

FEDERATION PROJECT

Landscape and Visual Impact Assessment

Prepared for:

Hera Resources Pty Ltd
"The Peak"
Burthong Road
Nymagee NSW 2831

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Hera Resources Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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1 Introduction

This Landscape and Visual Impact Assessment (LVIA) for the Federation Project (the Project) has been prepared by SLR Consulting Australia Pty Ltd (SLR) for Hera Resources Pty Ltd (Hera Resources, the proponent). It provides an objective assessment of the proposed underground metalliferous mine development for the extraction of gold-lead-zinc-copper-silver mineral deposits. It will examine the potential levels of impacts on the visual environment often described as the visual amenity.

SLR has worked closely with other members of the Project team in determining and rating visual impacts of the proposed Project development on its immediate surrounds as well as suggesting mitigation measures to further reduce any impacts that may occur.

The assessment includes 2 site locations:

- the Federation Site; the underground metalliferous mine development; and
- the existing Hera Mine and developments proposed to facilitate the Federation Project at Hera Mine.

1.1 Background

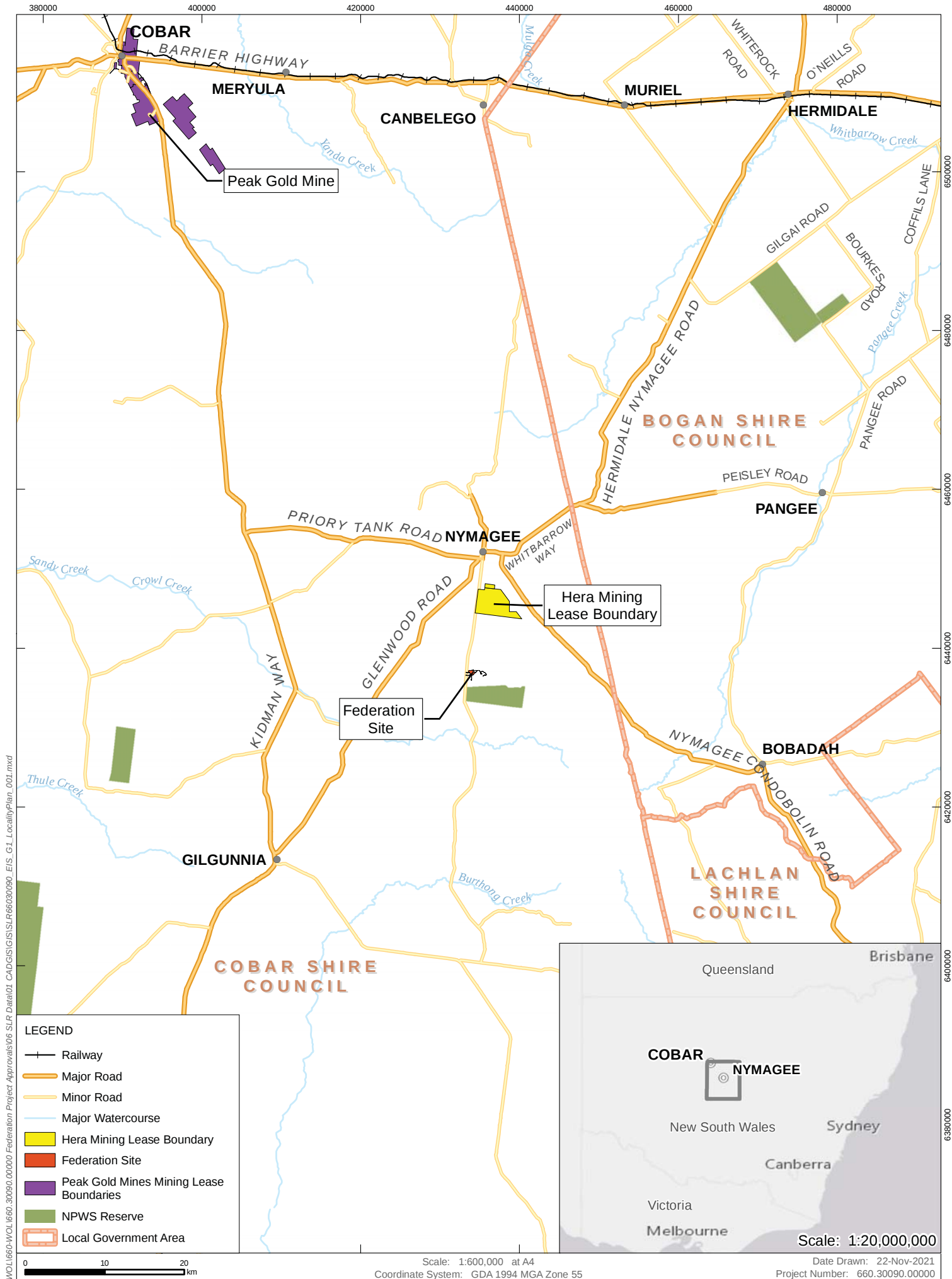
In accordance with the State Environmental Planning Policy (SEPP) for the State and Regional Development 2011, the Project is a State Significant Development (SSD). An SSD project is required to be informed by the Secretaries Environment Assessment Requirements (SEARs).

SEARs outlines that preliminary issues and potential impacts are to be assessed in further detail as part of an Environmental Impact Statement (EIS). The SEARs for the Project have been issued and require the preparation of *"Visual assessment of the likely visual and landscape impacts of the development on private land in the vicinity of the development, paying particular attention to any temporary and permanent modification of the landscape e.g. overburden dumps, bunds, tailings facilities"*.

This LVIA identifies in detail, those likely impacts caused by the Project that may affect the site's surrounding visual environment and identifies any potential mitigation measures to manage impacts. This LVIA assesses impacts to the landscape and visual character of the Project and its surrounds in line with the relevant guidelines.

1.2 The Project Site

The Federation Site is located within the Cobar Shire Council (CSC) Local Government Area (LGA) and is approximately 15km south of the Nymagee township. Nymagee township is located approximately 80km southeast of Cobar in central-western NSW which is by road 712 km northwest of the state capital, Sydney.



1.3 Project Description

The Project, as shown in **Figure 2** comprises:

- The establishment and operation of underground gold and metalliferous mining activities, with supporting surface infrastructure, mining approximately 6.95 million tonnes (Mt) of ore over a period of 12 to 14 years, referred to as the Federation Site.
- Amendments at the Hera Mine to facilitate mining and processing of Federation ore, including new process plant and disposal of tailings in the Hera Mine tailings storage facility (TSF).
- Services Corridor between the Federation Site and Hera Mine, including powerline, water pipeline and access track, and potentially a tailings pipeline.

The majority of ore produced will be sent to Hera Mine for processing. However up to 200 ktpa will be transported to PGM during the initial four years of processing (total of 750 kt over this period), whilst the new processing plant at Hera Mine is being commissioned and ramped up.

Access to the underground mine will be via a portal developed through the base of a box cut. The main decline will be developed to gain access to all production levels, where stopes will be excavated. The loosened ore from the stopes will be brought to the surface via underground truck and placed on the Federation Site Run of Mine (ROM) ore stockpile near the boxcut. Ore will then be transported by surface trucks via Burthong Road to the Hera Mine ROM stockpile at the Hera Mine process plant.

Hera Mine infrastructure is proposed to be modified to facilitate the Project including a new 750 ktpa processing plant and solar farm. The existing processing plant will continue to operate at Hera Mine until the commissioning of the new plant. The new plant will be within the existing approved footprint of Hera Mine. The new processing plant will produce silver and gold doré and separate lead, zinc and copper concentrates.

A total of 5.8 Mt of tailings will be generated from the processing of the ore from Federation. Of this approximately 5.2 Mt will be produced at Hera Mine, with the remaining 0.6 Mt at PGM. Approximately 60% of total tailings produced will be returned to Federation Site to backfill underground stopes.

Hera Mine and Federation Site will be connected by a Services Corridor. The nominated width of the corridor is 23m with an approximate length of 14.3km. Clearing of existing vegetation will be required to install the proposed services infrastructure, including a power transmission line, water pipeline, access track and potentially a tailings slurry pipeline. The access track will be used for maintenance and inspection requirements and will not be used for haulage of ore or tailings.

Concentrate from Hera Mine will be trucked to the Hermidale rail siding for transport, as per the current concentrate transport methods and truck sizing. Concentrate from PGM will be transported to Hermidale or Dubbo rail sidings, as per the current concentrate transport methods and truck sizing.

1.4 Transitional Period

It is anticipated that approval for the Federation Project will be obtained in early 2023. Prior to the construction and operation of the Federation Project, an Exploration Decline Program will be undertaken. This activity will be undertaken under a separate approval to that being sought for the Federation Project. The main objectives of the Exploration Decline Program are to further define the mineral resources associated with the Federation deposit, including permitting drilling of exploration drill holes from underground.

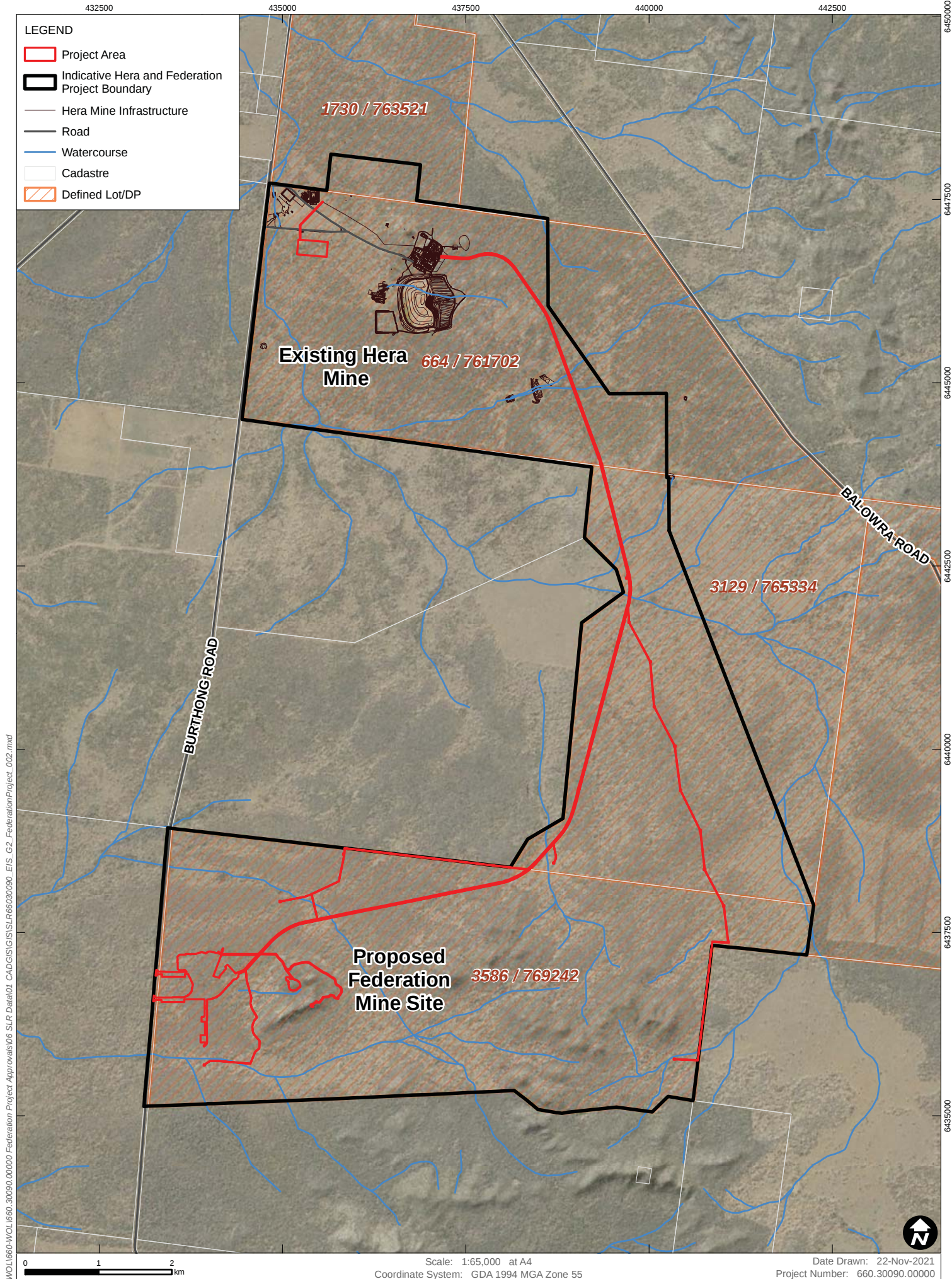
Key components of the Exploration Decline Program include:

