

Hunter Valley Operations Continuation Project

State Significant Development Assessment Report (SSD11826681 and SSD11826621)

June 2026





Acknowledgement of Country

The Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Published by NSW Department of Planning, Housing and Infrastructure

dphi.nsw.gov.au

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Executive Summary

This report details the Department of Planning, Housing and Infrastructure's (the Department) assessment of the Hunter Valley Operations (HVO) Continuation Project (the project) and will be provided to the Independent Planning Commission of NSW (IPC) as the consent authority.

The assessment considers the two State Significant Development (SSD) applications, being HVO North Open Cut Coal Continuation Project (SSD-11826681) and HVO South Open Cut Coal Continuation Project (SSD-11826621) which both form the project.

Project

The Hunter Valley Operations (HVO) mining complex is an established multi-pit open cut coal mining operation located approximately 24 kilometres (km) north-west of Singleton in the Singleton and Muswellbrook Shire local government areas (LGA).

HV Operations Pty Ltd (HV Operations) is seeking consent for the HVO Continuation Project. The project involves the continuation of mining at the HVO mining complex until the end of 2045 for HVO North and the end of 2042 for HVO South, including an extension of approved mining areas and mining of deeper coal seams.

HV Operations lodged the SSD applications for the project in January 2023. The HVO North application was amended in November 2023, for changes to the proposed realignment of Lemington Road and an associated change in the development application area. In August 2025, both development applications were amended to reduce greenhouse gas (GHG) emissions. This included a reduction in the project mine plan to avoid areas of high gas content, a reduction in the total run of mine (ROM) coal to be extracted by approximately 220 million tonnes (Mt), with a total of 429 Mt ROM coal proposed to be mined across the complex, and a reduction in the proposed life extension at HVO North by five years (from 2050 to 2045) and HVO south by 3 years (from 2045 to 2042) compared to the original application.

Strategic Context

The project has been considered in accordance with key relevant Commonwealth, State and regional strategies including the Commonwealth Government emissions reduction targets, the NSW State Government climate change policy framework, *NSW Coal Industry 2026-50* and the Upper Hunter Strategic Regional Land Use Plan.

Statutory Context

The project is classified as SSD under section 4.36 *Environmental Planning and Assessment Act 1979* (EP&A Act) because it meets the criteria specified in section 5(1)(a) of Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021* as development for the purpose of coal mining.

The IPC is the consent authority for the project under section 4.5A of the EP&A Act, as more than 50 unique public objections to the project were received during its exhibition.

On 27 October 2025 (HVO North) and 28 October 2025 (HVO South), a delegate of the Commonwealth Minister for the Environment (Commonwealth Minister) determined that the project was a controlled action under section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), however the project is not being assessed under the bilateral agreement between the State and Commonwealth.

Engagement

The Department exhibited the two development applications and environmental impact statement (EIS) from 30 January until 27 February 2023. During the exhibition period, the Department received 1,041 unique public submissions including 67 objections and 963 supportive submissions from members of the public and special interest groups.

Following the amendment to the application in August 2025, the Department exhibited the two amended development applications and amendment report from 5 September until 25 September 2025. During the exhibition period, the Department received 1,187 unique public submissions including 83 objections and 1,097 supportive submissions from members of the public and special interest groups.

Key issues raised include impacts on GHG emissions and associated climate change impacts, biodiversity, water resources, air quality and adverse economic and social impacts.

The Department sought advice from relevant State government agencies, including Singleton and Muswellbrook Shire Councils on the EIS and the amendment report. Some agencies provided further advice in response to additional information provided by HV Operations.

Issues raised in agency advice were generally addressed by HV Operations in its submission reports, amendment report and provision of additional information. The Department has considered residual matters as part of its assessment.

The Department also sought targeted advice from the Independent Expert Advisory Panel for Mining (IEAPM) on GHG emissions and impacts to water resources.

Key Assessment Issues

GHG emissions

The project would generate approximately 809 million tonnes (Mt) of carbon dioxide equivalent (CO₂-e) emissions. Most of these emissions (i.e. around 98%) would be scope 3 emissions associated with the transport and combustion of coal by end users.

As outlined in the *NSW Coal Industry 2026–50*, with regard to GHG, development applications for extensions to coal mines are required to meet the emissions requirements prescribed in key policy frameworks including the Australian Government’s Safeguard Mechanism and the EPA’s *NSW Guide for Large Emitters*.

During the assessment of the development applications, the project was amended to reduce Scope 1 emissions by 11.5 Mt CO₂-e (around 43%) through the avoidance of mining in an area of high gas content (referred to as gas Domain 1) and reducing the proposed mining operation timeline.

HV Operations has committed to measures to avoid, reduce and substitute emissions over the life of the project consistent with the *NSW Guide for Large Emitters* including minimising Scope 1 diesel emissions through mine planning, reviews of emerging emission reductions technologies (such as alternative fuels, electric-powered equipment and renewable energy) and a feasibility trial for the pre-drainage of gas in gas Domain 3.

The project would be regulated under the Safeguard Mechanism which will require HV Operations to reduce its net emissions on a declining trajectory aligned with achieving Australia’s emissions reduction targets. In addition to the requirements under the Safeguard Mechanism, HV Operations committed to further offsetting and/or mitigation to achieve downward net emissions trajectory consistent with the NSW emissions reduction trajectory.

The NSW EPA confirmed the net emissions follow a downward trajectory that is consistent with the NSW emissions reduction trajectory and is satisfied that the application has been prepared in accordance with the requirements of the *NSW Guide for Large Emitters*.

The NSW Government expects that overall net emissions from the coal mining sector will decline consistent with NSW’s targets from 2030 in line with forecast production declines and the implementation of mitigation technologies and offsetting.

It is acknowledged that emissions generated by the project would contribute to climate change and contribute to climate impacts in the locality, the relevant locality being the Hunter region. The potential climate change impacts in the locality from emissions resulting from the project was a key issue raised in community submissions during the exhibition of the amended project.

The Department has considered the GHG emissions of the project in the context of NSW and Commonwealth Government policy frameworks. The Department considers the project is consistent

with these policy frameworks and that GHG emissions have been minimised to the greatest extent practicable given the project has met the relevant NSW Government guidance for emissions avoidance, mitigation and offsetting.

The Department has recommended conditions intended to complement the NSW EPA's regulation of GHG emissions in the NSW coal mining sector.

Biodiversity

The project would directly impact approximately 950 hectares (ha) of land (903 ha in HVO North and 47 ha in HVO South), including approximately 184.8 ha of native vegetation that meets the threshold for offsetting. Key biodiversity impacts include disturbance of approximately 81.4 ha of *Central Hunter Grey Box-Ironbark Woodland*, 7.1 ha of *Hunter Valley Foothills Slaty Gum Woodland* and 1.25 ha of *Hunter Floodplain Red Gum Woodland* threatened ecological communities (TECs).

The project would also impact habitat for the southern myotis (80.8 ha), brush-tailed phascogale (125.8 ha), Hunter Valley delma (233.6 ha) and the masked owl (75.8 ha), and approximately 1.9 ha of *Eucalyptus camaldulensis*.

HV Operations has proposed a range of measures to avoid and minimise impacts on biodiversity. The amended project has reduced impacts to areas of TEC including avoiding 154.2 ha of *Central Hunter Grey Box-Ironbark Woodland*, 8.1 ha of *Hunter Floodplain Red Gum Woodland*, 2.6 ha of *Hunter Valley Foothills Slaty Gum Woodland* and 10.1 ha of *Warkworth Sands Woodland*.

The *Hunter Floodplain Red Gum Woodland* endangered ecological community (EEC) is a serious and irreversible impacts (SAIL) candidate species and residual impacts to the 1.25 ha area of this community has been a key focus of the Department's assessment of biodiversity impacts.

In addition to the avoidance measures in the design of the project, HV Operations committed to the incorporation of a 6.6 ha of *Hunter Floodplain Red Gum Woodland* on HV Operations land into a restoration area which would aim to protect and restore the community and increase the extent of the community at the site. The proposed restoration and enhancement strategies included both passive and assisted revegetation.

Conservation Programs, Heritage and Regulation (CPHR) noted that the project 'may' constitute a Serious and Irreversible Impact (SAIL) to the EEC due to the residual 1.2 ha of direct impact to the community.

The accredited assessor for the project concluded that following consideration of the avoid and minimise hierarchy the project is not considered to result in the Hunter Floodplain Red Gum Woodland EEC being at risk of SAIL.

The Department considers that sufficient information has been provided to demonstrate that the impact would not be significant to the point where it would be likely to contribute significantly to

extinction, however the decision of whether the project would have a relevant SAI is ultimately to be made by the consent authority, which may form an alternative conclusion.

Residual impacts of the project would be offset in accordance with the Biodiversity Offset Scheme (BOS), and the Department has recommended strict conditions consistent with NSW Government policy to mitigate and manage potential residual impacts on biodiversity.

Water resources

The project involves the continuation of mining in an area subject to existing mining operations at a complex with existing infrastructure and management practices to minimise and monitor impacts to water resources. The potential impacts from the project are generally minor incremental and cumulative impacts that would not result in significant impacts to aquifers, waterways and the ecosystems that depend on these water resources.

Impacts include incremental groundwater drawdown of up to approximately 0.5 metres (m) in the Hunter River alluvium and cumulative drawdown of up to 2 m around Wollombi Brook alluvium. No significant impacts to groundwater dependent ecosystems (GDEs) are expected to result from the project. The incremental impact of the project on surface water is generally expected to be minor or negligible.

The IEAPM reviewed the water impact assessments and concluded there were no residual matters to be addressed subject to the implementation of conditions.

The Department has recommended conditions consistent with advice provided by the IEAPM and other government agencies, including for the preparation of a Water Management Plan with strict water performance measures, monitoring requirements and a trigger action response plan (TARP).

Air quality

The project would generate dust and particulate emissions (PM₁₀ and PM_{2.5}, total suspended particulates and deposited dust), diesel exhaust emissions (fine particulates and nitrogen oxide) from plant and equipment and emissions from blasting (nitrogen dioxide), during construction, mining, material handling, blasting and haulage activities. Air quality, particularly cumulative impacts, was a key issue in public submissions.

Air quality was assessed in accordance with the EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (2022), using worst-case future scenarios (2029, 2034 and 2041) and cumulative modelling that incorporated surrounding approved mines.

The project would not result in a material increase in the number of newly affected receivers, but would extend the duration of air-quality impacts and contribute to minor incremental increases in cumulative impacts.

Five receivers currently hold existing air quality mitigation rights under the HVO South consent (MP 06_0261). Given the project is extending the duration of air quality impacts, the Department has recommended the continuation of these mitigation rights if the project is approved.

Modelling predicts annual average cumulative exceedances of PM₁₀ and/or PM_{2.5} and/or deposited dust criteria at 11 private receptors within the established mining precinct south-east of the project. All of these receivers already have mitigation under other mining consents. The Department has carefully assessed these matters and considers that the project would not significantly contribute to existing cumulative impacts and that additional mitigation rights under this project for those are not warranted.

Project only 24-hour PM₁₀ and PM_{2.5} impacts are predicted to comply with relevant criteria at private residential receptors. While residual air-quality impacts would continue over the life of the project, they are generally consistent with approved impacts of the existing operation and reflect an extension to the duration of air quality impacts within an existing mining precinct.

The Department considers that the project's air-quality impacts can be adequately avoided, minimised, managed or compensated through consent conditions, through VLAMP mitigation/acquisition, an updated air quality management plan, real-time monitoring and controls, coordination with nearby mines, and ongoing engagement.

Noise

The project would generate noise from mobile equipment, fixed plant, construction activities, road traffic, rail movements and blasting, particularly under adverse meteorological conditions. Noise impacts are a key issue in the Department's assessment, reflecting longstanding concerns in the surrounding Hunter community.

Noise impacts were assessed in accordance with the *NSW Noise Policy for Industry, Interim Construction Noise Guideline*, *NSW Road Noise Policy*, *Rail Infrastructure Noise Guideline* and the Department's *Voluntary Land Acquisition and Mitigation Policy*, using worst-case future scenarios (2029, 2032, 2034, 2038 and 2041) and cumulative modelling that incorporated surrounding approved mines.

Project noise trigger levels (PNTLs) were used to assess residual impacts and determine eligibility for mitigation or acquisition, and achievable noise levels (ANLs), were developed to represent the level of noise performance that can reasonably be achieved following implementation of all feasible mitigation measures.

The project would not materially increase the number of newly affected receivers but would extend the duration of existing noise impacts.

For operational noise to comply with PNTLs at all times, the modelling demonstrated that extensive shutdowns would be required (approximately 71% of the time for HVO North and 52% for HVO

South), which is not operationally feasible. Accordingly, ANLs were developed in consultation with the NSW EPA, which have been adopted as the operational enforceable noise limits for the project. These levels can be met with feasible and targeted operational controls, including localised shutdowns (approximately 38% of the time for HVO North and 30% for HVO South), allowing the project to operate efficiently while minimising noise impacts.

Modelling predicts marginal exceedances (3–5 dB above the criteria) at 29 receivers and negligible exceedances (1–2 dB above the criteria) at 98 receivers. These affected receivers are located within the existing mining precinct and already have existing noise mitigation rights under current approvals.

Consistent with the VLAMP, the Department has recommended mitigation rights for all eligible receivers and has recommended that noise mitigation rights for the existing operations are continued for the project, even where an exceedance is no longer predicted.

The Department considers that the project has been designed to incorporate reasonable and feasible noise mitigation measures and that residual impacts are consistent with the established mining context. Recommended conditions require compliance with a single set of contemporary noise limits, implementation of a noise management plan, provision of mitigation to eligible receiver and ongoing monitoring and community engagement.

Subject to compliance with the recommended conditions, the Department considers that noise impacts can be appropriately minimised, managed and where necessary, compensated in accordance with the VLAMP.

Social

The social impacts and benefits of the project are generally consistent with the existing social impacts and benefits associated with the approved mine, noting they would be extended in time relative to the approved operations.

During the public exhibition periods, most of the submissions in support of the project related to ongoing job security and employment opportunities, positive socio-economic benefits for individuals, families, and the economy, and ongoing community contributions and support.

Additional key social impacts of the project identified during assessments and submissions include the continued generation of noise and dust, and traffic congestion and delays during construction and operation.

The Department recognises that while the project is expected to deliver net social benefits, the project would result in continued amenity impacts, particularly air quality and noise, and has recommended conditions relating to these impacts.

Economic

The project is estimated to generate net benefits of \$5.69 billion net present value (NPV) to NSW, average approximately 1,311 FTE jobs over the life of the project and cost an estimated \$3.8 million NPV in emissions costs. The HVO complex is a significant employer in the Hunter region, accounting for almost 10% of direct employment in the local mining industry.

The Department considers that the project would result in net positive economic benefits to local and regional areas in proximity to the project, and to the State of NSW. The continuation of the economic benefits of the existing complex (including supporting local job security) in the short to medium term is consistent with the *NSW Coal Industry 2026-50*.

Other

The Department has assessed the impacts of the project for a range of other matters, including traffic, blasting and vibration, Aboriginal cultural and historic heritage, visual amenity, land use and hazards. The Department has recommended strict conditions of consent to assist in managing these issues should the IPC determine to approve the project.

Evaluation

The Department has carefully considered the likely environmental, social, and economic impacts of the project in accordance with the requirements of section 4.15 of the EP&A Act.

The Department's consideration of the impacts and benefits the project is guided by NSW Government policy including the *NSW Coal Industry 2026-50* which describes that the NSW Government will continue to allow approvals for extensions to existing mining operations between 2026 to 2050 where it can be demonstrated that the environmental impacts of the project can be managed, in order to support ongoing job and energy security in the short to medium term.

The Department's assessment concludes that the project would result in benefits to the State of NSW including economic benefits through continuing employment, royalties and flow-on social and economic effects. However, the project would also result in a range of impacts including additional greenhouse gas emissions and biodiversity impacts that would need to be mitigated and offset, and incremental and cumulative impacts to amenity and water resources. The Department considers that the impacts from the project can be managed in accordance with NSW Government policy.

The Department has not provided an overall recommendation but rather has undertaken a comprehensive assessment and evaluation of the project to inform the IPC as the consent authority and assist it in its need to conclude if the project is in the public interest. Should the IPC determine to approve the project, the Department has provided recommended conditions.

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1 Introduction

1.1 Background

1. HV Operations Pty Ltd¹ (HV Operations) owns and operates the Hunter Valley Operations (HVO) mining complex, located approximately 24 kilometres (km) north-west of Singleton, across the Singleton and Muswellbrook Shire local government areas (LGA) (see [Figure 1](#)).
2. HVO is an established multi-pit open cut coal mining operation comprising two mine sites, HVO North and HVO South (separated by the Hunter River), which is approved under separate development consents and operates as a single complex.
3. HV Operations is proposing to extend the life of the HVO complex primarily through the extraction of coal from deeper seams within the existing site, requiring new ancillary infrastructure to be constructed and existing ancillary infrastructure to be relocated, augmented and upgraded.

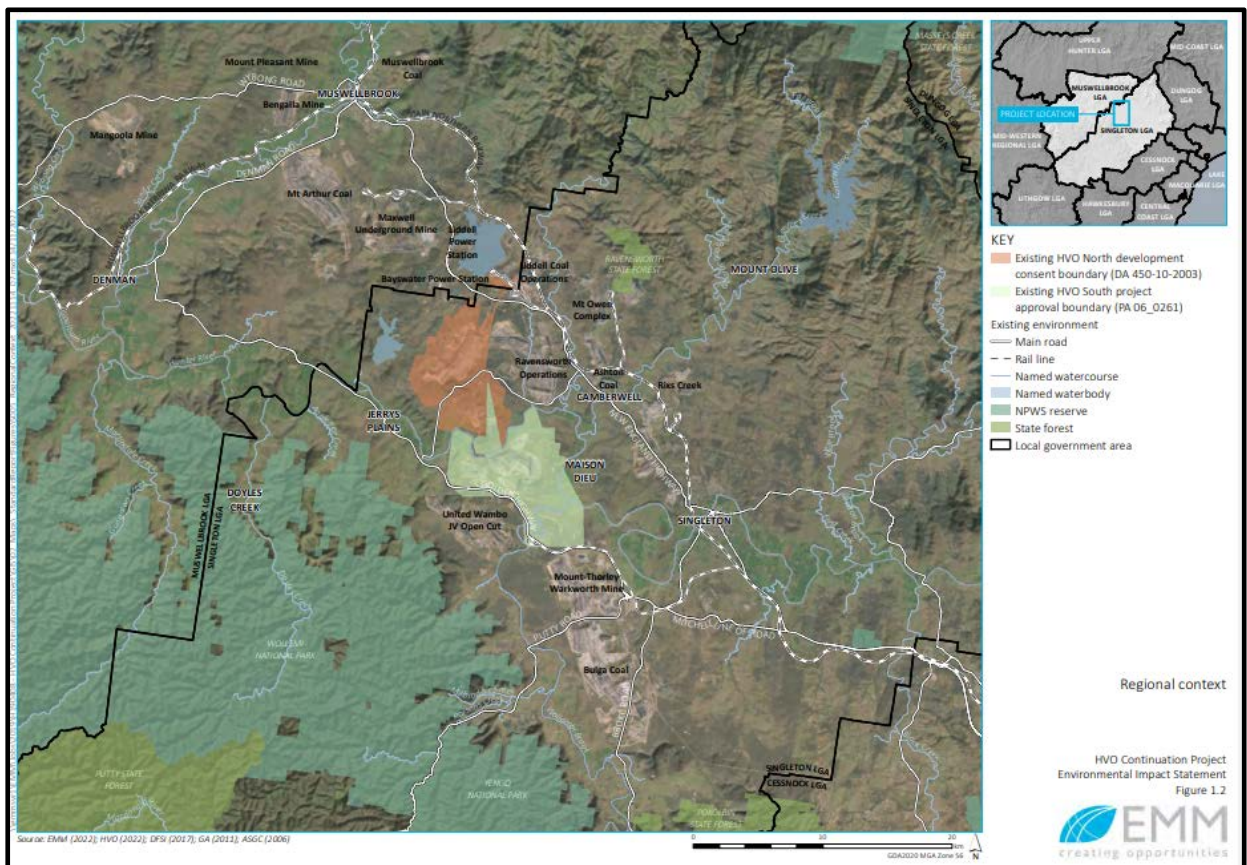


Figure 1 | Project location and context

¹ HV Operations Pty Ltd is the manager of the unincorporated joint venture between subsidiary companies Yancoal Australia Ltd and Glencore Coal Pty Limited.

