. Would cause a landscape to be permanently changed and its quality diminished. Mitigation measures are unlikely to reduce the impacts of the change.
Moderate	Discernible changes in the landscape character due to partial loss of, or change to elements, features or characteristics of the landscape, however, has potential to be partly mitigated. The change would be out of scale with the landscape character, and at odds with the local pattern and landform, and would leave an adverse impact on the landscape character.
Low	Minor loss or alteration to one or more key landscape character elements, features or characteristics, or the introduction of components that may be new but may not be uncharacteristic within the existing landscape character. Mitigation measures would be effective in neutralising adverse effects.
Negligible	Almost imperceptible or no change in the landscape character as there is little or no loss of/or change to the elements, features or characteristics of the landscape. Mitigation measures would be effective in neutralising adverse effects and/or improve the landscape character.

## 2.6.2 Zone of theoretical visibility assessment

Zone of Theoretical Visibility (ZTV) mapping is a computer-generated analysis which identifies land from which it is theoretically possible to view the components of the Proposal. These have been used primarily to guide the site analysis and representative viewpoint selection. ZTV mapping was undertaken with reference to processes outlined in the following guidelines:

- *Guidelines for Landscape and Visual Impact Assessment, 3<sup>rd</sup> Edition* (Landscape Institute and Institute of Environmental Management & Assessment, 2013).
- *Visual Representation of Wind Farms Guidance, version 2.2* (Scottish Natural Heritage, 2017)

ESRI ArcGIS software was used to model the ZTV of the Proposal. A digital elevation model with 10m resolution was used with the ZTV mapped using the following parameters:

- A viewing height of 1.7 m, which is the average within the typical viewing level range of an adult.
- Tipping truck height (maximum): 13 m
- Excavator height (maximum): 15 m

The GIS software then digitally determines the likely extent over which the feature would be visible or not visible. In interpreting the ZTV, the following issues must be considered:

- The ZTV only considers the landform and does not include land cover factors such as the presence of buildings and trees, therefore it represents the worst-case scenario of potential visual impact.
- The ZTV does not consider the effect of distance. The greater the distance from the Proposal, the lower the impact, as the development will take up a smaller portion of the view, and atmospheric conditions may reduce the visual prominence of the Proposal.
- The ZTV is only accurate to the resolution of the elevation model.

## 2.6.3 Assessment of visual impacts

The assessment of visual impact involves an understanding of the sensitivity of viewing locations, the likely changes to the views, and an evaluation of the significance of the likely changes. Visual receptors have been considered in terms of the view they are likely to obtain from within the Study Area including consideration of any key vantage points such as lookouts, where there is particular interest in the view. Visual receptors are identified based on proximity of the receptor to the Proposal, as the most affected visual receptors are anticipated to be located closest to the Proposal unless located at an elevated vantage point. The type of receptor is also considered, as different viewer types would have different perceptions of the change.

A series of eight representative viewpoint locations were selected for assessment based on the visual analysis of the Study Area and understanding of the Proposal (refer to Figure 10). Existing views were represented using a panorama technique (refer Section 2.6.6). An assessment of each viewpoint is provided which includes assessment of the sensitivity of the viewpoint to change, identification and description of the likely changes to the view, assessment of the magnitude of change that is likely to occur, and overall level of significance of the visual effect.

The sensitivity of each viewpoint is considered to be dependent on the importance of the view, its existing scenic qualities, the presence of other existing built elements in the view, and the type of visual receptor and their likely interest in the view. The magnitude of change to views and visual amenity depends on the nature, scale and duration of the change that is expected to occur. This depends on the loss, change or addition of any feature in the field of view of the receptor including an assessment of the level to which the change contrasts with the existing view or expected view of the landscape.

The assessment considers the likely impacts of the Proposal (refer to Section 6). The level of effect on a view depends on factors such as the extent of visibility, degree of obstruction of existing features, degree of contrast with the existing view, angle and duration of the view, and the distance from the Proposal.

The sensitivity and magnitude of visual effects address the following specific criteria:

- Sensitivity of visual receptor to proposed change, based on susceptibility of visual receptors to change, and value attached to the view (refer to Table 5).
- Magnitude of change, based on the size or scale of the change, geographical extent of effects, and duration and reversibility of effect (refer to Table 6).

**Table 5** Sensitivity criteria (visual)

Rating	Criteria
High	Occupiers of residential properties, at home or going to or from, with long viewing periods, within close proximity to the proposed development; Communities that place value upon the landscape and enjoyment of views of their setting.
Moderate	Outdoor workers who have a key focus on their work who may also have intermittent views of the Study Area; Viewers at schools, or similar, when outdoor play and recreation areas are located within close proximity but viewing periods are limited; Occupiers of residential properties with long viewing periods, at a distance from or screened from the Study Area.
Low	Road users in motor vehicles, trains or on transport routes that are passing through or adjacent to the Study Area and therefore have short term views; Viewers indoor at their place of work, schools or similar.
Negligible	Viewers from locations where there is screening by vegetation or structures where only occasional screened views are available and viewing times are short; Road users in motor vehicles, trains or on transport routes that are passing through/adjacent to the Study Area and have partially screened views and short viewing times.

Table 6 Magnitude of change criteria (visual)

Rating	Criteria
High	A substantial/obvious change to the existing view due to total loss of, or change to, elements, features or characteristics of the view. Would cause a view to be permanently changed and its quality diminished.
Moderate	Discernible changes in the existing view due to partial loss of, or change to elements, features or characteristics of the view, however, has potential to be partly mitigated. The change would be out of scale with the existing view and would leave an adverse impact on the view.
Low	Minor loss or alteration to one or more key view elements, features or characteristics, or the introduction of components that may be visible but may not be uncharacteristic within the existing view.
Negligible	Almost imperceptible or no change in the view as there is little or no loss of/or change to the elements, features or characteristics of the view.

## 2.6.4 Duration of impact

Landscape and visual impacts can be temporary or permanent in nature. The duration of impacts, as shown in Table 7, was used to assist in assessing the landscape and visual impacts associated with the Proposal.

Table 7 Duration of impact

Duration	Years of impact
Temporary	Impacts lasting 1 year or less
Short term	Impacts lasting 1 to 5 years
Medium term	Impacts lasting 5 to 10 years
Long term	Impacts lasting 10 to 25 years
Permanent	Impacts lasting over 25 years

## 2.6.5 Significance of impacts

The combination of sensitivity and magnitude determines the significance of impact on the visual environment or representative viewpoint. Refer to Table 8 which illustrates the matrix used to determine the significance of impacts.

Table 8 Significance of impact matrix

		Magnitude of change			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High-moderate	Moderate	Negligible
	Moderate	High-moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

## 2.6.6 Panorama

All photographic images were captured using a 50-millimetre fixed focal length lens on a 35-millimetre full frame format camera at a camera height of 1.6 metres. All photograph GPS locations were recorded and mapped.

A series of eight viewpoint locations were chosen and existing views represented using a panorama technique. This technique involves the stitching together of a number of adjoining images using the Adobe Photoshop software program representing an 80-degree horizontal field of view.

The panorama methodology is guided by industry accepted techniques recommended in *Visual Representation of Development Proposals: Technical Guidance Note 06/19* (Landscape Institute, 2019).

## 2.7 Mitigation and management measures

This process involved determining whether the visual management objectives identified can be achieved, and provision of mitigation and management measures to reduce negative impacts identified through the assessment. The mitigation and management measures relate to both the LCUs as well as views.

## 3. Context analysis

This section provides a summary of the Study Area and considers the planning and landscape context. Furthermore, a detailed description of the varied landscape characteristics of the Study Area is provided.

### 3.1 Study Area

The Study Area for this assessment is generally confined to the likely extent of visibility of Myara Mine Region within the surrounding context. This has resulted in an indicative Study Area which extends approximately 10 km to the north, east and south of Myara Mine Region and to the Darling Scarp to the west. Infrastructure corridors are included within the Study Area as height and visibility of the conveyors and haul roads will not extend significantly beyond these boundaries. The Study Area was informed by a desktop review and site inspection of the existing landscape context in addition to previous studies of a similar type and/or within a similar landscape context. Land west of the Darling Scarp is excluded from the Study Area due to the topographic shielding of views of the Myara Mine Region by the Scarp. Refer to Figure 4 for the Study Area extent.

### 3.2 Legislation and policy context

#### 3.2.1 State legislation and policy

##### **Alumina Refinery Agreement Act 1961 (WA)**

The Alumina Refinery Agreement Act 1961 (WA) is a State Agreement between Alcoa and the WA Government. This agreement forms part of the regulatory framework that Alcoa operates under. Under the Alumina Refinery Agreement Act, Alcoa has been granted the bauxite mining lease area (ML1SA).

##### **Environmental Factor Guidelines Social Surroundings (EPA 2023)**

For the purpose of the Environmental Impact Assessment process, the EPA (2023) defines social surroundings as it is presented in the EP Act: *In the case of humans, the reference to social surroundings in the definition of environment ... is a reference to aesthetic, cultural, economic, and other social surroundings to the extent to which they directly affect or are affected by physical or biological surroundings.* The overarching function of social surrounds being to protect social surroundings from significant harm.

Amenity is generally defined in the guidelines as the qualities, characteristics and attributes of a place that make a positive contribution to quality of life. In relation to EIA amenity values consist of the ability for people to live and recreate within their surrounds without any unreasonable interference with their welfare, health, comfort, and convenience in addition to visual amenity. Elements that contribute to visual amenity quite often include natural landscapes and views including areas of high heritage, social or cultural significance due to their scenic quality or natural features.

##### **Statement of Planning Policy No 2: Environment and Natural Resources Policy (2003)**

A state policy that includes specific measures relevant to the protection of landscapes such as measure 5.9 Landscape that highlights WAs diverse high value landscapes and scenic areas.

The policy recognises that as the State grows, it will be increasingly important to ensure that landscapes valued by the community are protected. To do this, it is necessary to identify the landscape types and features requiring special attention and develop appropriate management and planning policies that can positively contribute to their maintenance and enhancement. To achieve this, planning strategies, schemes and decision-making should:

- i. Identify and safeguard landscapes with high geological, geomorphological or ecological values, as well as those of aesthetic, cultural or historical value to the community, and encourage the restoration of those that are degraded.*
- ii. In areas identified in 5.9 (i) above, consider the level or capacity of the landscape to absorb new activities and incorporate appropriate planning and building design and siting criteria to ensure that new development is consistent and sensitive to the character and quality of the landscape.*

- iii. Consider the need for a landscape, cultural or visual impact assessment for land use or development proposals that may have a significant impact on sensitive landscapes.*

## 3.2.2 Region and sub-region legislation and policy

### **Metropolitan Region Scheme (2014)**

The Metropolitan Region Scheme is applicable to the component of the Study Area located within Serpentine-Jarrahdale Local Government Area (LGA). The Metropolitan Region Scheme defines the future use of land and provides the legal basis for planning in the Perth metropolitan region. It does not make any specific mention or guidance on visual amenity, character or sense of place.

### **Peel Region Scheme (May 2013)**

The Peel Region Scheme applies to all other components of the Study Area. Of relevance to this assessment is the scheme aim to promote sustainable development, protect areas of regional conservation significance and provide for the extraction of minerals and rehabilitation of the affected land.

The majority of the Study Area covered by the Peel Region Scheme comprises land reserved land for state forest. There are also pockets of land with rural regional open space zoning in addition to North Dandalup Dam.

The Peel Region Scheme outlines the purpose for each reserve and zone within the Study Area, as follows:

- Regional open space - to protect the natural environment, provide recreational and cultural opportunities, safeguard important landscapes and sites of cultural or historical significance and provide for public access.
- State forests - reserved lands to recognised state forests.
- Rural - to provide for the sustainable use of land for agriculture, assist in the conservation and wise use of natural resources including water, flora, fauna, and minerals, provide a distinctive rural landscape setting for the urban areas and accommodate carefully planned rural living developments.
- Waterway - to recognised coastal and inland waterways and lakes, provide for navigation in, and public access to, those waterways and lakes where appropriate and to protect environmental, landscape and cultural values.

## 3.2.3 Local legislation and policy

### **Shire of Serpentine Jarrahdale Local Planning Strategy (2022)**

The northern component of the Study Area is located within the Shire of Serpentine Jarrahdale meaning it is subject to the Shire of Serpentine Jarrahdale Local Planning Strategy (LPS). The purpose of the LPS is to provide a coordinated strategic planning framework, capturing the long-term vision of the Shire of Serpentine Jarrahdale whilst guiding its future growth and development.

The townsite of Jarrahdale is located within this LGA. Of relevance to the rural residential and rural areas surrounding Jarrahdale the LPS states that the amenity and character within rural living areas is recognised as an important aspect of housing choice and, as such, should be retained and enhanced to ensure a high amenity living environment with strong connections to nature are retained. Within rural areas protection of the rural landscape has also been specified including the preservation and enhancement of the existing rural character and amenity within these areas. In addition, the LPS states the importance of protecting the rural landscape, environmental values and connection to nature with specific reference to the Darling Scarp.

With regards to environment which includes Serpentine National Park, Gooralong Conservation Park and Jarrahdale State Forest, the LPS highlights the need to protect important landscape features and landforms as well as the amenity and views of Darling Scarp. In terms of basic raw material, industrial and rural land use buffers the need to preserve the amenity of sensitive land uses and protect environmental values from any adverse off-site impacts of resource extraction or other land uses or development is specified (Department of Planning, Shire of Serpentine-Jarrahdale Local Planning Strategy, 2022).

### **Shire of Serpentine Jarrahdale Local Planning Scheme No. 3 (2023)**

The Shire of Serpentine Jarrahdale Local Planning Scheme establishes the Shire's objectives and purposes for land use within the LGA. Of relevance to this assessment, the Scheme aim to protect and enhance the landscape, natural environment, ecological values and environmental quality and to preserve heritage values, amenity and areas of cultural significance and integrate new built environments with the existing local character.

Within rural townsites, such as Jarrahdale, the objective of the scheme is to preserve and enhance the rural character and amenity of the place (Department of Planning Lands and Heritage, 2023).

The Scheme includes Special Control Area 1 Darling Scarp Landscape Protection. The objective of Special Control Area 1 is to:

- Preserve the amenity deriving from the scenic value of the Darling Scarp
- Protect and enhance the landscape, scenic and townscape values
- Maintain the integrity of landscapes in the line of sight view corridor along scenic routes in the LGA including but not limited to South West Highway, Nettleton Road, Admiral Road, Kingsbury Drive and both the north-south and east-west railway lines and natural water courses.

### **Shire of Serpentine Jarrahdale Local Planning Policy 4.3: Landscape Protection Area Policy (2018)**

A component of the Study Area running north south between Jarrahdale and Keysbrook is subject to *Local Planning Policy 4.3: Landscape Protection Area Policy*. The purpose of this policy being to protect and enhance the landscape characteristics of the Darling Scarp and to preserve the visual amenity of the Darling Scarp from the coastal plain.

Key development and guidelines of relevance to this assessment include:

- The 'seen area' of the development from the coastal plain, major roads and tourist routes, and major recreation areas.
- The visual intrusiveness of the development within the 'seen area'.
- The colour schemes and materials of the proposed development.
- The preservation and enhancement of the natural features and vegetation of the area.

The policy also specifies that development should not occur:

- On ridge lines or spurs, bluffs or knolls, escarpments, hill tops or visually exposed areas.
- In areas having a generalised slope greater than 25 percent.

### **Shire of Murray Local Planning Scheme No. 4 (2023)**

The southern component of the Study Area sits within the Shire of Murray and is subject to the Shire of Murray Local Planning Scheme No. 4. The Scheme establishes the Shire's objectives and purposes for land use within the LGA. Dwellingup State Forest, North Dandalup Nature Reserve and North Dandalup Dam are located within the Shire of Murray. Of relevance to this assessment is the objective to preserve the special environment associated with waterways and lakes within the scheme area.

The scheme also includes a Hills Landscape Protection Zone with regards to the east of the Darling Range escarpment. A zone objective of relevance to this assessment is to ensure that development will not compromise any landscape, scenic or amenity values which are deemed to be an integral trait of the land as viewed from major tourist routes and adjoining properties (Department of Planning, Shire of Serpentine-Jarrahdale Local Planning Strategy, 2022).

### **Shire of Boddington Local Planning Strategy (2018)**

A small south-east component of the Study Area is within the Shire of Boddington LGA. Planning direction for the Shire of Boddington is set out in the LPS, considering local needs and aspirations. Mining buffer areas are addressed in this document with consideration of visual amenity, with buffers in accordance with the Department of Mines, Industry, Regulation and Safety guidelines.

Within rural areas the Shire of Boddington Local Planning Strategy supports continued operation and expansion of primary production enterprises where rural amenity and environmental impacts can be managed. This is actioned through ensuring that development is compatible with a reasonable standard of rural amenity.

With regards to the environment and conservation this document specifies the importance of the Shire of Boddington's visual amenity, created by its landscapes and vistas, and the imperative to protect and maintain this key asset wherever possible. Specific strategies relevant to this objective include:

- Encourage the protection of the Shire of Boddington's landscape and scenic qualities by protecting high conservation value area from proposals to clear vegetation.
- Encourage development that reflects and enhances the Shire of Boddington's natural, cultural, visual and built character.
- Support the protection of landscape and their visual amenity, as well as the character of 'view-sheds' associated with major roads and tourist routes.

### **Shire of Wandering Local Planning Strategy (2007)**

The Shire of Wandering Local Planning Strategy provides strategic vision, policies objectives and proposals for land use and development over a 10-15 year timeframe. Of relevance to this assessment is the strategy aim to safeguard and enhance the character and amenity of the Shire's natural and built environment.

## **3.2.4 Other guiding documents**

### **Forest Management Plan 2024-2033 (2023)**

The state forests located within the Study Area include Jarrahdale State Forest, Dwellingup State Forest and Youraling State Forest. These forests are subject to the Conservation Commission of Western Australia's Forest Management Plan 2024-2033 (2023). The plan outlines strategic goals, identifies values and threats and proposed operations and key performance indicators for the management of lands vested in the Conservation Commission.

The plan identifies amenity and aesthetic value as a key social and economic value, stating that the '*natural landscapes in the planning area are valuable for their intrinsic qualities, for the quality of life and enjoyment of people, and for the economic benefits they generate.*'

### **Visual resource management on Land and Waters Policy statement No. 34 (1989)**

The purpose of this policy is to ensure that all land uses and waters managed by the Department of Conservation and Land Management, now the Department of Biodiversity, Conservation and Attractions (DBCA) are planned and carried out in a way that sustains the beauty of the natural environment. Of relevance to this assessment, the policy stipulates that all mining activities including exploration and rehabilitation phases are planned so as to minimise the impact on existing landscape values.

### **Western Australia Comprehensive Regional Assessment: National Estate Aesthetic Value Identification and Assessment Project- Visual Assessment (1998)**

The Western Australia National Estate Aesthetic Value Identification Project considers the assessment of places with National Estate aesthetic significance to ensure forest-related places of National Estate aesthetic value are appropriately protected and managed. Assessment considers the aesthetic values of the Regional Forest Agreement of the South-West Forest Region and the Australian Heritage Commission criteria of aesthetic significance. The assessment identifies the importance of visual amenity, maintaining value and protecting aesthetic qualities. The following places, within the Study Area, are included in the National Estate Aesthetic Value database:

- Bibbulmun Track
- North Dandalup Dam
- Serpentine Reservoir and Falls
- Sullivan Rock

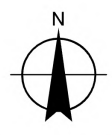
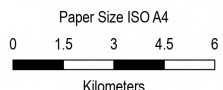
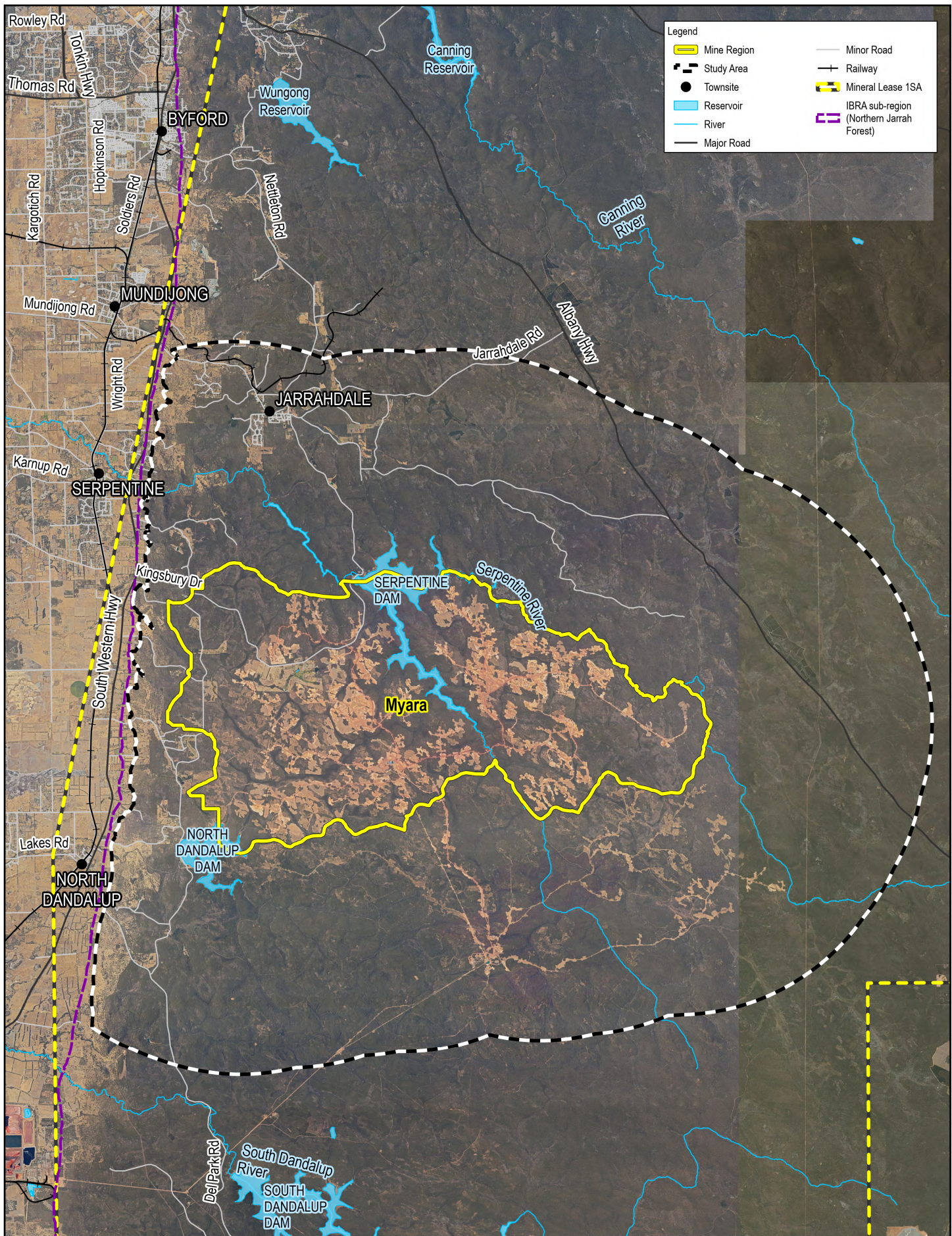
## Local Recreational Trails Plans

Recreational areas, trails and facilities have been identified and classified in accordance with published State and regional planning documents, including:

- WA Strategic Trails Blueprint 2022-2027 (Common Ground Trails(a), 2021)
- Peel Regional Trails Strategy (Common Ground Trails(b), 2019) - incorporating local trail plans for the Shire of Murray, Shire of Boddington and the Shire of Serpentine Jarrahdale.
- Perth and Peel Mountain Bike Master Plan (Common Ground Trails(c), 2017)

This plan specifies the development of Jarrahdale as a regionally significant mountain bike trail town with at least 30 km of mountain bike trails, to attract the recreation and tourism markets from the nearby nationally significant locations.