- Establishment of a surface infrastructure area required to support the exploration decline;
- Development of a box cut, portal, exploration decline, two ventilation rises and one escapeway;
- Transportation to and storage of waste rock within the surface infrastructure area, with subsequent transport of waste rock to Hera Mine;
- Establishment and use of an approximately 14.8km surface pipeline to transfer water from the exploration decline to Hera Mine;
- Exploration drilling from the exploration decline; and
- Extraction of one or more bulk samples together totaling no more than 20,000t and transportation of that material to Hera Mine processing plant via Burthong Road.

It is anticipated that the Exploration Decline Program will commence in November 2021 with the surface infrastructure area established and waste rock being generated from the decline. It is anticipated that ore from the bulk sample will be mined and processed between the third quarter of 2022 and first quarter of 2023. Based on the current schedule for the Federation Project, there will be a transitional period between Exploration Decline Program activities, mining operations at Hera Mine, and Federation Project construction and operations. Following approval of the Project:

- construction of Project infrastructure (including the new process plant) will commence in the first half of 2023;
- Exploration Decline Program activities will transition into mining operations at the Federation Site; and
- Hera Mine operations may continue over a period of 6 to 12 months.

From early 2024, it is anticipated that all activities will be related to the Project operations. The operational workforce numbers will be transitioned from Hera Mine operations to Project operations.



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Data Source: Basedata NSW SS, 2019
Aerial imagery supplied by © Department of Customer Service 2020

**INDICATIVE HERA AND FEDERATION
PROJECT BOUNDARY**

FIGURE 2

2 Baseline Visual Environment

2.1 Project Area and Surrounding Context

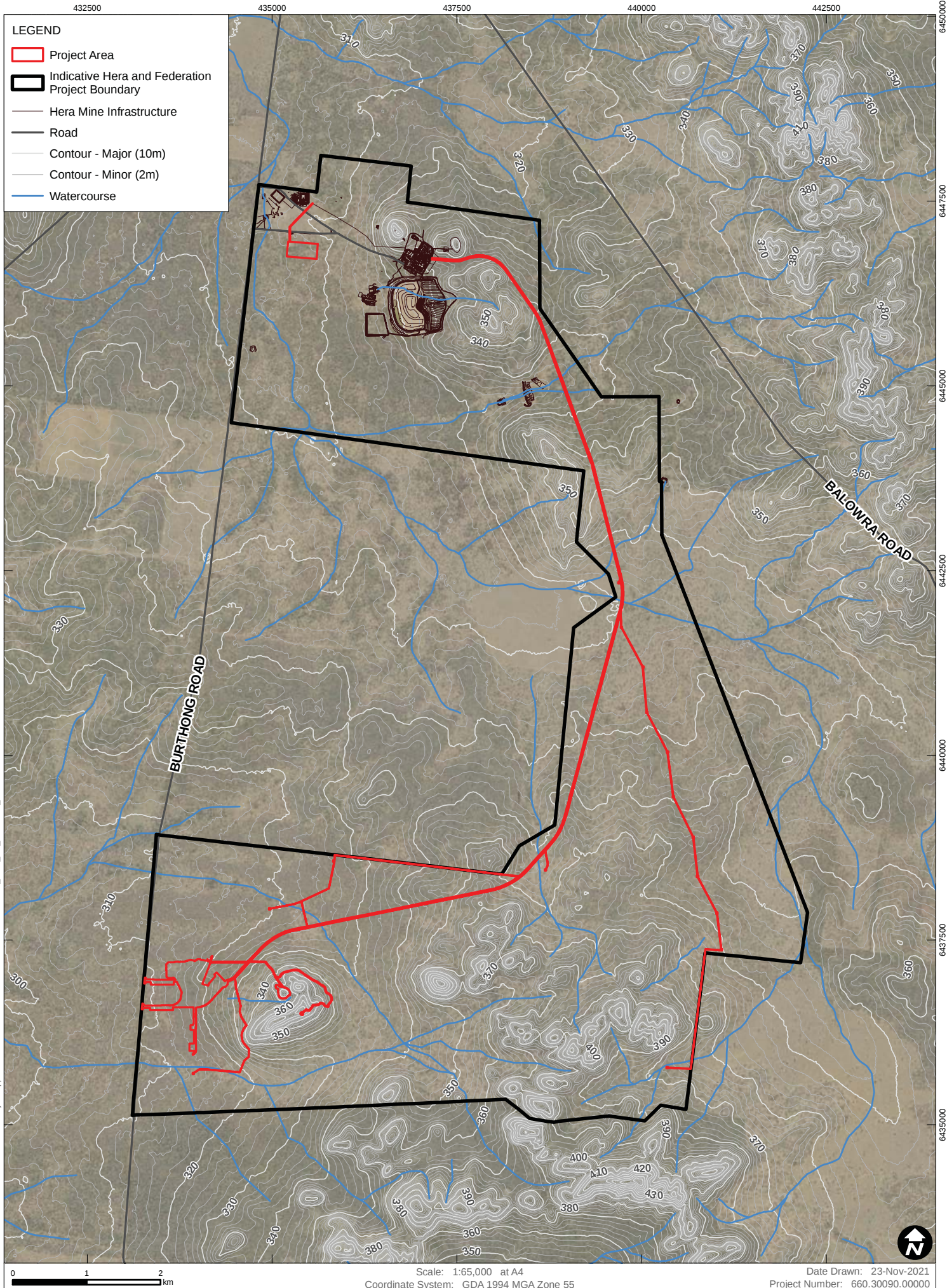
The baseline description outlines the current state of the Project area (being the location where proposed mining activities and infrastructure will occur) (and its surrounds) as it would likely function in the absence of change resulting from the introduction of the Project.

The Project boundary (refer to **Figure 3**) an area of approximately 5,356 hectares (ha) that is characterised typically as rangeland. For the purposes of the LVIA, the 'subject site' comprises the Federation Site in the south of the Project area, and the existing Hera Mine in the north of the Project area, which is proposed to feature a new solar farm on the western periphery of the site. The term 'subject site' is used interchangeably with 'site' for the purposes of this LVIA.

2.1.1 Topography and Landform

The Federation Site is located at an elevation of approximately 320m above mean sea level (AMSL) with topography rising gradually in an easterly direction and contains a prominent peak of 380m immediately east of the Federation Site. The existing Hera Mine is at a similar elevation with a difference in height of between 10 to 20m. Both locations are characterised by gently undulating and rounded ridges with broad drainage flats. They also demonstrate undulating ridges with long low slopes and broad level plains.

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2.1.2 Roads and Access

The proposed Federation Site and the existing Hera Mine is accessed from Burthong Road which intersects with Priory Tank Road and Hartwood Street in the north toward the township of Nymagee.

The scenic quality of Burthong Road is characterised by dense vegetation that fringes on either side. Site lines are reduced to approximately 10 to 50m in distance with very localised viewsheds. At the existing Hera Mine entrance clearing has occurred, revealing site lines to approximately 100-500m to district viewsheds.

2.1.3 Vegetation

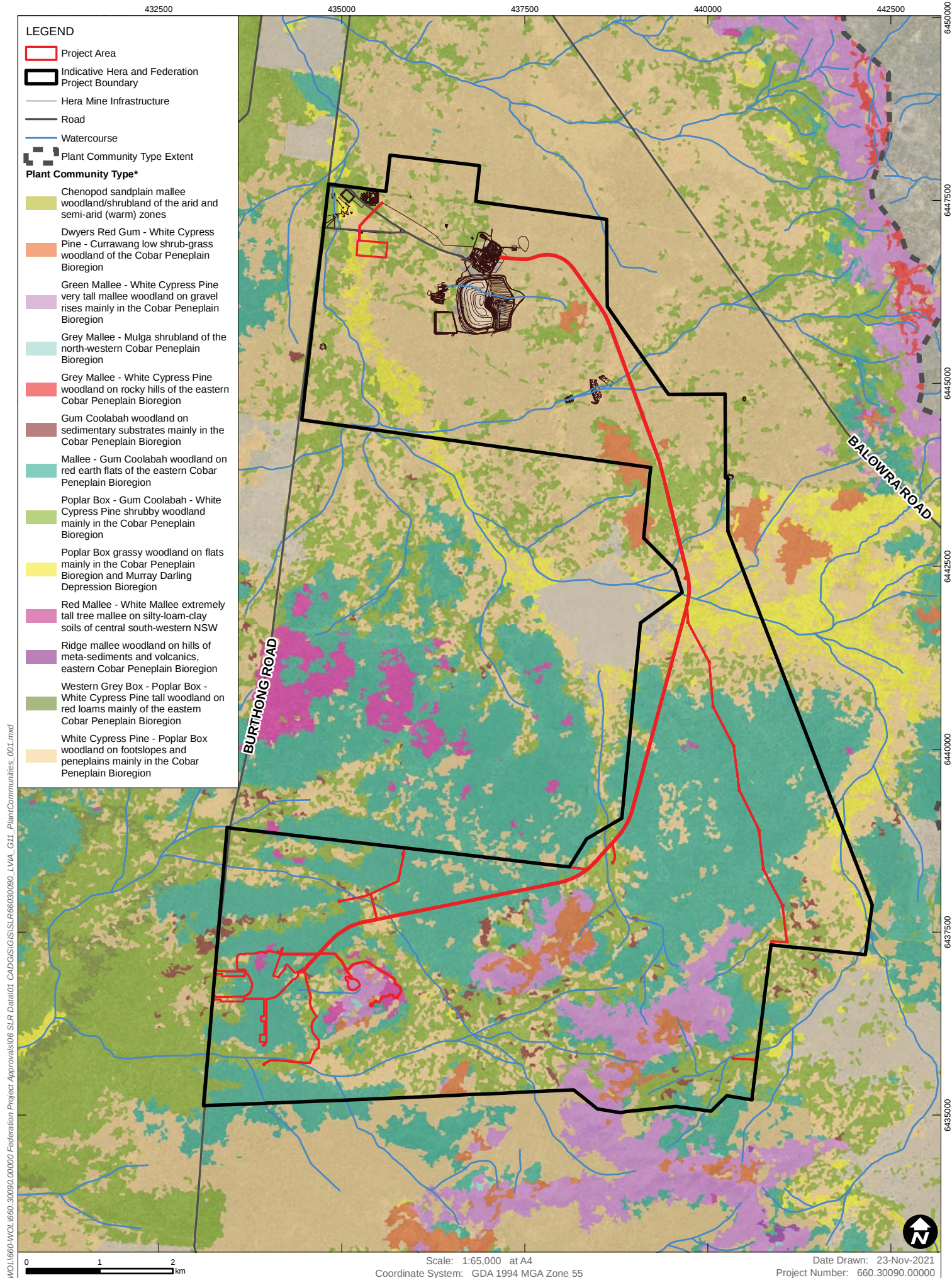
The vegetation on the subject site (Refer to **Figure 4**) and its surrounding context is an important visual element that defines the character of the subject site and the boarder regional context.