1.2 Existing operations

1.2.1 HVO North

4. On 12 June 2004, the then Minister for Infrastructure, Planning and Natural Resources approved HVO North (DA 450-10-2003) under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The approval comprised a consolidation of 18 approvals that applied at the site.
5. Under the existing development consent HV Operations is authorised to (see **Figure 2**):
 - extract up to 22 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal per year until 12 June 2025 from the West/Mitchell and Carrington pits;
 - develop and operate a range of ancillary infrastructure including two coal handling and preparation plants (CHPP) and mine infrastructure areas (MIA), conveyors, administration buildings and workshops, water infrastructure and transmission lines;
 - transport product coal by truck and/or conveyor to the Bayswater and Liddell power stations and to the Newdell, Hunter Valley or Ravensworth coal load out points for transport via rail to the Port of Newcastle to export markets; and
 - transfer and emplace tailings within approved tailings storage facilities at HVO North, HVO South and the adjoining Ravensworth Operations.

1.2.2 HVO South

6. On 24 March 2009, the then Minister for Planning approved HVO South (PA 06_0261) under the EP&A Act. The approval comprised a consolidation of 25 approvals for activities that applied at the site.
7. Under the existing development consent (as modified), HV Operations is authorised to (see **Figure 2**):
 - extract up to 20 Mtpa of ROM coal per year until 24 March 2030 from the Riverview and Chestnut pits;
 - develop and operate a range of ancillary infrastructure including a CHPP and MIA, ammonium nitrate emulsions plant, load point and rail loop, conveyors, administration buildings and workshops, water infrastructure and transmission lines;
 - transport ROM coal by truck and/or conveyor to any of the CHPPs at HVO North for processing, or to the Lemington CHPP (not yet constructed) for processing and transport via rail to the Port of Newcastle; and

- transfer and emplacement of tailings within approved tailings storage facilities at HVO South and HVO North.

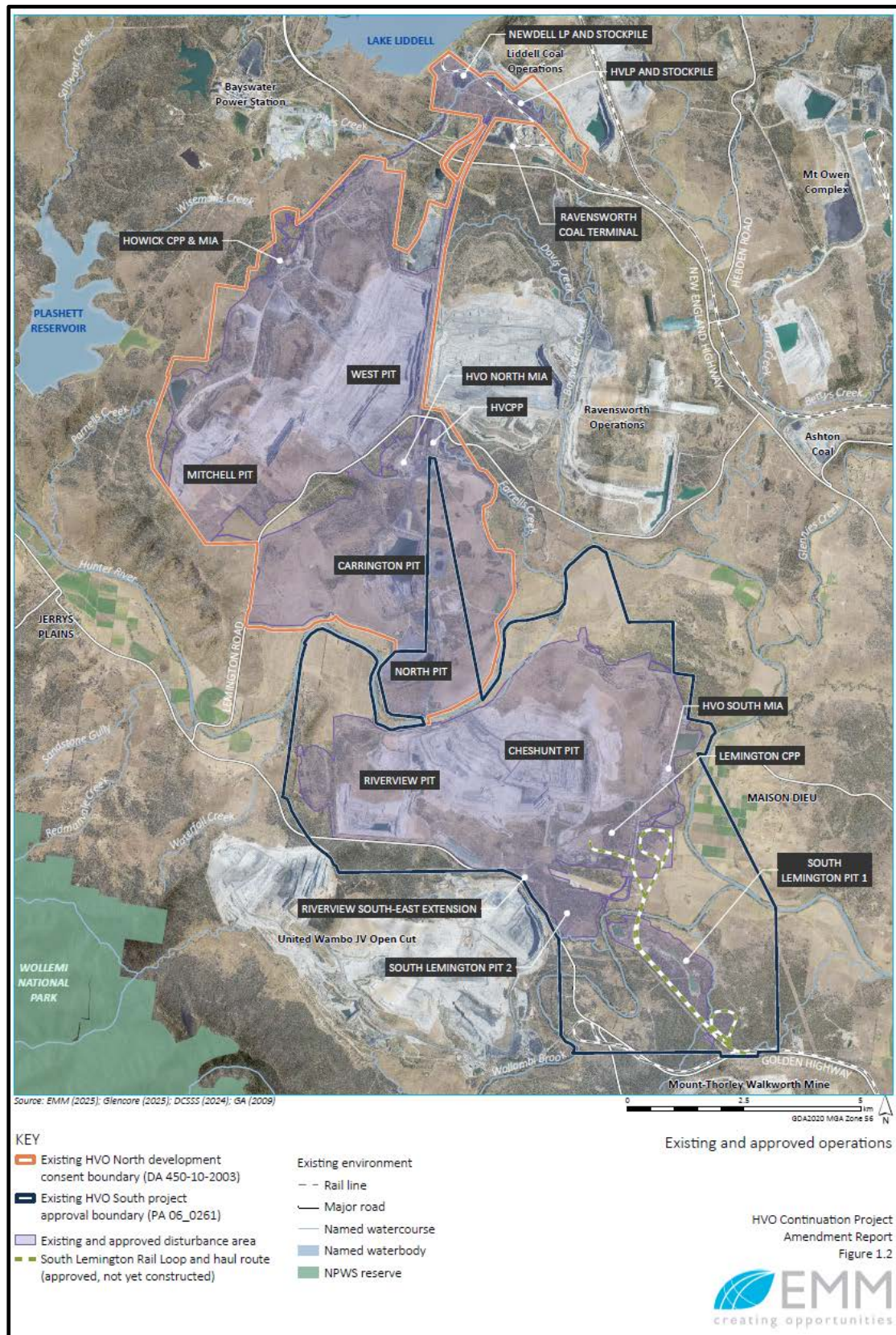


Figure 2 | Existing and approved operations

2 Project

2.1 Project overview

8. HV Operations has lodged two State Significant Development (SSD) applications, being SSD-11826681 for the HVO North Open Cut Coal Continuation Project and SSD-11826621 for the HVO South Open Cut Coal Continuation Project (collectively known as the project) under divisions 4.1 and 4.7 of the EP&A Act.
9. The applications were amended two times during the assessment of the project. Further detail is provided in **Section 2.2**. The project as amended is described in this section.
10. The project involves the continuation of mining at the HVO mining complex until the end of 2045 for HVO North and the end of 2042 for HVO South, including an extension of approved mining areas and mining of deeper coal seams.
11. The project is summarised in **Table 1** below and described in detail in **Appendix A**. Key elements of the project are shown in **Figures 4 to 6**.

Table 1 | Key aspects of the project

Aspect	Approved Project	Proposed Project (as amended)
HVO North		
Project area	- Shown in Figure 2 - Existing and approved disturbance area of approximately 4,965 hectares (ha)	- Shown in Figure 3 - A total additional disturbance area of approximately 903 ha - Minor additional disturbance areas associated with the construction of transmission lines - Relinquishment of approximately 6.7 ha of currently approved disturbance area
Coal resource	A total of 498 Mt ROM coal	Extraction of approximately 307 Mt of ROM coal over the life of the Project, comprising approximately 200 Mt of ROM coal beyond areas currently approved for extraction
Mine life	Until 12 June 2025	Until 31 December 2045
Mining method	- Open cut mining operations, primarily using truck and shovel - Use of a dragline is also approved	No change
Extraction rate	Up to 22 Mtpa ROM coal	- HVO North: 22 Mtpa - Combined complex limit of 25 Mtpa

Aspect	Approved Project	Proposed Project (as amended)
Coal processing and transport	• ROM coal transported to either Hunter Valley CHPP (up to 20Mtpa) or Howick CHPP (up to 6Mtpa) • Product coal transported from Hunter Valley CHPP to Newdell load point via overland conveyor and/or internal haul roads • Transport of product coal from Howick CHPP by overland conveyor to Liddell and/or Bayswater power stations or by truck to the Hunter Valley and/or Newdell load points • Intermittent transfer of coal between Hunter Valley CHPP, Newdell and, Hunter Valley load points and Ravensworth Coal Terminal	• No change to processing at Hunter Valley CHPP or Howick CHPP • Upgrading of product coal infrastructure, including increased stockpile capacity at either the Newdell or Hunter Valley load point • Construction of an additional haul road to enable ROM coal to be transported to the neighbouring Ravensworth Operations for processing and rail via the Ravensworth Coal Terminal • Temporarily transport product coal by truck from the Howick CHPP to the Liddell stockpile for transport to market via the Liddell coal handling and train loading facilities during upgrades of the Newdell load point
Water Management	• Water supply works including pumps, bores, diversions, dams and flood protection levees • Integrated water management with HVO South and transfer of water between Liddell Coal Operations and Ravensworth Operations • Water discharges in accordance with Hunter River Salinity Trading Scheme • Construction of low permeability barrier walls within the Carrington Pit Southern Extension (now constructed) and Carrington West Wing area • Diversion of unnamed tributary to the west of Carrington West Wing	• Continuation of integrated water management with HVO South and other mining operations • Construction of additional flood protection levees and enlargement of water storage areas • No change to water EPL discharge locations and/or construction of low permeability barriers
Waste emplacement and rejects	• Ability to dispose of overburden within all pits and out-of-pit emplacements across the complex • Maximum overburden height of approximately 240 m AHD • Emplacement of tailings within approved tailings storage facilities at the complex and at the adjoining Ravensworth Operations	• No change to emplacement methodology • No change to maximum overburden emplacement height • Construction of additional tailings pipelines and pumps and emplacement of tailings within the northern extent of West Pit and at approved tailings facilities at Liddell Coal Operations • Removal, relocation and/or reprocessing of tailings from historic tailings storage facilities as required

Aspect	Approved Project	Proposed Project (as amended)
Other infrastructure	- Construction of Hunter Valley MIA and Howick MIA - Construction and maintenance of ancillary infrastructure	- Realignment of Lemington Road (including construction of a new Hunter River bridge), and relocation of HVO South access road - Relocation of existing Ausgrid and AGL transmission lines, along with internal transmission lines - Upgrades to HVO North MIA - Construction and maintenance of ancillary infrastructure
Operating hours	24 hours per day, 7 days per week	No change
Workforce	- Construction workforce – N/A - Operational workforce – up to approximately 1,500 FTE workers (complex-wide)	- Construction workforce – up to approximately 600, primarily for construction of the Lemington Road realignment - Operational workforce – No change²
Rehabilitation and final landform	- Progressive rehabilitation - Final land use mixture of pasture and woodland - Reinstatement of unnamed tributary in the Carrington West Wing area to its original position - Three final voids in Carrington Pit, West Pit and Mitchell Pit	- As shown in Figure 4 - Progressive rehabilitation, with the post mining land use to comprise a mixture of grazing and native habitat areas - Removal of Carrington West Wing levee and incorporation of Mitchell East levee into final landform - Reduction in number of final voids from three to two (Mitchell Pit and Carrington Pit)
HVO South		
Project area	- Shown in Figure 2 - Existing and approved disturbance of approximately 3,242 ha	- Shown in Figure 3 - Reduction in the current approved disturbance area by approximately 267 ha - Additional new disturbance area of approximately 47 ha that is not currently approved
Coal resource	A total of 320 Mt ROM coal	Extraction of approximately 122 Mt of ROM coal, from areas currently approved for extraction, over the project life
Mine life	Until 24 March 2030	Until 31 December 2042

² As part of a conservative assessment, up to 1,500 FTE workers have been assumed for assessments of impacts and up to 1,407 FTE workers have been assumed for assessment of benefits.

Aspect	Approved Project	Proposed Project (as amended)
Mining method	- Open cut mining operations, primarily using truck and shovel - Highwall mining, including augur mining and dragline is also approved	No change
Extraction rate	Up to 20 Mtpa ROM coal	- Up to 13 Mtpa ROM coal - Combined complex limit of 25 Mtpa
Coal processing and transport	- Construction of the Lemington CHPP (up to 16 Mtpa) and associated rail loop connecting to Wambo rail spur - ROM coal can be transported via internal haul roads to all CHPPs within HVO complex (Hunter Valley CHPP, Howick CHPP, and Lemington CHPP) for processing (up to 20Mtpa) - ROM coal can also be transported via overland conveyor to Hunter Valley CHPP - Transfer of product coal to Wambo rail spur via rail spur and loop, overland conveyor and/or trucks - Mining within the Riverview South East Extension, South Lemington Pit 1 and South Lemington Pit 2 areas	- No change to processing limits - No change in ROM coal transport via internal haul roads - Transport product coal by truck or overland conveyor from all CHPPs to loading points (HVLP, Newdell and Liddell) - Construction of the Lemington CHPP and associated rail facilities no longer proposed - Mining within the Riverview South East Extension, South Lemington Pit 1 and South Lemington Pit 2 areas no longer proposed
Water Management	- Water supply works including pumps, bores, diversions, dams and flood protection levees - Integrated water management with HVO North and transfer of water between MTW and Wambo - Water discharges in accordance with Hunter River Salinity Trading Scheme - Construction of bores to allow transfer of water into and out of the former Lemington Underground Mine void	- Continuation of integrated water management with HVO North and other mining operations (as permitted by relevant development consents) - Construction of additional flood protection levees and enlargement of water storage areas - No change to EPL water discharge locations and/or use of Lemington Underground Mine void for water storage/supply
Waste emplacement and rejects	- Ability to dispose of overburden within all pits and out-of-pit emplacements across the complex - Maximum overburden height of approximately 240 m AHD - Integrated tailings management with HVO North with emplacement of tailings in approved tailings storage facilities across the complex	- No change to emplacement methodology - No change to maximum overburden emplacement height - Removal, relocation and/or reprocessing of tailings from historic tailings storage facilities as required

Aspect	Approved Project	Proposed Project (as amended)
Other infrastructure	- Construction of HVO South MIA. - Wollombi Brook bridge and low level crossing - Operation of ammonium nitrate emulsion facility - Construction and maintenance of ancillary infrastructure	- Relocation of existing Ausgrid transmission lines, along with internal transmission lines - Construction and maintenance of ancillary infrastructure
Operating hours	24 hours per day, 7 days per week	No change
Workforce	- Construction workforce – N/A - Operational workforce – up to approximately 1,500 FTE workers (complex-wide)	- Construction workforce – up to approximately 600 for construction transmission line decommissioning and realignment and water management system works - Operational workforce – No change³
Rehabilitation and final landform	- Progressive rehabilitation. - Final land use mixture of pasture and woodland - One final void in Riverview Pit	- As shown in Figure 4 - Progressive rehabilitation, with the post mining land use to comprise a mixture of grazing and native habitat areas - No change to number of final voids

³ As part of a conservative assessment, up to 1,500 FTE workers have been assumed for assessments of impacts and up to 1,407 FTE workers have been assumed for assessment of benefits.

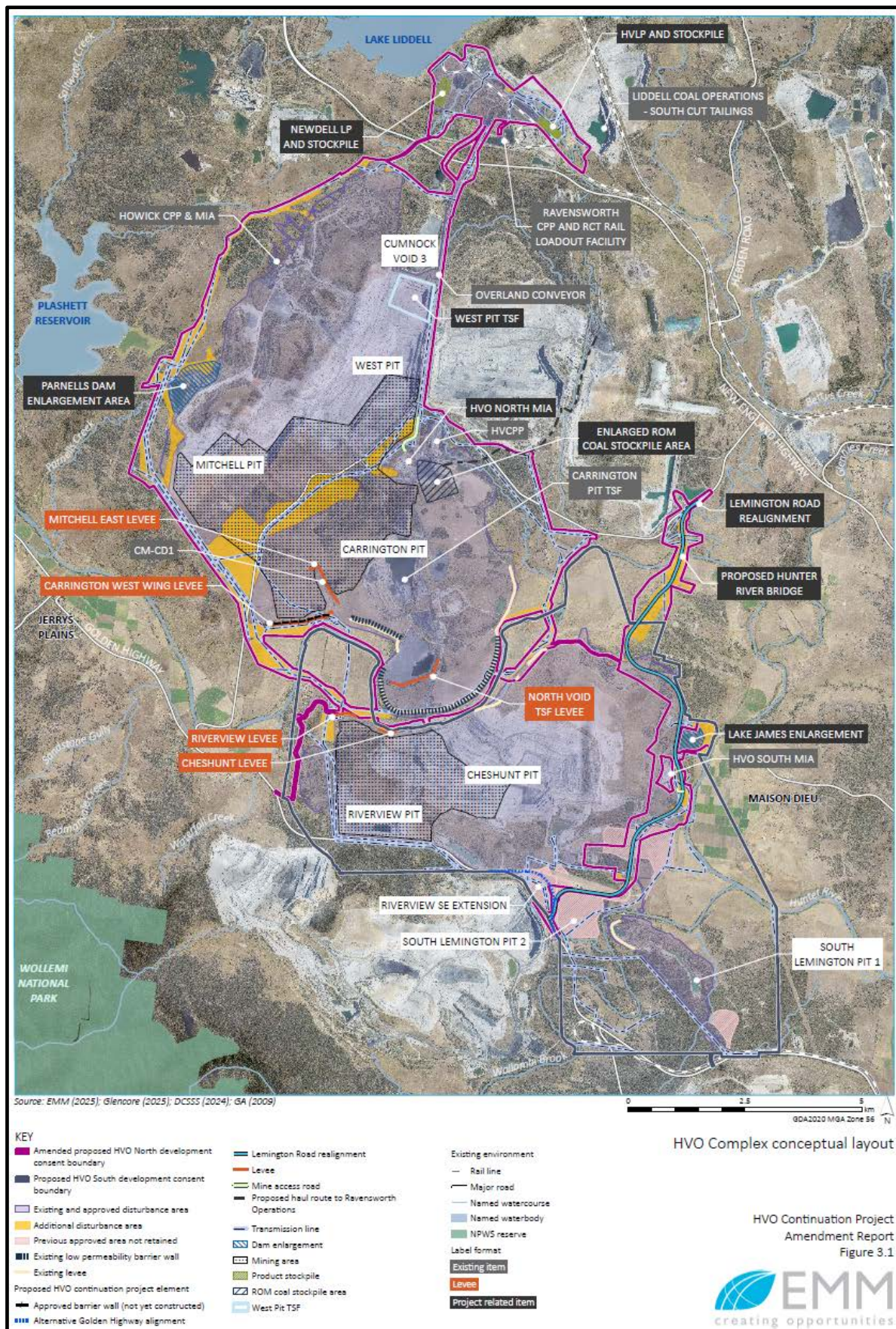


Figure 3 | Proposed HVO complex layout

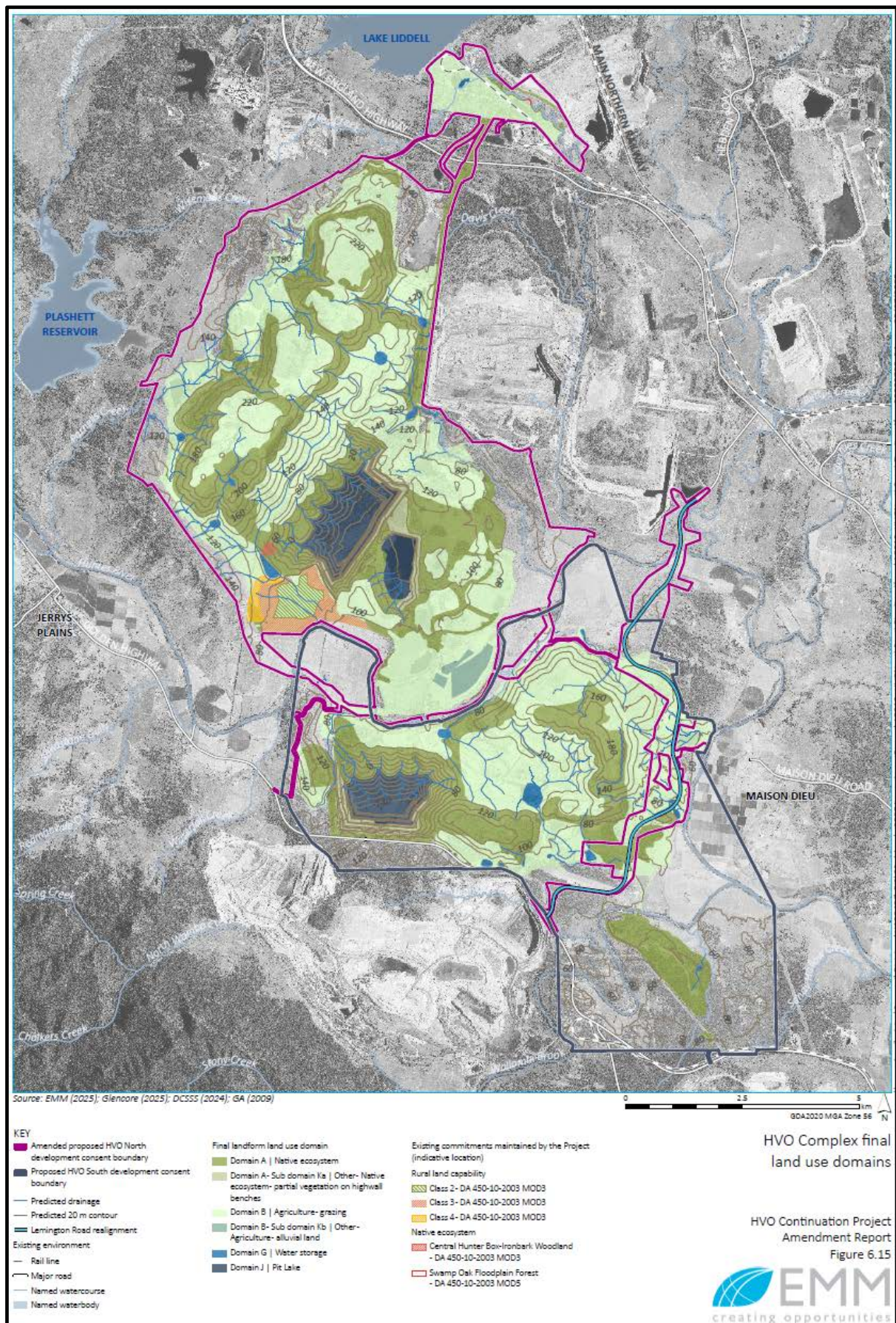


Figure 4 | Proposed HVO complex final land use domains

2.2 Amendments

2.2.1 November 2023 Amendment

12. In November 2023, the Department approved an amendment to the HVO North application to change the proposed realignment of Lemington Road and associated modified development application area.
13. The amendment was made to avoid all direct impacts to the Warkworth Sands Woodland Endangered Ecological Community (EEC) and to avoid impacts to two scarred trees of Aboriginal cultural heritage origin, identified as being of high significance in the EIS.