- Two-Year Action Plan for Nature-Based Tourism in Western Australia 2019 and 2020 (DBCA). This includes an aim to continue to promote, maintain and improve the Bibbulmun and Munda Biddi trails and encourage new industry investment in accommodation and visitation products.



Alcoa of Australia Ltd  
Landscape and Visual Impact Assessment -  
Myara.

Project No. 12632796  
Revision No. D  
Date 25/07/2024

Study Area

FIGURE 4

### 3.3 Landscape context

The following section provides an overview of the existing landscape context for the Study Area.

#### 3.3.1 Topography and hydrology

The Proposal is located within the topographic landform of the Darling Plateau within the Darling Uplands subtype. The Darling Plateau is a rolling landscape cut by steep river valleys studded with granite outcrops (monadnocks) and boulders which protrude from the surrounding landscape. The Darling Uplands is bordered by the Darling Scarp, which is the surface expression of the Darling Fault, located to the west of the Study Area.

The landscape within the eastern portion of the Study Area consists of the Monadnocks comprising elevated hills with granite outcrops, including Mount Cooke and Mount Vincent. Beyond this range, the landscape has a gentler undulation with fewer sharp dissections of valleys and distinctly more of a gently rolling landscape.

Several watercourses dissect the surface of the Study Area with valleys and irregular slopes throughout. Major dams within the area include Serpentine Dam and North Dandalup Dam. Figure 6 shows the topography and hydrology features within the Study Area.

#### 3.3.2 Land use and built form

Myara Mine Region is located predominantly within state forests. Land use within the Study Area also includes public purposes – prison, rural, parks and recreation, reservoirs and rivers in addition to the hills landscape protection zone as indicated in Figure 7.

The state forests, reserves and areas adjacent to reservoirs within the Study Area are used by hikers/walkers, mountain bike riders, campers, other recreational users, tourists, and nearby community members. Two prominent recreational trails run through the Study Area, the Bibbulmun Track and the Munda Bididi Trail. The Bibbulmun Track is a long-distance hiking track that traverses the local forest to the east of the Study Area. The Munda Bididi Trail is an off-road mountain bike trail that bisects the western extent of the Study Area, a component of which is located within Myara Mine Region.

The Study Area includes a number of DBCA legislated lands and waters including Monadnocks Conservation Park, Youralling State Forest, Dwellingup State Forest, North Dandalup Nature Reserve, Karnet Nature Reserve, Serpentine National Park, Goralong Conservation Park and Jarrahdale State Forest (refer to Figure 7).

#### 3.3.3 Vegetation

A variety of established vegetation is present within the Study Area. The vegetation is predominantly native forest with small pockets of old-growth Jarrah Forest, replanted native forest and pine plantations (refer to Figure 8). The Study Area is dominated by the established forests, with the townsites of Jarrahdale being surrounded by dense vegetation on all sides. Roads throughout the Study Area are also generally enclosed by dense vegetation on either side with limited views out to the wider landscape.

Aside from the limited cleared agricultural land to the east of the Study Area, the only other sections of cleared forest areas are within the existing Huntly Mine: Myara, O’Neil and McCoy Mine Regions. The forest vegetation within the Study Area includes the pre-European vegetation complexes, as identified in the Swan Coastal Plain Vegetation Complexes (Department of Parks and Wildlife, 2016) as itemised in Table 9.

Table 9 Vegetation complexes within the Study Area

Vegetation complex	Description
Cooke Complex	Dominantly an open forest of <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> on deeper soils within many visually prominent outcrops. Some closed heath’s with <i>Myrtaceae</i> and <i>Proteaceae</i> species on granite rocks and some soil areas with <i>Eucalyptus laeliae</i> , and <i>Allocasuarina huegeliana</i> and <i>Eucalyptus wandoo</i> .

Vegetation complex	Description
Darling Scarp	Mosaic of open forest of <i>Eucalyptus marginata</i> with some admixtures with <i>Eucalyptus laeliae</i> in the north, and <i>Corymbia haematoxylon</i> in the south on deeper soils adjacent to outcrops, woodland of <i>Eucalyptus wandoo</i> , low woodland of <i>Allocasuarina huegeliana</i> on shallow soils over granite outcrops, closed heath of <i>Myrtaceae</i> – <i>Proteaceae</i> species and lithic complex on near granite outcrops.
Dwellingup Complex	Dominantly comprised of open forest to woodlands which includes <i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> on lateritic uplands.
Goonaping Complex	An open forest of <i>Eucalyptus marginata</i> and <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> on sandy gravels. With some low woodlands of <i>Banksia attenuata</i> within the drier sandier sites with some <i>Banksia menziesii</i> and low open woodland of <i>Melaleuca preissiana</i> and <i>Banksia littoralis</i> within the moister sandy soils.
Helena 1 Complex	An open forest of <i>Eucalyptus marginata</i> and woodland of dominantly <i>Eucalyptus wandoo</i> on the deeper soils ranging to closed heaths and lithic complex on shallow soils associated with granite on steep slopes of valleys in semiarid and arid zones.
Murray 1 Complex	An open forest of <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>Eucalyptus patens</i> on valley slopes. With some woodlands of <i>Eucalyptus rudis</i> and <i>Melaleuca raphiophylla</i> on the valley floors.
Pindalup Complex	An open forest of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> and <i>Corymbia calophylla</i> on slopes and open woodland of <i>Eucalyptus wandoo</i> with some <i>Eucalyptus patens</i> on lower slopes.
Swamp Complex	Comprised of a low open woodland of <i>Melaleuca preissiana</i> and <i>Banksia littoralis</i> , closed scrub of <i>Myrtaceae</i> spp., a closed heath of <i>Myrtaceae</i> spp. and sedgeland of <i>Baumea</i> and <i>Leptocarpus</i> spp. Located within seasonally wet or moist sand, peat, and clay soils within valleys.
Yarragil 1 Complex	Open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i> and <i>Corymbia calophylla</i> on slopes with mixtures of <i>Eucalyptus patens</i> and <i>Eucalyptus megacarpa</i> within valleys
Yarragil 2 Complex	An open forest of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> and <i>Corymbia calophylla</i> on slopes, woodland of <i>Eucalyptus patens</i> and <i>Eucalyptus rudis</i> with <i>Hakea prostrata</i> and <i>Melaleuca viminea</i> within valleys.

### 3.3.4 Landscape character types of Western Australia

The WA landscape have been classified into landscape character types as part of the *Reading the Remote - Landscape Characters of Western Australia* study (Department of Conservation and Land Management, 1994). This study classifies the landscapes of WA into broad landscape character types in terms of 'common distinguishing visual landform, vegetation, water form and land-use characteristics'. The Study Area is located within the Darling Plateau, subtype Darling Uplands landscape character types. This characterisation will assist with informing the LCUs for the Study Area.

### 3.3.5 Community and stakeholder engagement

Alcoa has been engaging with a broad range of stakeholders regarding the Hunty Mines move to Myara Mine Region since ~2005. This includes current and future mine neighbours, Shire of Serpentine-Jarrahdale, Shire of Murray, locally based state and federal MPs, the Department of Justice (Karnet Prison) and the Bibbulmun Track and Munda Biddi Trail Foundations.

A variety of engagement methods have been deployed to ensure stakeholders and community members can access information and have opportunities for meaningful consultation. Alcoa has actively listened to stakeholders and community members, considering their feedback in commissioning studies. Stakeholders who have been engaged with about Alcoa operations are included in Table 10.

Table 10 Stakeholders

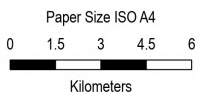
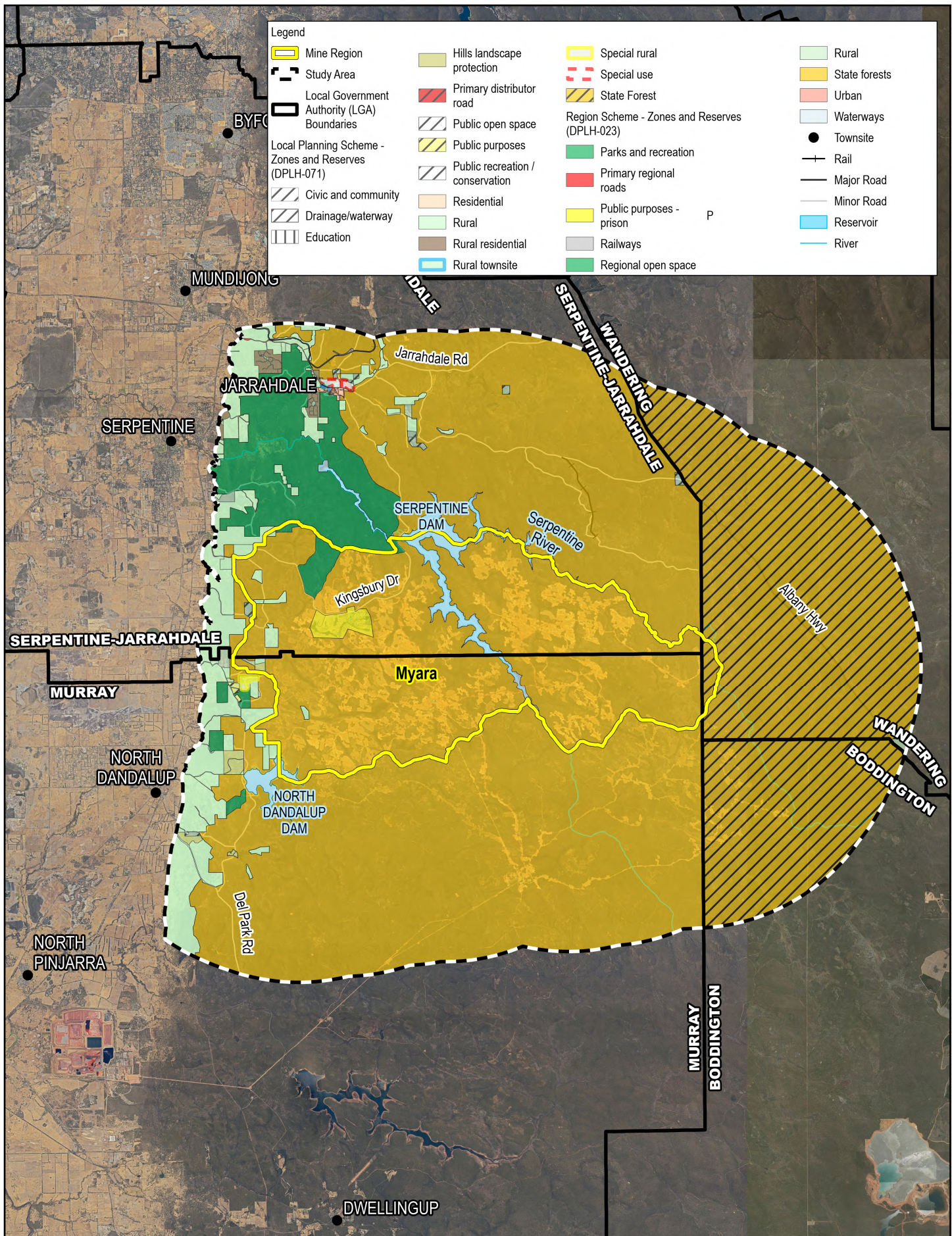
Stakeholder type	Specifics
State Government	<ul style="list-style-type: none"> <li>– Departments – Jobs Tourism, Science and Innovation; Biodiversity, Conservation and Attractions; Justice, Local Government, Water Corporation, Sport and Cultural Industries</li> <li>– Agencies – EPA Tourism WA; Peel Development Commission</li> <li>– Local Members of Parliament – Darling Range; Murray-Wellington;</li> </ul>
Local Government	<ul style="list-style-type: none"> <li>– Shire of Murray</li> <li>– Shire of Serpentine-Jarrahdale</li> </ul>

Stakeholder type	Specifics
	<ul style="list-style-type: none"> <li>– City of Mandurah</li> </ul>
Recreation and tourism groups	<ul style="list-style-type: none"> <li>– Bibbulmun Track Foundation</li> <li>– Munda Biddi Trail Foundation</li> </ul>
Environmental groups	<ul style="list-style-type: none"> <li>– Peel-Harvey Catchment Council</li> <li>– Peel Alliance</li> <li>– Mandurah Environmental and Heritage Group</li> </ul>
Business and industry groups	<ul style="list-style-type: none"> <li>– Institute of Forests of Australia, WA Division</li> <li>– Café on the Dam (Serpentine Dam)</li> <li>– Bodhinyana Monastery</li> </ul>
Community groups	<ul style="list-style-type: none"> <li>– Jarrahdale Community Consultation Network</li> <li>– Jarrahdale Forest Protectors</li> <li>– Nearby communities and nearby private landowners/residents:</li> <li>– Neighbours in Keysbrook</li> </ul>

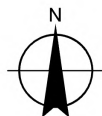
Areas of concerns raised by stakeholders relative to landscape and visual impacts associated with Myara Mine Region related to potential impacts on a range of values including recreation and ecotourism, local communities and their forest setting, private properties, transport routes, clearing, rehabilitation and cumulative impacts as detailed in Table 11.

**Table 11 Stakeholder feedback**

Value	Concerns
Recreation and ecotourism	<ul style="list-style-type: none"> <li>– Potential impacts on visual and landscape values that forested areas provide for the general recreational and ecotourism product of the Jarrahdale area, both current and envisaged.</li> <li>– Potential landscape and visual impacts on recreational and ecotourism facilities in the shires of Murray and Serpentine-Jarrahdale including formal and informal tracks, trails and associated campsites. These include: <ul style="list-style-type: none"> <li>– Facilities associated with the Serpentine Dam including Kingsbury Drive.</li> <li>– The nationally recognised Munda Biddi Trail, which runs through the western edge of the Myara Region</li> </ul> </li> </ul>
Local communities and their forest setting	<ul style="list-style-type: none"> <li>– Potential impact on the visual and landscape values of the Jarrahdale surrounding forest as an enjoyable place to live and/or visit.</li> <li>– Potential impacts on local businesses and the economy of Jarrahdale due to visual and landscape value impacts deterring people from living and/or visiting the areas.</li> </ul>
Private properties	<ul style="list-style-type: none"> <li>– Potential visual amenity impacts on private properties in or near the proposed mine regions, in particular landowners within the Myara Region such as Karnet Prison, the farms around it and the Bodhinyana Buddhist Monastery and neighbouring Keysbrook.</li> </ul>
Transport routes	<ul style="list-style-type: none"> <li>– Potential visual impacts on major and/or significant roads that fall within or near the proposed mine regions. This concern was heightened by recent clearing conducted by Alcoa along Kingsbury Drive near the Karnet Prison Farm.</li> </ul>
Clearing	<ul style="list-style-type: none"> <li>– Potential visual impacts associated with the extent of clearing associated with bauxite mining.</li> </ul>
Rehabilitation	<ul style="list-style-type: none"> <li>– Potential visual impacts associated with the length of time required for rehabilitated forest to become established.</li> </ul>
Cumulative impacts	<ul style="list-style-type: none"> <li>– Potential visual impacts associated with Alcoa’s past, present and future operations, including beyond those currently being assessed.</li> </ul>



Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 50



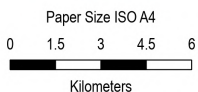
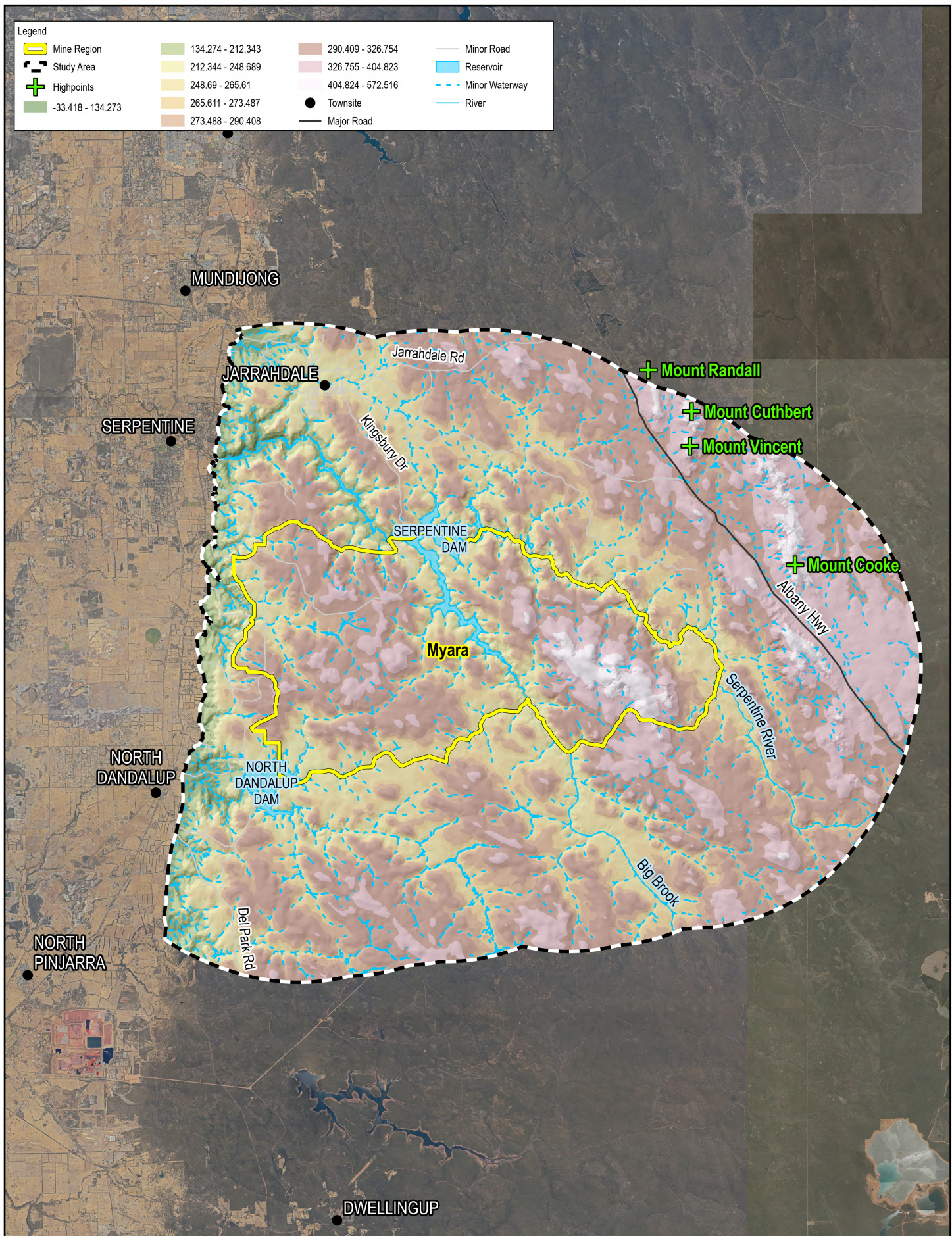
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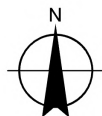
Planning zones

FIGURE 5

Legend			
Mine Region	134.274 - 212.343	290.409 - 326.754	Minor Road
Study Area	212.344 - 248.689	326.755 - 404.823	Reservoir
Highpoints	248.69 - 265.61	404.824 - 572.516	Minor Waterway
-33.418 - 134.273	265.611 - 273.487	Townsite	River
	273.488 - 290.408	Major Road	



Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

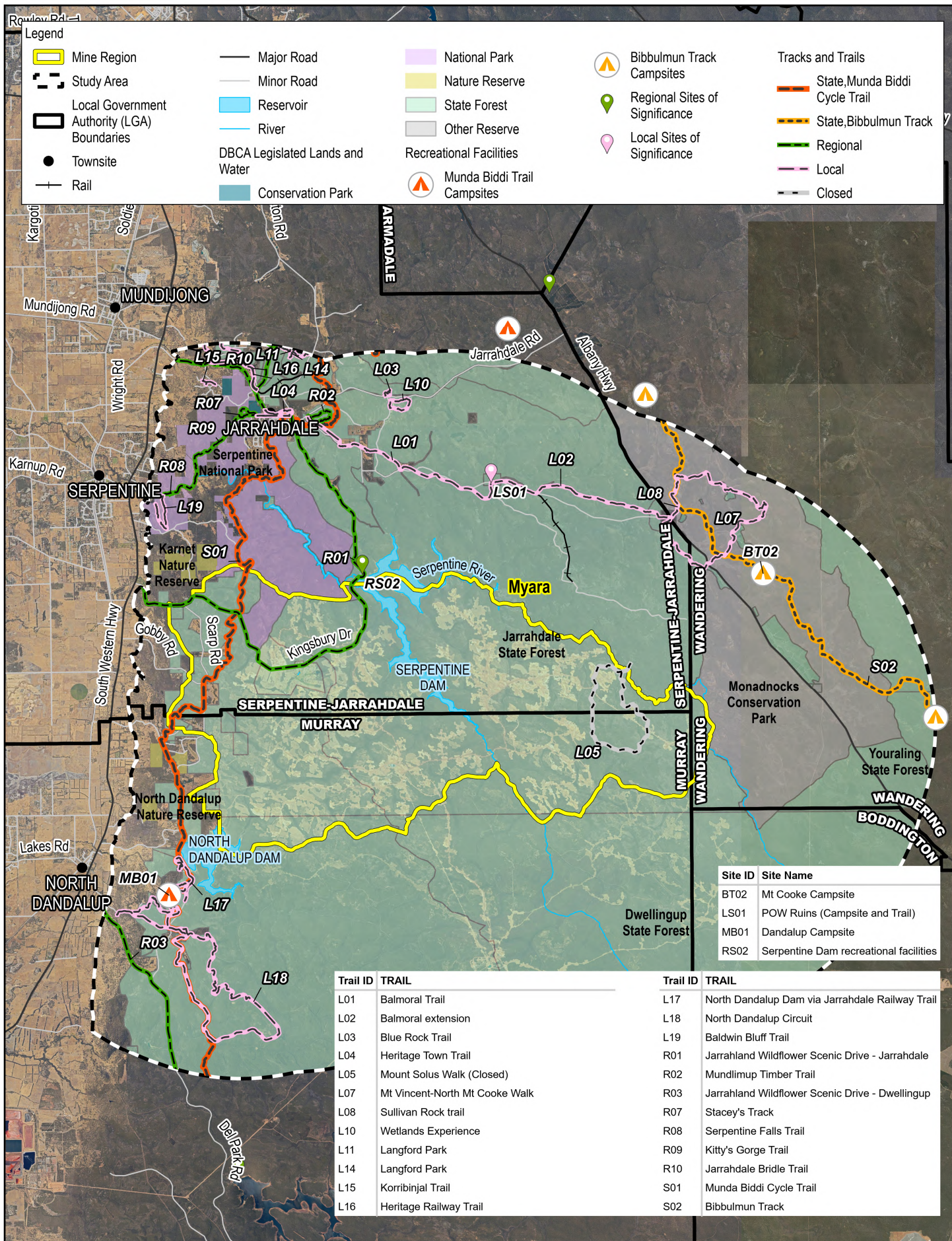


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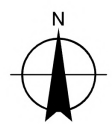
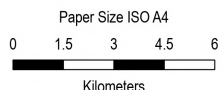
Existing topography and hydrology

FIGURE 6



Site ID	Site Name
BT02	Mt Cooke Campsite
LS01	POW Ruins (Campsite and Trail)
MB01	Dandalup Campsite
RS02	Serpentine Dam recreational facilities

Trail ID	TRAIL	Trail ID	TRAIL
L01	Balmoral Trail	L17	North Dandalup Dam via Jarrahdale Railway Trail
L02	Balmoral extension	L18	North Dandalup Circuit
L03	Blue Rock Trail	L19	Baldwin Bluff Trail
L04	Heritage Town Trail	R01	Jarrahdale Wildflower Scenic Drive - Jarrahdale
L05	Mount Solus Walk (Closed)	R02	Mundlimup Timber Trail
L07	Mt Vincent-North Mt Cooke Walk	R03	Jarrahdale Wildflower Scenic Drive - Dwellingup
L08	Sullivan Rock trail	R07	Stacey's Track
L10	Wetlands Experience	R08	Serpentine Falls Trail
L11	Langford Park	R09	Kitty's Gorge Trail
L14	Langford Park	R10	Jarrahdale Bridle Trail
L15	Korribinjal Trail	S01	Munda Biddi Cycle Trail
L16	Heritage Railway Trail	S02	Bibbulmun Track

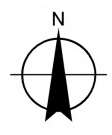
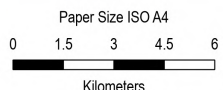
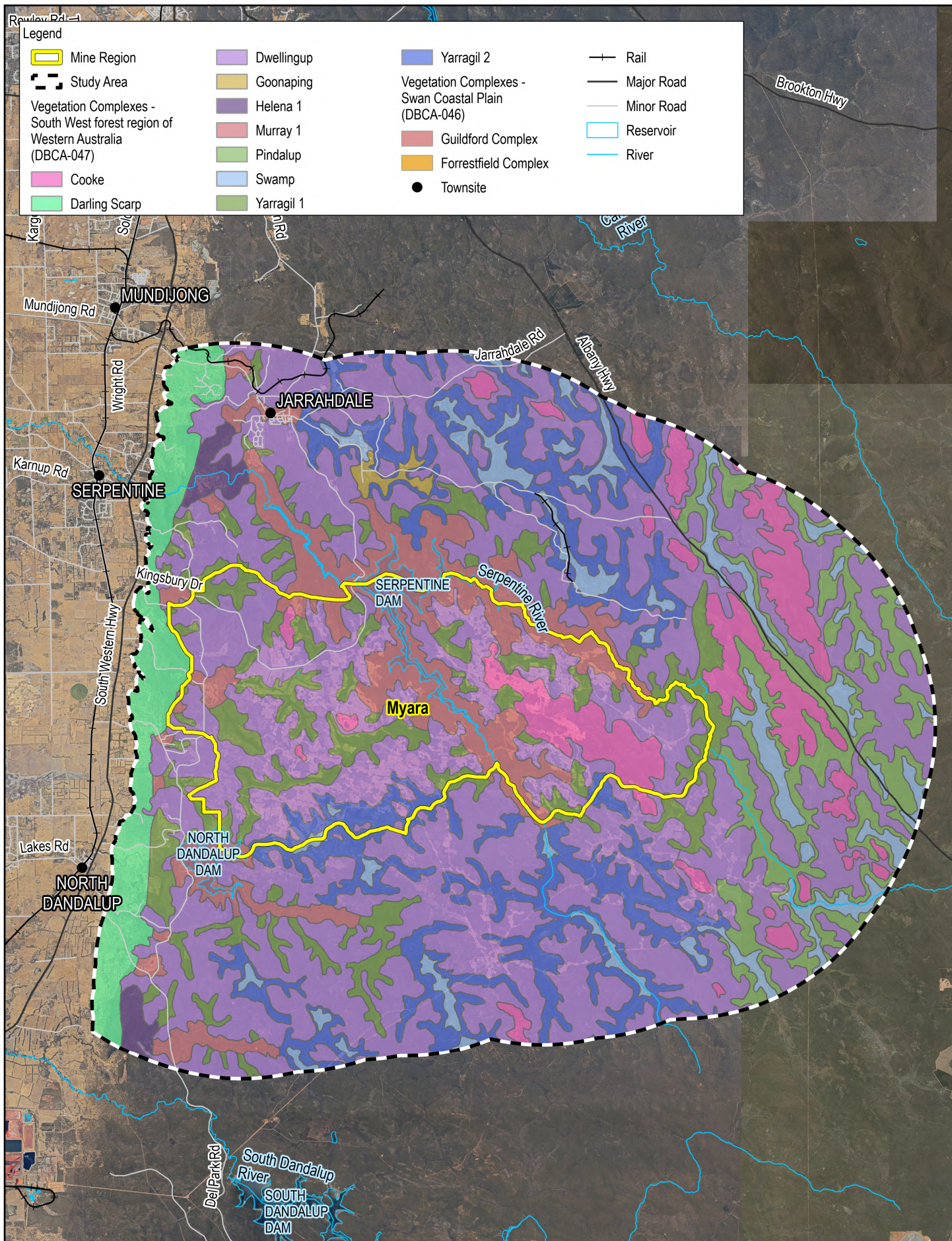


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Existing reserves and infrastructure

FIGURE 7



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Date 25/07/2024

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

Existing vegetation complex

FIGURE 8

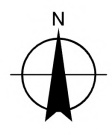
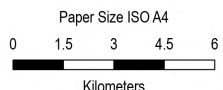
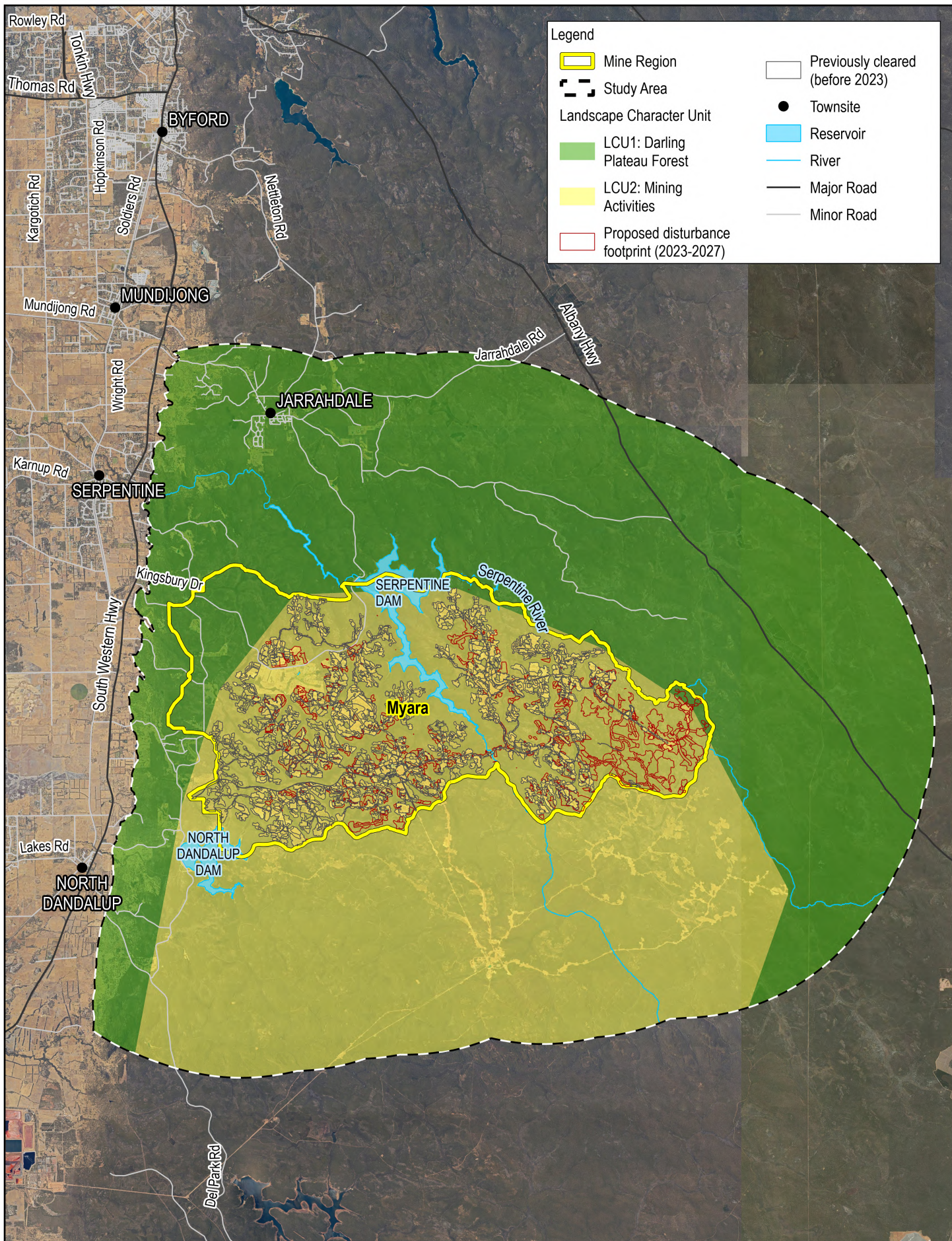
## **3.4 Landscape character and visual baseline**

### **3.4.1 Landscape character units**

Based on the review of the existing landscape context and the Landscape Character Types of WA (Department of Conservation and Land Management, 1994), the LCUs were defined. It is recognised that Aboriginal cultural heritage may be located within these LCUs, however, this have not been considered within this report.

The following LCUs were defined for the Study Area as illustrated in Figure 9.

- Landscape character unit 1 (LCU1): Darling Plateau forest
- Landscape character unit 2 (LCU2): Mining activities



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Landscape character units

FIGURE 9

### 3.4.2 LCU1: Darling Plateau forest



*Photo 1*      *Mount Cooke campground*



*Photo 2*      *Albany Highway*



*Photo 3*      *Granite outcrop, Sullivan Rock*



*Photo 4*      *Mount Vincent*



*Photo 5*      *North Dandalup Dam, adjacent to Scarp Road*



*Photo 6*      *Munda Biddi Trail*

LCU1 is comprised predominantly of Jarrahdale State Forest, Dwellingup State Forest, Monadnocks Conservation Park, Youralling State Forest, North Dandalup Nature Reserve, Karnet Nature Reserve, Serpentine National Park and Gooralong Conservation Park with some areas of pine plantation.

The topography of the landscape typically consists of rolling hills with small waterway valleys running throughout. The landscape is studded by large rough granite outcrops. The Jarrah forests are noted as being popular for tourism, including scenic drives, camping, walking tracks, cycling trails and with elevated points with panoramic views. The dams, lakes, valleys, and gullies within LCU1 are noted for their high scenic quality, including Serpentine Dam and North Dandalup Dam. There are some small areas of cleared native vegetation and pine plantations, planted in a more formalised layout, visually contrasting with the native vegetation of the area. The pine plantations represent the area's historical timber heritage and add to the landscape character.

LCU1 forms a large part of the Study Area and provides a backdrop to a majority of the rural residential areas and roads throughout.

Table 12 Key characteristics of LCU1

Character element	Description
Landform	Gullies and valleys, undulating landform with rolling hills. Granite outcrops, escarpments, depressed basins, and dams are key features of this LCU.
Vegetation	Native vegetation includes dense Jarrah forest with a predominantly banksia understory, species include <i>Eucalyptus marginata</i> (Jarrah), <i>Eucalyptus calophylla</i> (Marri), <i>Eucalyptus patens</i> (Blackbutt), <i>Eucalyptus wandoo</i> (Wandoo) with an understory of <i>Banksia grandis</i> (Bull Banksia), <i>Xanthorrea preissii</i> (Grass Tree), <i>Hakea trifurcate</i> (Two-leaf Hakea) and <i>Drynandra sessilis</i> (Parrot Bush). There are some cleared areas within this forest of pine plantation.
Waterways/reserves	Key waterways include Serpentine Dam, Serpentine River and North Dandalup Dam. Key reserves include Monadnocks Conservation Park, North Dandalup Nature Reserve, Karnet Nature Reserve, Serpentine National Park and Gooralong Conservation Park.
Land use	Land use primarily consists of state forest used for logging, conservation and tourism such as camping and walking/cycling trails.
Infrastructure	Gravel roads and 4WD tracks, walking and cycling trails, and large water storage dams.
Cultural and characteristics	Tourist values are associated with the forest, Monadnocks Conservation Park and Munda Biddi Trail and Bibbulmun Track. The Serpentine River is an Aboriginal heritage site. Aboriginal heritage values are considered within the SSIA.
Spatial qualities	Tall forest within an undulating landscape. Views are typically enclosed apart for elevated areas along the Bibbulmun Track with some panoramic views.

### Landscape character values

Values associated with LCU1 include dense vegetation of high ecological value. The state forests have a scenic value associated with the vegetation communities, landscape connectivity value, and values associated with active and passive recreation. LCU1 therefore has a **high** landscape character value.

### 3.4.3 LCU2: Mining activities



**Photo 7** *Mount Vincent view towards Myara Mine Region*



**Photo 8** *Crusher within Myara Mine Region*



**Photo 9** *Myara Mine Region, with haul road and rehabilitation activities underway*



**Photo 10** *View of haul road within Myara from Kingsbury Drive*

LCU2 comprises the Alcoa Huntly Mine previous and existing mining area of Myara, O’Neil and McCoy and the associated vegetation clearance within Jarrahdale State Forest and Dwellingup State Forest.

LCU2 is dominated by gravel road networks and cleared vegetation, which allows for open views across the landscape and areas of mining activity. Existing dense forest is retained on the edges and in patches throughout LCU2. Within Myara Mine Region ceased mine areas there are sections of revegetation occurring.

**Table 13** *Key characteristics of LCU2*

Character element	Description
Landform	The landform within this LCU is typically gently undulating. Myara mine pits are located on the mid-slopes where the bauxite is located.
Vegetation	Vegetation coverage is limited due to mining activity. There are large areas of cleared vegetation with some remnant vegetation of the local state forests. Species include <i>Eucalyptus marginata</i> (Jarrah), <i>Eucalyptus calophylla</i> (Marri), <i>Eucalyptus patens</i> (Blackbutt), <i>Eucalyptus wandoo</i> (Wandoo) with an understory of <i>Banksia grandis</i> (Bull Banksia), <i>Xanthorrhoea preissii</i> (Grass Tree), <i>Hakea trifurcate</i> (Two-leaf Hakea) and <i>Drynandra sessilis</i> (Parrot Bush). There are some areas (at different stages) of rehabilitated vegetation within the ceased mining areas within the Myara Mine Region.
Waterways / reserves	A component of Serpentine Dam and North Dandalup Dam are located within LCU2.
Land use	Land use is predominantly mining.
Infrastructure	Mine pits, haul road networks, facilities including sheds and site offices and conveyors.
Cultural and characteristics	This LCU is associated with the bauxite mining industry and the workforce this industry supports, it’s a key place of work and income for members of the surrounding communities.
Spatial qualities	A mining landscape with open views across cleared and remnant vegetation.

## Landscape character values

There is remnant vegetation within the mining areas; however, remnant vegetation within a mining landscape is considered as have a limited contribution to the local character. There are no specific values associated with LCU2 as part of the policy review. LCU2 therefore has a **low** character value.

## 3.5 Visual baseline

### 3.5.1 Sensitive receptors

Key sensitive receptors within the Study Area are outlined in Table 14. The sensitive receptors level of significance has been determined in accordance with the *Visual Landscape Planning in Western Australia* guidelines (Western Australia Planning Commission, 2007). The sensitive receptor levels of significance will be taken into consideration when identifying the sensitivity of viewpoint locations.

Table 14 Sensitive receptors and level of significance

Sensitive receptor	Level of significance
Visitors to Monadnocks Conservation Park, Jarrahdale State Forest, Dwellingup State Forest, Youralling State Forest and Serpentine National Park.	Level 1: national / state significance
Users of the Bibbulmun Track and Munda Bididi Trail	Level 1: national / state significance
Albany Highway road users	Level 1: national / state significance
Visitors to Serpentine Dam and North Dandalup Dam	Level 2: regional significance
Visitors to regional ecotourism destinations including recreation, art, food, wine and similar venues	Level 2: regional significance
Kingsbury Drive and Jarrahdale Road users	Level 2: regional significance
Users of local tracks and trails around Jarrahdale, Serpentine Dam and North Dandalup Dam including, but not limited to, Jarrahdale to Balmoral Prisoner of War Camp, Mundlinup Trail, Baldwin Bluff Trail, Serpentine Dam Walk, North Dandalup Circuit and North Dandalup Dam via Jarrahdale Railway Trail.	Level 3: local significance
Local road users including but not limited to Scarp Road, Goddy Road and Myara Road	Level 3: local significance

### 3.5.2 Visual features and experiences

#### Regional reserves

Monadnocks Conservation Park and Dwellingup State Forest are located within the Study Area. Several nature-based experiences are available within these areas such as campgrounds (detailed in Table 15). The vegetation within and adjacent to campgrounds appearing to be in a natural state.

Table 15 Key campgrounds and location

Campgrounds	Location
Mount Cooke Campsite	Servicing the Bibbulmun Track, Mount Cooke Campsite is located within the eastern component of the Study Area.
Dandalup Campground	Dandalup Campground is located within the south-west component of the Study Area servicing Munda Bididi Trail.

#### Jarrahdale townsite and nearby rural residential areas

Native bushland, generally consisting of tall jarrah forest with a dense understorey typically surrounds many residences and the peri-urban areas of the Study Area. The private gardens within Jarrahdale contribute to the dense vegetated character with a mix of local and exotic species. Residential properties are typically visually screened by the surrounding native bushland and therefore have limited views to adjacent land uses.