Vegetation cover is currently high with approximately 90 per cent of the Project disturbance area covered in remnant or regenerating native vegetation, and approximately 93 percent vegetated cover within a 1500 metre buffer. Existing and approved breaks in vegetation are the Exploration Decline program disturbance area, Burthong Road to the west, various farm/private roads, Hera mine and associated infrastructure, farm fence lines, access tracks approved under previous assessments and natural breaks in vegetation.

The following PCT's are present in the Project area:

- PCT103 Poplar Box - Gum Coolabah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion
- PCT104 Gum Coolabah woodland on sedimentary substrates mainly in the Cobar Peneplain Bioregion
- PCT174 Mallee - Gum Coolabah woodland on red earth flats of the eastern Cobar Peneplain Bioregion
- PCT180 Grey Mallee - White Cypress Pine woodland on rocky hills of the eastern Cobar Peneplain Bioregion
- PCT 184 Dwyer's Red Gum - White Cypress Pine - Currawang low shrub-grass woodland of the Cobar Peneplain Bioregion
- PCT258 Gum Coolabah - Mugga Ironbark - White Cypress Pine woodland on granite low hills in the eastern Cobar Peneplain Bioregion and central NSW South Western Slopes Bioregion.

From recent images collected at key locations along Burthong Road adjacent to the subject site, the vegetation appears to be mature to semi-mature with a mix of species that reflect the vegetation communities listed above. These species are at moderate heights characteristic of their form and structure reaching approximately 10-15m. The canopies range from closed to mostly open with concentration of closed canopy along verges. Mostly open canopies within the general project site are outside the existing Hera Mine precinct. It is noted that all vegetation within the project site and surrounding context is significantly less dense than the adjacent Balowra State Conservation area where the same vegetation communities are present.



2.1.4 Structures

For the purpose of this LVIA, structures refer to built elements within the landscape. In reference to the rural setting this would be characterised with rural residential dwellings, agricultural/ rural sheds and structures. In relation to the relevant mining industry in the area this would be characterised with major structures such as process plants, workshops, power generation, accommodation facilities, stockpiles, batching plants, quarries and ancillary operational and administration structures.

The existing rural setting of the subject sites' regional context does not feature many notable structures within the landscape when viewed from Burthong Road. In relation to the existing Hera Mine, major and minor structures are not highly visible from the Burthong Road and are limited to a few distance roofs, fences, gates with minimal signage only at the existing entrance.

2.1.5 Infrastructures

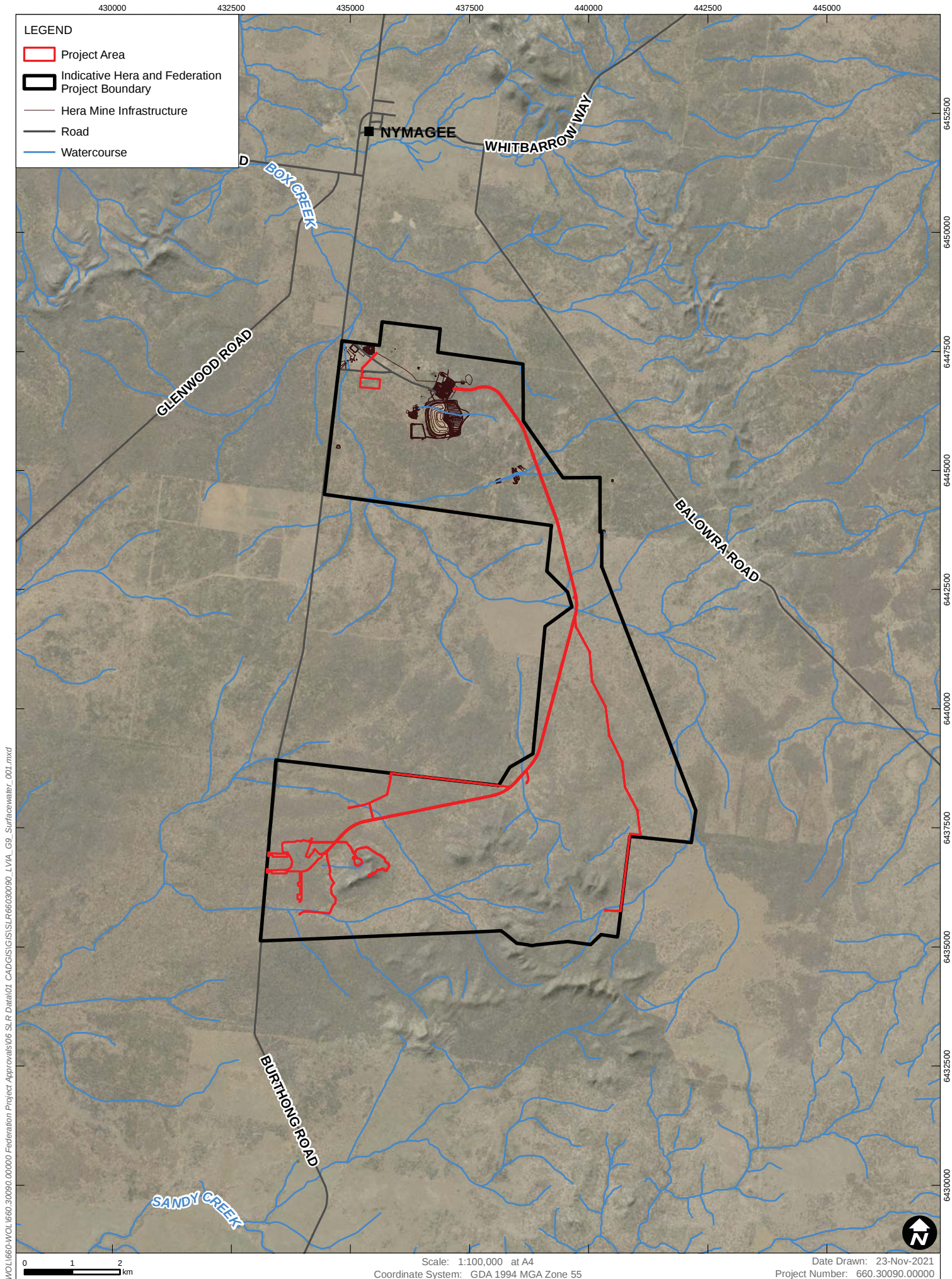
For the purpose of this LVIA, infrastructure refers to the main utilities and access corridors. This is characterised by roads, powerlines, transmission lines, pipes and associated cleared corridors and fencing.

The existing rural setting of the subject sites' regional context does not feature many notable infrastructure elements when viewed from Burthong Road. This is also evident at Balowra Road approximately 3km northeast of the subject site.

2.1.6 Surface Water

For the purposes of this LVIA, surface water areas refer to the types of watercourses that may be visible within the subject site or within Burthong Road corridor.

The watercourses that are most visible with the subject site (Refer to **Figure 5**) and its surrounds are characterised by shallow creeks that flow through broad drainage flats. Box Creek and Sandy Creek with their tributaries are the two main watercourses that are located on the Project area. These two creeks are not highly visible from Burthong Road and where they do intersect are characterised by shallow vegetated swales amongst slightly undulating terrain. Flowing water would most likely occur seasonally or during periods of heavy precipitation.



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3 Landscape Character Assessment

The Landscape Character Assessment is a tool for identifying the distinctive characteristics of a site, its context and surrounds without putting a value to it. The site inspection was carried out as a desk top study with onsite assistance with selected image captures. This assessment was run independently of other studies within the EIS such as Noise and Air Quality Impact Assessments. Sensitive receivers and measurement techniques for data collection are different for visual assessments and therefore need to be assessed and measured with specific requirements of visual assessment.

3.1 Regional Context

The Project is located within the Cobar Peneplain bioregion and Nymagee Downs landscape description. It is characterised by undulating low rounded ridges, rolling downs and plains, with wide drainage flats. A large portion of the area is rangeland which is predominantly leasehold within the CSC LGA. For the purposes of this LVIA broader landscape, vegetation, topography and development patterns play an important role in defining the character of the site.

3.2 Baseline Visual Character of Subject Site and Surrounds

3.2.1 Site Context

The following baseline description of the visual environment outlines the Project area (specifically the Federation Site) and its context as it exists prior to Exploration Decline Program activities. These images capture what was observed on site, a few landscape types and visual catchments as defined by localised viewsheds and contained visual corridors.

Woodland Mallee and scrub vegetation dominates the landscape character on a gently undulating topography. Vegetation occurs in vast swathes with multi-trunk trees amongst dense understory where no clearing has occurred. In areas where clearing has occurred the gentle undulating topography is identified usually behind vegetative strips and buffer planting that fringe access corridors.

3.2.2 Project Area

The subject site has 2 distinct landscape characters. The Federation Site is densely vegetated whereas the existing Hera Mine site is generally cleared for mining infrastructure with scattered groupings and buffer vegetation adjacent to the periphery.

3.2.2.1 Federation Site

The Federation Site is a densely vegetated area that is viewed from the linear corridor that characterises Burthong Road. It has a difference of height around 10-15m with a raised elevation to the south-east periphery of the site. These are interpreted on plan however cannot be viewed from Burthong Road.

3.2.2.2 Hera Mine

Hera Mine is largely cleared of vegetation with scattered vegetation located at the periphery of the site. Viewsheds are located at the site entry point from Burthong Road and filtered views across the site are evident along the eastern periphery of Burthong Road.

4 Visual Impact Assessment

4.1 Process

The Visual Impact Assessment generally applies the assessment techniques set out in the '*Guidelines for Landscape and Visual Impact Assessment, Third Edition*' (2013) prepared by The Landscape Institute and the Institute for Environmental Management and Assessment (UK).

The assessment includes the following:

- review of the proposal (scale, bulk, height, technical specifications, and landscape);
- analysis of the subject site (visual exposure, visual qualities, and landscape values);
- mapping of Theoretical Visual Catchment, visual receptors, and sensitive receptor groups;
- identification of potential impacts on key receptors including the rating of magnitude for each receptor group;
- rating of impact significance for each receptor group. The significance is evaluated as a product of the sensitivity or value of the receptor, and the magnitude of impacts on the receptor; and
- potential mitigation measures to meet the necessary planning requirements and any community expectations.

The assessment included a desktop analysis and a detailed site investigation prepared in October 2021. The desktop analysis and site investigation included the following:

- data review;
- aerial photography review;
- onsite image capture at key receptor points; and
- GIS modelling of the topography and the proposal.

The visual receptor points have been selected by first analysing aerial photography to identify areas that may have impact significance. These include both public and private receptor points. Several points are nominated, and a site visit is conducted where photographs are taken at each point with a general 55 degrees bearing in the direction of the subject site. 55 degrees is selected as it replicates the same angle of view that observers perceive. These visual receptors points are analysed and reduced to demonstrate key locations that may, or may not, have perceived significant impact from the subject site and its proposed infrastructure. Once these receptors, at key locations, have been determined a visibility model is run to ascertain the likelihood of the proposed infrastructure at the subject site to be seen from these receptor points. This is referred to as the zone of Theoretical Visibility (ZTV); the detail of such is detailed below.