2.2.2 August 2025 Amendment

14. In July 2024, the Department wrote to HV Operations requesting it consider the implications of avoiding coal extraction in an area of high gas content (referred to as gas Domain 1) in order to reduce the greenhouse gas (GHG) emissions associated with the development. Further context to the request is provided in **Section 6.1.1**.
15. In August 2025, the Department approved an amendment to both the HVO North and HVO South applications to reduce GHG emissions. The amendment included the following changes compared to the original project:
 - reduce the project mine plan to avoid coal extraction within gas Domain 1 at HVO North;
 - reduce the total ROM coal to be extracted by approximately 220 Mt⁴;
 - reduce the proposed annual production limit at HVO South from 18 Mtpa to 13 Mtpa;
 - reduce the annual production limit for the complex from 42 Mtpa to of 26 Mtpa;
 - reduce the proposed life extension at HVO North by five years (from 2050 to 2045) and HVO south by 3 years (from 2045 to 2042);
 - expand the HVO North ROM coal stockpile to improve coal management;

⁴ The original application was lodged in 2022 and included ROM coal projections from 2024 to 2026. Around 67Mt of ROM coal was projected to be mined in this period. This ROM coal was not included the amended application, given the project was amended in late 2025 and this ROM coal has been/is being mined under the existing consents. Accordingly, this ROM coal has not been included in the calculation of the overall reduction in ROM coal to be extracted for the amendment or for the purposes of considering the avoidance of GHG emissions.

- temporary transport of product coal by truck from the Howick Coal Preparation Plant (CPP) to the Liddell stockpile until upgrades of the Newdell Load Point are completed;
 - establishment of a levee to provide flood protection for the final void in Mitchell Pit; and
 - minor alterations to disturbance boundaries to accommodate various infrastructure.
16. The Department publicly exhibited the Amendment Report as described in **Section 5**.

3 Strategic context

17. This section describes the site context and relevant strategic policy framework of the project. **Section 6** provides detailed assessment of the key issues in consideration of any relevant strategic policies and plans.

3.1 Environment and surrounding land use

18. The HVO mining complex is an established coal mine located in a longstanding coal mining precinct in the Hunter Valley. The complex comprises the HVO North and HVO South mines, which are separated by the Hunter River.
19. A number of other existing coal mines are also located in the precinct, including the United Wambo, Wambo, Ravensworth, Ashton, Glendell, Mount Owen, Liddell, Integra, Rix's Creek North and South, Mount Thorley and Warkworth mines.
20. These mines are supported by an extensive network of access roads, rail lines and rail loops, coal preparation plants, water management infrastructure and tailings dams.
21. While located in an intensive mining precinct, the HVO mining complex is also located in proximity to urban areas with Maison Dieu, Camberwell, Jerry's Plains, Warkworth, Long Point, and Gouldsville all located within 10 km of the site (see **Figure 5**).
22. The area immediately surrounding the complex comprises a mix of mining, rural and rural-residential land uses. Mining companies and other service providers own much of the land in proximity to the project area, with small areas of privately-owned land within the towns of Jerry's Plains to the west, and Maison Dieu and Camberwell to the east (see **Figure 5**).
23. Agricultural activities undertaken on HVO-owned land include low intensity grazing on mine buffer land with cropping activities carried out on alluvial lands proximate to the Hunter River, as well as a dairy in Maison Dieu. Grazing is also undertaken on some rehabilitated areas under land licence agreements.

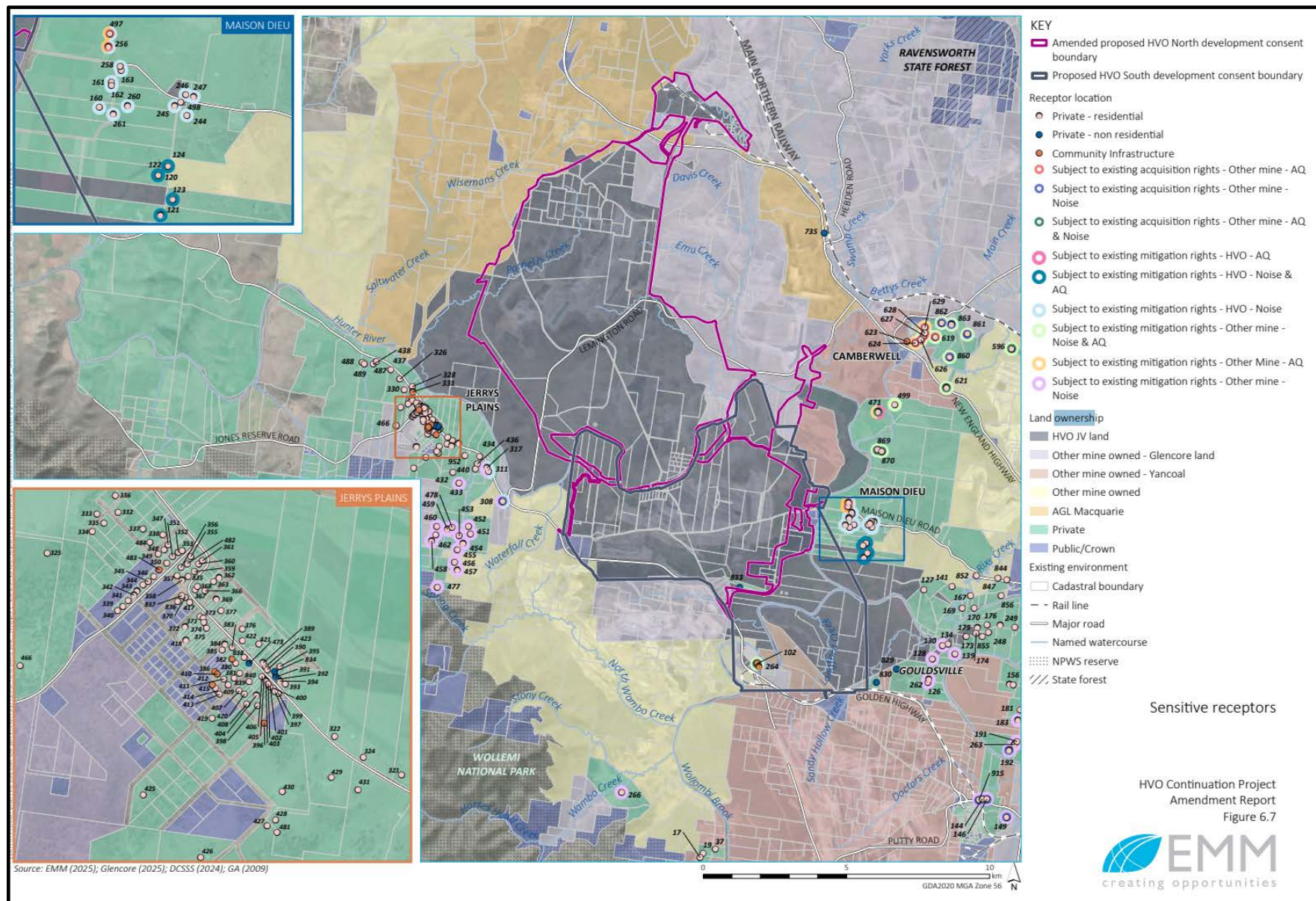


Figure 5 | Surrounding land ownership and sensitive receptors



Figure 6 | Surrounding BSAL, Equine and Viticulture CICs

24. There is an area of regionally mapped Biophysical Strategic Agricultural Land (BSAL) associated with the Hunter River alluvial flats which divide HVO North and HVO South (see **Figure 6**). No BSAL was present within the project boundary during assessment for the EIS, and site verification certificates (SVCs) were subsequently issued by the Department in 2021 and 2022 (SVC-12575722 and SVC-41389276) respectively. The SVCs are applicable to the amended project as no changes are proposed to the additional MLs presented in the EIS.
25. Mapped Equine and Viticulture Critical Industry Cluster (CIC) land also occur in the locality but are generally concentrated around the Hunter River and other alluvial lands (see **Figure 8**). There are no areas of Equine and/or Viticulture CIC located within the project area. A number of horse studs are located adjacent to the Hunter River to the west and north-west of the HVO mining complex, as well as Hunter Valley Glider Club immediately to the south.
26. The HVO mining complex is well serviced with regard to existing infrastructure, with the Main Northern Railway located immediately to the north-east of HVO North, and the Golden Highway and New England Highway located either side of the operations.

3.2 Strategic policy framework

3.2.1 Greenhouse gas emissions and climate change

27. The framework for the regulation and assessment of GHG emissions by the NSW Government and Commonwealth Government continues to be established to support key legislation and reforms including the *Climate Change Act 2022* and Safeguard Mechanism reforms in 2023 (Commonwealth) and the *Climate Change (Net Zero Future) Act 2023* (NSW).

International

28. The *United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement 2015* (Paris Agreement) is a binding international agreement made by parties to the United Nations Framework Convention on Climate Change to limit global temperature increases.
29. Under the *United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement 2015* (Paris Agreement), each signatory must identify its own post-2020 climate actions to achieve a balance between anthropogenic emissions and removal by GHG sinks. These actions are referred to as Nationally Determined Contributions (NDCs).
30. Australia's NDC adopts a target of net zero emissions by 2050 by committing to seven low emissions technology stretch goals. These include clean hydrogen production, ultra-low-cost solar, energy storage, low emissions steel production, low emissions aluminium production, carbon capture and storage and soil carbon measurements.

Commonwealth Government

31. The *Climate Change Act 2022* (Cth) legislates Australia's commitment to achieving emissions reductions targets under the Paris Agreement which are:
 - reducing Australia's net GHG emissions to 43% below 2005 levels by 2030; and
 - reducing Australia's net GHG emissions to zero by 2050.
32. In September 2025, the Commonwealth Government committed to a 2035 target to reduce emissions by 62–70% below 2005 levels by 2035.
33. Emissions are regulated by the Commonwealth Government under the Safeguard Mechanism. Reforms to the existing safeguard mechanism took effect from 1 July 2023. Under these reforms, new baseline numbers for Scope 1 emissions ('baselines') emitted by designated large facilities are set on a declining trajectory aligned with achieving Australia's emissions reduction targets. The decline rate for safeguard baselines is currently:
 - 4.9% per year to 2030; and
 - 3.285% per year after 2030.
34. GHG emissions are reported under the *Commonwealth National Greenhouse and Energy Reporting Act 2007* (NGER Act) and National Greenhouse and Energy Reporting Scheme (NGERS).
35. The project would be subject to the Safeguard Mechanism as the facility would emit more than 100,000 tonnes of Scope 1 carbon dioxide equivalent (CO₂-e) per year.

NSW State Government

Climate Change Net Zero Future Act 2023

36. The *Climate Change (Net Zero Future) Act 2023* (Net Zero Future Act) legislates the NSW approach to addressing climate change and delivering net zero GHG emissions by 2050. The Net Zero Future Act sets a path to 2050 with emissions reduction targets and legislates:
 - guiding principles for action to address climate change that consider the impacts, opportunities and need for action in NSW;
 - net emissions reduction targets for NSW (50% reduction on 2005 levels by 2030, 70% reduction on 2005 levels by 2035, and net zero by 2050);
 - an objective for NSW to be more resilient to a changing climate; and
 - establishing an independent, expert Net Zero Commission to monitor, review, report on and advise on progress towards these targets.

37. The Net Zero Future Act identifies the NSW Government is responsible for developing and implementing strategies, policies and programs to address climate change. The NSW Government has developed a range of policies as described in the sections below.
38. The Department and the IPC must have regard to NSW Government emissions reduction targets and the guiding principles of the Net Zero Future Act, consistent with the correspondence to the Planning Secretary from the Minister for Planning and Public Spaces and the Minister for Climate Change, Energy, Environment and Heritage.
39. The Department has had regard to material produced by the Net Zero Commission including but not limited to the 2024 Annual Report (November 2024), Letter to Department of Planning, Housing and Infrastructure (September 2025) and Coal Mining Emissions Spotlight Report (Spotlight Report, December 2025).
40. In its recent Spotlight Report, the Net Zero Commission advised that NSW consent authorities need to meaningfully consider how the direct and indirect upstream emissions (Scope 1 and Scope 2) from coal mining projects would affect progress towards NSW legislated emissions reduction targets, and coal mining projects' indirect downstream emissions (Scope 3) and their climate change impacts. Additionally, it was recommended that significant weight be given to these matters in making determinations.
41. The Spotlight Report forms advice from Net Zero Commission which is provided to the Minister for Climate Change. The advice in the report is not NSW Government policy. The Minister for Climate Change must publish a response to the report including the action to be taken to implement the advice, and this response and proposed action would form NSW Government policy. At the time of writing, the NSW Government is preparing its response to the recommendations of the Spotlight Report. The Department has nonetheless, had regard to the findings of the Spotlight Report in its assessment in the context of current NSW government policy settings.

NSW EPA Climate Change Policy

42. The NSW Environment Protection Authority (NSW EPA) is the lead regulator of GHG emissions for the state and provides advice to the Department regarding GHG emissions for the assessment of state significant development applications.
43. The NSW EPA's *Climate Change Policy* (2023) and *Climate Change Action Plan 2023-26* have been developed based on the guiding principles in the Net Zero Future Act to support the state's climate objectives, helping industries decarbonise and build resilience to climate change risks.
44. The key NSW EPA policy and guidance for development applications and coal mining operations delivering the objectives of the *Climate Change Action Plan 2023-26* includes:

- ***NSW Guide for Large Emitters:*** The guide requires proponents of proposals with large projected GHG emissions to assess their development's emissions and mitigation opportunities. A draft version of the guide was published in May 2024 and the final version of the guide was published in January 2025.
- ***Climate Change requirements for licensees:*** This document was published in March 2026 and outlines the NSW EPA's approach to introducing climate change-related requirements for EPLs. Climate Change Mitigation and Adaptation Plans (CCMAPs) will be progressively required under existing and new EPLs. CCMAPs will require licensees to demonstrate how they can minimise their GHG emissions and exposure to climate risk, with specific guidance for key sector (refer below). The NSW EPA published the *Emissions Reporting and Climate Change Mitigation and Adaptation Plans* guideline in March 2026. CCMAPs are due for publication for premises by 31 March 2027 or 31 August 2027, depending on licensee type.
- ***Greenhouse Gas Mitigation Guide for NSW Coal Mines:*** The guide provides state-specific guidance on opportunities for existing NSW coal mines or for proposed extensions to coal mines to reduce GHG emissions. A draft version of the guide was provided for consultation in July 2025. The final version of the guide was published in March 2026. The guide notes that the NSW EPA expects all coal mine proposals seeking extensions or modifications through the planning system need to commit to reducing emissions in line with NSW legislated targets and include avoiding or abating GHG emissions onsite. The NSW EPA will be supportive of longer consent durations for proposals that include material onsite abatement.

45. While the *Climate Change requirements for licensees* and *Greenhouse Gas Mitigation Guide* policy was published during the assessment of the project after the August 2025 amendment, the Department requested HV Operations provide consideration of the consistency of the project with those policies. HV Operations provided additional information in April 2026 which the Department has considered in this report.

NSW emissions trajectory

46. Reporting on the progress towards the NSW emissions reduction targets is published by the NSW Government. The most recent reporting is DCCEEW's *NSW greenhouse gas emissions projections 2024 – Methods paper* (April 2025).
47. The 2024 Methods paper identifies that under the current policy scenario, more work is needed to meet the emission reduction targets, with NSW projected to be 46% below 2005 levels by 2030 and 62% by 2035, short of the reduction targets of 50% and 70% respectively.

48. The 2024 Methods paper also acknowledges that 26 coal mines in NSW are facilities covered under the Safeguard Mechanism which are subject to declining emissions baselines. The paper modelled a scenario which projects emissions from coal mining considering the legal obligations under the Safeguard Mechanism, which is shown in the dashed black line in [Figure 7](#).
49. With the application of the Safeguard Mechanism, the trajectory of the coal mining sector is generally consistent with the required trajectory for NSW to decrease emissions towards its targets in 2030, 2035 and 2050. The scenario (Scenario 2) included was modelled based on the assumption that eight coal mining applications under assessment in the planning system would proceed. This scenario included emissions from the original application, prior to the August 2025 amendment.
50. Gross emissions for the sector are also shown in [Figure 8](#). This figure includes ‘Scenario 3’ which is based on the approval of a further 13 coal mining extensions at initial stages in the planning system. The figure does not account for the application of the Safeguard Mechanism but provides a comparison of Scenario 2 and Scenario 3 in terms of gross emissions. All the additional extensions included in Scenario 3 would be subject to the Safeguard Mechanism, except for Ulan Mod 8 as the Ulan Complex is a low emitting mine and is below the Safeguard Mechanism threshold.
51. The 2024 Methods Paper noted that should the coal sector meet its obligations under the Safeguard Mechanism in all future years going forward, the sector’s emissions reduction trend would generally be consistent with its historical declining trend. The Net Zero Commission’s 2024 Annual Report noted there had been a 34% reduction in emissions for the sector compared to 2005 levels.
52. The contribution of the proposed modification to emissions in this context is assessed in detail in **Section 6.1.4**.