## **Agricultural areas**

Agricultural areas are typically located on the outskirts of Jarrahdale and north of North Dandalup Dam, off Scarp Road and Yamba Drive in addition to Karnet Prison Farm, Kingsbury Drive. Properties are typically cleared for grazing, crops and orchards set within the surrounding native bushland. The clearings open views into the surrounding forested area from local roads and residences. The dense native forest frames views and creates a visual backdrop and establishes a distinct rural setting.

Local roads in this area are surrounded by native vegetation within an undulating terrain. Views along road corridors are framed by dense vegetation, with some clearings that allow open filtered views through the forested areas.

## **Bibbulmun Track**

The Bibbulmun Track is a long-distance walking track, stretching 1000 km from Kalamunda in the Perth Hills to Albany on the south coast, winding through the south-west of WA. The track runs along the east of the Study Area through undulating terrain and along ridgelines of dense native vegetation. Views of the local vegetation and surrounding state forests are a key experience of Bibbulmun Track users.

## **Munda Biddi Trail**

Munda Biddi Trail is a 1000 km nature-based, off-road mountain biking experience from Mundaring to Albany. The alignment of the Munda Biddi Trail runs south-west from Jarrahdale to through to and past the western edge of North Dandalup Dam. The trail typically follows the low-lying terrain within this section and views are restricted by the dense native forest surrounding the trail.

## **Scenic drives**

The people of WA and tourists to the region value the area's picturesque scenery and embrace tourist drives and road trips. Albany Highway is a popular tourist route for travellers heading south of Perth. Jarrahdale State Forest is noted as a scenic element to the journey along Albany Highway. Views from the highway are typically short-term views and generally include views of dense native forest and undulating topography surrounding the highway.

Kingsbury Drive is another scenic road that links Jarrahdale and South Western Highway, within the Study Area. Set within the natural vegetation of Jarrahdale State Forest, and pockets of farmland, the winding form of Kingsbury Drive skirts Serpentine Dam providing access to the amenities available at this location. The scenic quality of this drive is enhanced by the combination of these elements.

## **Serpentine Dam and North Dandalup Dam**

The two dams within the Study Area are situated in attractive settings within dense native forests. Both dams have a variety of recreational facilities. Serpentine Dam has a playground (with a new playground under construction), parking, picnic, BBQ and toilet facilities, a popular café with views out over the dam on the north and a lookout on the south. North Dandalup Dam has gas barbecues, picnic areas, toilets, lookouts and parking. The views and the natural setting at these locations make them popular destinations.

## **3.6 Visual management objectives**

This section contains visual management objectives relevant to the Study Area and Proposal. This section supplements the objectives identified in Section 3.1 Legislation and policy context. The context analysis, LCUs and visual analysis have been used to form the basis for establishing appropriate management objectives and strategies to manage the visual character of the landscape within the Study Area.

### **3.6.1 Best practice siting and design**

Earthworks, mine pit locations, haul road networks and haul road crossing points should be sited within the natural topographic context of the landscape. Where possible, siting should be positioned behind the natural screening of local vegetation and landform. In addition, natural drainage patterns should be retained to reduce impact on vegetation and soils beyond the mining areas. The natural landform and vegetation features should be retained where possible within the Proposal site. The proximity to sensitive receptors including residential properties, Jarrahdale townsite, scenic roads and the Bibbulmun Track and Munda Biddi Trail should be considered when siting the network of mine pits and secondary haul roads.

### **3.6.2 Protection and maintenance of landscape character**

Valued elements that define the existing landscape character, where possible, are recommended for protection. This includes the distinct forested areas, surrounding peri-urban areas, rural areas, and the natural undulating hills of the Darling Plateau, including the Darling Scarp. Where possible, vegetation and terrain near sensitive receptors and along roadways should be retained to screen views of proposed mining activities.

### **3.6.3 Restoration of degraded character or enhancement of opportunities**

Within forested areas the character of the landscape appears to be in good condition. All vegetation clearing should be rehabilitated in keeping with the existing vegetation complexes and vegetation composition. Vegetation health across the entire mine region should be subject to long term monitoring to ensure rehabilitation activities and screening are effective. Re-contouring of mined sites should also be adopted to re-establish the original landform character and the natural vegetation diversity.

## 4. Proposal description

This section provides a detailed overview of the main visual components of the Proposal that have the potential to affect the landscape character and visual amenity of the Study Area. Components include earthworks, vegetation removal and re-establishment, mining infrastructure and mining activities.

### 4.1 Proposal summary

Alcoa proposes to continue to mine in Myara Mine Region until 2028. The Proposal that will be used as the basis for this assessment will contain the following elements identified in Table 16 and illustrated in Figure 10. On conclusion of mining operations, the mine facilities may continue to be used to process the ore from Myara North. This will support continuity of bauxite supply to the Pinjarra Alumina Refinery.

Table 16 Proposal components

Component	Description
Existing mined areas	<ul style="list-style-type: none"> <li>– Ceased mine pits and haul roads (not rehabilitated)</li> <li>– Active mine pits and secondary haul roads</li> </ul>
Proposed mining areas	<ul style="list-style-type: none"> <li>– Proposed vegetation clearing</li> <li>– Proposed mining earthworks (e.g. mine pits and secondary haul roads)</li> <li>– Proposed active mine pits and secondary haul roads</li> </ul>
Rehabilitation	<ul style="list-style-type: none"> <li>– Recontouring</li> <li>– Subsoil and topsoil reinstatement</li> <li>– Ripping</li> <li>– Seeding / planting</li> <li>– Fertilising</li> </ul>

### 4.2 Limited disturbance areas

Alcoa has developed Limited Disturbance Areas (LDA) which will act to minimise direct impacts to areas of environmental and social value. The LDA specifies areas where mine pits are not permitted. This is not applicable to the construction of haul roads, mine infrastructure and facilities which are permitted in the LDA. High environmental and social values that contribute to determination of LDAs, and associated buffers as specified in Table 17.

Table 17 Limited disturbance areas

Value	Buffer
Registered Aboriginal heritage site	10m
Aboriginal heritage sites identified during surveys	10m
European heritage sites	10m
Confirmed Black Cockatoo suitable and known nest trees	50m
Old growth forest as identified by DBCA	50m
Granite outcrops	50m
Stream zone / riparian vegetation	100m
Top water line of Serpentine Dam	200m

## 4.3 Reservoir protection zones

There are three Reservoir Protection Zones (RPZ) within Myara Mine Region. These include Serpentine Dam, Serpentine Pipehead and North Dandalup Dam. The purpose of RPZs is to protect public drinking water supply from contamination through the exclusion of all human activity within the area (except approved operations). The RPZs generally extend to 2 km from the top water level of the reservoir.

## 4.4 Mine pits

Vegetation clearance will be required for mine pit establishment as shown in Figure 10. Photo 11 provides an example of mine pits during mining operations.

## 4.5 Haul roads

Ore will be trucked from the mine pits to the existing Myara Mine Region mine facilities via the primary haul road. Secondary haul roads, relative to mine pit locations, will also be developed to enable ore transportation between mine pits and the primary haul road. Including pavement and berms, haul roads will typically be 50 m wide with clearing of approximately 50-70 m depending on topography and sump locations. Photo 12 provides an example of a typical haul road. Trucks, excavators and other mine vehicles would frequent the haul roads within the mine region during mining operations.

## 4.6 Conveyors

Ore will be crushed at the mine facility and conveyed using the existing conveyor from Myara to Pinjarra Alumina Refinery as shown in Photo 13.

## 4.7 Waterway crossings

Waterway crossings within Myara Mine Region consist of Big Brook Crossing (Serpentine Dam), Serpentine Dam and North Dandalup Dam.

## 4.8 Mine facilities

Mine facilities located within Myara Mine Region have a footprint of approximately 1 km x 1 km or 100 ha and includes:

- refuelling and washdown facilities
- fuel and oil storage
- crusher
- laydown areas
- offices and carparks
- wastewater treatment
- water pumping station

Refer to Figure 10 for locations of mine facilities. Photo 14 to Photo 16 indicate the scale and character of the existing mine facilities within Myara Mine Region.



Image: Supplied by Alcoa

Photo 11 Mine pits



Image: Supplied by Alcoa

Photo 12 Haul roads



Image: Supplied by Alcoa

Photo 13 Conveyor



Image: Supplied by Alcoa

Photo 14 Myara infrastructure area



Image: Supplied by Alcoa

Photo 15 Vehicle fuel bay



Image: Supplied by Alcoa

Photo 16 Crusher

## 4.9 Total vegetation clearing

Estimated clearing for continuation of the Huntly Mine operations within Myara Mine Region over the Proposal period (2023-2027) is presented in Table 18. Estimated clearing is based on an indicative mine disturbance footprint for existing mined areas and proposed mining areas within Myara Mine Region. As presented in Table 18, mining activities within the Myara Mine Region between 2023-2027 will result in approximately 1820 ha of vegetation clearance.

Table 18 Myara Mine Region vegetation clearance 2023-2027

Year	Total
2024	434 ha
2025	793 ha
2026	346 ha
2027	247 ha
<b>Total clearing</b>	<b>1,820 ha</b>

## 4.10 Operation

Bauxite occurs as tabular ore pods that vary in depth from 2-10 m and average about 3.5 m. The mining pits are located within the ore pods. Bauxite occurs in the upper to mid slopes of the Darling Plateau and is generally absent from lower slopes, streams and swamps, as well as granite outcrops. Accordingly, mining does not occur in these landforms.

Mine development occurs progressively on a pit-by-pit basis and comprises clearing, overburden stripping and caprock blasting. The ore is removed by large excavators and transported by haul trucks via a network of haul roads to the mine facilities. Equipment present in a typical mining pit are light-emitting diode lighting towers, one excavator or loader and one to two haul trucks with mining operations occurring 24 hours a day, 7 days a week.

At the mine facilities the haul trucks deliver the ore to the crusher. The ore is subject to primary and secondary crushing and loaded onto the conveyor, which connects to the transfer station on the existing conveyor system that leads to the refinery.

The mine operations workforce is comprised of approximately 720 direct employees and 340 contractors, all operations personnel would be drive-in drive-out as per current operations, with no onsite camp accommodation provided.





## 4.11 Rehabilitation duration and schedule

Alcoa’s rehabilitation aims to re-establish a self-sustaining Jarrah forest ecosystem that fulfils forest land uses that include conservation, timber production, water catchment and recreation.

Following completion of mining within mine pit areas disturbed areas would be rehabilitated to Jarrah forest and monitored until completion criteria has been met. The proposed phases of the rehabilitation include pit recontouring, subsoil and topsoil reinstatement, ripping followed by seeding and / or planting of nursery raised seedlings as itemised in Table 19 and illustrated in Photo 17 to Photo 21.

The expected duration between completion of mining in Myara and commencement of rehabilitation of secondary haul roads in those regions would be between 12 months and the expected life of region. The life of the region depends on access required for the next mining region.

Table 19 Overview of rehabilitation establishment

<p><b>Pre-mining</b></p> <ul style="list-style-type: none"> <li>– Predominantly immature forest (21-70 years since last harvest).</li> <li>– Some mature trees retained.</li> <li>– Mosaic of varying regeneration, compaction and recovering biodiversity from previous timber harvesting.</li> <li>– Prescribed burning on a rotation of approximately 10 years.</li> </ul>	 <p><i>Image: Supplied by Alcoa</i></p> <p><b>Photo 17</b>      <i>Example of pre-mining vegetation</i></p>
<p><b>Completed rehabilitation (3 years from clearing)</b></p> <ul style="list-style-type: none"> <li>– Black Cockatoo trees with suitable and known nesting hollows retained.</li> <li>– Landscaped, deep ripped pit floors.</li> <li>– Friable, permeable, furrowed substrate.</li> <li>– Topsoil, seeding and planting.</li> <li>– Tree stocking to meet biodiversity objectives.</li> <li>– Fauna habitats installed at one per hectare.</li> <li>– State forest access tracks re-instated.</li> <li>– Open ground noticeably distinct from surrounding canopy as viewed from distant highpoints.</li> </ul>	 <p><i>Image: Supplied by Alcoa</i></p> <p><b>Photo 18</b>      <i>Example of completed rehabilitation</i></p>
<p><b>Establishment stage (1-5 years from completion)</b></p> <ul style="list-style-type: none"> <li>– Dominant shrub layer.</li> <li>– Emerging tree saplings.</li> <li>– Mesh guards around 'recalcitrant' re-sprouter species.</li> <li>– Exotic ephemeral species peak.</li> <li>– Early development of ground cover and fauna refuge.</li> <li>– Developing litter layer, low fuel levels.</li> <li>– Opportunity to prescribe burn surrounding forest.</li> <li>– Ground cover reduces visual effect of mining as viewed from distant highpoints.</li> </ul>	 <p><i>Image: Supplied by Alcoa</i></p> <p><b>Photo 19</b>      <i>Example of establishment stage</i></p>
<p><b>Juvenile stage (6-15 years from completion)</b></p> <ul style="list-style-type: none"> <li>– Canopy layer developing into pole form up to 14 m height.</li> <li>– Proteaceous understorey provides Black Cockatoo foraging habitat.</li> <li>– Establishing native vegetation outcompetes ephemeral exotic species.</li> <li>– Prescribed burning excluded as canopy is low and trees vulnerable to fire damage.</li> <li>– Growing canopy further reduces visual effect of mining as viewed from distant highpoints</li> </ul>	 <p><i>Image: Supplied by Alcoa</i></p> <p><b>Photo 20</b>      <i>Example of juvenile stage</i></p>

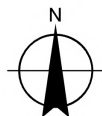
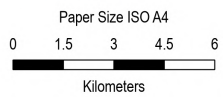
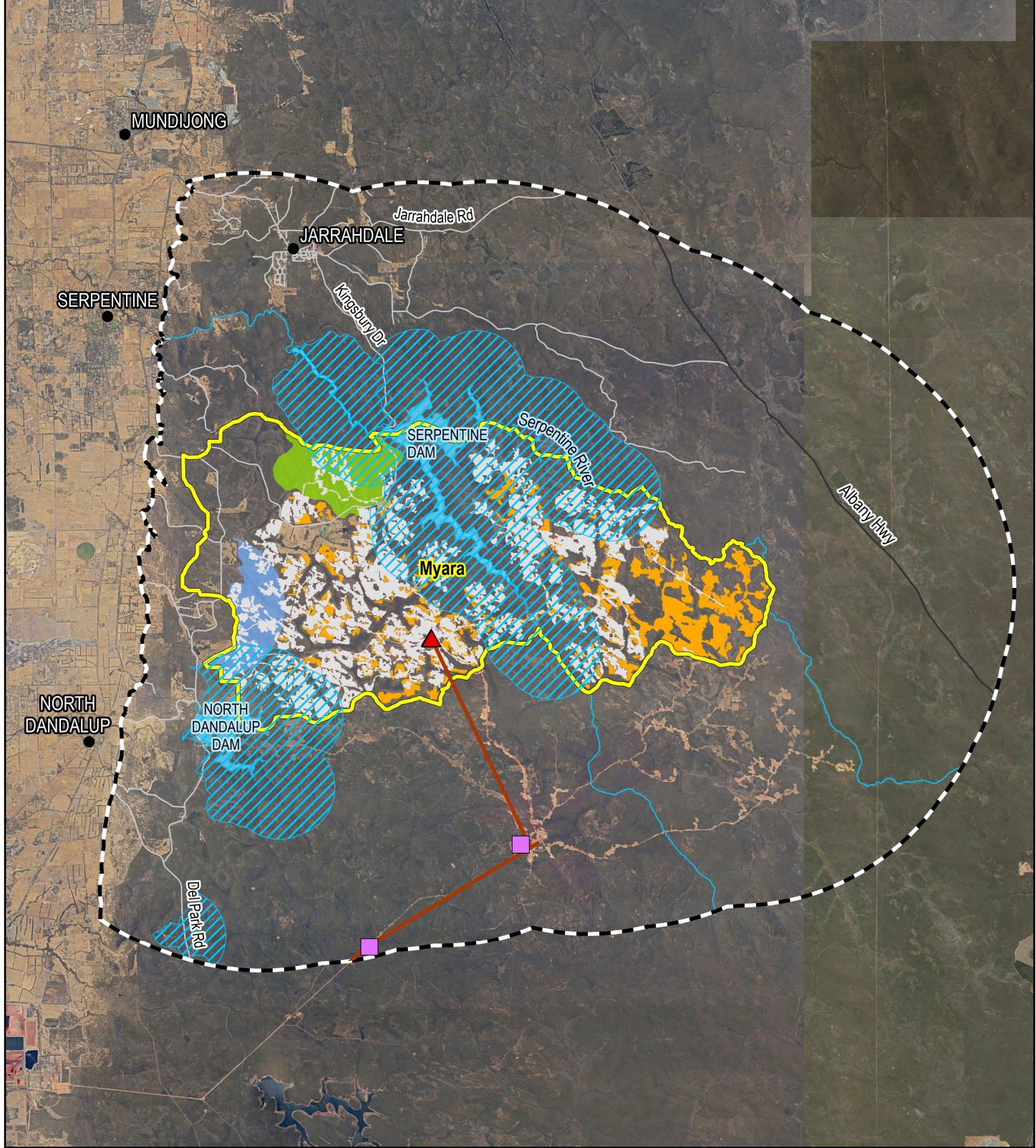
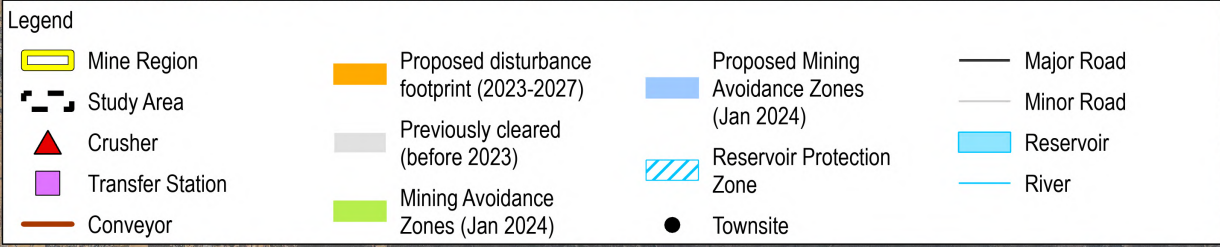
**Immature stage (16-30 years from completion)**

- Jarrah and Marri young pole form up to 20 m height, dominate the forest structure.
- 'Recalcitrant' re-sprouter species spread laterally from original plantings.
- Myrtaceous overstorey provides Black Cockatoo foraging habitat.
- Increasing vertebrate fauna diversity.
- Opportunity to prescribe burn rehabilitation and surrounding forest.
- Canopy blends with surrounding forest as viewed from distant highpoints.



*Image: Supplied by Alcoa*

**Photo 21**      **Example of immature stage**



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Project Components

FIGURE 10

## 5. Landscape impact assessment

The following section includes an assessment of the impacts to landscape character as a result of the Proposal. Refer to Section 3.4 for a description of LCUs.

### 5.1 LCU1: Darling Plateau forest

Refer to Section 3.4.2 and Table 12 for baseline description of key characteristics. Refer to Table 20 for LCU impact assessment.

Table 20 LCU 1 Assessment

Criteria	Assessment
Anticipated change to landscape character	Myara Mine Region is located within the Jarrahdale State Forest and includes key characteristics as identified within Table 12. The Proposal is expected to have minimal, if any, impact on the key characteristics of LCU1 including the existing vegetation, land use, infrastructure, and spatial qualities as identified in Table 12.
Landscape value	<b>High</b> (refer to Section 3.4.2)
Susceptibility to change	The susceptibility to change is considered <b>high</b> , as the type of development proposed would have a detrimental effect on some of the areas landscape character, condition and value that could not be mitigated in the immediate future.
Sensitivity to change	The sensitivity to change is <b>high</b> , as elements of the landscape character, including state forest vegetation, in addition to the landscapes spatial qualities and natural characteristics seen throughout the Darling Plateau forest are understood to have a high sensitivity.
Magnitude of change	The magnitude of change is considered <b>negligible</b> as existing mined areas, proposed mining areas and rehabilitation are not proposed within LCU1 and as such there would be no loss of/or change to the elements, features or characteristics that contribute to the landscape character.
Duration of impact	N/A
Significance of impact	The significance of change is considered <b>negligible</b> in regard to existing mined areas, proposed mining areas and rehabilitation. This is due to the Proposal having minimal, if any impact on the key characteristics of LCU1.

## 5.2 LCU2: Mining activities

Refer to Section 3.4.3 and Table 13 for baseline description of key characteristics. Refer to Table 21 for LCU2 impact assessment.

Table 21 LCU 2 Assessment

Criteria	Assessment
Anticipated change to landscape character	<p>The Proposal occurs solely within LCU2 as shown in Figure 9. The baseline used for this assessment is the pre-mining landscape of Myara Mine Region being the Darling Plateau forest characterised by open forests within an undulating landscape.</p> <p>Occurring on a pit-by-pit basis the anticipated changes related to existing mined areas and proposed mining areas initially includes, vegetation clearing, overburden stripping and caprock blasting. Operation activities consist of ore removal (via large excavators) and ore transportation by haul trucks via a network of haul roads to mine facilities.</p> <p>During operation, a peak workforce of approximately 720 direct employees and 340 contractors are anticipated to access Myara Mine Region.</p> <p>Rehabilitation will occur three years from clearing, with the expectation of long-term infrastructure. The completion of rehabilitation vegetation would progressively mature, becoming established to an immature stage at 16-30 years (refer to Table 19 for rehabilitation development).</p>
Landscape value	<b>Low</b> (refer to Section 3.4.3)
Susceptibility to change:	The susceptibility to change is considered <b>low</b> , as development of this type will unlikely have an adverse effect on the existing landscape character, condition, or existing value as the development is similar to the existing characteristics of LCU2.
Sensitivity to change	The sensitivity to change is <b>low</b> . Although there is some remnant vegetation present within LCU2 the landscape value and the susceptibility to change are low due to there being no specific values associated with LCU2 identified as part of the policy review.
Magnitude of change	The magnitude of change is considered <b>negligible</b> , as the removal of vegetation and construction and operation of haul roads and pits would not be significantly uncharacteristic to LCU2.
Duration of impact	The impacts associated with existing mined areas and proposed mining areas would be considered to be long-term (refer to Table 7 for duration of impact). Rehabilitation within the ceased mine pits would commence three to four years from clearing and would become established to a mature stage at 16-30 years from completion (refer to Section 4.1 rehabilitation phases). Rehabilitation would be permanent once established.
Significance of impact	The significance of impact is assessed as <b>negligible</b> . This is due to vegetation clearing, mining operation and staged rehabilitation not being significantly uncharacteristic to LCU2.