4.2 Zone of Theoretical Visibility (ZTV)

The 5m Digital Terrain Model (DTM), 5m Digital Surface Model (DSM) and 5m Canopy and Building Height Model (CHM) was derived from point cloud data supplied by Aerometrex, 2019 (LiDAR (Light Detection and Ranging)), Department of Finance, Services and Innovation Spatial Services/DFSI-SS, 2014 (Airbourne Digital Sensor(ADS)) and Contours supplied by Aurelia Metals (refer to **Figure 8**).

The visibility tool was run using the 5m DSM as the raster input. The 5m DSM includes the existing surrounding surface and vegetation removal to occur within the Project Area (reduced to existing ground level). The proposed infrastructure features for the Federation Site and existing Hera Mine site were used as the observer feature within the visibility tool using the infrastructure heights in the table below (applied to the existing ground level).

Raster Calculator was then used on the visibility output and CHM to 'clean' false positives. The final output shows positive visibility results of the observers position on the ground and not an elevated position.

Positive visibility results occur within the Project Area and proposed infrastructure, a mask has been applied so these results are not displayed.

The visibility model is then analysed in comparison with the key receptor points to see if, or to what significance, the proposed infrastructure could be observed. These key receptor points are then assessed for the potential visual impacts and given a sensitivity and magnitude rating to ascertain objectively the potential visual impact.

Table 1 Height of the proposed infrastructure features

Site Locations	Description	Height
Federation Site	• Topsoil Stockpiles	3m
	• Ablution, Office, Crib, Admin	4m
	• Workshop and store	13m
	• Diesel Power and Tanks	3m
	• Waste Rock Dump	20m
	• Batch Plant/ Paste Plant	10m
	• Substation	4m
	• Telecommunication Tower	15m
Site Locations	Description	Height
Hera Mine	• Proposed overhead transmission line	10m
	• Proposed solar farm	4m
	• New Process Plant	25m

4.3 The Federation Site; the underground metalliferous mine development

The below **Figure 6** illustrates the proposed infrastructure and its approximate heights at the Federation Site. Visibility modelling, as indicated by the purple-coloured zones of visual impact, illustrates locations where proposed infrastructure can be viewed. The existing vegetation acts as a natural visibility barrier, obstructing the view of the proposed infrastructure from the surrounding area. Visibility results have been filtered to remove any areas that are not logical (top of trees etc) and include areas of potential visibility from the ground only. Viewpoint locations, as indicated by the green circle, are where images have been captured to demonstrate the site conditions, the potential visual impacts and receptor sensitivity.

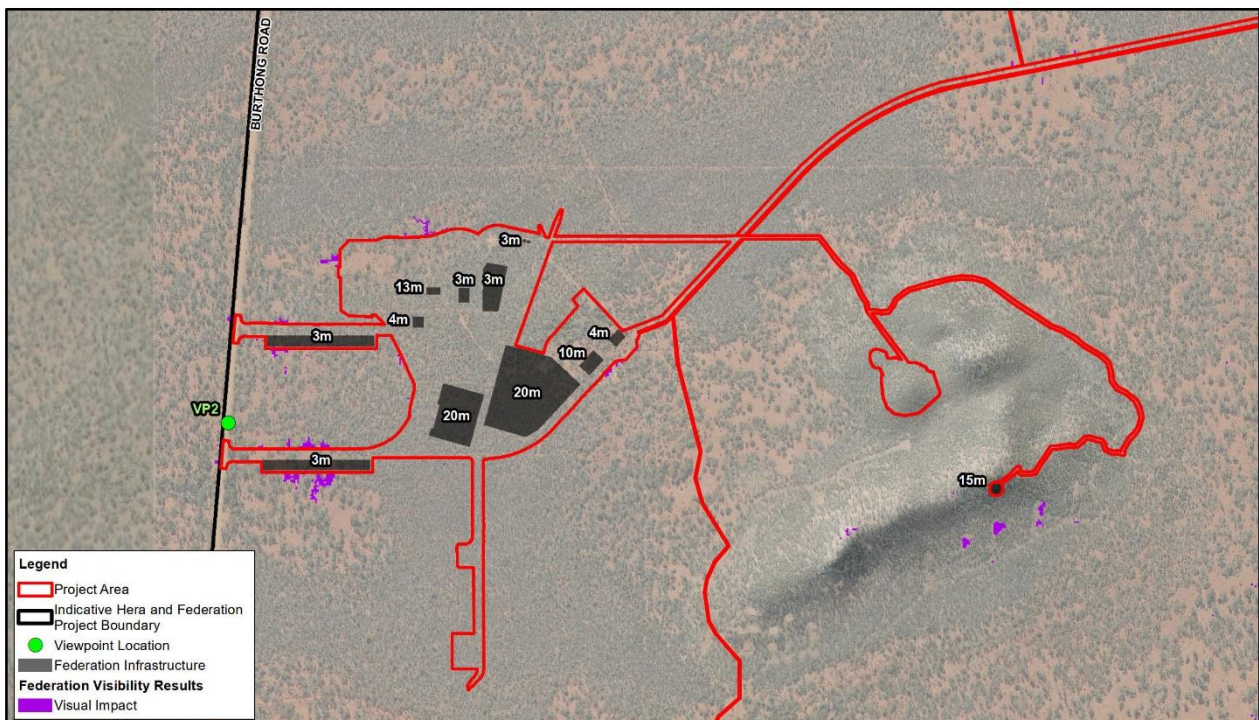


Figure 6 Subject Site Federation Site Plan (red line)

4.4 The existing Hera Mine and the developments proposed to facilitate the Federation Project at Hera Mine

The below **Figure 7** illustrates the proposed infrastructure and its approximate heights at Hera Mine. Visibility modelling, as indicated by cyan-coloured zones of visual impact, illustrates locations where proposed infrastructure can be viewed. Viewpoint locations, as indicated by the green circle, are where images have been captured to demonstrate the site conditions, the potential visual impacts and receptor sensitivity.

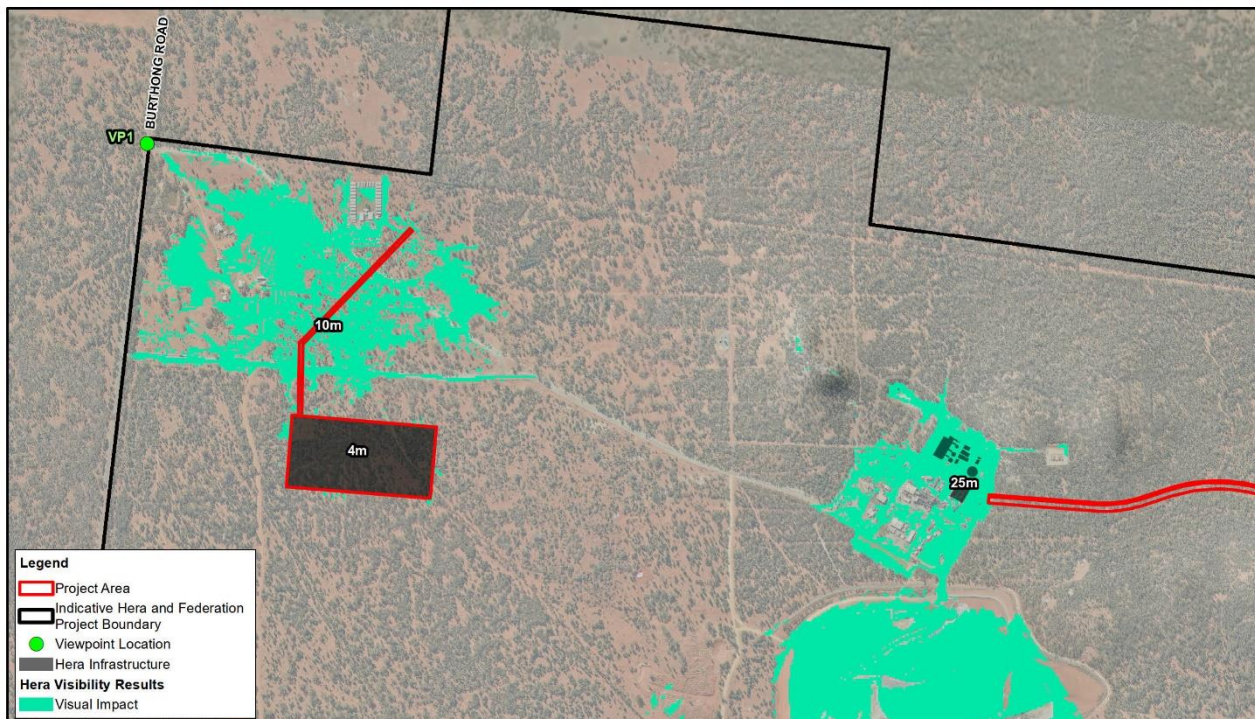
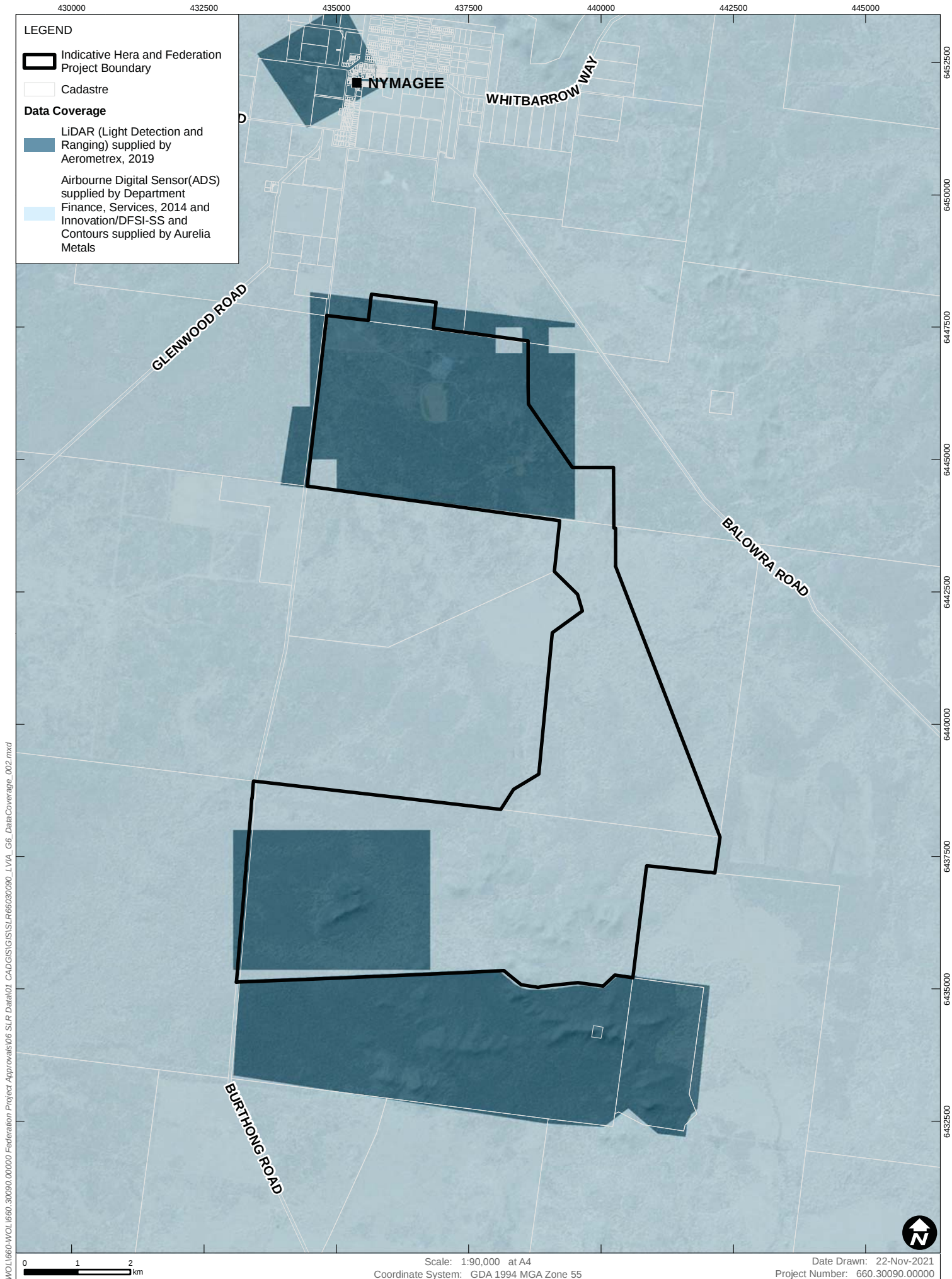
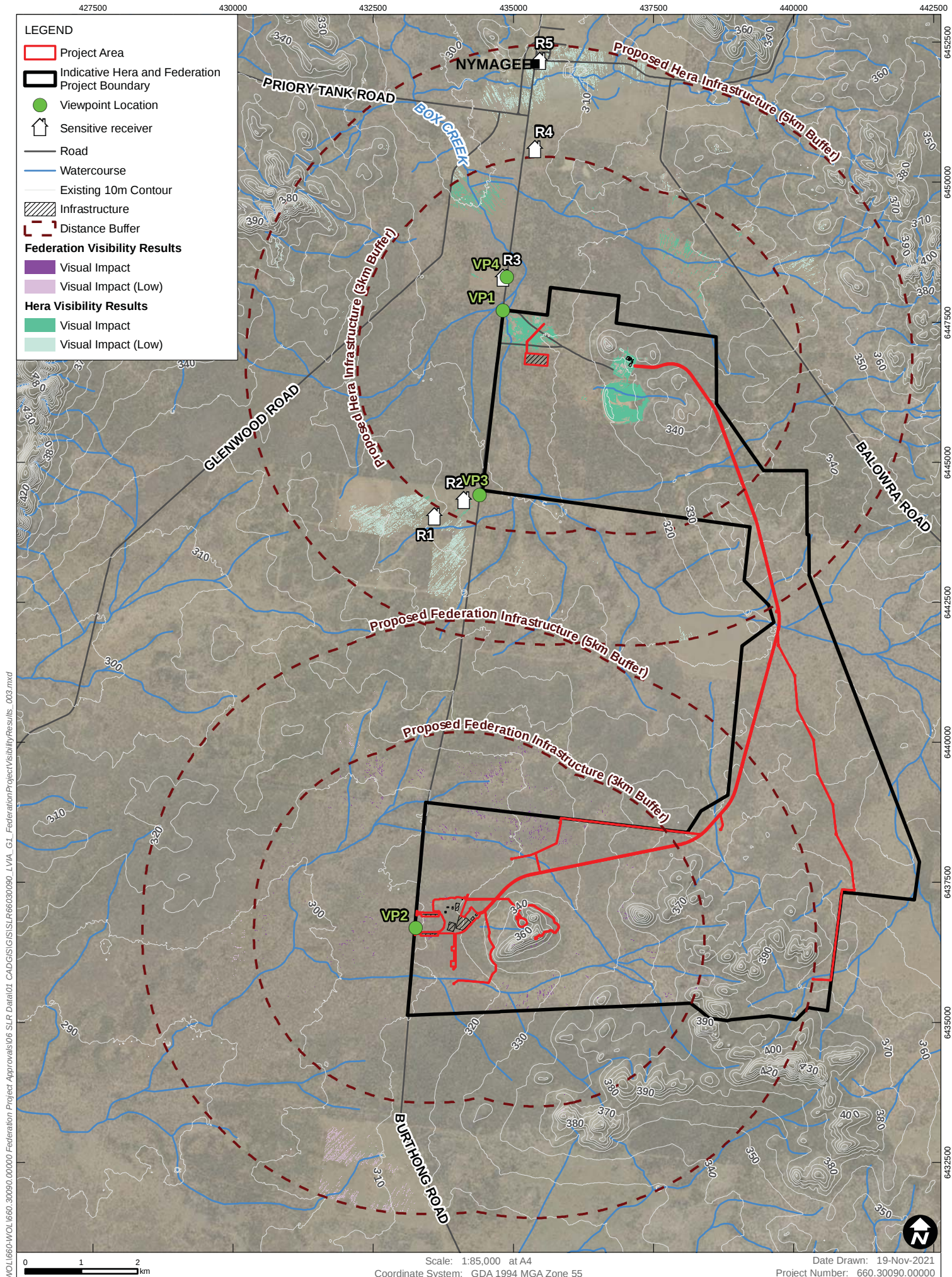