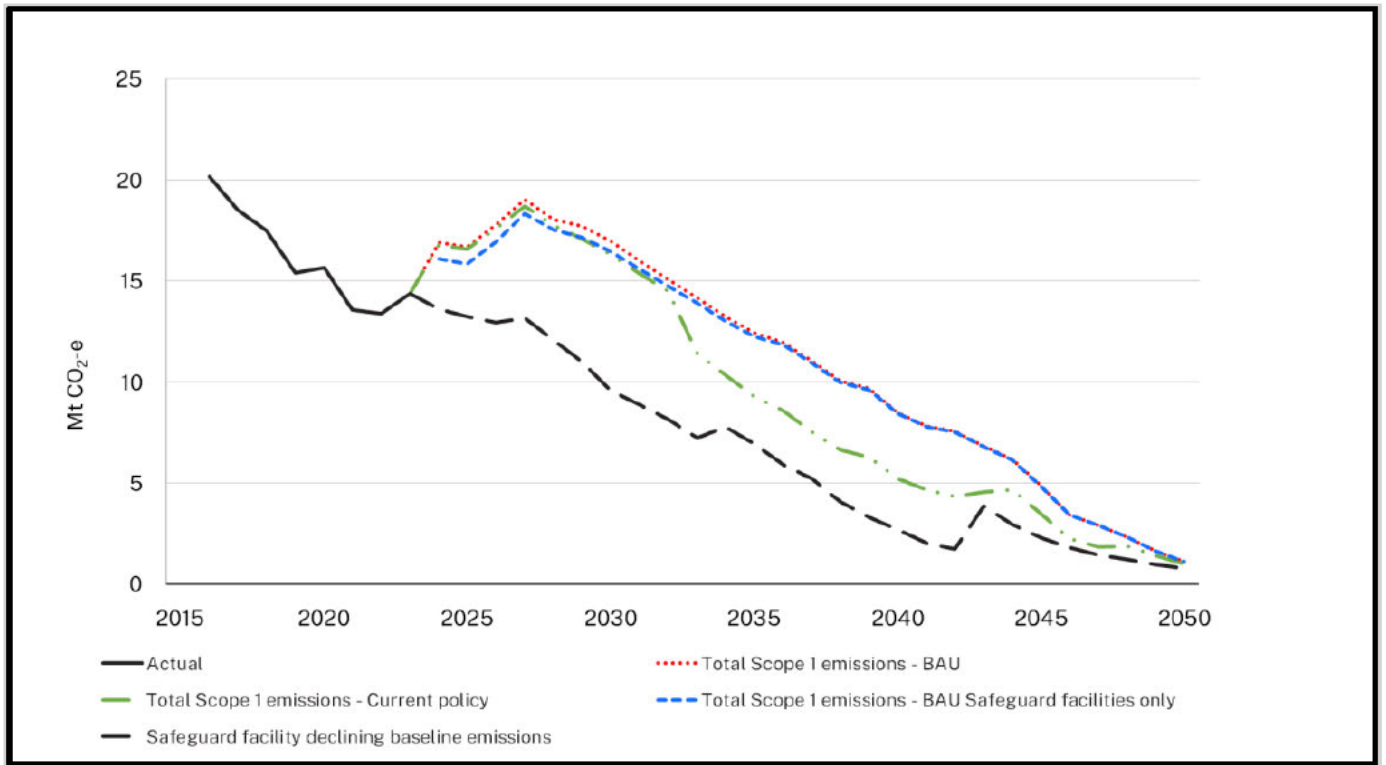


Figure 7 | Projected Scope 1 emissions for coal mining (Source: 2024 Methods paper, DCCEEW)

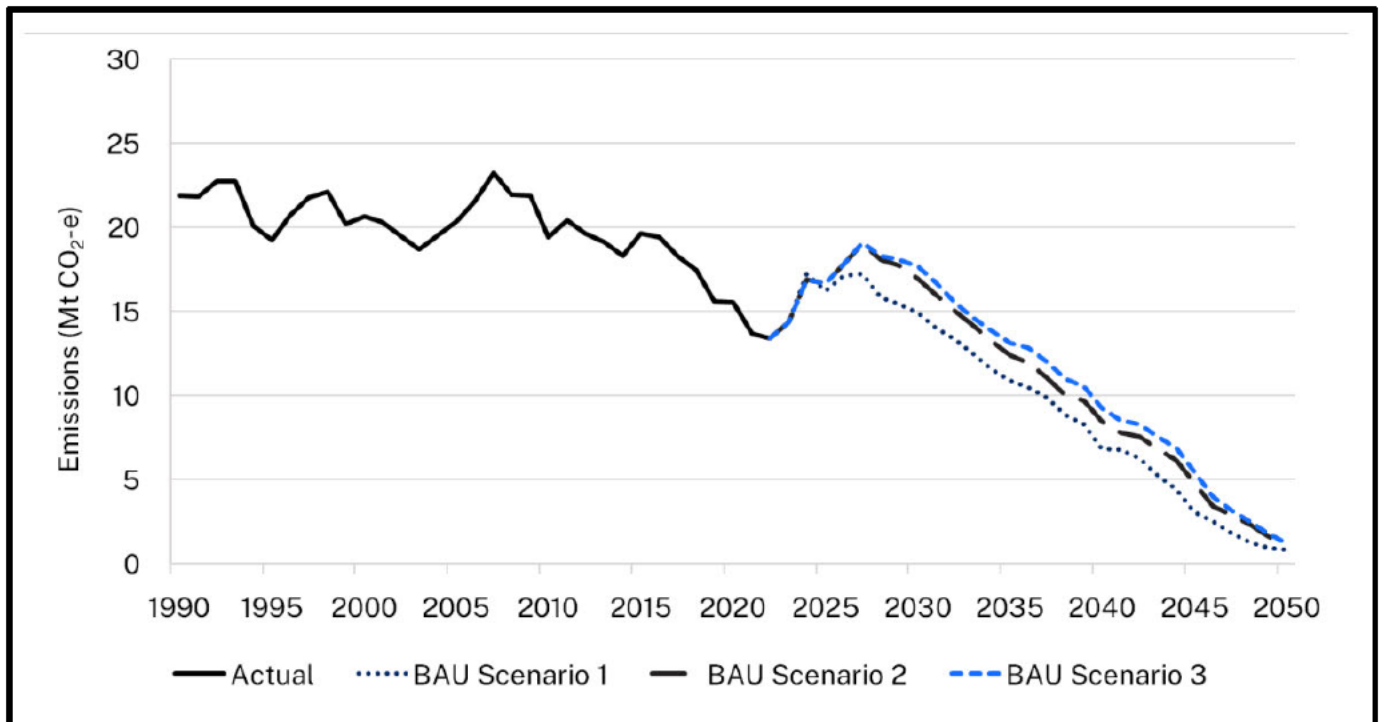


Figure 8 | Projected Scope 1 emissions for coal mining for 3 scenarios (Source 2024 Methods paper, DCCEEW)

3.2.2 NSW Coal Industry 2026-50

53. *NSW Coal Industry 2026–50* was published in March 2026 and provides the NSW Government position on the intended future of the coal mining sector in New South Wales. The intent of the policy is to provide certainty for the coal sector and consent authorities. The NSW Government intends that coal will continue to play an important part in supporting regional jobs, investment and communities in the short to medium term, within NSW legislated emissions reduction targets. It is a statement of the NSW Government’s policy towards coal, to be drawn upon by regulators, planning authorities, and other decision-makers.
54. While the policy was published during the assessment of the project after the August 2025 amendment, the Department requested HV Operations provide consideration of the consistency of the project with the policy. HV Operations provided additional information in April 2026 which the Department has considered in this report.
55. The *NSW Coal Industry 2026–50* is an update to the former *Strategic Statement on Coal Exploration and Mining in NSW* (June 2020). The new policy has been updated based on the contemporary policy framework for climate change established by the NSW Government following the Net Zero Future Act in 2023.
56. The policy outlines the economic benefits of the coal mining sector to NSW and coal producing regions including the Hunter where the coal sector contributes 58% of economic output from the region and directly employs around 14,400 workers.
57. There is likely to be ongoing demand for export coal in the short to medium term as some of NSW’s key trading partners do not have the same opportunity as NSW for local coal or renewable energy supply and rely on these exports to support their energy security as they work towards their own emissions targets. NSW will continue to be a reliable trading partner and supply its high-quality coal where there is demand and consistent with emissions reductions targets. Thermal coal exports are expected to decline over time with more significant shifts anticipated closer to 2040 and 2050. The policy notes this position complements other regulatory mechanisms to reduce emissions including NSW’s net zero targets and the Paris Agreement.
58. The policy prohibits greenfield coal development. It identifies that approvals for extensions to existing mining operations will continue to be allowed to support ongoing job and energy security where it can be demonstrated that the emissions requirements can be met and environmental impacts of the project can be managed. The policy notes that proposals to extend existing coal mining operations can support continuation of economic benefits and industry job security in the short to medium term and that the impact of mine closures on the NSW economy should be considered when assessing proposed extensions.

59. The Department notes that the *NSW Coal Industry 2026–2050* is consistent with the guiding principles in s 8 of the Net Zero Future Act, including the principles that action to address climate change should be taken in a way that promotes sustainable economic growth and considers the impact on rural, regional, and remote communities in New South Wales, and take into account the need to support local communities, including by considering the impact on local employment and industries and optimising job creation and employment transition opportunities.
60. The policy reiterates that Scope 1 and Scope 2 emissions and the local impacts of Scope 3 emissions will continue to be considered in the assessment of coal proposals through the planning framework.
61. The policy notes that economy-wide tools like the Australian Government’s Safeguard Mechanism and the EPA’s *NSW Guide for Large Emitters* provide the primary basis for assessment of proposed extensions, with additional emissions reductions to be delivered through the EPA’s requirements on the coal sector to implement abatement technologies onsite through the *Greenhouse Gas Mitigation Guide for NSW Coal Mines*.
62. The *NSW Coal Industry 2026–50* notes the NSW Government’s commitments to achieving its legislated emission reduction targets. The NSW Government expects that overall emissions from the coal mining sector will decline consistent with NSW’s targets from 2030 in line with forecast production declines and the implementation of mitigation technologies.
63. This is consistent with the analysis in **Section 3.2.1** which demonstrates the trajectory of the sector is generally consistent with the required trajectory for NSW, even assuming extensions in the planning system are approved. The policy identifies that while the sector is reducing its emissions to support meeting NSW and Commonwealth emissions targets, it should not be expected to commit to deeper reductions than other sectors of the economy, or anything that is not technically feasible.
64. In the context of the above, the *NSW Coal Industry 2026–50* identifies that coal mining expansions can be permitted where they are consistent with the economy wide tools for the regulation of emissions, and where the other environmental impacts of expansions can be managed in accordance with the approvals framework under the EP&A Act.
65. The NSW Government will continue to guide and assist the coal mining sector to further reduce emissions, and ongoing abatement will be supported through NSW’s forthcoming Net Zero Plan (2026) and the proposed resources sector decarbonisation plan.

3.2.3 Regional strategic planning

Upper Hunter Strategic Regional Land Use Plan

66. The *Upper Hunter Strategic Regional Land Use Plan* (SRLUP) (September 2012) provides a framework for balancing strong economic growth with the protection of high value agricultural land within the Upper Hunter. The plan identifies key regional planning challenges including improving the balance between agricultural land uses and resource development proposals, focusing on achieving co-existence between mining, coal seam gas and agriculture.
67. In order to assist in achieving these outcomes, the NSW Government identified and mapped three categories of strategic agricultural land in the region. These include BSAL, which is essentially the best farming land in the region, and the Equine and Viticulture CICs, which represent a unique concentration of productive agricultural enterprises associated with two iconic agricultural industries in the Upper Hunter.
68. To ensure that potential impacts on these strategic agricultural lands are appropriately considered, any mining or coal seam gas proposals that occur on strategic agricultural land outside existing mining lease areas must be referred to the independent Mining and Petroleum Gateway Panel for a Gateway Certificate.
69. As the project involves mining operations within the existing mining lease areas, and no BSAL is located in the areas where the new mining lease would be required, Site Verification Certificates (SVC-12575722 and SVC-41389276) were issued for the project confirming that a Gateway Certificate is not required.
70. As outlined on **Figure 8** above, there is some mapped BSAL and Equine CIC land in the surrounding locality, however the project would not result in any change to the impacts on this land over and above the existing approved project.
71. Further consideration of the impacts of the project on this land is provided in **Section 6.7**.

Hunter Regional Plan 2041

72. The Department's *Hunter Regional Plan 2041* (the Plan) sets out the strategic vision for the Hunter Region based on nine key objectives. These objectives are to be achieved by delivering on a range of directions and actions set out in the Plan.
73. The Plan recognises the strategic importance of the established coal mining industry and its infrastructure links to the export market via the Port of Newcastle, as well as recognising the important role that industries including renewable energy, agriculture, viticulture and equine operations play in delivering a diversified regional economy.
74. Importantly, the Plan emphasises the need to manage these different land uses in pursuit of complementary outcomes and attainment of the overriding goals of the Plan.

75. The Plan acknowledges that the Hunter is likely to see continued demand for coal over the short to medium term coal and recognises the potential for coal mines to grow, subject to rigorous assessment and extensive community consultation.
76. The Department’s consideration of impact on surrounding land uses is provided in **Section 6.7**.

4 Statutory context

77. In line with the requirements of section 4.15 of the EP&A Act, the Department has given detailed consideration to a number of statutory requirements. These include the:
- the objects of the EP&A Act identified in section 1.3 of that Act; and
 - the matters listed under section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.
78. The Department has considered all these matters in its assessment of the project and has provided a summary of this consideration below. Further consideration of the objects and other relevant provisions of the EP&A Act and Environmental Planning Instruments (EPIs) is found in **Appendix C**.

4.1 Assessment pathway and permissibility

79. Details of the legal pathway under which consent is sought and the permissibility of the project are provided in **Table 2** below.

Table 2 | Permissibility and assessment pathway

Consideration	Description
Assessment pathway	State significant development (SSD) • The project is declared SSD under section 4.36 of the EP&A Act as it satisfies the criteria under section 2.6(1) of the <i>State Environmental Planning Policy (Planning Systems) 2021</i> (Planning Systems SEPP). • The proposed development is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and is specified in clause 5 of Schedule 1 of the Planning Systems SEPP.

Consideration	Description
Consent authority	Independent Planning Commission The Independent Planning Commission (the Commission) is the declared consent authority for both SSD applications under section 4.5(a) of the EP&A Act and section 2.7(1) of the Planning Systems SEPP, given the Department received more than 50 unique public objections on each application during the exhibition period.
Public hearing	On 21 May 2026, the Minister for Planning and Public Spaces issued terms of reference requesting that the IPC conduct a public hearing on the project in accordance with Section 2.9(1) (d) of the EP&A Act.
Permissibility	Permissible with consent Most of the project area is zoned RU1 - Primary Production under both the <i>Singleton Local Environmental Plan 2013</i> (Singleton LEP) and the <i>Muswellbrook Local Environmental Plan 2009</i> (Muswellbrook LEP) (see Figure). Open cut mining is permissible with consent under both RU1 zones. The project is permissible on most of the land in the project area, however there are small portions of land within the project area, zoned as SP2 – Infrastructure and C2 - Environmental, where the project is prohibited. However, section 4.38(3) of the EP&A Act outlines that development consent can be granted for SSD despite the development being partly prohibited by an EPI. The north-western corner of the HVO North project area is zoned SP2 - Infrastructure under the Muswellbrook LEP for the purpose of a power station. Open cut mining is prohibited in this zone. The project would require minor works related to the relocation of transmission lines in the SP2 zone, which the Department considers to be consistent with the purpose of the zone. Facilities for coal processing and transport, including the proposed rail loading facilities, are permissible with consent under section 2.9(1)(d) of the <i>State Environmental Planning Policy (Resources and Energy) 2021</i>, as the coal was mined from the adjoining land.

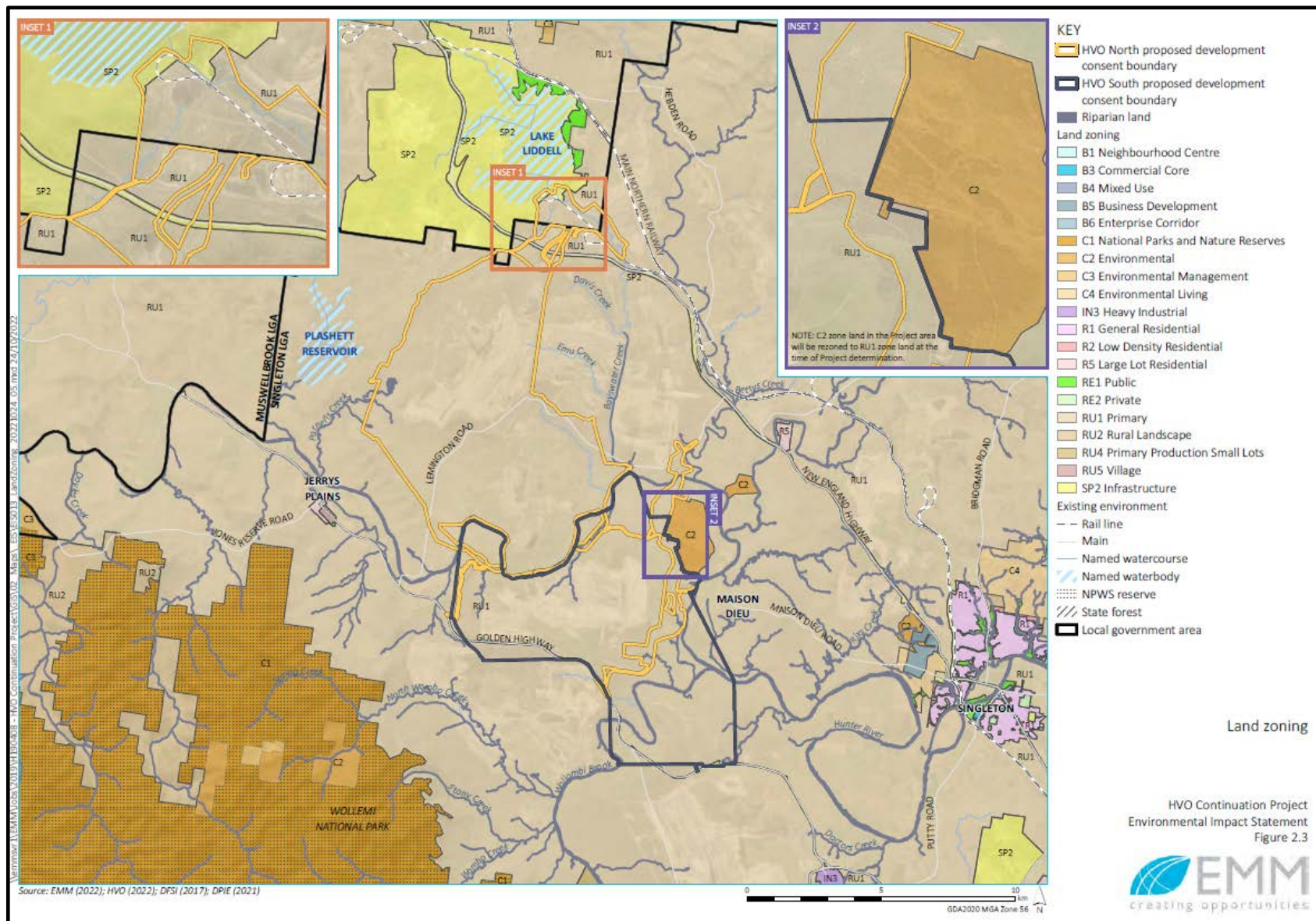


Figure 9 | Land Zoning

4.2 Other approvals and authorisations

80. The HVO mining complex currently operates under an environment protection licence (EPL) issued by the NSW Environment Protection Authority (EPA) under section 42 of the *Protection of the Environment Operations Act 1997* (POEO Act). The licence would be varied as required if the project is approved.
81. Under section 4.41 of the EP&A Act, a number of other authorisations required under other Acts are not required for SSD. This is because all relevant issues are considered during the assessment of the SSD application and where relevant appropriate conditions are imposed.
82. Under section 4.42 of the EP&A Act, certain approvals cannot be refused if they are necessary to carry out the SSD (see **Table 3**). These authorisations must be substantially consistent with any SSD development consent for the project.

Table 3 | Approvals that cannot be refused

Approval	Project requirement	Relevant government agency
Approval under s.22 of the <i>Coal Mine Subsidence Compensation Act 2017</i>	The project would require approval for new and upgraded infrastructure proposed in a mine subsidence district	Subsidence Advisory NSW
Mining lease under the <i>Mining Act 1992</i>	The project would require the conversion of existing exploration licences to mining leases to address the increased mining depth and mining/infrastructure in new areas	Department of Regional NSW – Mining, Exploration and Geoscience
EPL under Chapter 3 of the POEO Act	The existing HVO mining complex EPL would be varied as required	EPA
Consent under s.138 of the <i>Roads Act 1993</i>	Consent would be required from Singleton Council for the Lemington Road realignment and works on Liddell Station Road	Singleton Council

83. The Department has consulted with and considered the advice of the relevant government agencies responsible for these other authorisations in its assessment of the project (see **Section 5** and **Section 6**). Suitable conditions have been included in the recommended conditions of consent (see **Appendix D**).