## **6. Visual impact assessment**

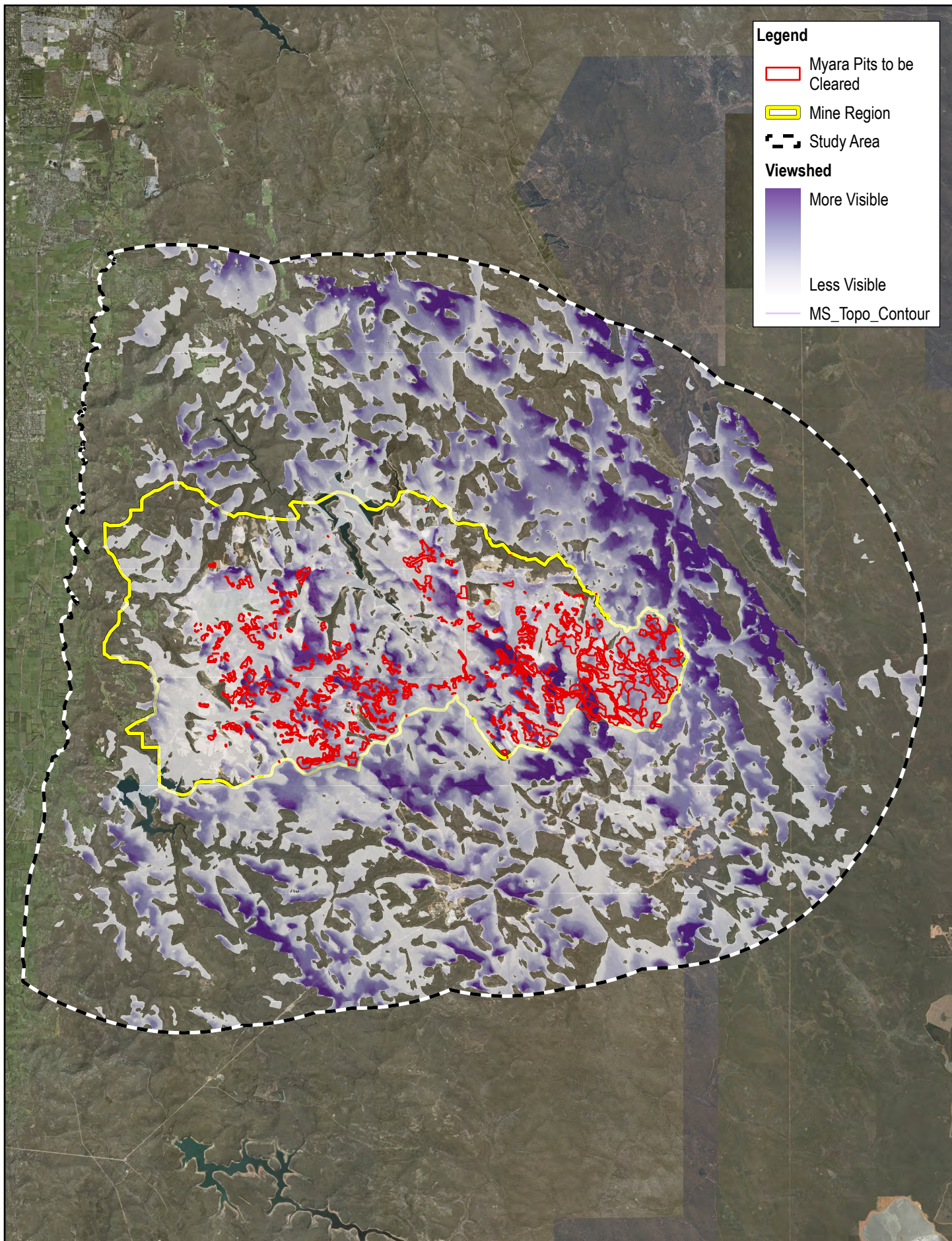
This section includes the ZTV analysis, the identification of the viewpoint locations, visual impact assessment from these locations, and an overview of construction impacts.

### **6.1 Zone of theoretical visibility analysis**

A ZTV analysis was undertaken for the Proposal. The following sections provide a discussion of this mapping analysis. Refer to Section 2.6.2 for ZTV methodology.

The ZTV analysis for Myara facility (within Myara Mine Region) was undertaken using the indicative height of a tipping truck in the centre of each facility, with the proposed truck tipping height being 13m. This scenario was chosen for the analysis to understand where the most visible elements of the proposed infrastructure area would theoretically be visible from.

Generally, the theoretical visibility of the Myara Mine Region is more visible within elevated locations of the mine region. Outside of the mine region, there is theoretical visibility from isolated elevated areas such as Mount Vincent and Mount Cooke, which are both along the Bibbulmun Track. Refer to Figure 11 for the Myara Mine Region viewshed.

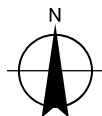
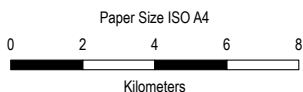


**Legend**

- Myara Pits to be Cleared
- Mine Region
- Study Area

**Viewshed**

- More Visible
- Less Visible
- MS\_Topo\_Contour



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Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

**Myara Region Viewshed**

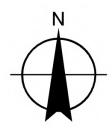
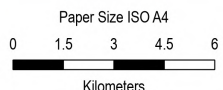
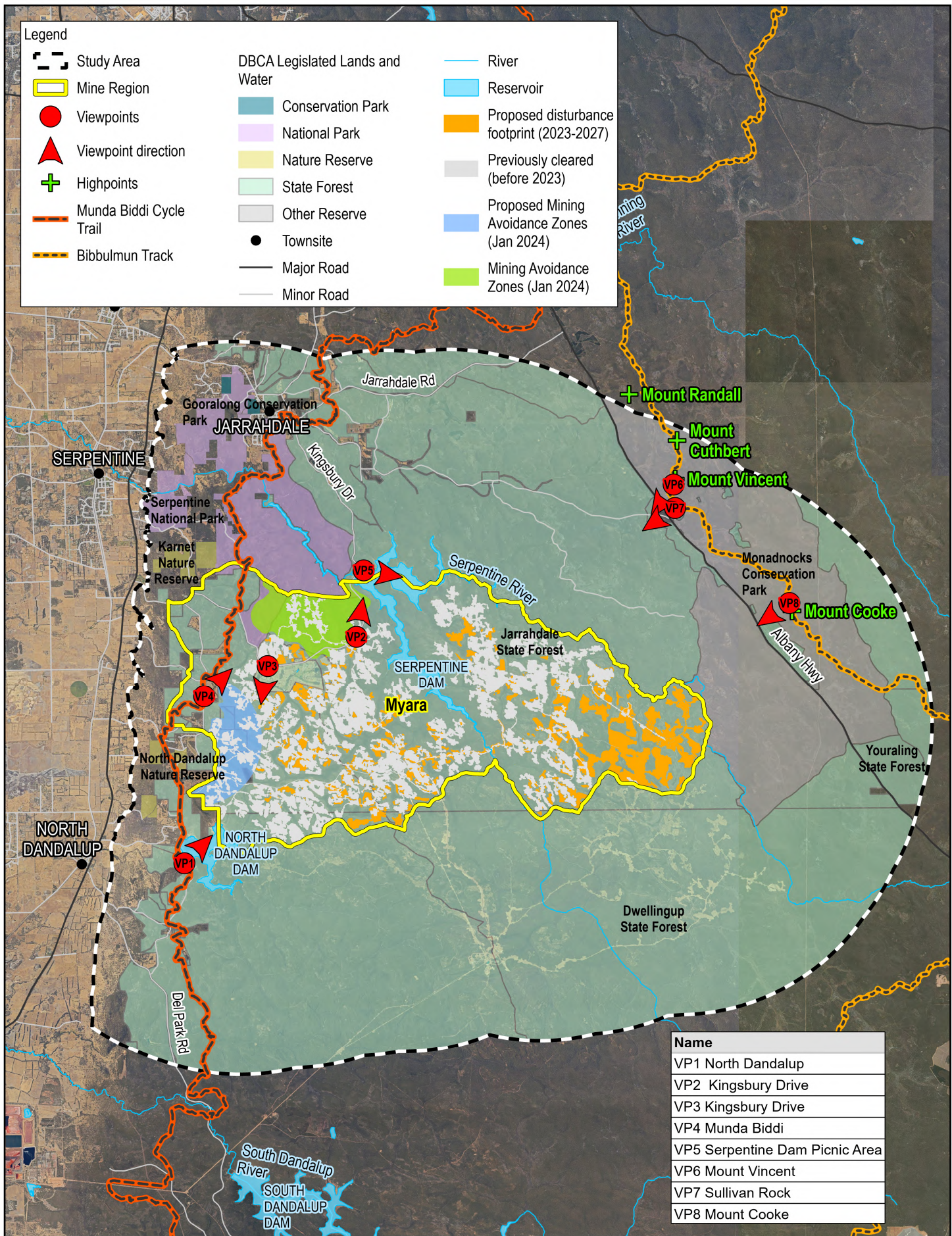
**FIGURE 11**

## 6.2 Viewpoint locations

Based on the visual analysis, ZTV analysis combined with an understanding of the Proposal eight viewpoint locations were selected for assessment of visual receptors. Refer to Table 22 and Figure 12 for viewpoint locations. For each viewpoint, a panorama photograph of the existing view is provided, together with a description of the existing view, anticipated changes, and impact assessment rating.

Table 22 Viewpoints

Viewpoint	Location	Sensitive receptors
VP1	North Dandalup Dam	<ul style="list-style-type: none"> <li>– Residents</li> <li>– Recreational users</li> <li>– Road users</li> <li>– Tourists</li> <li>– Local industry workers</li> </ul>
VP2	Kingsbury Drive	<ul style="list-style-type: none"> <li>– Residents</li> <li>– Recreational users</li> <li>– Road users</li> <li>– Tourists</li> <li>– Local industry workers</li> </ul>
VP3	Kingsbury Drive	<ul style="list-style-type: none"> <li>– Residents</li> <li>– Recreational users</li> <li>– Road users</li> <li>– Tourists</li> <li>– Local industry workers</li> </ul>
VP4	Munda Bididi Trail	<ul style="list-style-type: none"> <li>– Recreational users</li> <li>– Tourists</li> </ul>
VP5	Serpentine Dam Picnic Area	<ul style="list-style-type: none"> <li>– Recreational users</li> <li>– Tourists</li> </ul>
VP6	Mount Vincent	<ul style="list-style-type: none"> <li>– Recreational users</li> </ul>
VP7	Sullivan Rock	<ul style="list-style-type: none"> <li>– Recreational users</li> <li>– Tourists</li> </ul>
VP8	Mount Cooke	<ul style="list-style-type: none"> <li>– Recreational users</li> <li>– Tourists</li> </ul>



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Viewpoints locations

FIGURE 12

## 6.2.1 Viewpoint 1 North Dandalup Dam

Viewpoint 1 (VP1) is located along Scarp Road, adjacent to North Dandalup Dam as shown in Figure 13. VP1 is facing north-east as shown in Photo 22. Refer to Table 23 for assessment.

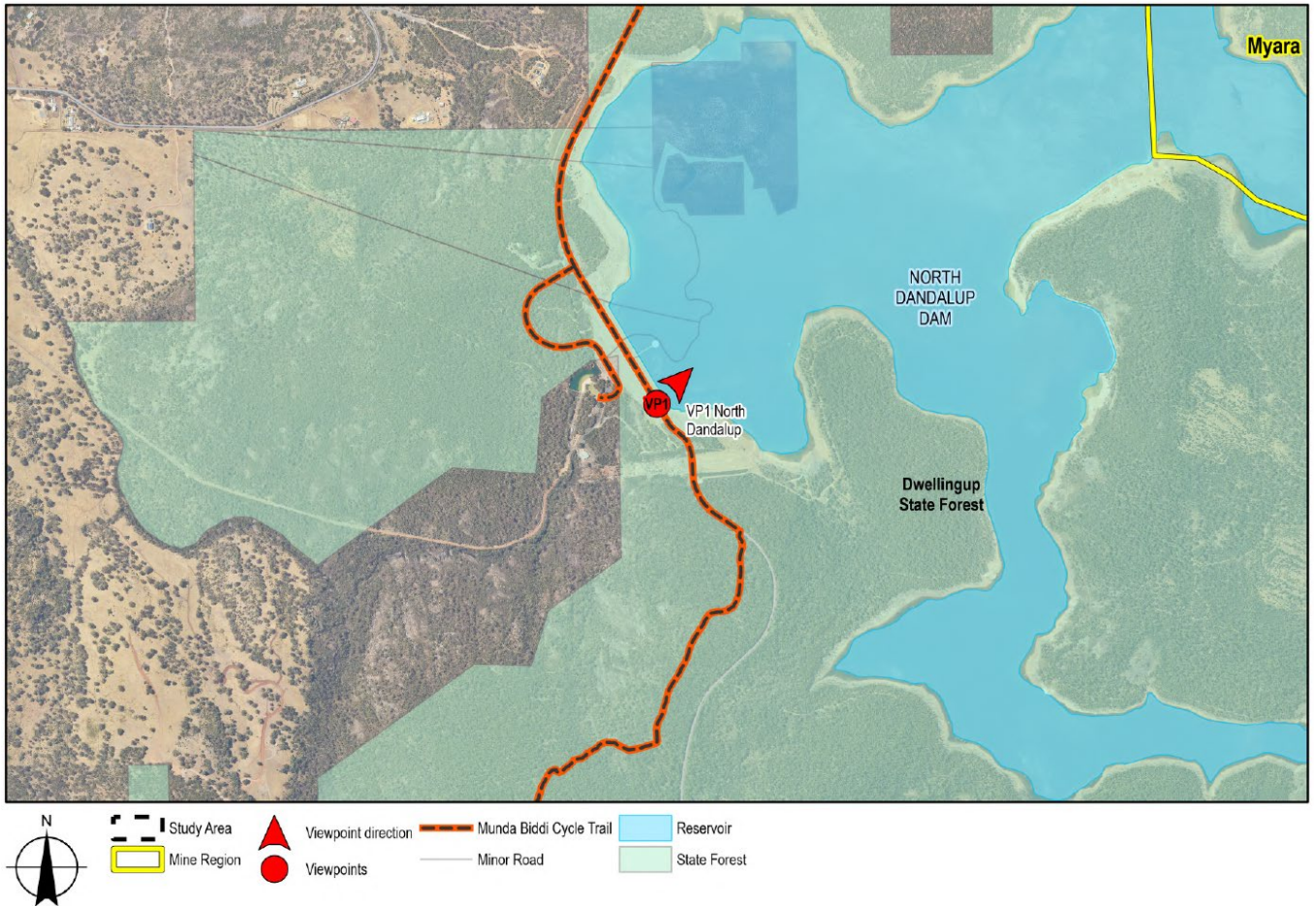


Figure 13 VP1 Location plan



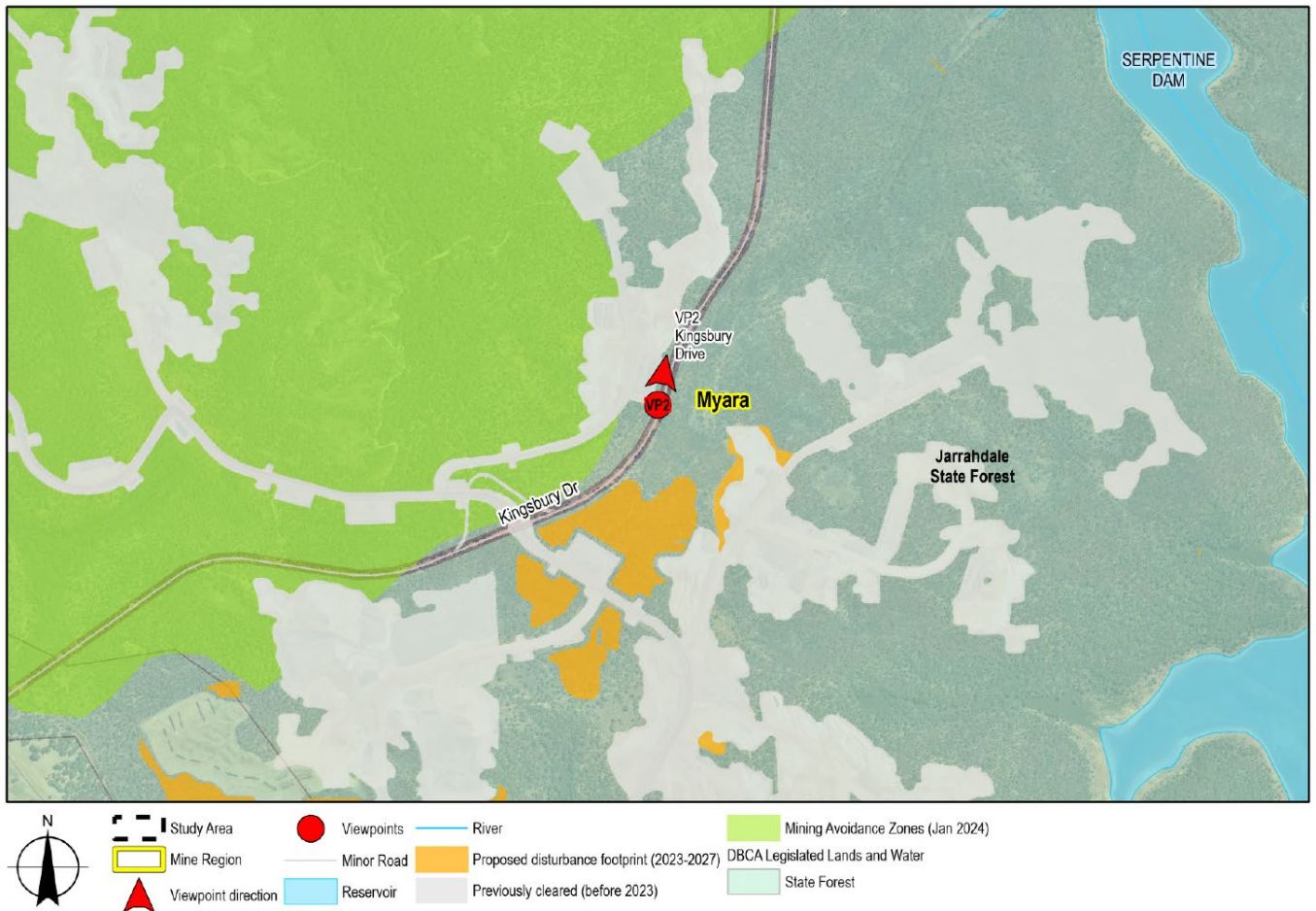
Photo 22 View north-east from Scarp Road

Table 23 VP1 Impact assessment

Criteria	Comments
Location and view direction	GPS location: 32° 31' 11" S, 116° 0' 59" E, Elevation: 230 m VP1 is located approximately 1.7 km south-west of the existing and proposed Myara Mine Region, looking north-east. The viewpoint is representative of views experienced by residents, recreational users of Munda Biddi Trail, road users, tourists, and local workers.
Description of existing view	The deep blue rippled open water of North Dandalup Dam reservoir dominates the foreground of VP1 which traverses through the central axis of the midview. The midview consists of gently inclined forested slopes with patches of exposed laterite soils. The background consists of moderately inclined hillslopes with densely forested areas and visibly cleared areas, because of mining activity, within the mid to upper slopes. Throughout the entirety of the view, there is no visible infrastructure.
Anticipated change to view	As illustrated in Photo 22, existing mined areas (ceased mine pits and secondary haul roads) are evident within the mid to upper hillslope. This is a diversion from the baseline condition, whereby the entirety of the hillslope was densely vegetated and appeared as an undisturbed natural area. During rehabilitation (soil reinstatement, recontouring, ripping and seeding/planting) the presence of machinery and workers are likely to be visible for short periods of time. Areas that have been cleared will remain visible (to some degree) throughout the phase of rehabilitation establishment, the effects of which will lessen over time, as the vegetation grows, returning the view to its pre-mining condition. There is no anticipated change in the view from proposed clearing as this is schedule to occur on the eastern side of the hillslope in the background of Photo 22.
Sensitivity to change	The sensitivity to change is deemed <b>high</b> as residents and visitors to North Dandalup Dam place value on views of waterways in addition to scenic landscapes that include visually prominent landforms such as the hill slopes located within Jarrahdale State Forest visible in VP1.
Magnitude of change	The magnitude of change is deemed <b>moderate</b> as the Proposal will cause discernible changes in the existing view due to partial loss of, or change to elements, features or characteristics of the view. The change would be out of scale with the existing view and would leave an adverse impact on the view.
Duration of impact	The duration of impact is considered <b>medium – long term</b> as rehabilitation within the ceased mine pits would commence three years from clearing and would become established to a mature stage at 16-30 years from completion (refer to Section 4.11 for rehabilitation development).
Significance of impact	The significance of impact is <b>high-moderate</b> as the sensitivity to change is high and magnitude of change is moderate. This will reduce over time as the rehabilitated area vegetation establishes.