Figure 7 Subject Site Hera Mine Site Plan (red line)



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4.5 Assessment of Visual Impacts for Key Receptors

Visual receptors are people or groups of people that may be affected by the proposal. Described below are a list of potential visual receptors that are often identified based on a number of key parameters. Depending on the site, proposed use and future anticipated impacts, not all of these may be selected as receptors. These parameters could include:

- proximity of the receptor – most effected visual receptors are anticipated to be located within a 3km radius of the Project (unless in an elevated position);
- drivers or passengers of vehicles travelling past, through or alongside the subject site;
- workers on or near the site that visit or work in one of the mine sites and associated infrastructure;
- members of the general public accessing adjoining public areas (conservation areas) for recreational or visual purposes; and
- permanent residents living near the subject site.

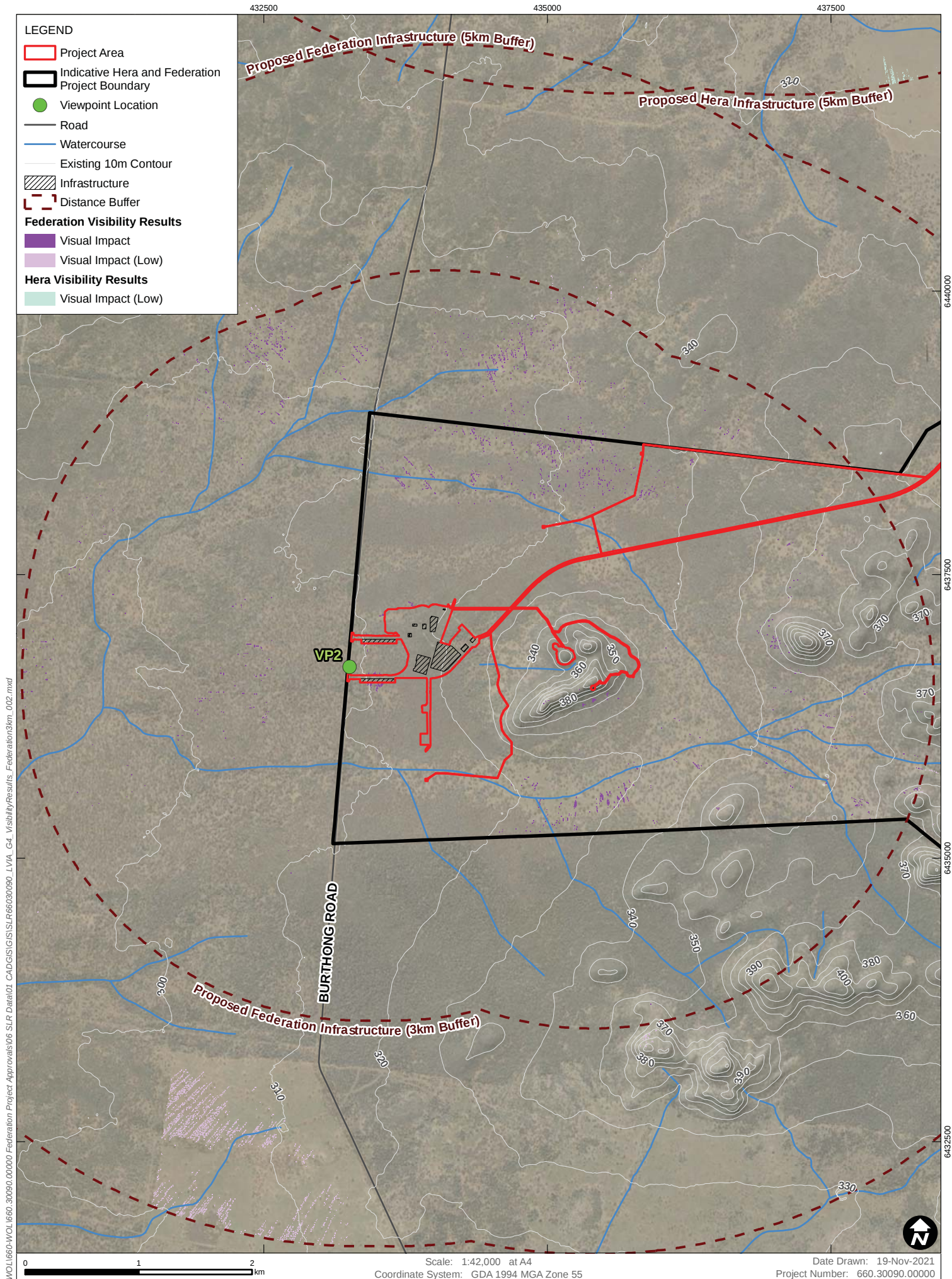
Public receptors (views visible by the general public) are accepted as the most suitable for Visual Impact Assessments, because they represent the highest number of visitations or views to the nominated site in question. Private receptors (namely from private residences) can be selected if the views are unique, significant or the combined effects on a number of residents are considered high.

Visual receptor points were initially identified through desktop assessment including the review of aerial photography and GIS data sets as well as in **Figure 9** ZTV map. These included several locations that may have a likelihood to be impacted by the proposed infrastructure on the subject site. Other image capture locations were removed from the assessment as it clearly showed no potential visual impacts. These views points were discounted due to the following reasons:

- relative distances from the site were too great;
- views blocked or hindered due to presence of existing vegetation or topography; and
- limited viewing opportunities along roads due to relative road speeds and location of the subject site in relation to direction of travel.

The remaining visual receptor points, as illustrated in **Figure 9** where selected due to the higher likelihood of visual impact. The image captures included multiple photos that have been stitched together to demonstrate a view to match what is perceived by an observer. Visibility modelling is overlaid with the selected viewpoints to assess the visibility results.

These visual receptor points were selected to review both public and private locations for both the Federation Site and proposed infrastructure at Hera Mine. These are illustrated in **Figure 10** & **Figure 11**. These were selected as they demonstrate a higher likelihood of capturing perceivable change due the proposed infrastructure. The private receptors were selected from positive cells being identified on the visibility modelling within the 3km buffer from the centre proposed infrastructure. Street side image captures at private receptors (residence ingress), with bearing toward the proposed infrastructure, are included to capture the current conditions. These are included to help ascertain what conditions are currently found on site and if there is, or is not, any existing vegetation that may impact views.