4.3 Planning Secretary's environmental assessment requirements

84. The Department's review determined that the EIS addresses each matter set out in the Planning Secretary's environmental assessment requirements (SEARs) issued on 11 March 2021 and is sufficient to enable an adequate consideration and assessment of the project for determination purposes.

4.4 Mandatory matters for consideration

4.4.1 Matters of consideration required by the EP&A Act

85. Section 4.15 of the EP&A Act sets out matters to be considered by a consent authority when determining a development application. The Department's consideration of these matters is shown in **Table 4** below.

Table 4 | Matters for consideration

Matter for consideration	Department's assessment
Environmental planning instruments, proposed instruments & planning agreements	Appendix C
EP&A Regulation	Appendix C
Likely impacts	Section 6 - Assessment
Suitability of the site	Section 2 - Project background, Section 3- Strategic Context and Section 6 - Assessment
Public submissions	Section 5 - Engagement & Section 6- Assessment
Public interest	Section 5 - Engagement, Section 6 - Assessment & Section 7- Evaluation

4.4.2 Objects of the EP&A Act

86. In determining the application, the consent authority should consider whether the project is consistent with the relevant objects of the EP&A Act (s 1.3) including the principles of ecologically sustainable development. Consideration of those factors is described in **Appendix C**.

87. As a result of the analyses in **Appendix C**, the Department is satisfied that the development is consistent with the objectives of the EP&A Act and the principles of ecologically sustainable development (ESD).

4.4.3 Surrender of development consents

88. Section 4.63 of the EP&A Act provides that if a development consent is surrendered as a condition of a new development consent and the new consent includes continuation of development that was authorised, then the consent authority:
- is not required to re-assess the likely impact of the continued development to the extent that it could have been carried out but for the surrender of the consent;
 - is not required to re-determine whether to authorise that continued development under the new development consent (or the manner in which it is to be carried out); and
 - may modify the manner in which that continued development is to be carried out for the purpose of the consolidation of the development consents applying to the land concerned.
89. If the project is approved, HV Operations would surrender all existing approvals related to the complex for two new SSD consents, one consent for HVO North and one for HVO South.
90. While the consent authority is not required to re-assess the impacts of the approved operations, the EIS and the Department considered the approved operations, along with the additional elements being introduced by the proposed project, for the purposes of assessing the cumulative impacts of ongoing operations as proposed by the project.
91. However, the Biodiversity Development Assessment Report (BDAR) assessed the incremental impact of the project. The Department has therefore included both the relevant requirements of the proposed project, and the existing biodiversity offset obligations in the recommended conditions of consent.

4.4.4 Biodiversity development assessment report

92. Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all SSD applications to be accompanied by a BDAR unless the Planning Agency Head and the Environment Agency Head determine that the project is not likely to have any significant impact on biodiversity values (as identified in the BC Act and in the *Biodiversity Conservation Regulation 2017*).
93. The EIS included a BDAR. The BDAR and the overall impact of the project on biodiversity values is assessed in Section **6.2**.

5 Engagement

5.1 Background

94. The two development applications and consolidated EIS were publicly exhibited by the Department on the NSW planning portal from 30 January 2023 until 27 February 2023 (29 days).
95. The Department advertised the project's exhibition in the Hunter Valley News and the Singleton Argus and notified:
- relevant State government agencies and Muswellbrook and Singleton Council;
 - surrounding private landholders, including the registered local Aboriginal parties (RAPs); and
 - relevant transport and infrastructure authorities in accordance with the Mining SEPP and the Infrastructure SEPP.
96. During its assessment of the project, the Department inspected the site on a number of occasions and engaged with the Independent Expert Advisory Panel for Mining (IEAPM) and a flooding specialist for independent expert advice.
97. The two amended development applications (August 2025 amendment) and Amendment Report were publicly exhibited by the Department on the NSW planning portal from 5 September 2025 until 25 September 2025 (21 days). The Department notified submitters on the original application as well as surrounding landowners, government agencies, the relevant local councils and relevant transport and infrastructure authorities.
98. In undertaking these engagement processes, the Department considers that it met the notification requirements of the EP&A Act and the relevant environmental planning instruments.

5.2 Summary of submissions

99. The Department received a total of 1,041 unique submissions⁵ (49 submissions from special interest groups and 992 submissions from individuals) during the public exhibition period of the original applications⁶. Of the submissions received:
- 963 (93%) were in support the project;
 - 67 (6%) objected to the project; and
 - 11 (1%) provided comments on the project.
100. The Department received a total of 1,187 unique submissions² (43 from special interest groups and 1,144 from individuals) during the public exhibition of the amended applications³. Of the submissions received:
- 1,097 (92%) were in support of the project;
 - 83 (7%) objected to the project; and
 - 7 (1%) provided comments on the project.
101. For submitters located within the Hunter region, the large majority were supportive of the project, with 97% of submitters supportive of the original application and 96% of submitters supportive of the amended application.
102. For submitters located outside of the Hunter Region the majority were supportive of the project, with 73% of submitters supportive of the original application and 74% of submitters supportive of the amended application.
103. A list of the special interest groups that made submissions on the project during either exhibition are shown in **Table 5** below.

Table 5 | Special Interest Group Submissions

Position	Special Interest Group	
Support	• Agile Solutions • PHC Group • V2 Mining Services Pty Ltd • Hunter Valley Gliding Club • Breathalyser Sales & Service Pty Ltd • MMS Engineering	• Muswellbrook Chamber of Commerce & Industry • Singleton Shire Healthy Environment Group • Morgan Engineering • TACTech Mine Planning

⁵ Each petition or submission that contains the same or substantially the same text is counted as one submission in accordance with section 2.7(6) of the Planning System SEPP.

⁶ The Department considers each submission received to be relevant to both SSD applications given the interrelated nature of the applications and the fact that a single EIS was prepared to cover both applications.

Position	Special Interest Group	
	• Custom Fluidpower • McMahon Resources • KCE Pty Ltd • A Plus Contracting and Poly Welding • Fuchs Lubricants Australasia • Expressway Spares Pty Ltd • Singleton Tyre And Battery Centre • TCX Services • Pump Tech Australia • Franks Fencing • Programmed • C2G Energy Management • Fyfe Pty Ltd • Coal Services • Pirtek (Hunter Valley) Pty Ltd • Atlantech Pty Ltd • MB Engineering Solutions Pty Ltd • Les Russell & Son Pty Ltd • Integrated Reliability Solutions • WesTrac Pty Ltd • MC Quality Control Pty Ltd	• Hunter Valley Lubricants HVL Group • Protech Group • Prime Mining • Hunter Mining Club • Seam Spatial • Hunter Valley Tracks • Salmon Earthmoving • Maddison Safety • Premium Plant • Envirostay Pty Ltd • Bower Heavy Haulage • Mining and Energy Union – Northern District • WDT Engineers • Black Rock Industries Pty Ltd • Hitachi Construction Machinery Australia • Bowditch Earthmoving
Object	• Climate Change Balmain-Rozelle • Wollar Progress Association • Hunter Thoroughbred Breeders Association • Hunter Communities Network • Hunter Environment Lobby Inc • Climate Action Sydney Eastern Suburbs • Lock the Gate Alliance • Central West Environment Council • Better Planning Network Inc • Coolmore Australia • Tipping Point	• Vote Earth Now • The Australia Institute • Godolphin Australia • Scone Equine Hospital • PCWP • Newgate Operations Pty Ltd • Denman Aberdeen Muswellbrook Healthy Environment Group Inc • The Superpower Institute • Australian Conservation Foundation Northern Beaches Community • Sydney Knitting Nannas • Knitting Nannas Hunter • Doctors for the Environment Australia
Comment	• Institute for Energy Economics and Financial Analysis • Australasian Centre for Corporate Responsibility	

104. Further detail on the submissions is provided in **Section 5.4** and **Table 7** below. A full copy of the public submissions is provided in **Appendix A**.

5.3 Advice from government agencies

105. The Department received advice from 11 government agencies and Singleton and Muswellbrook Shire Council's in response to the exhibition of the original and amended applications.

106. Supplementary advice was received from relevant agencies in relation to the submissions report and the amendment reports. A summary of the advice is provided in **Table 6** and a link to the full copy of the advice is provided in **Appendix A**.

Table 6 | Summary of Agency Advice

Agency	Advice summary
NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW)	
Water Group	• Requested further information on water take and licensing; groundwater modelling, impacts and monitoring; and works on waterfront land. • HV Operations provided further information on these matters as a throughout the assessment including for the amendments to the project, to the satisfaction of Water Group. • Water Group provided recommended post-approval requirements for the water management plan.
Conservation Programs, Heritage and Regulation (CPHR)	• Provided detailed comments and recommendations on the sufficiency of the BDAR and requested further information regarding: - potential serious and irreversible impacts (SAIL) to the Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregion endangered ecological community (EEC) and Warkworth Sands Woodland in the Sydney Basin Bioregion EEC - the categorisation of land in the BDAR including mapping of Category 1 – Exempt Land; - survey efforts and methodology; - assessment adequacy for indirect impacts, flood impact and risk, prescribed impacts, specific species and general biodiversity matters; and

Agency	Advice summary
	- proposed measures to avoid, minimise and manage impacts. • HV Operations provided additional information on these matters and subsequent matters raised throughout the assessment including for the amendments to the project. • HV Operations amended to the project to avoid all impacts to the Warkworth Sands Woodland community. • HV Operations responded to the advice to the satisfaction of CPHR for the majority of the matters raised. • In its final advice on the project, CPHR noted the project 'may' be a SAIL on the Floodplain Red Gum Woodland community and recommended post approval requirements related to the HV Operation's proposed River Red Gum Restoration Strategy. The Department has considered residual issues in Section 6.2.
Heritage NSW (ACH)	• Requested further information: - requiring general updates to the Aboriginal Cultural Heritage Assessment Report (ACHAR) across a number of matters and additional information on the consultation completed; - to provide clarification within the significance assessment; - to further consider Ecologically Sustainable Development (ESD) and cumulative impact • HV Operations provided additional information on these matters and subsequent matters raised in the assessment including for the amendments to the project. • Provided recommended conditions of consent relating to the preparation and implementation of an Aboriginal Cultural Heritage Management Plan (ACHMP), and recommendations for the continuation of consultation with Registered Aboriginal Parties (RAPs).
Environment Protection Authority (EPA) including Net Zero Emissions Modelling (NZEM)	• Requested further information on air quality, noise and water matters throughout the assessment including for the project amendments. • Raised concern regarding the GHG emissions associated with the original project including the fugitive emissions associated with mining of deep coal reserves with high gas content.

Agency	Advice summary
	- Following additional correspondence from the Department, HV Operations amended the project to reduce GHG emissions (refer Section 2.2.2) - HV Operations provided additional information on air quality, noise, water and GHG impacts throughout the assessment. - All residual matters were resolved during the assessment and the EPA provided draft EPL conditions to be considered as part of the Department's recommended conditions of consent. - In its final advice on GHG, the NSW EPA advised that the net emissions of the project follow a downward trajectory that is consistent with the NSW emissions reduction trajectory.
NSW Department of Planning, Housing, and Infrastructure (NSW DPHI)	
Crown Lands	- No significant issues raised. - Provided information on the requirements of the <i>Mining Act 1992</i> and <i>Roads Act 1993</i>.
NSW Department of Primary Industries and Regional Development (NSW DPIRD)	
NSW Resources, including the Resources Regulator (RR)	- Satisfied with the proposed mine design and mining method and considers the project to be an efficient use of resources that would provide an appropriate return to NSW. - Provided information on the requirements of the <i>Mining Act 1992</i>, consultation regarding future biodiversity offsets areas, and future High-Risk Activity notifications. - Requested clarification on requested further clarification on rehabilitation objectives of the TSFs and final landform design as well as slope stability. - HV Operations provided additional information on this matter in the submissions report to the satisfaction of NSW Resources and RR. - Confirmed the amended project remains an efficient use of resources whilst maximising recovery within an existing disturbance area when compared to the original and would still provide an appropriate return to NSW.
Agriculture	Requested clarification on whether the project would result in a net loss of agricultural land post-mining.

Agency	Advice summary
	HV Operations provided additional information on this matter in the submissions report to the satisfaction of DPIRD Agriculture.
Fisheries	- No significant issues raised. - Provided recommended conditions of consent relating to works in proximity to key fish habitat.
Other Agencies	
Transport for NSW (TfNSW)	- Requested further information on assessment methodology and proposed intersection upgrades, including a strategic design for the proposed Golden Highway/Comleroi Road intersection treatment. - Requested the investigation of intersection treatments at the New England Highway/Lemington Road. - HV Operations provided additional information on these matters during the assessment of the project including the project amendments. The information was provided generally to the satisfaction of TfNSW. - HV Operations and TfNSW did not come to a resolution regarding intersection treatments at the New England Highway/Lemington Road. The Department has considered this residual issue in Section 6.8.
Fire and Rescue NSW (FRNSW)	- No significant issues raised. - Provided recommended conditions of consent relating to access for emergency vehicles and personnel, and the preparation and implementation of plans in accordance with FRNSW guidelines.
Ausgrid	- No significant issues raised. - Provided information and recommended conditions of consent relating to works in proximity to existing network assets and in or near electricity easements.
Council	
Singleton	Requested additional information regarding the proposed Lemington Road realignment; mine planning, closure and rehabilitation; the terms of a voluntary planning agreement (VPA); and impacts to air quality, GHG emissions and climate change, amenity, land use planning, waste management and biodiversity.

Agency	Advice summary
	Singleton Council did not provide additional information following its submission on the original project. The Department considers that the residual matters have been resolved during the assessment.
Muswellbrook Shire	- Requested additional information regarding the terms of a VPA; mine planning, closure and rehabilitation; and impacts to amenity, housing and accommodation, noise, air quality, water quality and traffic. - The following residual issues have been considered in the Department's assessment: - traffic impacts (refer to Section 6.8); - negotiations regarding a VPA (refer to Section 6.6.3); - amenity and land use (refer to Section 6.8); and - housing and accommodation (refer to Section 6.6).

5.4 Public submissions

Supporting submissions

107. Public submissions received in support of the project across the original and amended applications were based on employment and economic benefits, including sustained job security and employment opportunities, social diversity, increased economic opportunities for local businesses and service providers and associated social benefits for the local and regional community.

Objecting submissions

108. The key issues raised in the objecting public submissions across the original and amended applications relate to climate change, biodiversity, water and air quality impacts, as well as environmental and social cumulative impacts on the surrounding and wider community in the Hunter region. These issues are shown in **Figure10** and summarised in **Table 7**.

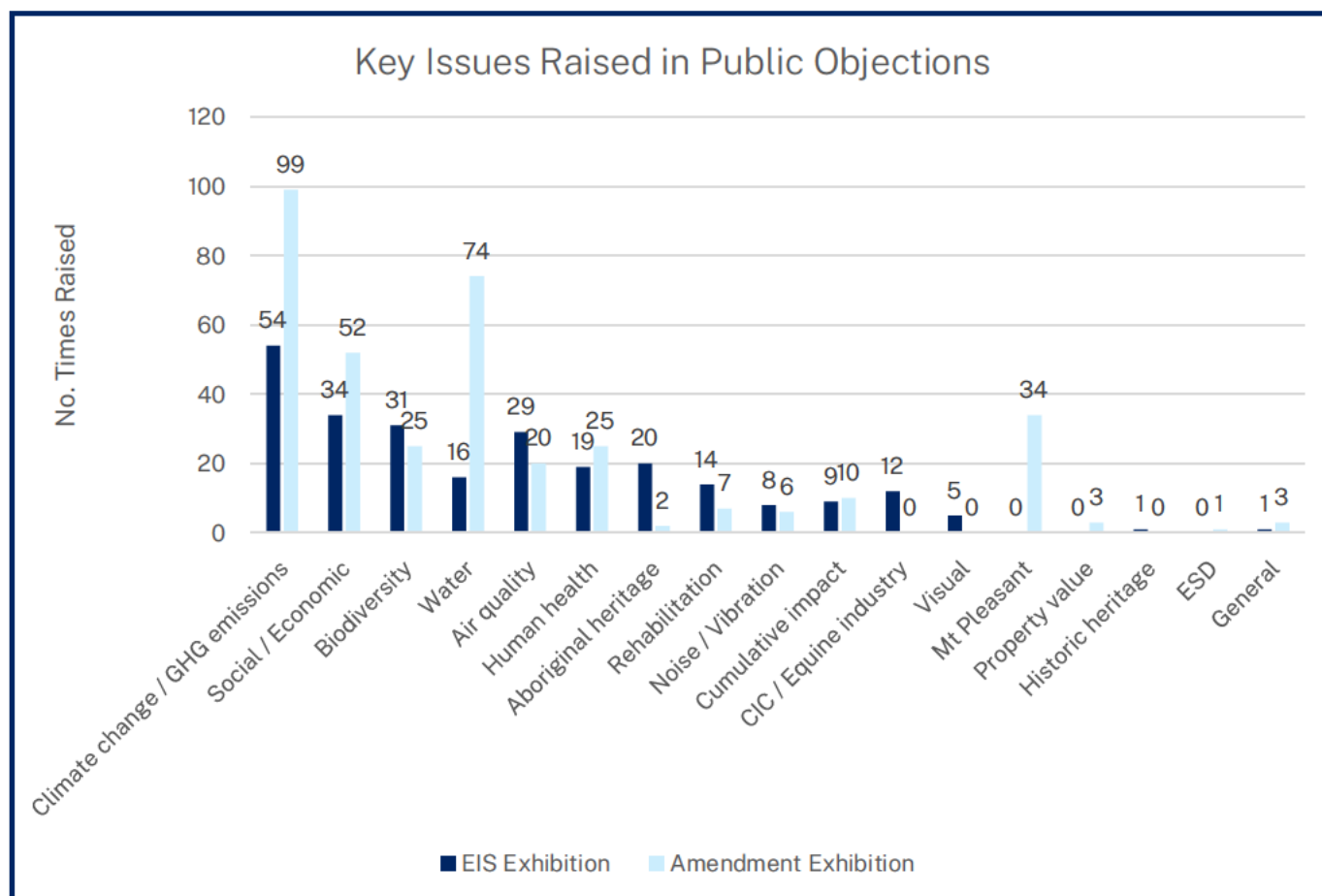


Figure 10 | Key Issues Raised in Objecting Submissions

Table 7 | Key Issues Raised in Objecting Submissions

Issue	Description
Climate change	- Impacts of increasing GHG emissions and the project's contribution to climate change (see Section 6.1), including concern regarding the consistency of direct emissions with NSW emissions reduction targets and NSW Government climate change policies. - The contribution of the Scope 3 emissions from the project and climate change on the locality.
Biodiversity	Impacts of clearing native vegetation, including habitat loss, increased risk of introducing invasive species, impacts to threatened ecological communities and threatened species and impacts to the newly listed species, Hunter Valley Delma (see Section 208).
Amenity	Air quality, noise, visual and light impacts (see Sections 6.4, 315 and 6.8 for further information).
Aboriginal heritage	Impacts on cultural heritage values and Aboriginal heritage sites and inadequacy of the assessment (see Section 6.8).
Human health	Impacts on air quality, exposure to dust, noise, lack of health impact assessment as well as impacts on mental health (see Sections 6.6 and 6.8).

Issue	Description
Water resources	Impacts on surface and groundwater resources, surrounding water users, adequacy of surface and groundwater assessments, risks associated with final voids, tailings storage and cumulative impacts of project on water resources for future generations (see Section 6.3 for further details).
Rehabilitation	Concern regarding rehabilitation and final landform design (Section 6.8).
Equine CIC and Agriculture	Impacts on the thoroughbred breeding industry in Jerrys Plains, agricultural production and livestock as well as inadequate assessment of the project's economic impacts to the Equine CIC (see Section 6.8).
Social and economic	- Impacts on quality of living in local and regional communities, intergeneration equity, increased stress on local housing supply, medical and social services as well as the tourism industry, inadequate economic analysis, long-term impacts on local jobs and businesses, lifestyle and property value (see Section 6.6). - Social and economic impacts from global climate change, including concern regarding how these impacts have been assessed in technical reports.
Cumulative impacts	Concerns with extending mining impacts in addition to the existing mining operations and other industries in the region, GHG emissions, climate change, overall number of voids in the Hunter region (see Section 6.8 for further details).