## 6.2.2 Viewpoint 2 Kingsbury Drive

Viewpoint 2 (VP2) is located adjacent to Kingsbury Drive, approximately 3 km from Serpentine Main Dam as shown in Figure 14. VP2 is looking north-west as shown in Photo 23 towards Myara Mine Region existing mined area (active mine pits and secondary haul roads). Refer to Table 24 for assessment.



**Figure 14** VP2 Location plan



**Photo 23** View north-west from Kingsbury Drive

Table 24 VP2 Impact assessment

Criteria	Comments
Location and view direction	<p>GPS location: 32° 25' 40" S, 116° 6' 1" E, Elevation: 325m</p> <p>VP2 is located within the existing Myara Mine Region, looking north-west. The viewpoint is representative of views experienced by local workers, tourists, and recreational users accessing Serpentine Dam from Kingsbury Drive. This view is only available from limited sections of the road, where vegetation cleared for mining is adjacent to the road edge (with a limited vegetation buffer).</p>
Description of existing view	<p>The foreground is gently inclining and has a stand of blackened trees and regrowth understory offers filtered views to the mine site and hillslope beyond.</p> <p>Mining activity is evident within the mid to background of the view. Beyond this the background consists of a dense forested area abruptly bisected by a mine haul road within the mid-upper hillslope.</p>
Anticipated change to view	<p>As indicated in Photo 23 existing mined areas (active mine pits and secondary haul roads) are evident in the view. This is a change from the baseline condition whereby Kingsbury Road would have presented as a semi-enclosed road corridor surrounded by natural vegetation.</p> <p>Throughout operation filtered views of heavy machinery, haul trucks and dust are likely to be available in the midground from this area of Kingsbury Drive. These filtered views may reduce as foreground vegetation reestablishes.</p> <p>During rehabilitation (soil reinstatement, recontouring, ripping and seeding/planting) the presence of machinery and workers may be evident for a short period of time. Existing mined areas (ceased mine pits and secondary haul roads) may remain visible (to some degree) throughout the establishment phase, the effects of which lessening over time as the Jarrah forest reestablishes.</p>
Sensitivity to change	<p>The sensitivity to change is <b>high</b> as Kingsbury Drive is a scenic road that is utilised by residents, recreational users, and tourists which provides access to recreational facilities located at Serpentine Main Dam. Prior to existing clearing adjacent to Kingsbury Drive, VP2 offered scenic views of a semi-enclosed road corridor surrounded by natural vegetation.</p>
Magnitude of change	<p>The magnitude of change is deemed <b>moderate</b> as the Proposal has caused discernible changes in the baseline conditions due to a partial loss of natural vegetation and the inclusion of active mining. This change is out of scale with the pre-existing view resultant in an adverse impact on the view.</p>
Duration of impact	<p>The duration of impact is considered <b>medium – long term</b> as rehabilitation within the ceased mine pits would commence three years from clearing and would become established to a mature stage at 16-30 years from completion (refer to Section 4.11 for rehabilitation development).</p>
Significance of impact	<p>The significance of impact is <b>high-moderate</b> as the sensitivity to change is high and magnitude of change is moderate. This will reduce over time as the rehabilitated area vegetation establishes.</p>

### 6.2.3 Viewpoint 3 Kingsbury Drive

Viewpoint 3 (VP3) is located along Kingsbury Drive, adjacent to Karnet Prison Farm as shown in Figure 15. VP3 is facing south-west as shown in Photo 24 towards Myara Mine Region current mining operations. Refer to Table 25 for assessment.

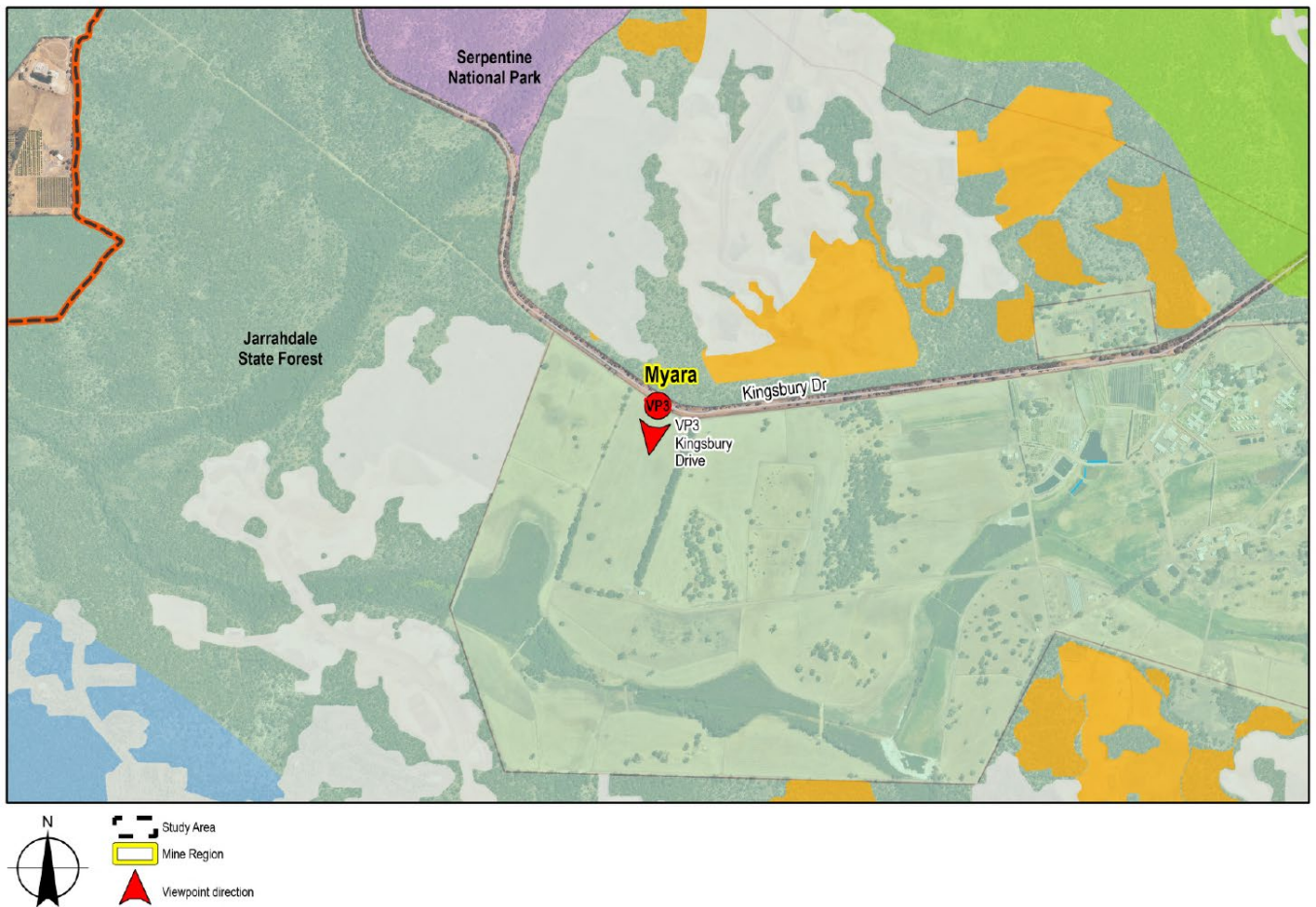


Figure 15 VP3 Location plan



Photo 24 View south-west from Kingsbury Drive

Table 25 VP3 Impact assessment

Criteria	Comments
Location and view direction	GPS location: 32° 26' 21" S, 116° 3' 27" E, Elevation: 297 m VP3 is located within the Myara Mine Region, looking south-west approximately 200 m from the closest mine pit (under rehabilitation). The viewpoint is representative of views experienced by local workers, tourists, and recreational users accessing Serpentine Dam from Kingsbury Drive.
Description of existing view	To the foreground of the view is Kingsbury Drive, which is currently being upgraded, and beyond this, a wire boundary fence and gravel access track are seen. A powerline runs parallel to the road. The midground of the view is gently undulating and is dominated by a browning patchworked paddock, traversed with a line of scattered trees. The background view includes several moderately inclined hill slopes. To the left are cleared grazing areas, tree clumps and forested areas mid-top slope. An area of cleared forest left to centre of the background view indicates current mining activity.
Anticipated change to view	VP3 consists of existing mined areas (ceased mine pits) with additional areas proposed to be cleared within the hillslope. During proposed mining (active mine pits), the anticipated change in the background view includes the presence of construction equipment, machinery, and vehicles, and clearance of vegetation associated with the construction of active mine pits. There will be no change to the foreground and midground of the view.  Rehabilitation would occur in parallel with continuation of mining operations. Existing mined areas (ceased mine pits) would be progressively reestablished, thereby facilitating gradual visual integration of these disturbed areas back into the surrounding view as vegetation matures.
Sensitivity to change	VP3 sensitivity to change is deemed as <b>high</b> as Kingsbury Drive is a scenic road utilised by residents, recreational users, and tourists to access recreational facilities located at Serpentine Main Dam. Prior to mining activity occurring in Myara Mine Region, visible from Kingsbury Drive, VP3 offered elevated rural views with a backdrop of visually prominent densely vegetated hill slopes.
Magnitude of change	The magnitude of change is deemed <b>moderate</b> as the Proposal has cause discernible changes in the pre-existing view due to partial loss of, or change to elements, features or characteristics of the view. The changes are, and will continue to be, out of scale with the existing view leaving an adverse impact on the view.
Duration of impact	The duration of impact is considered <b>medium – long term</b> as staged rehabilitation within the ceased mine pits would commence three years from clearing and would become established to a mature stage at 16-30 years from completion (refer to Section 4.11 for rehabilitation development).
Significance of impact	The significance of impact is <b>high-moderate</b> as the sensitivity to change is high and magnitude of change is moderate. This will reduce over time as the rehabilitated area vegetation establishes.

## 6.2.4 Viewpoint 4 Munda Biddi Trail

Viewpoint 4 (VP4) is located on Scarp Road/Munda Biddi Trail as shown in Figure 16. VP4 is facing north-east as shown in Photo 25 across agricultural land towards Myara Mine Region existing mining areas. Refer to Table 26 for assessment.

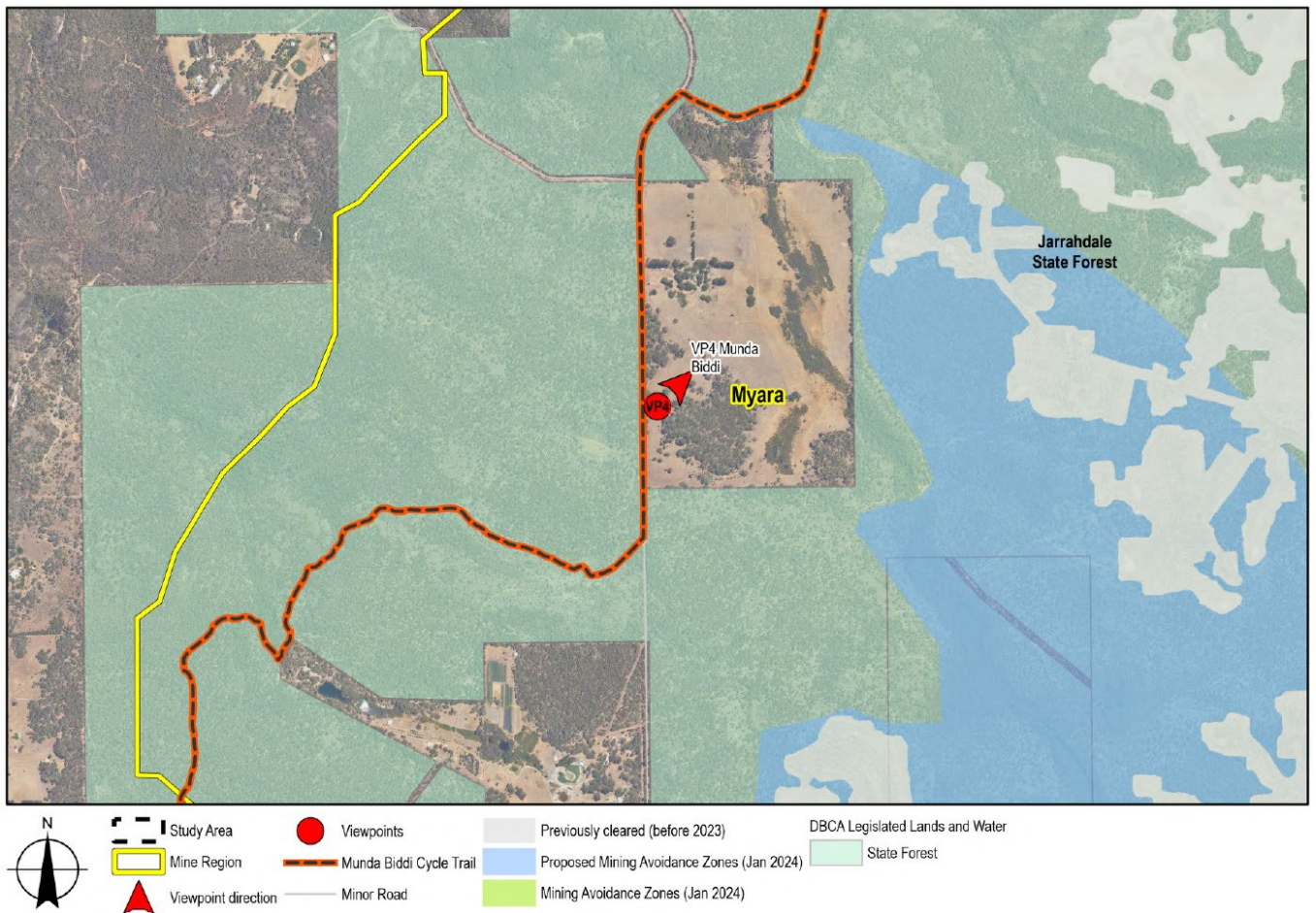


Figure 16 VP4 Location plan



Photo 25 View north-west from Scarp Road / Munda Biddi Cycle Trail

Table 26 VP4 Impact assessment

Criteria	Comments
Location and view direction	GPS location: 32° 27' 6" S, 116° 1' 34" E, Elevation: 285 m VP4 is located within Myara Mine Region, looking north-east. The viewpoint is representative of views experienced by road users and recreational users of Munda Bidli Cycle Trail.
Description of existing view	The foreground and midground of the view consist of medium sized gum trees scattered in isolated clumps and stands. The ground is very gently sloped with cleared area from left to right consisting of dirt patches and pasture, pitted with rocks. Distant views of the densely vegetated hill slopes are filtered by the foreground stand of trees. The perceived naturalness of the background view is interrupted by a mast left of centre.
Anticipated change to view	There is no anticipated change to the existing view from existing mined areas or proposed mining areas.
Sensitivity to change	The sensitivity to change is considered <b>high</b> , as trail tourists and recreational users of Munda Bidli Trail place a high value upon the landscape and enjoyment of views within this setting.
Magnitude of change	The visual magnitude of change is <b>negligible</b> as the existing vegetation cover, in addition to preceding hill slope, mean that it is unlikely that there will be a change in the view from VP4.
Duration of impact	N/A
Significance of impact	The significance of impact is <b>negligible</b> , as the sensitivity to change is high and the magnitude of change is negligible.

## 6.2.5 Viewpoint 5 Serpentine Dam Picnic Area

Viewpoint 5 (VP5) is located adjacent to Kingsbury Drive at Serpentine Dam Picnic Area as shown in Figure 17. VP5 is facing south-east as shown in Photo 26 towards Myara Mine Region existing mined areas. Refer to Table 27 for assessment.

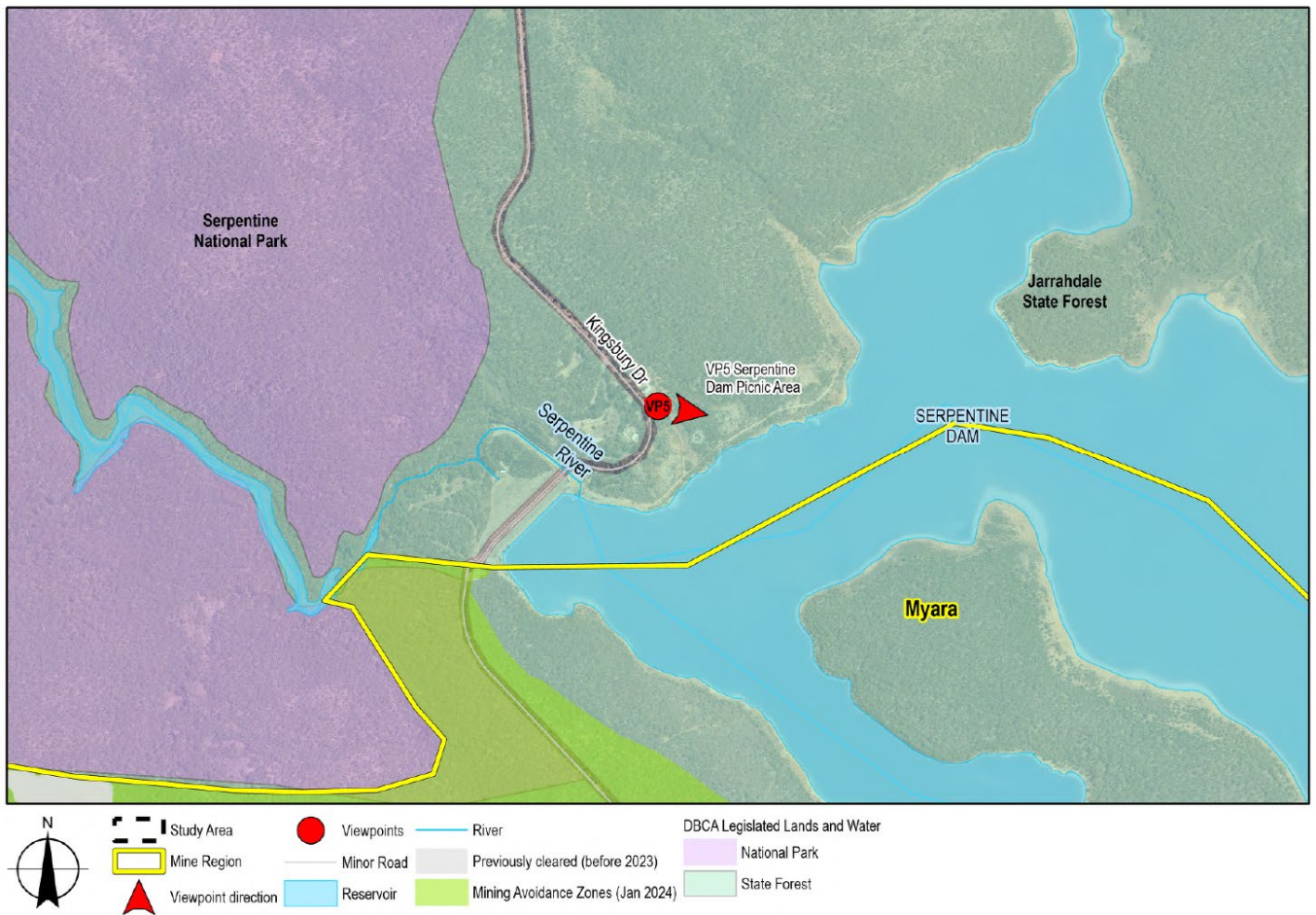


Figure 17 VP5 Location plan



Photo 26 View south-east from Serpentine Dam Picnic Area

Table 27 VP5 Impact assessment

Criteria	Comments
Location and view direction	<p>GPS location: 32° 24' 2" S 116° 6' 14" E, Elevation: 234m</p> <p>VP5 is situated approximately 500 m from the Proposal with the closest mine pits being approximately 1.8 km away positioned to the right of the view. This viewpoint is representative of views experienced by recreational users, tourists, workers in the area, and Kingsbury Drive road users.</p>
Description of existing view	<p>The view consists of a variety of shrubs, to the left and right of the foreground view (in addition to a slender gum to the right) providing a splattering of varying colours, textures and form. This vegetation cover, interspersed with individual pine trees, follows the gently undulation of the valley towards Serpentine Dam reservoir. The midground view consists of the winding form of Serpentine Dam fronted by the vegetation cover of Jarrahdale State Forest. Beyond the water body the gently undulating forested hillslope is ringed by exposed laterite soils, where the landform meets the water. The background view is made up of equal parts of forested mid to upper hillslope and existing mine operations at Myara mine site with sections of the dense vegetation of the mid – upper hillslope cleared for mine pits and haul roads which abruptly dissect the natural form of the densely vegetated hillslope.</p>
Anticipated change to view	<p>As illustrated in Photo 26 existing mined areas (ceased mine pits and secondary haul roads) are evident within the mid to upper hillslope of the background view. This is a change from the baseline condition, whereby the entirety of the hillslope was densely vegetated and appeared as an undisturbed natural area.</p> <p>During rehabilitation (soil reinstatement, recontouring, ripping and seeding/planting) the presence of machinery and workers is likely to be visible for a short period of time. Existing mined areas will remain visible (to some degree) throughout the establishment phase, the effects of which lessening over time as the view returns to its pre-mining condition.</p> <p>There is no additional clearing anticipated to be visible in the view.</p>
Sensitivity to change	<p>The sensitivity to change is <b>high</b> as VP5 is a recreational location within a scenic area that provides views across a body of water. In addition, VP5 is adjacent to a scenic drive and, as such, provided representational views of road users.</p>
Magnitude of change	<p>The magnitude of change is deemed <b>moderate</b> as existing mined areas (ceased mine pits and secondary haul roads) have caused discernible changes in the baseline conditions due to a partial loss of natural vegetation. This change is out of scale with the pre-existing view resultant in an adverse impact on the view.</p>
Duration of impact	<p>The duration of impact is considered medium – long term as staged rehabilitation within existing mined areas (ceased mine pits) would commence three years from clearing and would become established to a mature stage at 16-30 years from completion (refer to Section 4.11 for rehabilitation development).</p>
Significance of impact	<p>The significance of impact is <b>high-moderate</b> as the sensitivity to change is high and magnitude of change is moderate. This will reduce over time as the rehabilitated area vegetation establishes.</p>

## 6.2.6 Viewpoint 6 Mount Vincent

Viewpoint 6 (VP6) is located near Albany Highway, at Mount Vincent / Bibbulmun Track as shown in Figure 18. VP6 is facing south-west as shown in Photo 27 towards Myara Mine Region existing mined areas. Refer to Table 28 for assessment.