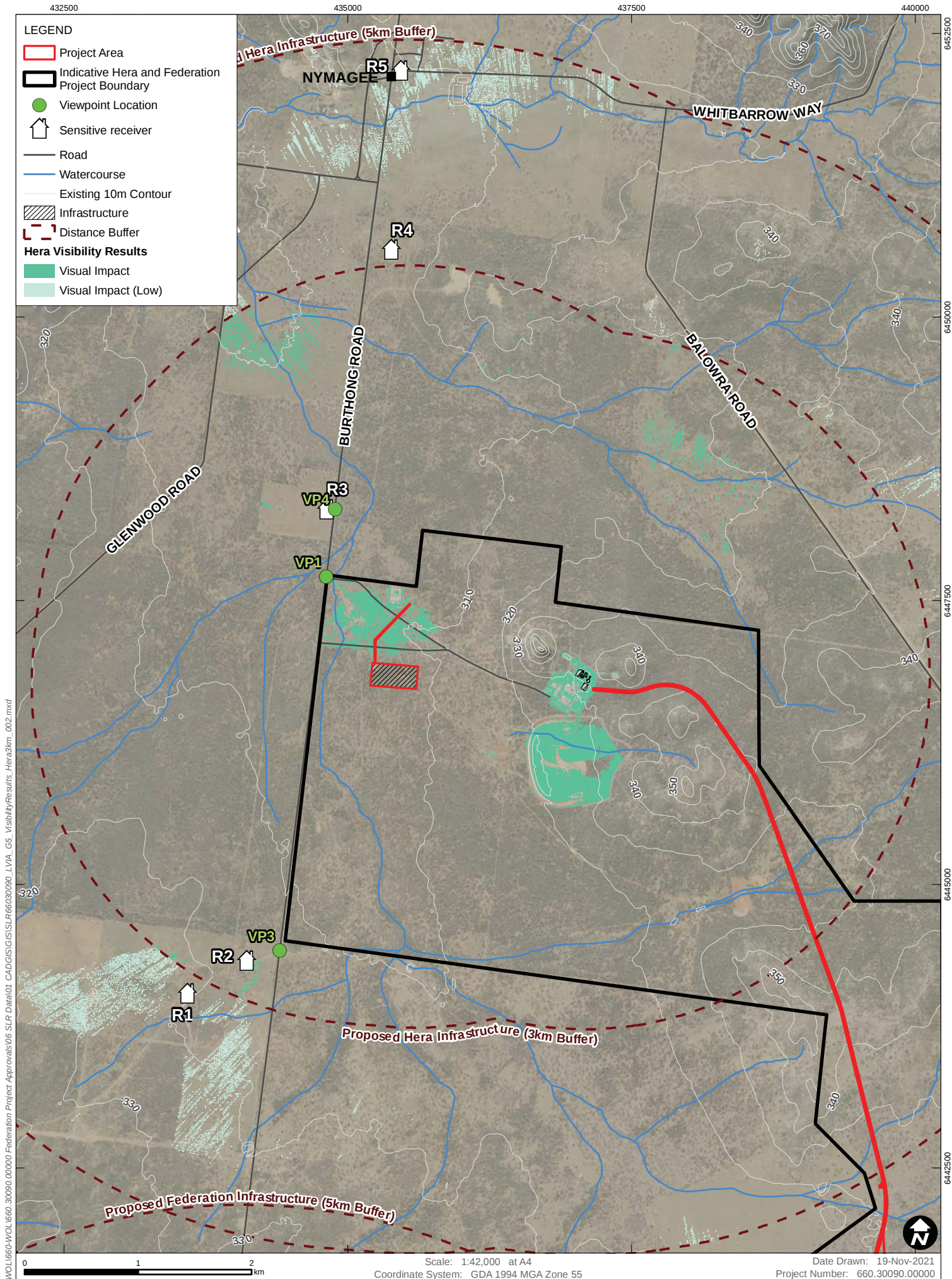
I:\Projects\SLR\660-SyWOL\660.30090.00000 Federation Project Approvals\06 SLR Data\01 CADGIS\GIS\SLR\66030090_LVA_C4_VisibilityResults\Federation3km_002.mxd



Data Source: Basedata NSW SS, 2019
 Aerial imagery supplied by © Department of Customer Service 2020
 Elevation data & Contours supplied by Aurelia Metals
 DFSI-SS (DFSI-SS, August 2014) & Aerometrex Pty Ltd, 2019
 Positive visibility results occur within the Project Footprint a mask has been applied so these results are not displayed.

VISIBILITY RESULTS FOR THE PROPOSED FEDERATION SITE

FIGURE 10



H:\Projects\SLR\660-SyWOL\660-30090-00000 Federation Project Approvals\06 SLR Data\01 CADGIS\GIS\SLR\660300900_LVA_G5_VisibilityResults_Hera3km_002.mxd



Data Source: Basedata NSW SS, 2019
 Aerial imagery supplied by © Department of Customer Service 2020
 Elevation data & Contours supplied by Aurelia Metals
 DFSI-SS (DFSI-SS, August 2014) & Aerometrex Pty Ltd, 2019
 Positive visibility results occur within the Project Footprint a mask has been applied so these results are not displayed.

VISIBILITY RESULTS FOR THE PROPOSED INFRASTRUCTURE AT THE EXISTING HERA MINE

FIGURE 11

4.6 Receptor Sensitivity

The receptor sensitivity is derived from a combination of factors including:

- receptors interest in the visual environment (high, medium or low interest in their everyday visual environment and the duration of the effect);
- receptors viewing opportunity (prolonged, regular viewing opportunities); and
- number of viewers and their distance/ angle of view from the source of the effect, extent of screening/ filtering of view.

Whilst the assessment of visual values and effects is largely measured on a qualitative basis, assessment against scale enables a more objective evaluation and comparison of sensitivity of receptors and magnitude of effects. The Receptor Sensitivity Rating is described as being High, Medium, Low or Negligible as described in **Table 2**.

Table 2 Receptor Sensitivity Rating

Receptor Sensitivity	Description
High	• Visitors to heritage sites, regionally important locations, scenic routes, lookouts within 2.5km with quality views, important views of the site and surrounding areas where landscape is the specific focus. • High numbers of visitors • Views to landscape that are rare and or unique and are possibly vulnerable to change • Views from residences within 1km of the site or are representative of high-quality views
Medium	• Travellers/visitors along roads or rail routes that are not scenic routes but offer quality views within 2.5km of the site • Medium numbers of visitors/ residents (rural communities or townships) • Views that are representative of local character or sense of place but are not rare or unique • Views from residences beyond immediate vicinity (1km-5km) of the site or are representative of moderate quality views • Recreational users/ viewers beyond 2.5km from the site with moderate interest in their surrounds
Low	• Travellers/visitors along roads or rail routes that are not scenic routes but offer reasonable views within 4km of the site • People at place of work where setting or views not important to quality of working environment • Recreational users not dependent on views or scenic quality of landscape • View experienced take in broad context with which site is visible but not an important element. • Small numbers of visitors with passing interest in their surroundings (those travelling along mid-level roads) • Viewers whose interest is not specifically focused on landscape or scenic qualities (commuters, workers)
Negligible	• Very occasional or low level of users with passing interest in their surrounds (those travelling along minor roads or views from the air) • Travellers/visitors along unsealed roads offering views greater than 4km of the site

4.7 Magnitude of Landscape Change

The Magnitude of Change to the landscape character depends on the nature, scale, intensity, extent and duration of the impacts/ change due to infrastructure proposed on the subject site. The magnitude of change also depends on the loss, change or addition of any feature to the existing landscape and is based on the character type that is most likely to be impacted by the project prior to the addition of any mitigation measures.

The Magnitude of Change for each viewpoint is described as being High, Medium, Low or Negligible as described in **Table 3**.

Descriptions of Magnitude and Sensitivity are illustrative only and there is no defined boundary between levels of impacts.

Table 3 Magnitude of Change

Magnitude of Change	Description
High	Dominant Change - Major change in view at close distances, affecting substantial part of the view continuously visible for a long duration or obstructing a substantial part or important elements of the view - Overwhelming loss or additional features in the view such as the nature of view or character of landscape fundamentally changed - Views to key landscape features affected - Visual amenity of local residents or road users substantially diminished - Substantial change to the landscape due to loss of and or change to elements, features or characteristics of the landscape creating an overall worsening of landscape quality
Medium	Considerable Change - Clearly perceptible changes in views at intermediate distances resulting in either distinct new element in a significant part of the view or a more widely ranging, less concentrated change across a wider area - Significant loss or addition of features in the view, such that nature of view or character of landscape is altered - Noticeable contrast of any new features in the view such that the nature of the view or landscape character is changed - Noticeable contrast of any new features or changes compared to existing landscape - Views to key landscapes partially obstructed but views remain intact
Low	Noticeable Change - Minor memorable change to the landscape or views - Temporary or reversible impact - Landscape dominant element and built form / development well integrated within it - Little permanent change or no fundamental change to local landscape character
Negligible	Barely perceptible change No memorable or rarely perceptible change to landscape character or key views

4.8 Impact Significance on the Landscape Character

The Impact Significance is evaluated according to 2 key criteria as noted above and is reflected in **Table 4**. The rating is a means of comparing impacts on different receptors. Professional judgement and experience have been applied to identify the level of significance for each character type which has been assessed on its own merits. They include:

- The sensitivity of the receptor or existing landscape; and
- The magnitude of the change or impact that is likely to occur.

The process of assessment and the use of the ratings tables reflect typical outcomes for visual impacts. This includes:

- Impacts on receptors that are particularly sensitive to change in views and visual amenity are more likely to be significant and;
- Impacts that constitute a substantial change to the visual environment are likely to be more significant than the impacts that do not cause substantial change.

Table 4 Effect Significance Rating

Receptor Sensitivity	Magnitude of Change in Landscape				
		High (Dominant Change)	Medium (Considerable Change)	Low (Noticeable Change)	Negligible (Barely Perceptible Change)
	High	High	Moderate-High	Moderate	Minor-Moderate
	Medium	Moderate-High	Moderate	Minor-Moderate	Minor
	Low	Moderate	Minor-Moderate	Minor	Minor - Negligible
	Negligible	Minor-Moderate	Minor	Minor - Negligible	Negligible

4.9 Summary of Potential Landscape Character Impacts

The following summarises the assessment of impacts on each of the identified visual receptor points. As described previously in **Section 4.5**, 4 representative viewpoints were identified and include both public and private receptor points. Access to private receptors (residences) were limited however, visibility modelling was conducted to assist in assessing the likelihood of visual impacts from proposed infrastructure in the subject site. Image captures were included adjacent to these private receptors to demonstrate the surrounding conditions and existing vegetation. Public receptor points were selected for their potential impact, being near existing and proposed entrances to the subject site.

Image capture and visibility maps from each receptor/ viewpoint are provided to show the existing site conditions and direction of views. These images and maps demonstrate how the proposed works may be viewed from each receptor, demonstrate the surrounding conditions and existing vegetation. The following visual impact assessment summaries describe and rate the sensitivity of each receptor, the nature and magnitude of impacts likely to occur, the resultant significance of impacts for each receptor and mitigation measures where appropriate.