5.5 Submissions Report

109. In November 2023, HV Operations provided its submissions report and an amendment report to the Department (refer to **Section 2.2.1**) in response to the issues raised in submissions and agency advice.
110. The Department published the submissions report and amendment report on the NSW planning portal and referred it to relevant government agencies and councils.
111. The Department also requested additional information from HV Operations on a number of matters following the submissions report and the August 2025 amendment report to address residual issues raised by government agencies, community and the Department (see **Appendix A**).
112. The Department generally resolved all residual issues from government agencies and the Independent Expert Advisory Panel for Mining (IEAPM) during the assessment of the application, with consideration of residual issues noted in **Table 6** where applicable.

5.6 Independent Expert Advisory Panel for Mining

113. Given the complex technical issues for the project, the Department referred the applications to the IEAPM in March 2024 for targeted advice on matters related to water and GHG including:

- the scale and likelihood of potential water-related impacts and environmental consequences on key water features in the vicinity of the project area, including the Hunter River;
- whether the proposed water-related mitigation and monitoring measures would adequately minimise any environmental consequences on significant water features; and;
- whether the GHG avoidance and mitigation measures proposed are considered to be sufficient, including the reliance on availability of carbon offsets in the future.

114. Following the August 2025 amendment, the Department sought additional targeted advice from the IEAPM regarding GHG matters in light of the changes to the project.
115. The IEAPM provided comprehensive advice and a range of recommendations on each of these matters, which is further discussed in the relevant assessment sections below.
116. All matters raised by the IEAPM for the assessment of the project were resolved. The Department has considered the IEAPM's post approval recommendations in its recommended conditions.

6 Assessment

117. The Department has assessed the project (as amended) in accordance with the relevant requirements of the EP&A Act, including the matters for consideration, as set out in section 4.15(2) of the EP&A Act.
118. The project is a brownfield extension of an existing operating coal mine with the assessment supported by extensive environmental monitoring of the operating mine to inform predicted impacts and proposed mitigation measures.
119. As the increase in coal extraction is largely through targeting deeper coal seams, the overall impacts of the project, including on noise and blasting, air quality, traffic, heritage and visual, are similar to the impacts of the approved mine. However, these impacts would be extended in time compared to the approved projects.
120. The Department considers the key issues for the assessment include potential impacts on:
- GHG emissions, given the project would result in the extraction of additional coal resources which would result in direct and indirect emissions (see **Section 6.1**);
 - biodiversity, given the potential impacts on critically endangered ecological communities and threatened species (see **Section 6.2**);
 - water resources, given the mining operations would progress deeper, potentially resulting in greater impacts to groundwater resources, and the proximity of mining operations to the Hunter River (see **Section 6.3**);
 - air quality and noise impacts, in recognition of the large number of community concerns in this regard (see **Sections 6.4 and 6.5**); and
 - social and economics, given the scale of the potential social impacts and benefits and the predicted economic benefits of the application (see **Section 6.6**).
121. In its consideration of the likely impacts of the project including social and economic impacts in the locality, the Department considers the locality is the Hunter Region as the majority of social and economic impacts would be occur in this area.

6.1 Greenhouse Gas Emissions

122. The burning and extracting of fossil fuels (such as coal) emit GHG emissions and other climate pollutants which build up in the atmosphere, contributing to climate change. GHG emissions are divided into three categories:
- Scope 1: emissions released to the atmosphere as a direct result of an activity;

- Scope 2: emissions released to the atmosphere from the indirect consumption of energy; and
 - Scope 3: indirect emissions (other than Scope 2 emissions) generated in the wider economy, which occur as a consequence of the activities of a facility, but from sources not controlled by that facility.
123. As a coal mine extension, the project would result in direct GHG emissions from fugitive emissions from the depressurisation of the coal seam from open cut mining and from diesel emissions from the operation of vehicles and plant required for mining.
124. The majority of the emissions associated with the application are Scope 3 emissions from the burning of coal to generate electricity, which would primarily occur in coal fired power stations overseas.
125. The *NSW Coal Industry 2026-2050* identifies that approvals for extensions to existing mining operations can be allowed where it can be demonstrated that the emissions requirements can be met and environmental impacts of the project can be managed.
126. The primary guidance for emissions requirements and the assessment of GHG impacts for development applications for high-emitting projects is the NSW EPA's *NSW Guide for Large Emitters* (2025). The guide has been developed as one action to support and build on the Net Zero Future Act. The original application was lodged prior to the draft and final versions of the guide. However, the applicant has not taken the position that EPA's guidance would not apply to the project, and HV Operations prepared a GHG assessment in accordance with the final *NSW Guide for Large Emitters* for the amended project to the satisfaction of the NSW EPA.
127. The draft version of the *Greenhouse Gas Mitigation Guide for NSW Coal Mines* was published in July 2025 just prior to the lodgement of the second Amendment Report in August 2025. The final version was published in March 2026. The Department has had regard to the final guide notwithstanding that it was released after the second Amendment Report, including on the basis that the guidance it contains may assist in the application of the guiding principles in the Net Zero Future Act.
128. The Department has considered the above matters below, in **Appendix C** and as part of its overall evaluation of the merits of the project in **Section 7**.

6.1.1 Avoidance, mitigation and offsetting of emissions

129. The *NSW Guide for Large Emitters* requires applicants to apply the mitigation hierarchy, which involves making genuine efforts to first avoid then reduce emissions. The mitigation hierarchy and a summary of HV Operations' application of the hierarchy is provided in **Figure 11**. The

application of the mitigation hierarchy is provided in full in the GHG Assessment in **Appendix A**.

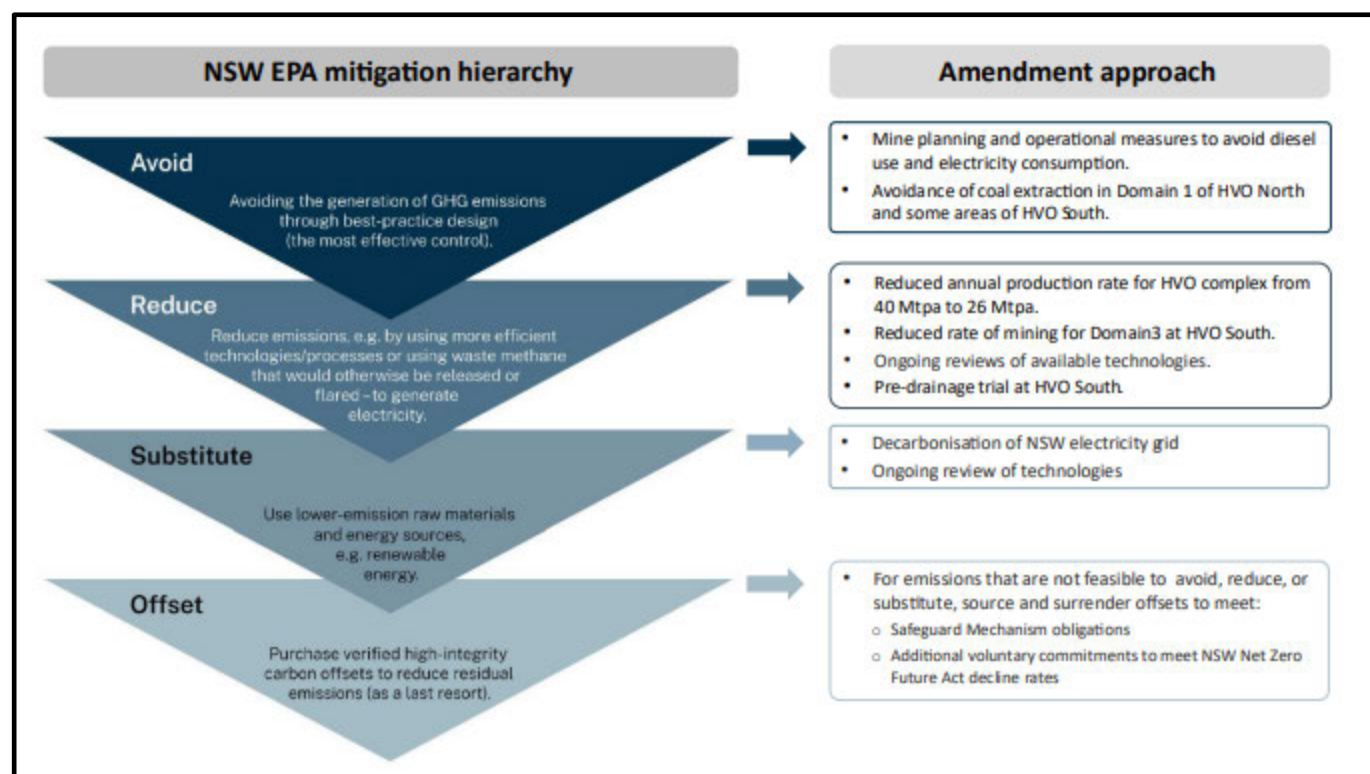


Figure 11 | Mitigation hierarchy from NSW Guide for Large Emitters and application to the project
 (Source: GHG Assessment, Amendment Report)

130. In May 2024, the NSW EPA provided advice on the original application which noted that *"without changes to avoid or mitigate some of the forecast GHG emissions, this proposal may contribute to other parts of the NSW economy having to reduce emissions faster for NSW to remain on track to meet the legislated Net Zero Emissions target in 2050"* and noted the significant fugitive emissions associated with the mining of deep coal reserves with high gas content.
131. In July 2024, the Planning Secretary received correspondence from the Minister for Planning and Public Spaces and the Minister for Energy, Environment and Heritage regarding GHG considerations for large emitting projects based on projections that NSW is currently not on track to meet its 2030 and 2035 emissions reduction targets.
132. Following this correspondence, and based on advice from the mining panel, the Department requested HV Operations consider amending the project to avoid mining in an area of high gas content (referred to as gas Domain 1) that would be mined in the 2040s.

133. HV Operations amended the project to avoid mining in Domain 1 and make related changes to the mine plan in August 2025. Compared to the original application, the amended application reduced the total amount of coal to be extracted by 220 Mt and reduced Scope 1 emissions by 11.5 million tonnes (Mt) CO₂-e, or 43%. Mining operations were reduced at HVO North by five years to cease by 2045 and at HVO South by three years to cease by 2042. The information regarding GHG emissions in this section is based on the amended project.
134. HV Operations has committed to additional measures to avoid, reduce and substitute GHG emissions over the life of the project including minimising Scope 1 diesel emissions through mine planning, reviews of emerging emission reductions technologies (such as alternative fuels, electric-powered equipment and renewable energy) and a feasibility trial for the pre-drainage of gas in gas Domain 3. Domain 3 is an area of the mine where methane concentrations are potentially high enough for pre-drainage to be feasible. The potential effect of pre-drainage is not counted in the calculation of gross emissions as it is subject to feasibility.
135. Mitigation measures for Scope 2 emissions include optimisation of coal handling operations and electrical mining equipment and decarbonisation of the NSW electricity grid.
136. The Department requested supplementary advice from the mining panel regarding the GHG impacts of the amended application. The IEAPM advised that through the amendment HVO addressed significant issues regarding avoidance and to a lesser degree mitigation of GHG emissions. The IEAPM advised the amendment resulted in considerable reductions in Scope 1 emissions and would have a material reduction on any offsets required for the project. The IEAPM acknowledged that HV Operations had made commitments to further reduce emissions from diesel through optimisation of haulage.
137. The IEAPM made recommendations regarding the requirement for a prefeasibility study for the pre-drainage of gas Domain 3 and other administrative matters related to the assessment. The IEAPM advised that pre-drainage in Domain 3 could result in additional fugitive emissions reductions of up to 27% in the domain which would result in an additional 11% reduction in Scope 1 emissions for the life of mine.
138. The IEAPM also advised that residual matters regarding the results of nitrogen testing and a test borehole in the Hunter Valley dyke were no longer material to the amended project. HVO provided a response to the IEAPM's advice to the satisfaction of the Department. The Department has included the requirement for a prefeasibility study in its recommended conditions (refer **Section 6.1.7**).
139. The NSW EPA noted the independent expert review of the mitigation approach included in the GHG assessment concluded that the proposed GHG mitigation measures are consistent with

the NSW EPA mitigation hierarchy and have considered economic and operational feasibility, with offsets considered as a last resort (offsets are considered in **Section 6.1.3**). Following the amendment of the project the NSW EPA did not raise residual concerns regarding the NSW targets that it raised in its advice in May 2024.

140. The NSW EPA also noted the expert reviewer's findings stated that the GHG Assessment provided evidence of investigation and commitment to adopt several measures in the EPA's draft *Greenhouse Gas Mitigation Guide for NSW Coal Mines*, which was on public exhibition at the time of lodgement of the amended project.
141. The Department notes the requirements for fugitive emissions reductions in Table 1 of the final version of the *Greenhouse Gas Mitigation Guide for NSW Coal Mines* do not apply to open cut mining. Consistent with the guide, HV Operations committed to material emissions avoidance (43% reduction to Scope 1 emissions compared to the original project) through the amendment to the projects and there are opportunities for additional onsite abatement subject to the outcomes of the pre-drainage trial. The Department therefore considers that the amended applications are consistent with the final *Greenhouse Gas Mitigation Guide for NSW Coal Mines*.
142. HV Operations adopted the key advice of the IEAPM on GHG matters being to avoid emissions in gas Domain 1. The Department referred the amended project to the IEAPM. The Panel advised HV Operations made considerable reductions in Scope 1 emissions and that these measures would have a material reduction on the offsets required under the Safeguard Mechanism.
143. The IEAPM made some minor recommendations that were addressed by HV Operations to the satisfaction of the Department. The IEAPM recommended a condition of consent for the pre-feasibility trial for gas drainage which has been adopted in the Department's recommended conditions. In its response to the Department, HV Operations accepted the IEAMP's recommendation and committed to preparing the scope for a prefeasibility study that addresses pre-drainage of gas within Domain 3.

6.1.2 Estimate of gross emissions

144. The gross GHG emissions for the project are summarised in **Table 8** below. The emissions have been calculated based on the avoidance and mitigation measures described above that can be quantified at this stage of the assessment. These emissions may decrease subject to advancements in emissions reduction technologies developed over the life of the project.

Table 8 | Estimated gross GHG emissions from the project

Scope	Key GHG Source(s)	Estimated GHG Emissions (kt CO ₂ -e)	
		Annual Average	Total
Scope 1	Mining and extraction related (e.g. fugitive emissions, diesel use, explosives, vegetation clearing)	795.0	15,104.2
Scope 2	Upstream electricity	11.3	214.9
Scope 3	Downstream emissions (e.g. transport of product coal, downstream coal use)	41,777	793,763
Total (excluding Scope 3)		806.3	15,319.1
Total (including Scope 3)		42,583.3	809,082.1

145. A summary of the contribution to direct emissions is shown in **Figure 12**. Over the life of the project, the primary contribution to direct emissions is from diesel use (around 58% of direct emissions) and fugitive emissions (around 39% of direct emissions).

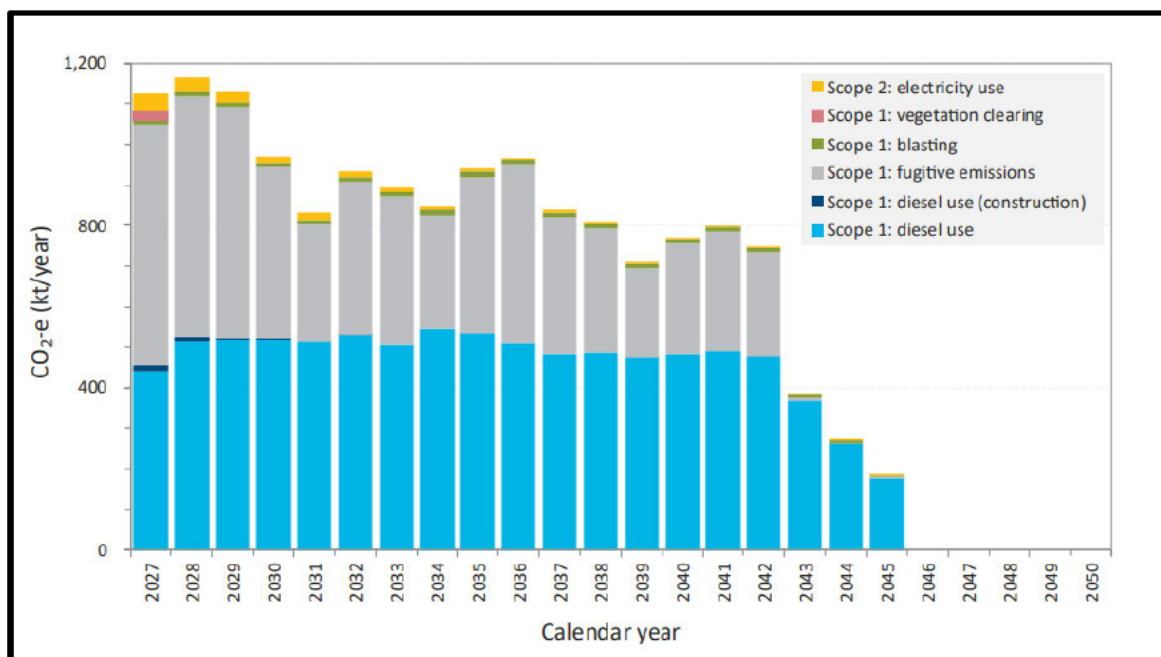


Figure 12 | Contribution to direct emissions (Source: GHG Assessment, Amendment Report)

146. As demonstrated in **Table 8**, approximately 98% of the total GHG emissions generated as a consequence of the project are those associated with the downstream burning of product coal (i.e. Scope 3 indirect emissions). These are considered further in **Section 6.1.5**.
147. The average scope 1 emission intensity over the life of project would be 0.0352 tonnes of carbon dioxide equivalent (t CO₂-e) per tonne of run-of-mine (ROM) coal. This value is lower than the default industry intensity under the Safeguard Mechanism (0.0653 t CO₂-e per tonne of ROM coal).

148. Scope 2 emissions due to electricity consumption were calculated to be relatively minor, at around 1% of total emissions.

6.1.3 Emissions reduction targets and net emissions

149. The *NSW Guide for Large Emitters* requires the GHG assessment to address the anticipated regulatory obligations for the project under the Safeguard Mechanism, to consider how project emissions compare to NSW emissions, and to set out long-term and interim GHG emission goals for a project. The guide identifies the expectation that emissions reduction trajectories are broadly consistent with the NSW or industry specific emissions reduction trajectory.
150. Obligations for progressive emissions reduction would apply to the project under the Safeguard Mechanism. In addition to these obligations, HV Operations has voluntarily committed to the reduction of emissions in line with the legislated NSW Government targets (which require a greater emission reduction compared to the Safeguard Mechanism). The implementation of this reduction would result in the net direct emissions summarised in **Table 9** and shown in **Figure13** and **Figure14**.
151. This reduction would follow a net emissions decline rate of:
- a reduction of 5.9% per year from 1 July 2030 to 1 July 2029;
 - a reduction of 4.0% per year from 1 July 2030 to 1 July 2034; and
 - a reduction of 2.58% per year thereafter.