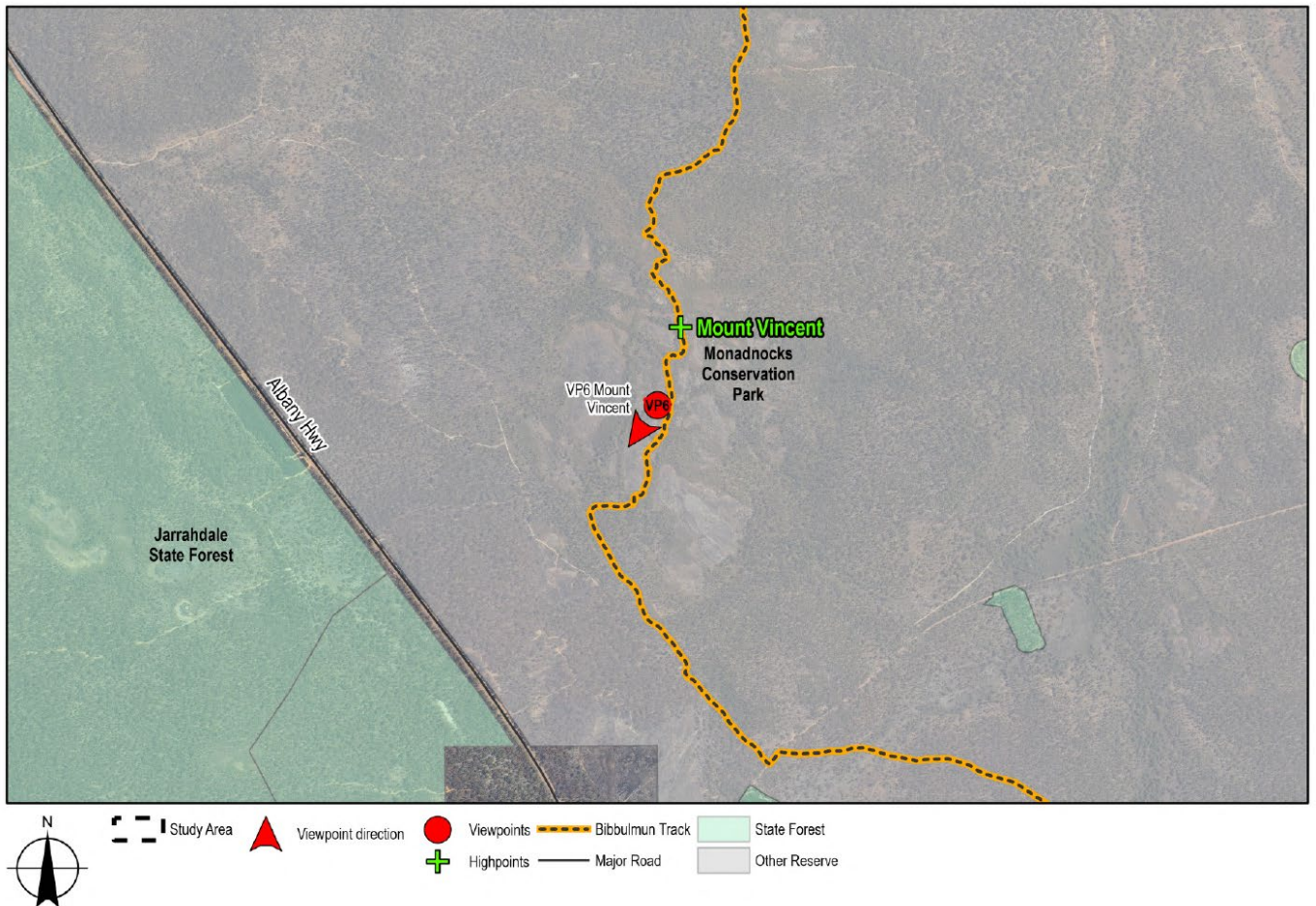


Figure 18 VP6 Location plan



Photo 27 View south-west from Mount Vincent / Bibbulmun Track

Table 28 VP6 Impact assessment

Criteria	Comments
Location and view direction	GPS location: 32° 22' 1" S 116° 15' 13" E, Elevation: 474 m VP6 is located approximately 8 km east of the Proposal, looking south-west. This viewpoint is representative of views experienced by tourists and recreational users of Mount Vincent and the Bibbulmun Track.
Description of existing view	The foreground of VP6 consists of windswept native vegetation cover providing variation in form, colour, texture and density. Located towards the peak of Mount Vincent this elevated vantage point provides views over Monadnocks Conservation Park's and Jarrahdale State Forest's gently undulating terrain and dense canopy cover, visible in the midground and components of the background of this view. The existing mine operations within Myara Mine Region are visible in the distance with sections of the dense vegetation of the mid to upper hillslope cleared for mine pits and haul roads.
Anticipated change to view	As illustrated in Photo 27, the existing mined areas (ceased mine pits and secondary haul roads) are visible within the background of the view. Figure 10 indicates that a substantial amount of additional proposed clearing is also likely to be visible from VP6. The anticipated change to the view includes the presence of construction equipment, machinery, and vehicles, and the clearance of vegetation associated with the construction of the haul roads and mine pits. Vegetation clearance would occur in stages over the life of the mining operations. Throughout active mine areas there would also be the presence of mining infrastructure, machinery and trucks (including excavators) within mine pits and along haul roads. Rehabilitation will occur, in parallel with the continuation of mining operations. Existing mined areas and proposed mining areas would progressively be rehabilitated, thereby facilitating gradual visual integration back into the surrounding view as vegetation matures. There would be no change to the foreground and midground vegetation, within Monadnocks Conservation Park, as this is outside of Myara Mine Region.
Sensitivity to change	The sensitivity to change is <b>high</b> as VP6 is a recreational location frequented by day and long-distance hikers, utilising the Bibbulmun Track. VP6 at Mount Vincent provides elevated scenic views over Monadnocks Conservation Park and Jarrahdale State Forest.
Magnitude of change	The magnitude of change is deemed <b>moderate</b> as the Proposal has caused discernible changes in the pre-existing view due to partial loss of, or change to elements, features or characteristics of the view. The changes are, and will continue to be, out of scale with the existing view leaving an adverse impact on the view.
Duration of impact	The duration of impact is considered <b>medium – long term</b> as staged rehabilitation within the ceased mine pits would commence three years from clearing and would become established to a mature stage at 16-30 years from completion (refer to Section 4.11 for rehabilitation development).
Significance of impact	The significance of impact is <b>high-moderate</b> as the sensitivity to change is high and magnitude of change is moderate. This will reduce over time as the rehabilitated area vegetation establishes.

## 6.2.7 Viewpoint 7 Sullivan Rock

Viewpoint 7 (VP7) is located near Albany Highway and can be accessed via Millars Log Road and Bibbulmun Track as shown in Figure 19. VP7 is facing south-west as shown in Photo 28 towards the Myara Mine Region existing mined areas. Refer to Table 31 for assessment.

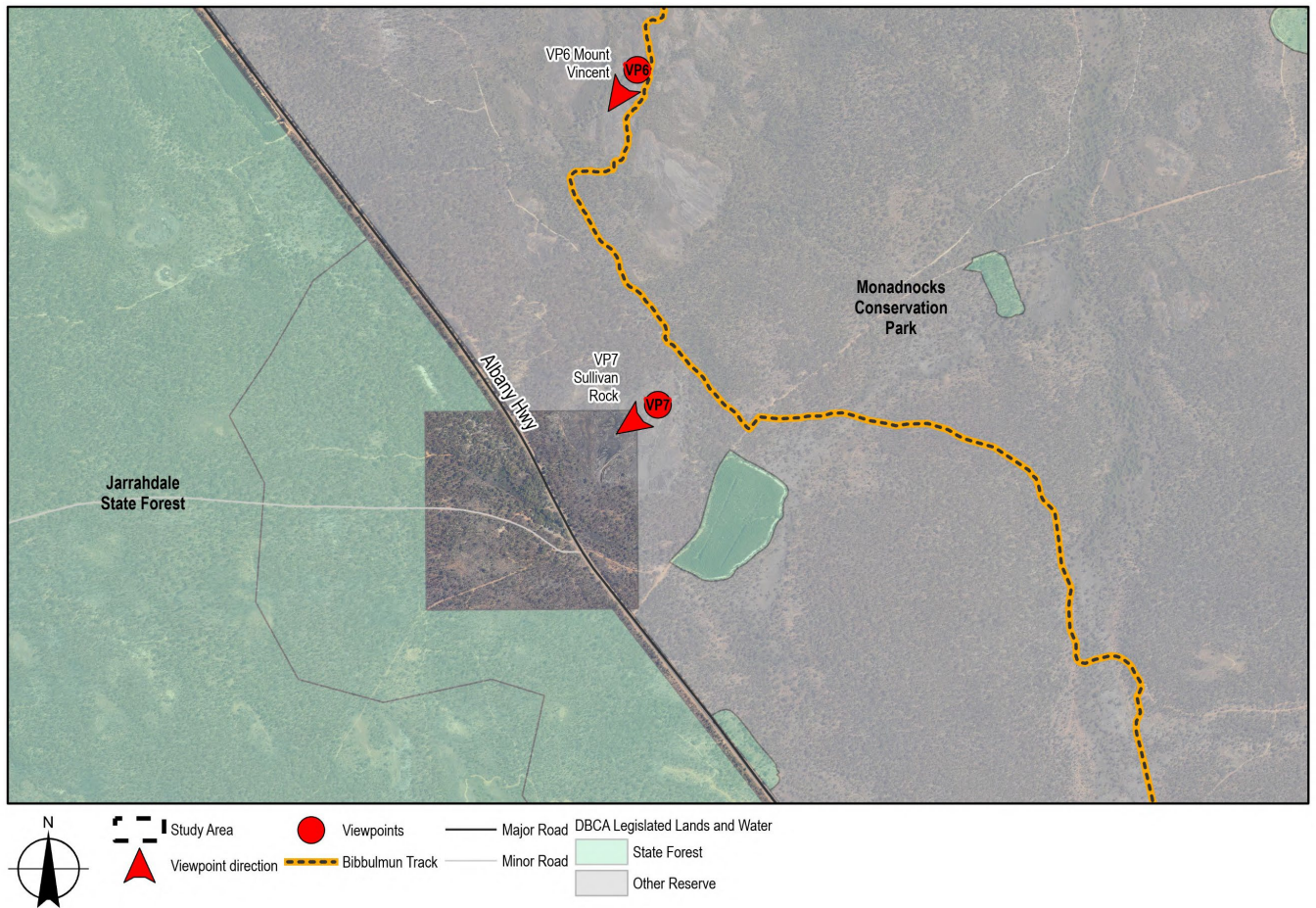


Figure 19 VP7 Location plan



Photo 28 View south-west from Sullivan Rock

Table 29 VP7 Impact assessment

Criteria	Comments
Location and view direction	GPS location: 32° 22' 35" S 116° 15' 13" E, Elevation: 350 m VP7 is located approximately 7.7 km northeast of the Proposal, looking south-west. This viewpoint is representative of views experienced by tourists and recreational users of Sullivan Rock and the Bibbulmun Track.
Description of existing view	VP7 is an elevated point with panoramic views of the surrounding landscape. The foreground consists of a rocky landform that stretches along the view. Moving into the midground, the landscape transitions into hilly terrain densely covered in native forest within Monadnocks Conservation Park and Jarrahdale State Forest that stretches across the view. In the background, a hilly landform is partially visible and adds depth to the scene. Signs of mining activity are just visible on the hills in the centre of the background, in the distance.
Anticipated change to view	As illustrated in Photo 28, the existing mined areas are slightly visible at the top of a distant hill to the centre of the background view. As indicated in Figure 10, proposed mining activity is anticipated to occur within the vicinity of the visible cleared area, however due to the distance from the Proposal, existing topography and landform and screening provided by existing native forests this is unlikely to impact the background view.
Sensitivity to change	The sensitivity to change is <b>high</b> as VP7 is a recreational location frequented by day and long-distance hikers, utilising the Bibbulmun Track. VP7 at Sullivan Rock provides elevated scenic views over Monadnocks Conservation Park and Jarrahdale State Forest.
Magnitude of change	The magnitude of change is considered <b>negligible</b> , as the changes resultant from existing mined areas is almost imperceptible, and proposed mining areas are unlikely to be visible from this viewpoint due to their distance from the Proposal, the existing topography and landform and the screening provided by existing native forests in the midground.
Duration of impact	The duration of impact is considered medium – long term as staged rehabilitation within the ceased mine pits would commence three years from clearing and would become established to a mature stage at 16-30 years from completion (refer to Section 4.11 for rehabilitation development).
Significance of impact	The significance of impact is <b>negligible</b> as the sensitivity to change is high and magnitude of change is negligible.

## 6.2.8 Viewpoint 8 Mount Cooke

Viewpoint 8 (VP8) is located near Albany Highway and can be accessed via Bibbulmun Track as shown in Figure 20. VP8 faces in a south-west direction as shown in Photo 29 towards the Myara Mine Region existing mined areas and proposed mining areas. Refer to Table 32 for assessment.

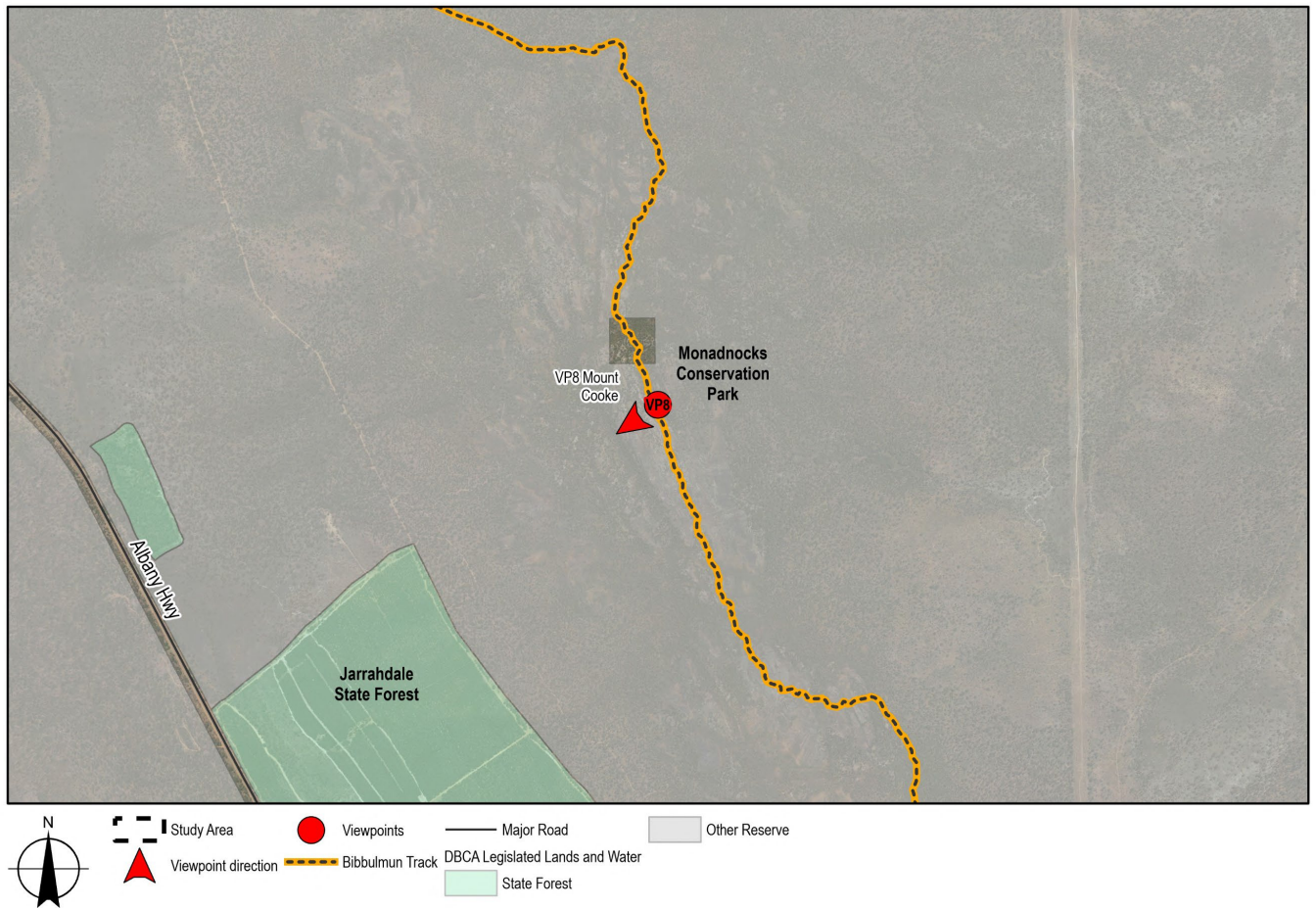


Figure 20 VP8 Location plan



Photo 29 View south-west from Mount Cooke / Bibbulmun Track

Table 30 VP8 Impact assessment

Criteria	Comments
Location and view direction	<p>GPS location: 32° 25' 21" S 116° 18' 41" E, Elevation: 522 m</p> <p>VP8 is located approximately 5.6 km north-east of the western side of the Proposal, looking south-west. This viewpoint is representative of views experienced by recreational users of Mount Cooke and the Bibbulmun Track.</p>
Description of existing view	<p>VP8 is an elevated viewpoint that offers extensive open views to the dense native forest within Monadnocks Conservation Park and Jarrahdale State Forest.</p> <p>The foreground consists of windswept native vegetation cover and areas of pine plantation providing variation in form, colour, texture and density. From this vantage point, the views over Monadnocks Conservation Park and Jarrahdale State Forest's gently undulating terrain and dense canopy cover are visible in the mid and background of the view. Interspersed within the centre of the background view is the existing mined areas located within the mid to upper hillslope.</p>
Anticipated change to view	<p>As illustrated in Photo 29, the existing mined areas are visible within the background of the view. Figure 10 shows that a substantial amount of additional proposed clearing is likely to be visible in approximately 6 km from VP8, to the centre and left of view in the background. The anticipated change to the view includes the clearance of vegetation associated with the construction of the haul roads and mine pits that would occur in stages throughout the five-year mine plan.</p> <p>Rehabilitation will occur, in parallel with the continuation of mining operations. Existing mined areas and proposed mining areas would progressively be rehabilitated, thereby facilitating gradual visual integration back into the surrounding view as vegetation matures.</p>
Sensitivity to change	<p>The sensitivity to change is <b>high</b> as VP8 is a recreational location frequented by day and long-distance hikers, utilising the Bibbulmun Track. VP8 at Mount Cooke provides elevated scenic views over Monadnocks Conservation Park and Jarrahdale State Forest.</p>
Magnitude of change	<p>The magnitude of change is deemed <b>moderate</b> as the Proposal has caused discernible changes in the pre-existing view due to partial loss of, or change to elements, features or characteristics of the view. The proposed mining areas will continue to alter the existing view through vegetation clearing, leaving an adverse impact on the background of the view.</p>
Duration of impact	<p>The duration of impact is considered medium – long term as staged rehabilitation within the ceased mine pits would commence three years from clearing and would become established to a mature stage at 16-30 years from completion (refer to Section 4.11 for rehabilitation development).</p>
Significance of impact	<p>The significance of impact is <b>high-moderate</b> as the sensitivity to change is high and magnitude of change is moderate. This will reduce over time as the rehabilitated area vegetation establishes.</p>

# 7. Mitigation and management measures

## 7.1 Response to visual management objectives

This section includes a discussion on how the Proposal responds to the visual management objectives identified in Section 2.4.

### 7.1.1 Best practice siting and design

As specified in Section 3.6.1 earthworks, mine pit locations and haul road networks should be sited within the natural topographic context of the landscape and, where possible, situated beyond the natural screening of vegetation. In addition, the proximity to sensitive receptors including Kingsbury Drive should be considered in determination of mine pit locations and haul road network.

Previous and existing mining activities have and continue to occur adjacent to Kingsbury Drive with a minimum buffer of approximately 20 m. This has resulted in mining activity being quite visible from this scenic roadway. As indicate in Figure 10 a Mining Avoidance Zone (MAZ) was enacted for a component of Kingsbury Drive in January 2024. Once previous and existing mine areas have been rehabilitated this will reestablish natural screening to a proportion of Kingsbury Drive, however, within the five-year mine plan, additional mining activity is proposed, in densely vegetated areas, adjacent to Kingsbury Drive with minimal vegetation buffers. A Mining Sensitivity Zone (MSZ) with a minimum buffer of 200 m is recommended based on visual screening field survey conducted for the Huntly Mine Landscape and Visual Impact Assessment (GHD, 2021). There may be opportunity to reduce the buffer distance subject to ground truthing and consideration of local topography and vegetation structure that demonstrates effective visual screening, noting that the understorey vegetation screening may be substantially reduced following prescribed burns.