4.9.1 Viewpoint 1 (VP1)



Photo 1 VP1 - Existing Hera Mine Entrance

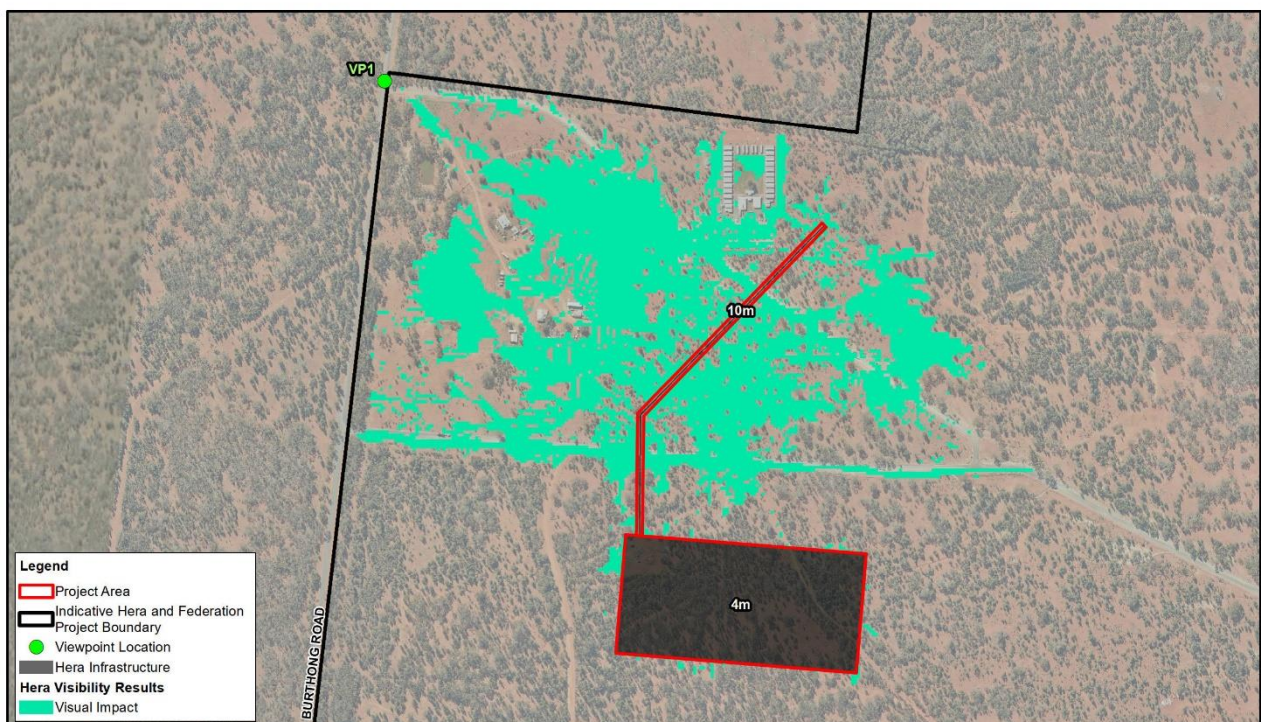


Figure 12 Zone of Theoretical Visibility for Viewpoint 1 (VP1)

4.9.2 Receptor VP1 – Summary of Visual Impact Assessment

Receptor - VP1	Summary of Visual Impact Assessment
Receptor Location	Burthong Road – travelling southbound at Hera Mine site access road (views to the east). Receptor is described as vehicular users/ travellers using a public road. Coordinate Location: Latitude 32° 6' 18.16" S, Longitude 146° 18' 32.59"E
Visual Baseline Description	- Views/ glimpses southeast travelling south along Burthong Road. - Represents typical views of travelers/ road users in vehicles. - Views in the foreground are typically closed, very gently undulating, rural land with patches of vegetation evident in both foreground and middle ground. The background typical is highly vegetated with limited glimpses of existing woodland. - Views of the subject site and proposed works are moderately visible in the mid-ground showing a heavily vegetated ridgeline. Existing Hera Mine in the foreground and the trees along the boundary are the most prominent landscape elements in the view. - Glimpses of existing Hera Mine site is visible however only as green undulating landscape with stands of vegetation.
Sensitivity Rating	- This viewpoint represents the visual experience standing adjacent to the mine entrance at Burthong Road. From here the road continues towards the Federation Mine site entrance where generally the site is perceived as a green backdrop to that buffers the cleared rangeland beyond. Although travelling south, the vegetation on the rural properties north of the site is sparse, the canopy cover and vegetation still prevents open and clear views of the site to the public. - Views of the rural landscape and vegetated undulating hills are typical of the local character in the region. The viewpoint shows rural land in the foreground with natural forested areas in the middle and background. - At 60-80km/h any views are expected to be generally short term (few seconds and at this distance). As sealed state classification road, a low number of vehicles would travel along it during the day. This would include local residents, heavy vehicles servicing the local industries. - In general, this viewpoint provides encumbered views of the eastern mine site located within the subject site, which the receptor could perceive to be a minor landscape element at this point. - The overall sensitivity of the receptors at this viewpoint would be Low.
Impact Magnitude Rating	- The existing vegetated character of the subject site is moderately visible from this viewpoint. The subject site is part of a broader surrounding vegetated area that forms the landscape character from this location. - The subject site is not of significance (State Conservation Area) within the local context but plays a role in forming the vegetated backdrop character typical of the region. - As the views from this location encompass a range of natural, infrastructural, and disturbed landscapes it could be considered to have a high degree of resilience to change. This would be demonstrated in the removal of the visible vegetation exposing a clearing in the background. However, the natural bushland character of the site complements the views to the east of the broader uncleared subject site. - Generally, the elements of the proposed works which consist mainly of intensification of infrastructure will be a perceptible change from this viewpoint and appear to contrast with the existing landscape character (colours, textures, forms). - The Impact Magnitude Rating for this receptor would be Low.

Impact Significance	The impact of significance for receptors at this viewpoint would be considered Minor .
Mitigation Measures	Mitigation measures recommended would be to maintain and extend the native vegetation buffer that aligns Burthong Road. All proposed infrastructure, etc would be set well within the site boundary maintaining a 500m minimum clearance zone.

4.9.3 Viewpoint 2 (VP2)



Photo 2 VP2 - Conditions at proposed Federation Site

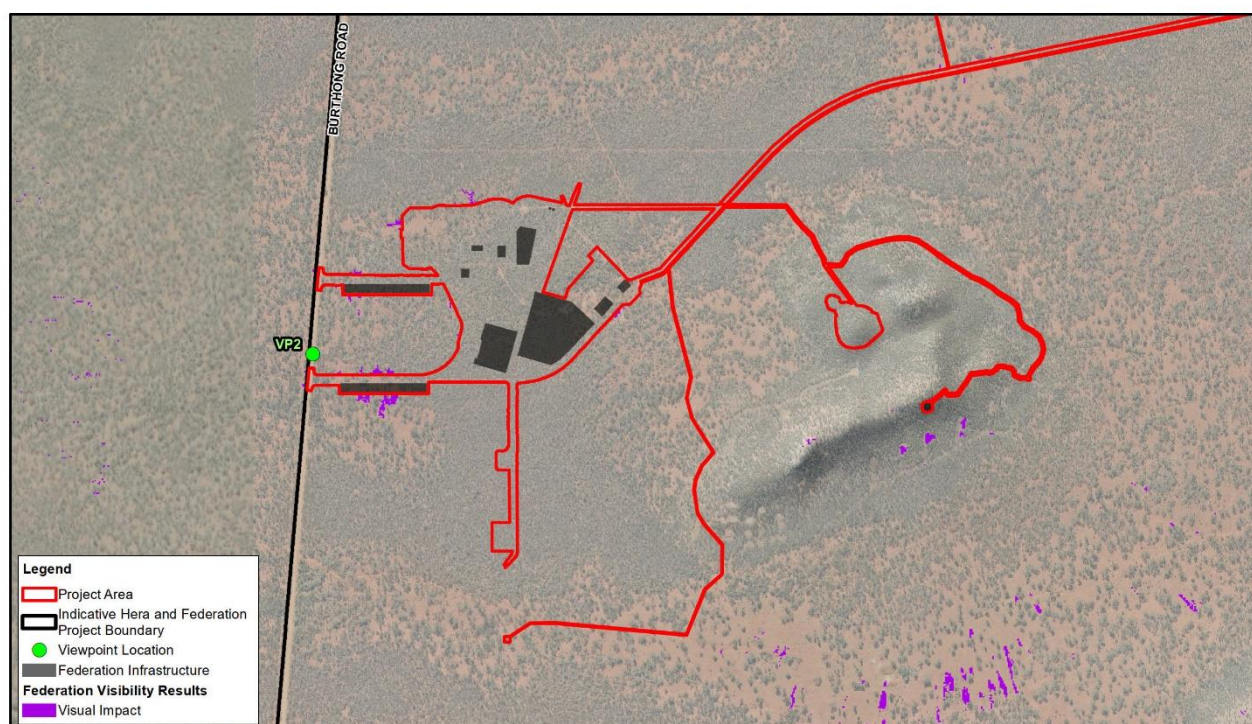


Figure 13 Zone of Theoretical Visibility for Viewpoint 2 (VP2)

Receptor VP2 – Summary of Visual Impact Assessment

Receptor – VP2	Summary of Visual Impact Assessment
Receptor Location	Burthong Road – travelling northbound approx. below proposed Federation Site heavy vehicle haul road (views to the northeast). Receptor is described as vehicular users/ travellers using a public road. Coordinate Location: Latitude 32° 15' 35.04" S, Longitude 146° 17' 28.43"E
Visual Baseline Description	- Views/ glimpses southeast travelling north along Burthong Road. - Represents typical views of travelers/ road users in vehicles. - Views in the foreground are typically semi - closed, very gently undulating, with medium height woodland of endemic vegetation. - Views typical of Burthong Road that surrounds subject site where visibility is moderate due to semi-closed character of the vegetation.
Sensitivity Rating	- This viewpoint represents the visual experience along Burthong Road. From here the road continues toward Balowra State Conservation Area. - Views of the multi-trunk (mallee) forest with closed to semi-closed views on flat rangelands. - At 60-80km/h any views are expected to be generally short term (few seconds and at this distance). As an unsealed local classification road, a low number of vehicles would travel along it during the day. This would include local residents, heavy vehicles servicing the local industries. - Proposed clearly would allow views into Federation site with low vegetative screening. - The overall sensitivity of the receptors at this viewpoint would be low.
Impact Magnitude Rating	- The Impact Magnitude Rating for this receptor would be Medium. This is based on the potential clearly that is proposed for the new entry point. This would only be a glimpse or a short term view when traversing at approximately 60-80km/h.
Impact Significance	- The impact of significance for receptors at this viewpoint would be considered Minor Moderate.
Mitigation Measures	Mitigation measures recommended would be to maintain and extend the native vegetation buffer that aligns Burthong Road. All proposed infrastructure, etc would be set well within the site boundary maintaining a 250 - 1000m minimum clearance zone.