Table 9 | Net NSW GHG emissions and emissions from the project

Financial year	Mt CO ₂ -e/year				
	Statewide – BAU	Statewide – current policy	Project with Safeguard baseline	Project with Safeguard and NSW decline	Percentage contribution, statewide current policy, project with NSW decline
2029-2030	87.14	82.97	0.787	0.703	0.85%
2034-2035	70.69	57.44	0.593	0.465	0.81%
2039-2040	62.60	42.70	0.365	0.286	0.67%
2044-2045	44.79	22.28	0.102	0.080	0.36%
2049-2050	39.99	18.22	0	0	0
Total (Mt CO₂-e)	1,608.77	1,248.11	9.516	7.972	0.64%

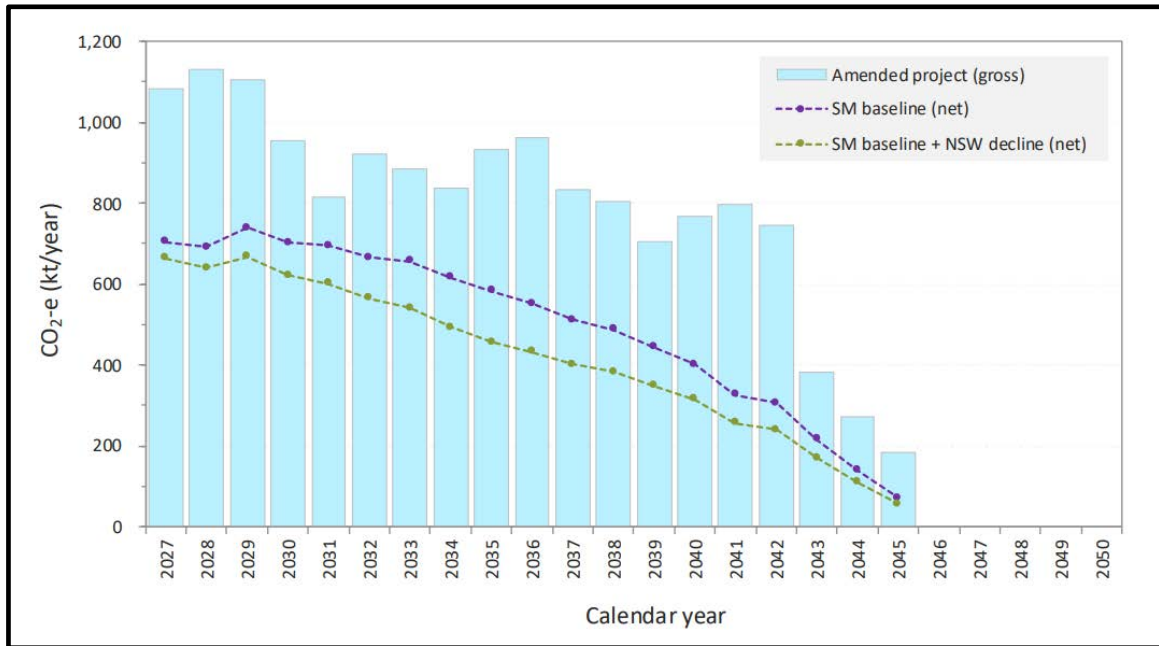


Figure 13 | Gross and net scope 1 emissions from the project (Source: GHG Assessment, Amendment Report)

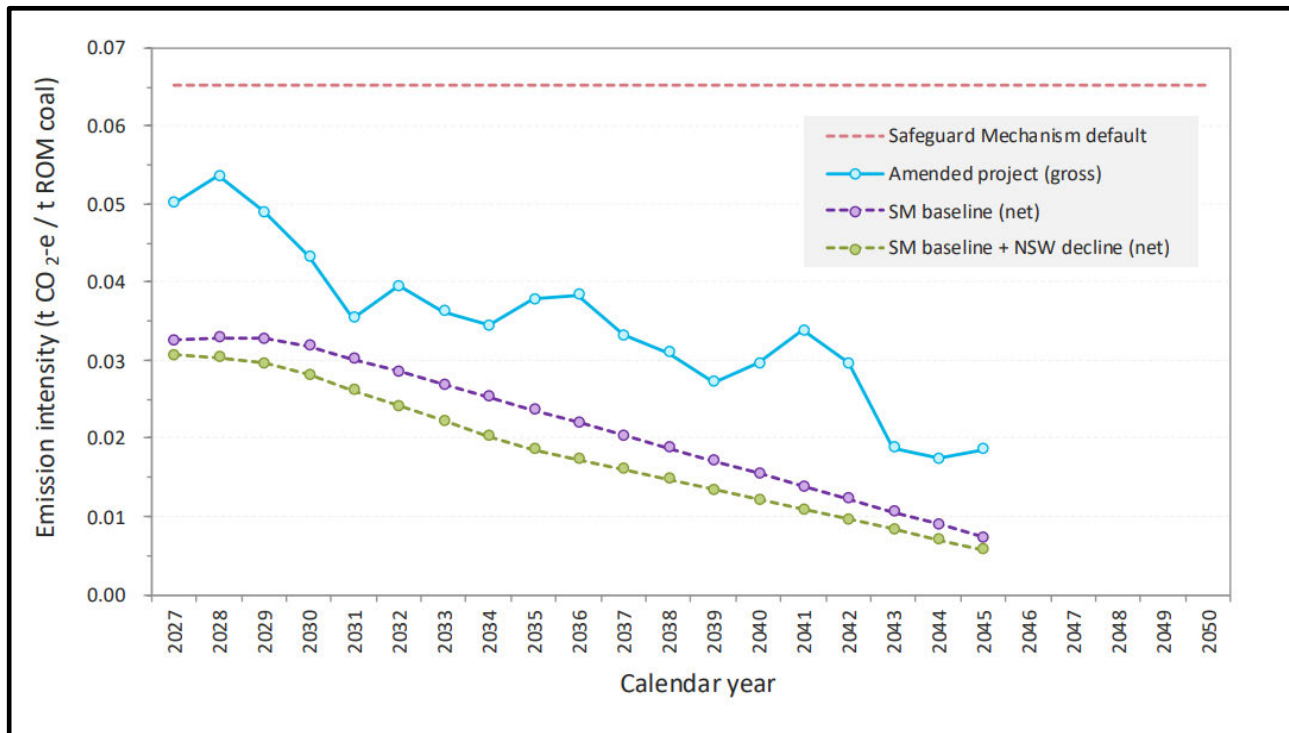


Figure 14 | Emissions intensity for scope 1 emissions from the project (Source: GHG Assessment, Amendment Report)

152. With the application of the emissions reduction targets for the project, compared to the gross emissions summarised in **Table 8**, the total net direct emissions would decrease by around 48% over the life of the project (15.32 Mt CO₂-e compared to 7.97 Mt CO₂-e). The project would

comprise 0.85% of statewide emissions in 2030 and 0.36% of statewide emissions by 2045, based on the current policy scenario.

153. The net emissions intensity of the project (as shown in [Figure 14](#)) would decline from around 0.033 to 0.006 t CO_{2-e} / t ROM coal which would be substantially lower than the baseline Safeguard Mechanism industry average intensity for coal mining of 0.065.
154. HV Operations has committed to the ongoing consideration of mitigation measures to avoid or reduce emissions wherever reasonable and feasible during the life of the project including consideration of emerging technologies to facilitate the use of alternative fuels, electric-powered equipment and renewable energy. HV Operations has indicated that in the short term, the primary approach to achieving the net emissions reduction targets would involve the use of carbon offsets and Safeguard Mechanism Credits (SMCs).
155. The Department notes the guidance in the *NSW Guide for Large Emitters* that the Safeguard Mechanism does not preclude the need for planning authorities to properly understand the potential GHG impacts of proposals and to ensure all proponents are adequately avoiding, minimising and managing their emissions over all stages of development. In this regard, the Department appreciates that the Safeguard Mechanism currently only applies to Scope 1 emissions, whereas Scope 3 emissions account for the vast majority of the project's emissions (approximately 98%). The Department considers that the anticipated reductions in Scope 1 emissions resulting from application of the Safeguard Mechanism and other voluntary reductions by HV Operations are nonetheless meaningful in absolute terms. The Department further notes that, to the extent HV Operations proposes to achieve net emissions reduction targets through the surrender of Australian Carbon Credit Units (ACCUs), reliance on ACCUs above a certain threshold will trigger obligations to provide a statement to the Clean Energy Regulator explaining why more onsite abatement has not been undertaken.
156. Offsets are permitted under the *NSW Guide for Large Emitters* provided their application is consistent with the mitigation hierarchy and based on methods that are clear, enforceable and accountable. Eligible carbon offsets must meet the integrity standards set out in the *Commonwealth Carbon Credits (Carbon Farming Initiative) Act 2011*. HV Operations has committed to considering the purchase of NSW-based offsets where they are available and represent a cost-effective option. NSW-based offsets are the preference of the NSW EPA.
157. The NSW EPA is satisfied that the application has been prepared in accordance with the requirements of the *NSW Guide for Large Emitters*. In its final advice for the amended project on GHG, the NSW EPA advised that, with the additional offsets that the applicant is proposing to purchase beyond what is required by the Commonwealth Safeguard Mechanism, the amended project's net emissions follow a downward trajectory that is consistent with the NSW emissions reduction trajectory.

158. The *NSW Guide for Large Emitters* requires the calculation of Scope 3 emissions. However, emissions goals are not required as they are generated from sources not controlled as part of the project. Further consideration of Scope 3 emissions is provided in **Section 6.1.5**.

6.1.4 NSW climate change targets and policy

NSW Government emissions reductions targets

159. The NSW emissions reductions targets are outlined in **Section 3.2.1**. Reporting on the progress towards the emissions reduction targets is published by the NSW Government. The most recent reporting is the Net Zero Commission's *2024 Annual Report* (November 2024) and the DCCEEW's *NSW greenhouse gas emissions projections 2024 – Methods paper* (April 2025).
160. The Net Zero Commission's 2024 Annual Report identified that the Commission is concerned that increases associated with extended or expanded mining projects would require all other sectors to make greater emissions reductions if the state is to meet its emissions reduction targets. The report also refers to the NSW EPA's advice in May 2024 on the original application, which stated that "[w]ithout changes to avoid or mitigate some of the forecast GHG emissions, [HV Operations'] proposal may contribute to other parts of the NSW economy having to reduce emissions faster for NSW to remain on track to meet the legislated Net Zero Emissions target in 2050".
161. The Department notes the NSW EPA's final advice on the amended project does not raise this as a residual comment. In its final advice for the amended project on GHG, the NSW EPA advised that the amended project's net emissions follow a downward trajectory that is consistent with the NSW emissions reduction trajectory. The NSW EPA further observed that HV Operations has committed to trial gas pre-drainage and review technological measures to reduce emissions every three years, including studies on the use of alternative fuels such as biofuels and hydrogen, and that the number of offsets required by the project have been reduced compared to the original proposal. The Department notes the NSW Government Policy position articulated in the *NSW Coal Industry 2026-50* that overall emissions from the coal mining sector are expected to decline consistent with NSW's targets from 2030 in line with forecast production declines and the implementation of mitigation technologies.
162. The 2024 Methods paper identifies that under the current policy scenario, more work is needed to meet our emission reduction targets, with NSW projected to be 46% below 2005 levels by 2030 and 62% by 2035, short of the reduction targets of 50% and 70% respectively.
163. The 2024 Methods paper also acknowledges that 26 coal mines in NSW are facilities covered under the Safeguard Mechanism which are subject to declining emissions baselines. The paper modelled a scenario which projects emissions from coal mining considering the legal

obligations under the Safeguard Mechanism, which is shown in the dashed black line in [Figure 7](#).

164. This scenario demonstrates that when considering the Safeguard Mechanism, the trajectory of the coal mining sector is generally consistent with the required trajectory for NSW to decrease emissions towards its targets in 2030, 2035 and 2050. The scenario (referred to as Scenario 2) was modelled based on production forecast for coal mining applications under assessment in the planning system which included the emissions from the project in its original proposed form and an additional six mining modifications or new development applications that had not been approved at the time of the modelling.
165. Given the modelling was based on the original project, emissions based on the amended project would be less than the predictions shown in the figure (assuming the other model inputs remain the same).
166. The 2024 Methods Paper noted that “should the coal sector meet its obligations under the Safeguard Mechanism in all future years going forward, the sector’s emissions reduction trend will generally be consistent with its historical declining trend”. The Net Zero Commission’s 2024 Annual Report reported there had been a 34% reduction in emissions for the sector compared to 2005 levels.
167. HV Operations has developed the project in accordance with the *NSW Guide for Large Emitters* and committed to emissions reduction in line with the trajectory for NSW. The Department acknowledges that the project, even in its amended form, would result in an increase to emissions through to 2045, albeit of a lesser magnitude than under the original project scope. As summarised in **Table 8**, the net contribution of the project to statewide emissions would be around 0.85% in 2030, 0.81% in 2035 and 0.36% in 2045.
168. The Department acknowledges that under the development assessment regime in NSW, new or expanded coal mines would involve incremental, cumulative contributions to GHG emissions along with the contribution of other new projects and activities commencing in the state in other sectors. The modelling by DCCEW in the 2024 Methods Paper shown in [Figure 7](#) allows the Department to consider the cumulative impact of the project with approved mines and other coal mining applications in the planning system. The modelling demonstrates that even if the project and all the other modelled applications are approved, the trajectory of the coal mining sector when considering the Safeguard Mechanism remains generally consistent with the required trajectory for NSW to decrease emissions towards its targets in 2030, 2035 and 2050. The Department notes the peak in the declining baseline in 2042–43 in the figure reflects the closure of a single gassy underground mine.

169. Modelling of an additional 13 mining applications that were in the initial planning phase at the time of modelling as shown in [Figure 8](#), demonstrates that there would not be material changes to the trajectory for the sector, even assuming all those applications were approved.
170. The above analysis is consistent with the *NSW Coal Industry 2026–50* which notes that NSW Government expects that overall emissions from the coal mining sector will decline consistent with NSW’s targets from 2030 in line with forecast production declines and the implementation of mitigation technologies. The policy identifies that while the coal mining sector is reducing its emissions, it should not be expected to commit to deeper reductions than other sectors of the economy, or anything that is not technically feasible. The *NSW Coal Industry 2026–50* contemplates that coal mining expansions can be permitted where they are consistent with the economy wide tools for the regulation of emissions, and where the other environmental impacts of expansions can be managed in accordance with the approvals framework under the EP&A Act.
171. If approved, the mine would be subject to the EPL licensee requirements developed by the NSW EPA as part of the *Climate Change Action Plan 2023-26*.
172. The Department has considered the impact of the project on the environment in the relevant locality in its evaluation of the merits of the project summarised in [Section 7](#), in line with the requirements of section 4.15 of the EP&A Act.

Guiding principles of the Net Zero Future Act

173. The Net Zero Future Act includes a number of guiding principles. The Department has considered each principle to the extent relevant in [Appendix C](#).
174. The Department considers the project to be consistent with the guiding principles, which are broad in scope and require urgent action to address climate change while considering the impact on regional communities in New South Wales and the impact on local employment and industries.
175. The Department notes the principles apply to ‘action to address climate change’ and apply to NSW Government’s development of the relevant strategies, policies and programs as identified in Principle 10(a).
176. The Department has considered these relevant climate change strategies and policies that have been developed in consideration of the guiding principles. The Department considers the *NSW Guide for Large Emitters* to be an important guidance document that operationalises those principles in the context of developments assessments for high GHG-emitting projects. The GHG assessment was prepared in accordance with the guide to the satisfaction of the NSW EPA.

177. The Department has considered other aspects of the policy framework developed by the NSW EPA in the *Climate Change Action Plan 2023-26* and has had regard to the fact that there are now requirements for coal mines to prepare CCMAPs and be consistent with the *Greenhouse Gas Mitigation Guide for NSW Coal Mines*.
178. The *NSW Coal Industry 2026-50* represents an update to the NSW Government position on coal mining in light of the Net Zero Future Act including its guiding principles. The Department considers the policy balances the guiding principles that require urgent action to address climate change while considering the impact on regional communities in New South Wales and the impact on local employment and industries.

6.1.5 Scope 3 emissions

179. HV Operations has assessed Scope 3 emissions as required by the *NSW Guide for Large Emitters* as summarised in **Table 8**. These emissions comprise the majority of emissions from the project and are primarily from the downstream burning of product coal overseas.
180. HV Operations provided additional information regarding the countries where product coal is likely to be combusted, the proportion of coal that would likely be exported to each country and the NDCs for each country.
181. HV Operations has advised that coal would continue to be exported primarily to countries that are signatories to the Paris Agreement and that have their own 2030 and/or 2050 emissions reductions targets as outlined in **Table 10**. The exception is Taiwan, which is not a signatory to the Paris Agreement. That country has committed to an emissions reduction target of 26-30% compared to 2005 levels by 2030 and to achieving net zero emissions by 2050. Taiwan's share of product amounts to approximately 17% of total coal volumes anticipated to be exported by HV Operations over the life of the mine.

Table 10 | Commitments made by indicative export markets of product coal

Destination country	Share of product	NDCs
Japan	44%	46% reduction in GHG emissions compared to 2013 emissions by 2030 Net zero emissions by 2050
China	28%	65% reduction in CO2 emissions in per unit of gross domestic product (GDP) from the 2005 level in 2030 Net zero CO2 emissions by 2060
Taiwan	17%	Committed to a 23-25% reduction in GHG emissions by 2030 from the 2005 base year Net zero emissions by 2050

Destination country	Share of product	NDCs
Malaysia	7%	45% reduction in GHG gas emissions per unit of GDP from the 2005 level in 2030 Net zero emissions by 2050
Thailand	2%	Unconditional target - reduce GHG emissions by 30% below business-as-usual (BAU) levels by 2030 (excluding land-use, land-use change, and forestry) Conditional target - up to 40% reduction of GHG emissions below BAU by 2030, if sufficient international support is provided
South Korea	1%	40% reduction in GHG emissions compared to 2018 by 2030 Net zero emissions by 2050
Indonesia	0.5%	Unconditional target - 31.89% reduction in GHG emissions compared to the BAU projection by 2030 Conditional target - 43.20% reduction in GHG emissions compared to the BAU projection by 2030 if sufficient international support is provided

182. The primary export markets have made the following commitments regarding the projected reliance on coal fired power:

- Japan: aims to reduce to around 19% of coal power by 2030. Japan's 7th Strategic Energy Plan projects a continued reliance on coal into the 2040s through a thermal power mix of 30–40%;
- China: overall coal consumption is rising and remains dominant in the medium term;
- Taiwan: plans to fully phase out coal-fired power generation by 2034;
- Malaysia: has made a long-term commitment to phase out coal fired power by 2050.

183. The two countries of export that do not have net zero commitments (Thailand and Indonesia) together account for less than 3% of the total coal anticipated to be exported by HV Operations.

184. Coal production from the project would therefore occur during periods relevant countries anticipate that they would still rely on coal fired power while meeting the commitments of the relevant NDCs.

185. The Department notes Glencore, which provides operational support services to HV Operations and is one of the owners of the joint venture, has a *2024-2026 Climate Transition Plan* which includes a commitment to work with trading partners to achieve net zero Scope 3 emissions by 2050 including a responsible phase down of its thermal coal production. Glencore aims to

achieve this through the progressive closure of its coal mines while supporting global energy needs by progressing select brownfield expansions including the HVO complex.

186. The Department further notes that Glencore reduced its Scope 3 emissions by 22% between 2019 and 2023 and closed five coal mines in that time. A further seven mines have been identified for closure by the end of 2035.
187. Yancoal Australia, the other owner of the joint venture has made climate change commitments relating to supporting innovation and research into technologies to reduce GHG emissions to work towards the commitments outlined in the Paris Agreement.
188. Based on the information provided, the Department considers that the project is generally consistent with the NSW EPA's recommendation in the *Greenhouse Gas Mitigation Guide for NSW Coal Mines* that coal mining companies take opportunities to reduce scope 3 emissions by selling coal to buyers in countries that have strong climate policies and emissions reduction targets.

6.1.6 Climate change impacts in the locality

189. The Department has considered the potential impact of the contribution of all emissions from the project, including Scope 3 emissions, to global climate change and the impacts of global climate change in the locality, which the Department has identified as the Hunter Region.
190. The community raised the impacts of climate change to the area surrounding the project as a negative impact through an online survey used to inform the SIA for the original application, along with other localised impacts to amenity.
191. The potential impacts of emissions associated with the amended project on climate change in the locality was a key issue raised in community submissions during the exhibition of the amended project and HV Operations addressed this matter in the Amendment Report. The majority of submitters within the locality supported the project (96% of submitters from the Hunter Region supported the amended project).
192. The *NSW Coal Industry 2026–50* notes that there is likely to be ongoing demand for export coal in the short to medium term as some of NSW's key trading partners do not have the same opportunity as NSW for local coal or renewable energy supply and rely on these exports to support their energy and industrial needs. The intention is that NSW will continue to be a reliable trading partner and supply its high quality coal where there is demand in these countries.
193. As described above, coal production from the project would occur during periods that the relevant countries of export anticipate that they would still rely on coal fired power while

meeting the commitments of relevant NDCs (or other voluntary commitments). There is therefore uncertainty regarding the net contribution of the project to global emissions.