The MSZ components and consolidated MSZ (created by aggregating the MSZ components) are mapped for Myara in Figure 21 and Figure 22, respectively.

### 7.1.2 Protection and maintenance of landscape character

The valued elements that define the existing landscape character include the distinct forested areas, rural areas and the natural undulating hills of the Darling Plateau.

As specified in Section 7.1.1 the current iteration of the Proposal will likely contribute to further degradation to the landscape character of Kingsbury Drive. A scenic forest drive between South Western Highway and Jarrahdale that provides access to the recreational facilities at Serpentine Dam. Inclusion of a MSZ in addition to limiting or avoiding mining activities within the hillslope south of Karnet Prison could be an effective manner in which to protect and maintain Kingsbury Drive landscape character.

In addition, a large component of mining activity identified in the five-year mine plan occurs within the south-east component of Myara Mine Region. This area is visible from a distance from the topographic highpoints along the Bibbulmun Track, including Mount Vincent (VP6). Staging of mining operations within this component, in addition to prioritisation of rehabilitation would limit impacts to landscape character.

The existing landscape character of Jarrahdale peri-urban area, rural areas, and Munda Biddi Trail will be retained as these areas are located outside of Myara Mine Region.

Section 7.2 provides further guidance and recommendations on retention of vegetation and landform near sensitive receptors and along roadways.

### 7.1.3 Character restoration or enhancement opportunities

As part of the Proposal, rehabilitation of the proposed mine pits, and haul roads will occur with the aim to re-establish a self-sustaining Jarrah forest ecosystem that fulfils forest land uses that include conservation, water catchment and recreation.

This will include recontouring the surface of the excavated pits to tie into the surrounding landform and establishment of vegetation to restore the vegetated landscape character of the area. Since 1988, rehabilitation has involved the re-establishment of native species only with Jarrah and Marri as dominant tree species. Coarse woody debris in the form of logs and stumps are also returned. Rehabilitation would include monitoring of the rehabilitated vegetation to provide remedial planting where required and provide an effective rehabilitation development program.

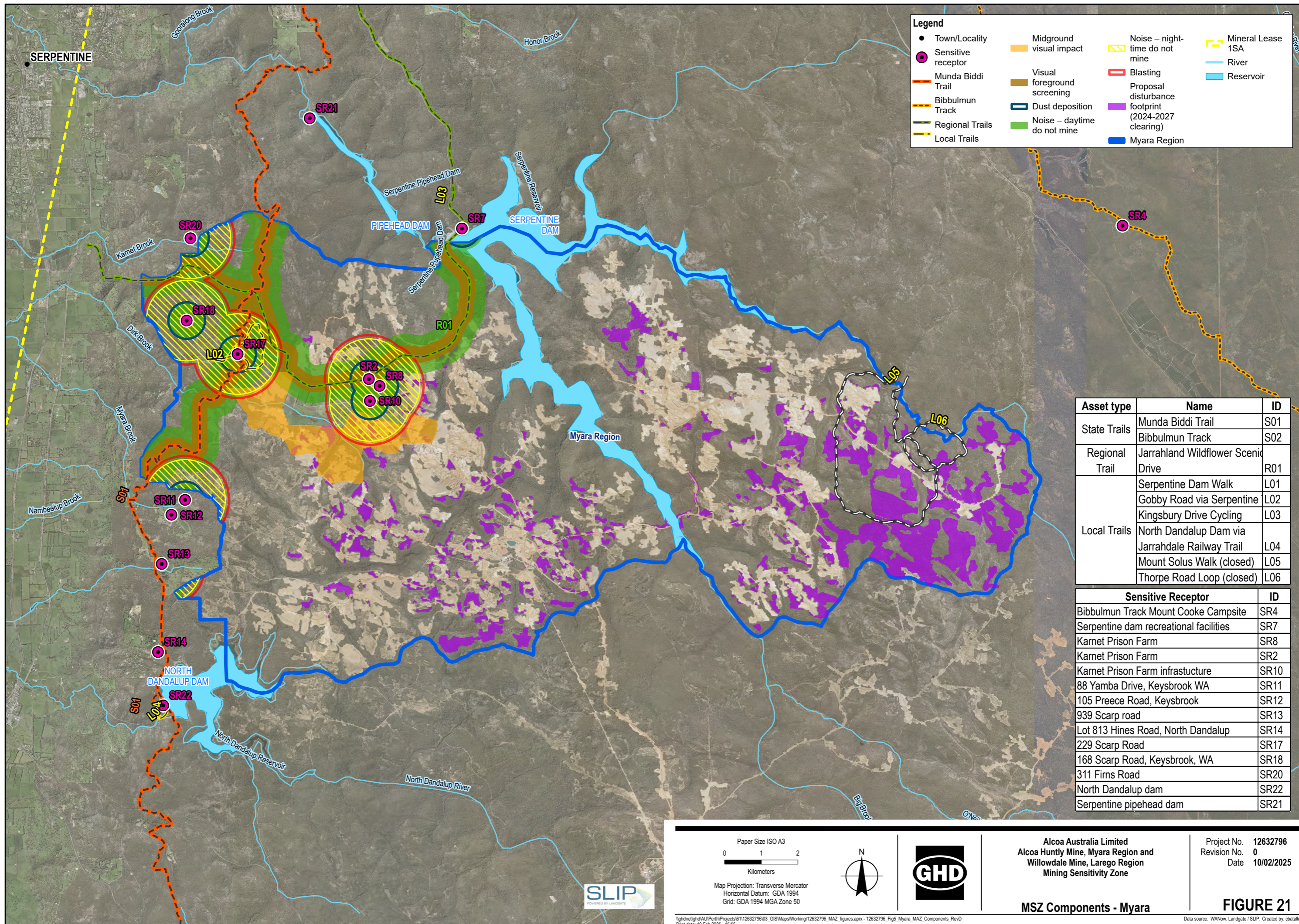
Sensitive receptors and visual features and experiences (Section 3.5) should be considered in relation to rehabilitation prioritisation, specifically views and experiences from the Bibbulmun Track, Kingsbury Drive and the recreational and commercial facilities located at Serpentine Dam.

## 7.2 Landscape and visual mitigation measures

Table 31 presents an overview of the primary landscape and visual impacts as outlined in Sections 5 and 6, along with a range of mitigation methods to decrease the Proposal's adverse effects on landscape and visual character.

Table 31 Mitigation measures

Potential Impact	Proposed mitigation
Visual impacts on tracks, trails, recreational area	<p><i>Avoid</i></p> <p>Where possible relocate secondary haul road and mine pits to avoid crossing, or being within view from, tracks and trails.</p> <p><i>Minimise</i></p> <p>Where possible minimise landscape and visual impacts to recreational facilities through the provision of suitable screening corridors.</p> <p><i>Mitigate</i></p> <p>Where mine pits and secondary haul roads are proposed to be located near existing tracks, trails and recreational areas the duration of impact should be lessened through rehabilitation prioritisation.</p>
Views to removal of native vegetation and mining activity along road corridors	<p><i>Avoid</i></p> <p>Where possible locate proposed mine pits and haul roads out of visual range from existing road corridors including Kingsbury Drive and other minor roads within the Myara Mine Region or alternatively increase Kingsbury Drive MSZ.</p> <p><i>Minimise</i></p> <p>Along Kingsbury Road and other minor roads within the Myara Mine Region, retain suitable corridors of existing vegetation based on density and topography to adequately screen clearing for mine pits, haul roads and other infrastructure.</p> <p><i>Mitigate</i></p> <p>Where mine pits and haul roads are proposed to be located near existing road corridors, the duration of impact should be lessened through rehabilitation prioritisation.</p>
Degradation of existing landscape character.	<p><i>Minimise</i></p> <p>Where possible minimise vegetation removal within the state forest through consolidation of haul roads and mine pit areas and clearing the minimum required area for each activity.</p>



Legend			
● Town/Locality	Midground visual impact	Noise – night-time do not mine	Mineral Lease 1SA
○ Sensitive receptor	Visual foreground screening	Blasting	River
— Munda Biddi Trail	Dust deposition	Proposal disturbance footprint (2024-2027 clearing)	Reservoir
— Bibbulmun Track	Noise – daytime do not mine	Myara Region	
— Regional Trails			
— Local Trails			

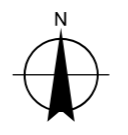
Asset type	Name	ID
State Trails	Munda Biddi Trail	S01
	Bibbulmun Track	S02
Regional Trail	Jarrahlend Wildflower Scenic Drive	R01
	Serpentine Dam Walk	L01
Local Trails	Gobby Road via Serpentine	L02
	Kingsbury Drive Cycling	L03
	North Dandalup Dam via Jarrahdale Railway Trail	L04
	Mount Solus Walk (closed)	L05
	Thorpe Road Loop (closed)	L06

Sensitive Receptor		ID
Bibbulmun Track Mount Cooke Campsite		SR4
Serpentine dam recreational facilities		SR7
Karnet Prison Farm		SR8
Karnet Prison Farm		SR2
Karnet Prison Farm infrastructure		SR10
88 Yamba Drive, Keysbrook WA		SR11
105 Preece Road, Keysbrook		SR12
939 Scarp road		SR13
Lot 813 Hines Road, North Dandalup		SR14
229 Scarp Road		SR17
168 Scarp Road, Keysbrook, WA		SR18
311 Firms Road		SR20
North Dandalup dam		SR22
Serpentine pipehead dam		SR21

Paper Size ISO A3

Kilometers

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50



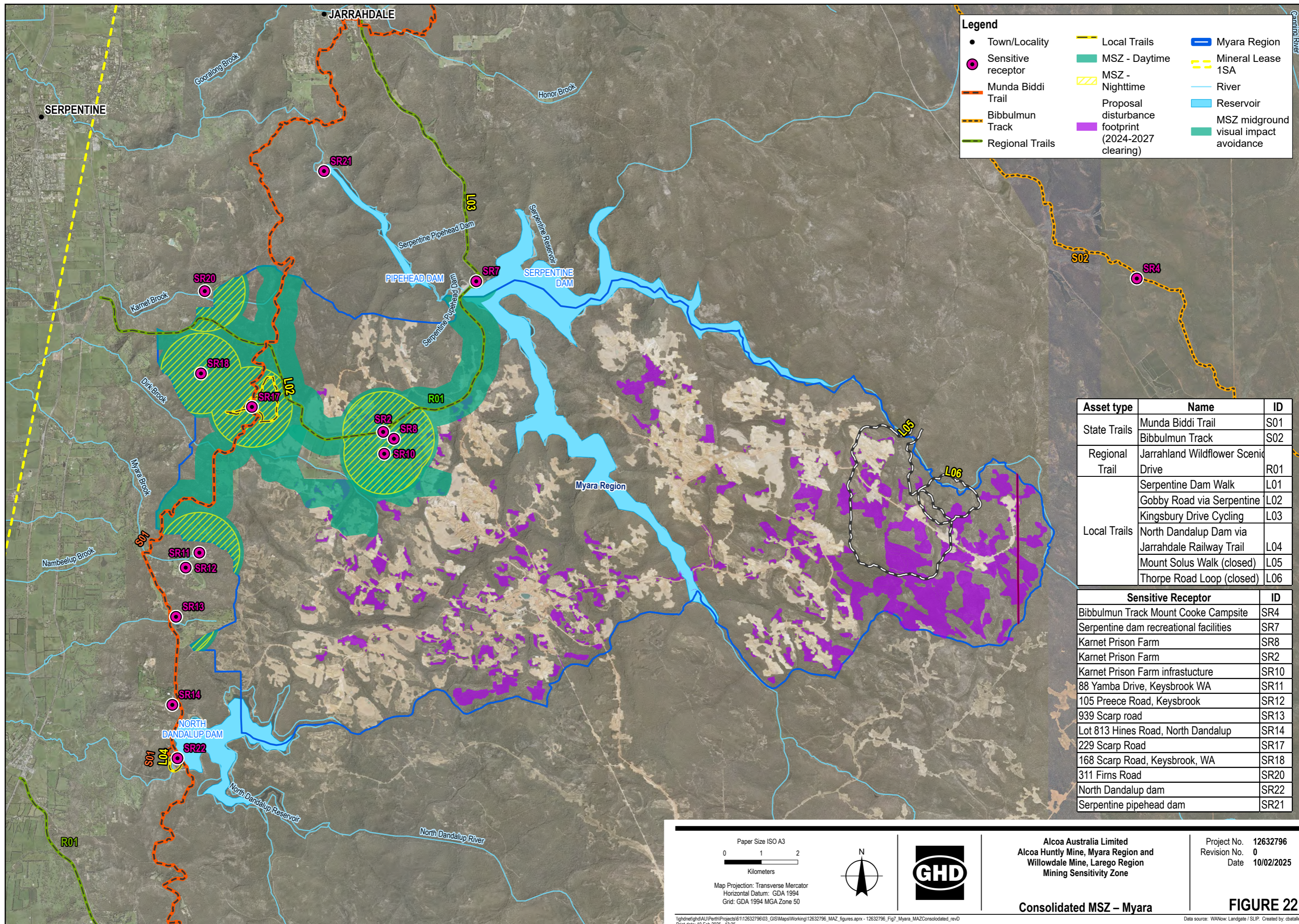
Alcoa Australia Limited  
Alcoa Huntly Mine, Myara Region and  
Willowdale Mine, Larego Region  
Mining Sensitivity Zone

Project No. 12632796  
Revision No. 0  
Date 10/02/2025

MSZ Components - Myara

FIGURE 21

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**Legend**

- Town/Locality
- Sensitive receptor
- Munda Biddi Trail
- Bibbulmun Track
- Regional Trails
- Local Trails
- MSZ - Daytime
- MSZ - Nighttime
- Proposal disturbance footprint (2024-2027 clearing)
- Myara Region
- Mineral Lease 1SA
- River
- Reservoir
- MSZ midground visual impact avoidance

Asset type	Name	ID
State Trails	Munda Biddi Trail	S01
	Bibbulmun Track	S02
Regional Trail	Jarrahdale Wildflower Scenic Drive	R01
Local Trails	Serpentine Dam Walk	L01
	Gobby Road via Serpentine	L02
	Kingsbury Drive Cycling	L03
	North Dandalup Dam via Jarrahdale Railway Trail	L04
	Mount Solus Walk (closed)	L05
	Thorpe Road Loop (closed)	L06

Sensitive Receptor	ID
Bibbulmun Track Mount Cooke Campsite	SR4
Serpentine dam recreational facilities	SR7
Karnet Prison Farm	SR8
Karnet Prison Farm	SR2
Karnet Prison Farm infrastructure	SR10
88 Yamba Drive, Keysbrook WA	SR11
105 Preece Road, Keysbrook	SR12
939 Scarp road	SR13
Lot 813 Hines Road, North Dandalup	SR14
229 Scarp Road	SR17
168 Scarp Road, Keysbrook, WA	SR18
311 Firms Road	SR20
North Dandalup dam	SR22
Serpentine pipehead dam	SR21

Paper Size ISO A3

Kilometers

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 50

Alcoa Australia Limited  
Alcoa Huntly Mine, Myara Region and  
Willowdale Mine, Larego Region  
Mining Sensitivity Zone

Project No. 12632796  
Revision No. 0  
Date 10/02/2025

**Consolidated MSZ – Myara**

**FIGURE 22**

Data source: WANow; Landgate / SLIP. Created by: cbotaller

## 8. Conclusion

This report has been prepared to assess the potential landscape and visual impacts of Alcoa Huntly Mine, Myara Mine Region as part of the SSIA for the Proposal to support the MMP approval of the Huntly Mine under Alcoa's State Agreements.

This LVIA considers existing mined areas and proposed mining areas within the Myara Mine Region five-year mine plan (2023-2027) and assesses sensitive receptors within 10 km of mining operations, including recreational trails and facilities, public roads and elevated viewpoints. This has resulted in a Study Area, generally confined to the likely extent of visibility of the mine areas within the surrounding context, that extends approximately 10 km to the north, east and south of Myara Mine Region and to the Darling Scarp to the west. Land west of the Darling Scarp is excluded from the Study Area due to the topographic shielding of views of the Myara Mine Region by the scarp.

The Study Area is primarily located within the shires of Serpentine-Jarrahdale and Murray; however, small sections also fall within the shires Wandering and Boddington with Myara Mine Region located within Jarrahdale State Forest and Dwellingup State Forest. The existing landscape context consists of existing mining (cleared areas with mine pits and haul roads), previously mined areas (at varying stages of rehabilitation) and densely vegetated forest within the rolling landscape of the Darling plateau. The vegetated landscape is cut by steep river valleys and studded with granite outcrops and includes a variety of established vegetation. Predominantly native forests with some old-growth Jarrah forest, replanted native forests and sections of pine plantations.

The Proposal, used as the basis for this LVIA, includes existing mined areas and proposed mining areas, as identified in Myara Mine Region five-year mine plan (2023-2027). Existing mined areas comprise both ceased mine pits and secondary haul roads (yet to be rehabilitated) as well as active mine pits and haul roads. Proposed mining areas comprise components of Myara Mine Region five-year mine plan yet to be implemented. Mining activities included within this stage of work consist of vegetation clearing, mining earthworks (e.g. mine pits and secondary haul roads) and active mining (ore extraction). In addition, the Proposal also includes staged rehabilitation. The baseline used for this LVIA is the pre-mining landscape of the Darling Plateau forest characterised by open forest within an undulating landscape.

Visual management objectives were defined for the Study Area based on the context analysis and landscape character and visual analysis. The visual management objectives provide an overview of best practice siting and design, protection and maintenance of landscape character and restoration of degraded character and/or enhancement opportunities. Key objectives for the Proposal include siting mining activities away from sensitive locations, including high points along the Bibbulmun Track, protecting the existing landscape character, such as the valued views of the dense forest, and seeking opportunities for restoration of degraded character with planned rehabilitation.

The context analysis, stakeholder and community feedback and site inspection facilitated identification of two LCUs that generally comprise homogenous patterns of characteristics being LCU1 – Darling Plateau Forest and LCU2 – Mining activities. A summary of the LCU impact assessment is provided in Table 32. The assessment found that LCU1 significance of impact would be negligible as all existing mined areas and proposed mining areas are located within LCU2. LCU2 would generally have a negligible significance of impact rating due to vegetation clearing and mining operation being relatable to the existing landscape character of LCU2.

*Table 32 Summary of landscape character impacts*

LCU	Name	Sensitivity to change	Magnitude of change	Significance of impact
LCU1	Darling Plateau forest	High	Negligible	Negligible
LCU2	Mining activities	Low	Negligible	Negligible

Sensitive receptors of varying degrees of significance were identified, including residents, track and trail users, recreational users, campers, tourists, and road users. These were strengthened by the outcomes of community and stakeholder engagement and the Darling Plateau's valued natural setting and the visually appealing landscape quality evident throughout the surrounding area.

Eight viewpoints were chosen for visual assessment, to represent views from sensitive receptor locations. The assessment, as outlined in Table 33, indicated that visual impacts ranged from negligible to high-moderate. Viewpoints with views towards the Proposal received high-moderate impacts, specifically VP1 (North Dandalup Dam), VP2 and VP3 (Kingsbury Drive), VP5 (Serpentine Dam Picnic Area), VP6 (Mount Vincent), and VP8 (Mount Cooke) due to the receptor type and magnitude of proposed change within a valued view of the state forest area. The impacts from VP4 (Munda Biddi Trail) and VP7 (Sullivan Rock) were defined as negligible with no discernible change to the view expected due to distance from the Proposal and the presence of existing vegetation screening views.

**Table 33** Summary of visual impacts

<b>Viewpoint</b>	<b>Location</b>	<b>Sensitivity to change</b>	<b>Magnitude of change</b>	<b>Overall Rating</b>
<b>VP1</b>	North Dandalup Dam	High	Moderate	<b>High-moderate</b>
<b>VP2</b>	Kingsbury Drive	High	Moderate	<b>High-moderate</b>
<b>VP3</b>	Kingsbury Drive	High	Moderate	<b>High-moderate</b>
<b>VP4</b>	Munda Bidi Trail	High	Negligible	<b>Negligible</b>
<b>VP5</b>	Serpentine Dam Picnic Area	High	Moderate	<b>High-moderate</b>
<b>VP6</b>	Mount Vincent	High	Moderate	<b>High-moderate</b>
<b>VP7</b>	Sullivan Rock	High	Negligible	<b>Negligible</b>
<b>VP8</b>	Mount Cooke	High	Moderate	<b>High-moderate</b>

The Proposal was reviewed against the visual management objectives established in Section 2.4 with several key issues identified in relation to best practice siting and design, protection and maintenance of landscape character and character restoration or enhancement opportunities. Of note is the impact of previous and existing mining activity adjacent and/or visible from Kingsbury Drive and the extent of mining activity proposed in the south-east component of the mine region and the visibility of this from Bibbulmun Track. In addition, to support character restoration, prioritisation of rehabilitation was proposed for mine areas visible from Bibbulmun Track, Kingsbury Drive and the recreational and commercial facilities located at Serpentine Dam, as specified in Section 7.

Mitigation measures were categorised into a hierarchy of avoid, minimise, and mitigate with key visual recommendations including increasing the MSZ for Kingsbury Drive to a minimum of 200 m buffer with an opportunity to reduce buffer distance based on ground assessment of topography and vegetation as discussed in Section 7.1.1. For effective visual screening widths refer to Section 7. Adoption of the mitigation measures proposed, would lessen the identified landscape and visual impact of the Proposal, over time, however utilising avoidance and minimise measures proposed have the potential to further reduce the landscape and visual impacts of the Proposal.

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