4.9.4 Viewpoint 3 (VP3)



Photo 3 VP3 - Typical conditions adjacent to R2 Residential Receiver

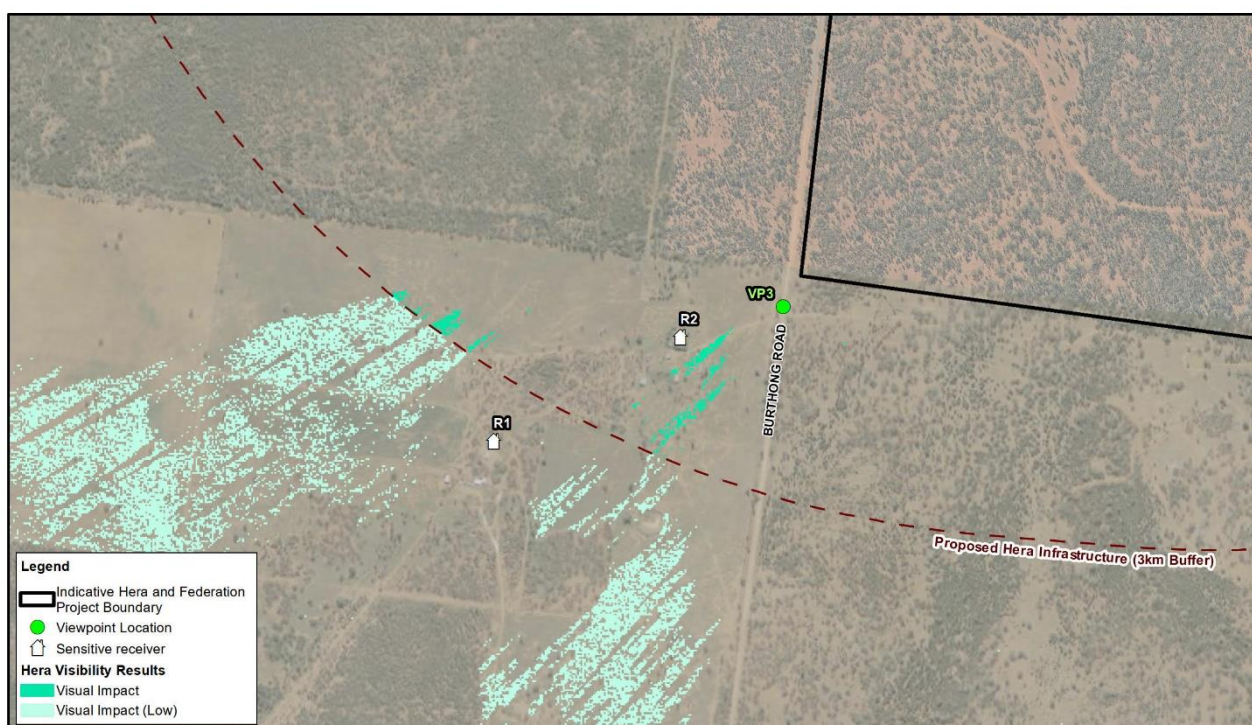


Figure 14 Zone of Theoretical Visibility for Viewpoint 3 (VP3)

4.9.5 Receptor VP3 – Summary of Visual Impact Assessment

Receptor – VP3	Summary of Visual Impact Assessment
Receptor Location	Burthong Road Private Receptor – Accessed from Burthong Road. Property entrance approximately 3.3km south of the Hera Mine entrance and approximately 8km north of proposed Federation Site. Receptor is described as private users/ resident accessing property and viewing from existing dwelling. Coordinate Location: Latitude 32° 8' 5.24" S, Longitude 146° 18' 16.11"E
Visual Baseline Description	- Views/ glimpses northeast travelling south along Burthong Road. - Represents typical views of travelers/ road users in vehicles and vegetation conditions adjacent to residential property. - Views in the foreground are typically semi - open, very gently undulating, with medium height woodland of endemic vegetation. - Views typical of Burthong Road that surrounds subject site where visibility is moderate due to semi-open character of the vegetation. - Visibility modelling has no positive visibility results near the residence.
Sensitivity Rating	- This viewpoint represents the visual experience along Burthong Road. From here the road continues north toward Hera Mine Entrance. - Views of the cypress forest with semi-open views on flat rangelands. - The overall sensitivity of the receptors at this viewpoint would be Low.
Impact Magnitude Rating	- The Impact Magnitude Rating for this receptor would be Negligible.
Impact Significance	- The impact of significance for receptor at this viewpoint would be considered Minor - Negligible.
Mitigation Measures	Mitigation measures recommended would be to maintain and extend the native vegetation buffer that aligns Burthong Road. All proposed infrastructure, etc would be set well within the site boundary maintaining a 3000m clearance zone.

4.9.6 Viewpoint 4 (VP4)



Photo 4 VP4 – Typical conditions adjacent to R3 Residential Receiver

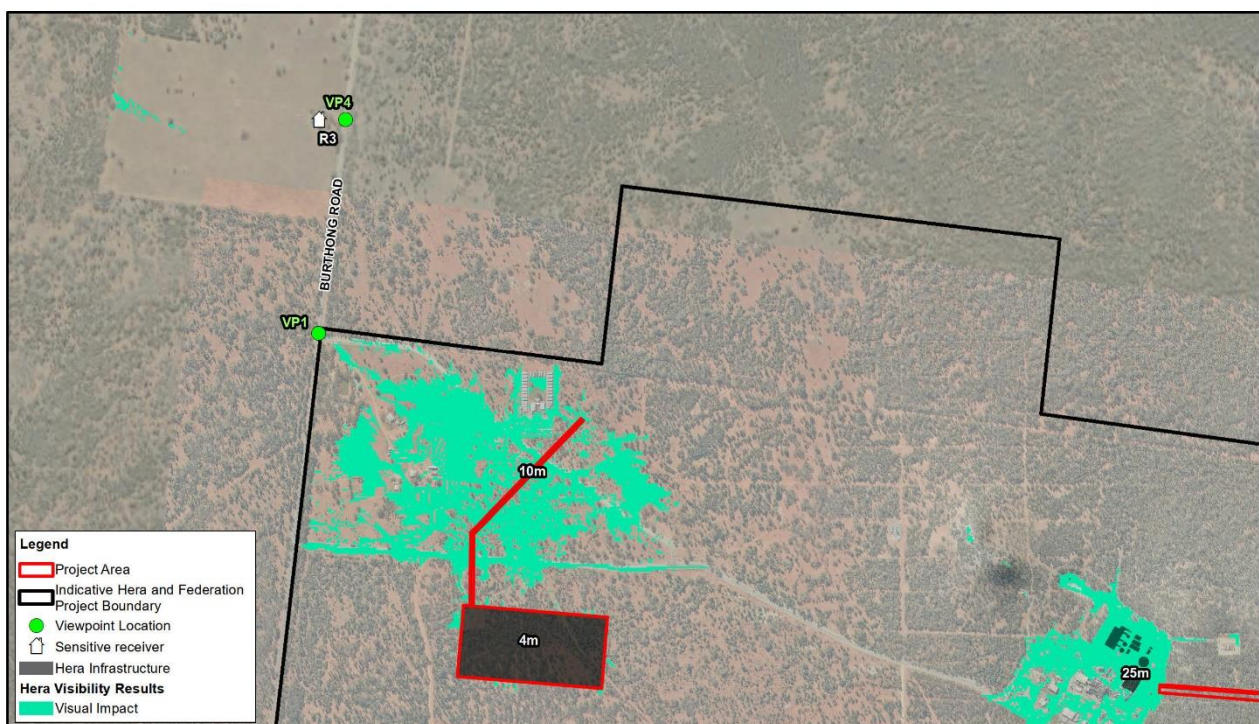


Figure 15 Zone of Theoretical Visibility for Viewpoint 4 (VP4)

4.9.7 Receptor VP4 – Summary of Visual Impact Assessment

Receptor – VP4	Summary of Visual Impact Assessment
Receptor Location	Burthong Road Private Receptor – Accessed from Burthong Road. Property entrance approximately 0.6km north of the Hera Mine entrance and approximately 11km north of proposed Federation Site. Receptor is described as private users/ resident accessing property and viewing from existing dwelling. Coordinate Location: Latitude 32° 5' 58.61" S, Longitude 146° 18' 35.88"E
Visual Baseline Description	- Views/ glimpses southeast travelling south along Burthong Road. - Represents typical views of travelers/ road users in vehicles and vegetation conditions adjacent to residential property. - Views in the foreground are typically semi - open, very gently undulating, with medium height woodland of endemic vegetation. - Views typical of Burthong Road that surrounds subject site where visibility is moderate due to semi-open character of the vegetation. - Visibility modelling has no positive visibility results near the residence.
Sensitivity Rating	- This viewpoint represents the visual experience along Burthong Road. From here the road continues south toward Hera Mine Entrance. - Views of the cypress forest with semi-open views on flat rangelands. - The overall sensitivity of the receptors at this viewpoint would be Low.
Impact Magnitude Rating	- The Impact Magnitude Rating for this receptor would be Negligible.
Impact Significance	- The impact of significance for receptors at this viewpoint would be considered Minor - Negligible.
Mitigation Measures	Mitigation measures recommended would be to maintain and extend the native vegetation buffer that aligns Burthong Road. All proposed infrastructure, etc should be set well within the site boundary maintaining a 1000m minimum clearance zone.

5 Mitigation Measures

The following recommendations are to maintain and protect existing vegetation during the operation of the Federation Project and rehabilitation to return the site to a similar condition prior to mining operations.

A Rehabilitation Strategy has been prepared for the Project which outlines to rehabilitation objectives and outcomes. The land will be rehabilitated back to a stable landform and will be revegetated with suitable native vegetation and grassland with consideration with the existing PCTs in the Project area.

6 Summary of Assessment

The LVIA was undertaken to provide an objective appraisal of the likely extent and magnitude of impacts on the landscape and visual environment from the proposed Project.

The LVIA forms part of the overall EIS for the approval of the Project and will inform ongoing planning and design for the proposed project.

The visual environment for the subject site and surrounding area is largely characterised by undulating low rounded ridges, rolling downs and plains, with wide drainage flats, that surrounds a mosaic of open rural land uses. The naturally vegetated landscape of the areas surrounding Cobar Penneplains are visually distinctive and are the most prominent landscape type in the region. The majority of the rural landscape around the site has not been cleared of vegetation, and there are remaining stands of vegetation along boundary lines and roads. These break up the visual landscape and compartmentalise views that, in most cases are short to medium in nature.

The visual impacts on the community and surrounding areas (especially from those nominated viewpoints) were identified as **Low**.

The assessment identified that in all 4 viewpoints the receptor sensitivity was rated as **Low**. This resulted from the receptor points being located on along Burthong Road and at the entrances of private residences along Burthong Road, within a 3km distance of the Project area from the centre of the proposed infrastructure.

With regard to the magnitude of change, this was considered to be **negligible** to **medium** due to the Project infrastructure and activities being relatively hidden by adjoining vegetation and landform that would remain unaffected by the works.

Table 5 provides a summary of the visual assessment for the proposed mine works outlining the following points.

Table 5 Summary of Visual Impact Ratings for each receptor

Receptor	Receptor Sensitivity	Magnitude of Change	Effect Significance
VP1	Low	Minor	Minor
VP2	Low	Medium	Minor - Moderate
VP3	Low	Negligible	Minor - Negligible
VP4	Low	Negligible	Minor - Negligible

In summary:

- Four (4) receptors were chosen and due to the limited number of public receptors these were intentionally selected because they represented the best available views to the subject site. The sensitivity of all four receptors was rated **Low**.
- Impact Magnitude Rating was assessed for the chosen viewpoints. For all views/ receptors the visibility of the proposed works was rated between **Medium to Negligible** due to the subject site's existing vegetation cover, degree of change created by the works and the varying levels of visual impacts on the surrounding landscape.
- Based on the appraisal and findings of this LVIA it can be considered that the proposed project would have a **Minor-Negligible** effect on the existing landscape character and values as well as its local context.

Local visual amenity of the area would be maintained as the Project would have negligible to minimal impact for the local community.

7 References

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