194. Given the limitations in calculating the exact contribution of the amended project to global emissions, the Department taken a conservative approach by assuming that all Scope 3 emissions from the project would lead to a net increase in global emissions and that net Scope 1 and Scope 2 emissions would be as presented in the GHG assessment.
195. The United Nations Environment Programme's Emissions Gap Report 2025 estimates annual global emissions at between 51 to 58 gigatonnes of carbon dioxide equivalent by 2030 and 46 to 54 gigatonnes in 2035 based on different policy scenarios. Assuming global emissions are in the lowest range where all countries meet all the commitments in their NDCs, the emissions from the project would represent a 0.08% contribution to global emissions in 2030 and a 0.09% contribution in 2035. Based on the estimates in the *IEA Global Energy Review 2025*, the maximum total emissions generated by the project (in FY 2039) would comprise 0.132% of global energy/fuel combustion generated emissions based on 2024 emissions levels.
196. The effects of climate change manifest differently across different regional and localities. The Department recognises that the contribution of the project to global emissions would in turn contribute to climate change impacts in the locality, regardless of the difficulties inherent in quantifying the precise extent or nature of that contribution. The Department also recognises that the notional 0.08% contribution of the amended project to global emissions in 2030 will translate into an impact in the locality that is "of relevance" to the development under consideration for the purposes of s 4.15 of the EP&A Act.
197. The NSW and Australian Regional Climate Modelling (NARCLiM) project delivers high-resolution climate change projections for NSW and south-east Australia for 2050 and 2090, based on a low and high emissions scenario. The NARCLiM Climate Change Snapshot for the Hunter projects for 2050 under the low and high emissions scenarios is as follows:
 - average temperature increases of 1.1 to 1.9°C;
 - number of additional hot days per year of 7.1 to 10.8;
 - sea level rise of 19 to 23cm; and
 - number of additional severe fire weather days per year of 0.9 to 1.2.
198. The Hunter region exhibits a number of environmental, social and economic characteristics that are likely to increase its vulnerability to these predicted climate change impacts including extensive vegetated areas susceptible to bushfire, coastal and estuarine zones at risk of sea level rise, the sensitivity of the agricultural sector and pressure on water resources like the Hunter River that are subject to existing demands from industry.

199. Different areas within the Hunter would be more susceptible to climate change than others due to the factors above. Larger increases to the number of hot days are projected to occur in the Upper Hunter, and there are higher projected reductions to average rainfall for the Barrington Tops and southern hinterland areas of the region including Wollemi National Park.
200. Potential environmental impacts from climate change would result in flow on social and economic impacts. As reported by AdaptNSW, climate change presents a range of risks and impacts that are expected to negatively impact the economy. These include property loss and damage, infrastructure and service costs and risks to financial stability. The impacts of climate can also impact health and wellbeing affecting livelihoods and productivity.
201. The environmental assessments prepared to support the application include scenarios that take into account the projected effects of climate change in the locality, including in the flooding, surface water and groundwater assessments.
202. The GHG emissions from the project would contribute to climate change where there is a net increase to global emissions. This contribution is up to around 0.08% of global emissions in 2030 and 0.09% of emissions in 2035. This would contribute to the environmental, social and economic climate change impacts on the locality as described above. The Department has considered these impacts along with the views of the local community as part of its evaluation of the merits of the project summarised in **Section 7** in line with the requirements of section 4.15 of the EP&A Act.

6.1.7 Recommended conditions and ongoing regulation

203. The Department has recommended conditions to manage GHG emissions in consultation with the NSW EPA and consistent with the advice of the IEAPM.
204. As the GHG assessment was prepared in accordance with the *NSW Guide for Large Emitters*, the mitigation approach described in the assessment would form the basis of a GHG mitigation plan for the ongoing operation of the project, if approved. The Department has recommended a condition that requires the preparation of a GHG mitigation plan including the requirement to demonstrate progress against the project's emissions reductions goals and to update the plan every three years to consider new emissions reductions technologies. The plan must be prepared in accordance with the *Greenhouse Gas Mitigation Guide for NSW Coal Mines and Emissions Reporting and Climate Change Mitigation and Adaptation Plans – Guidance for Environment Protection Licensees*.
205. The Department has recommended conditions to require a gas pre-drainage trial including a pre-feasibility study to ensure the trial is comprehensive and is completed in a timely manner.

Depending on the outcomes of the trial, ongoing pre-drainage may be implemented which could result in further Scope 1 emissions reductions of up to 11% over the life of the mine.

- 206. The ongoing regulation of GHG emissions will primarily be the responsibility of the NSW EPA. If approved, the operation of the project would be subject to the EPL licensee requirements developed by the NSW EPA as part of the *Climate Change Action Plan 2023-26*.
- 207. The Department considers the recommended conditions would complement the regulation of emissions by the NSW EPA consistent with the policy approach of the NSW Government for coal mining.

6.1.8 Conclusion

- 208. The Department considers the project is consistent with NSW Government policy regarding GHG emissions. The *NSW Coal Industry 2026-50* outlines the policy of the NSW Government on the matters of both coal mining expansions and how they relate to GHG impacts including the NSW net zero emissions reductions targets.
- 209. As outlined in the *NSW Coal Industry 2026-50*, with regard to GHG, extensions to coal mines are required to meet the emissions requirements prescribed in key policy frameworks including the Australian Government's Safeguard Mechanism and the EPA's *NSW Guide for Large Emitters*. The GHG assessment for the projects has been completed in accordance with the *NSW Guide for Large Emitters* and HV Operations have demonstrated their obligations for emissions reduction and offsetting under the Safeguard Mechanism if the projects are approved. HV Operations have committed to exceed these requirements through additional offsetting in line with NSW emissions reductions targets.
- 210. The development applications were amended to reduced gross Scope 1 emissions by 11.5 million tonnes (Mt) CO₂-e, or 43% during the assessment of the projects. HV Operations have committed to ongoing mitigation, including through a gas drainage trial which could lead to additional emissions reductions if the trial is determined to be feasible.
- 211. The Department considers that GHG emissions have been minimised to the greatest extent practicable given the project has met the relevant NSW Government guidance for emissions avoidance, mitigation and offsetting.
- 212. The NSW Government expects that overall net emissions from the coal mining sector will decline consistent with NSW's targets from 2030, in line with forecast production declines and the implementation of mitigation technologies and offsetting. Extensions will continue to be considered in this context. This position is consistent with emissions forecasting, which demonstrates the required reductions could be achieved if the project is approved. This emissions forecasting includes the emissions from the original project, before it was amended

to reduce direct emissions. Accordingly, the forecasting is likely to be conservative insofar as it concerns the amended project. The *NSW Coal Industry 2026–50* notes the coal sector should not be expected to commit to deeper reductions than other sectors of the economy.

- 213. The Department consulted closely with the NSW EPA regarding the GHG impacts of the projects. The GHG assessment was prepared to the satisfaction of the NSW EPA and the agency noted in its final advice that the amended project's net emissions follow a downward trajectory that is consistent with the NSW emissions reduction trajectory.
- 214. The Department has considered the GHG emissions in the context of relevant NSW and Commonwealth policies and guidelines, including the emissions reduction targets and guiding principles set out in the Net Zero Future Act.
- 215. The Department has also considered the environmental, social and economic effects of climate change impacts in the locality having regard to the views of the community. The Department acknowledges that additional GHG emissions generated by the project would contribute to climate change and therefore to climate impacts in the locality.
- 216. The Department has recommended conditions intended to complement the NSW EPA's regulation of GHG emissions in the NSW coal mining sector which is being progressively implemented at the time of writing.
- 217. The Department has carefully evaluated the merits of the project in **Section 7**, having regard to environmental, social and economic considerations as required under section 4.15 of the EP&A Act.

6.2 Biodiversity

6.2.1 Introduction

- 218. The key impacts on biodiversity from the project relate to clearing of native vegetation including threatened ecological communities and habitat for threatened fauna species.
- 219. Given the HVO complex is an existing mining operation and the project is generally targeting deeper coal seams within the existing footprint, clearing of native vegetation is primarily required for additional mining areas, the realignment of Lemington Road and construction of new infrastructure.
- 220. Potential impacts on biodiversity were assessed in a Biodiversity Development Assessment Report (BDAR) prepared by Umwelt in accordance with the *Biodiversity Conservation Act 2016* (BC Act) and Biodiversity Assessment Method (BAM), which was submitted with the EIS and updated in the amendment reports (including an updated BDAR and revised BDAR) including to address advice from CPHR. Additional reports and information were also provided by HVO

throughout the assessment process. Following the preparation of the revised BDAR, CPHR did not have residual issues regarding the consistency of the BDAR with the BAM.

6.2.2 Avoidance and mitigation measures

221. The Department considers that HV Operations designed the project to avoid and minimise impacts on biodiversity values. This has been achieved through changes made to the project design, including:

- avoiding impact to 154.2 ha of *Central Hunter Grey Box – Ironbark Woodland Endangered Ecological Community (EEC)* through the relinquishment of previously approved areas under the HVO South (PA 06_0261) consent including the construction and operation of the LCPP and associated rail spur;
- avoiding impact to 8.1 ha of *Hunter Floodplain Red Gum Woodland EEC* and 260 individuals of River Red Gum (*Eucalyptus camaldulensis*) through revision of the transmission line alignment including within the River Red Gum (RRG) Additional Disturbance Area⁷;
- avoiding impact to 2.6 ha of *Hunter Valley Footslopes Slaty Gum Woodland Vulnerable Ecological Community (VEC)* through revisions to the Lemington Road realignment and the relinquishment of previously approved areas under the HVO South (PA 06_0261) consent; and
- avoiding all direct impacts to 10.1 ha of *Warkworth Sands Woodland EEC* through revisions to locate the Lemington Road realignment further from land that contains existing offset areas or transitions away from known *Warkworth Sands Woodland EEC*, and the relinquishment of the previously approved construction and operation of the LCPP and associated rail spur under the HVO South (PA 06_0261) consent.

6.2.3 Direct impacts

222. The total development footprint for the project (see [Figure 15](#)) following the above avoidance and mitigation measures is approximately 950 ha (903 ha in HVO North and 47 ha in HVO South). This includes areas not requiring assessment under the BAM (see [Table 11](#)).

⁷ An area identified within the existing HVO South consent (PA 06_0261) disturbance boundary adjacent to the Hunter River where minor impacts to the River Red Gum endangered population and Hunter Floodplain Red Gum Woodland EEC are expected to occur as a result of the proposed transmission line relocation.

Table 11 | Summary of impacts not requiring assessment

Features not requiring assessment	Direct impact area (ha)	
	HVO North	HVO South
Cleared land (non-vegetated, roads, infrastructure)	20.9	1.6
Waterbodies/dams	2.6	0.1

Native vegetation

223. The Project would remove 184.8 ha of native vegetation that meets the offsetting threshold under the Biodiversity Offset Scheme (BOS). Of this, 89.5 ha conforms to Threatened Ecological Communities (TECs) under the BC Act (87.2 ha in HVO North and 2.3 ha in HVO South).
224. Five plant community type (PCT) across 17 vegetation and condition zones were identified during surveys completed to inform the revised BDAR (see [Figure 16](#) and [Figure 17](#)). The biodiversity impacts of the project on each PCT are summarised in [Table 12](#).
225. Areas of Hunter Valley Footslopes Slaty Gum Forest, Central Hunter Swamp Oak Riparian Forest and Northwest River Oak River Red Gum Forest PCTs to be cleared are all of moderate condition. Central Hunter Ironbark Grassy Woodland and Namoi-Upper Hunter River Red Gum Forest PCTs vary in condition, with substantial areas of poor condition derived native grassland (DNG) and exotic grassland to be cleared respectively.

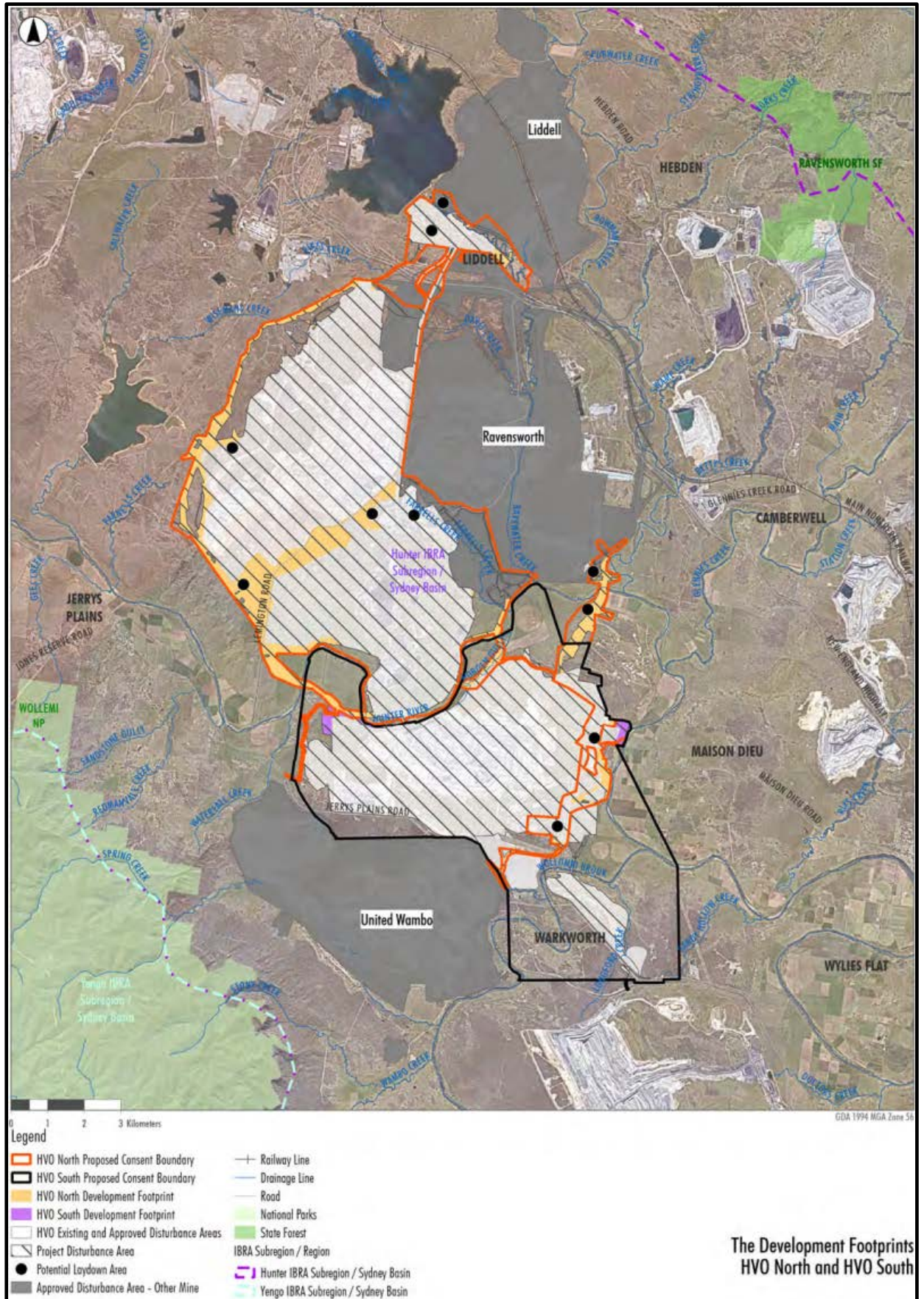


Figure 15 | Development footprint for the project (Source: Revised BDAR)

Table 12 | Direct impacts to PCTs

Plant community type (PCT)	Direct impact area (ha)	
	HVO North	HVO South
3431 - Central Hunter Ironbark Grassy Woodland	492.4	31.6
3485 - Hunter Valley Foothills Slaty Gum Forest	7.1	-
4015 - Central Hunter Swamp Oak Riparian Forest	2.2	-
4081 - Northwest River Oak River Red Gum Forest	1.9	-
4089 - Namoi-Upper Hunter River Red Gum Forest	61.2	13.9

Threatened flora and fauna

226. Five species-credit species were recorded in the development footprint and one species-credit species was assumed present to inform the revised BDAR. Six targeted flora surveys were completed across seasons from 2020 to 2025, and fauna surveys of multiple methods and species targets were completed from 2019 to 2025.
227. Large-eared pied bat (*Chalinolobus dwyeri*) and little bent-winged bat (*Miniopterus australis*) were recorded during surveys however were not included for the purposes of credit assessment (see **Section 6.2.4**).
228. The swift parrot (*Lathamus discolor*) was recorded during surveys however were not included for the purposes of credit assessment (see **Section 6.2.4**).

The biodiversity impacts of the project on each threatened fauna species are summarised in

Table 13

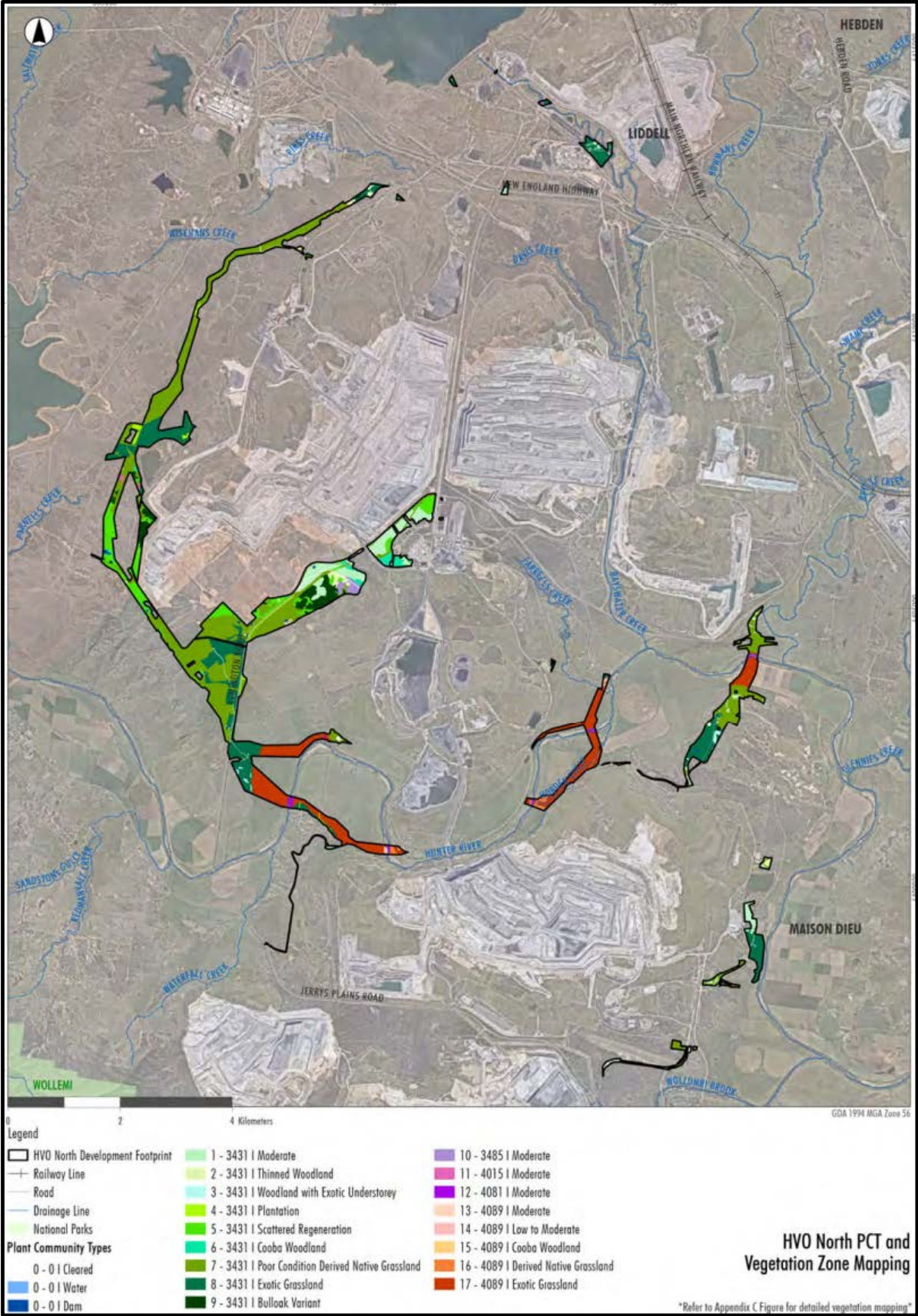


Figure 16 | HVO North PCT mapping (Source: Revised BDAR)

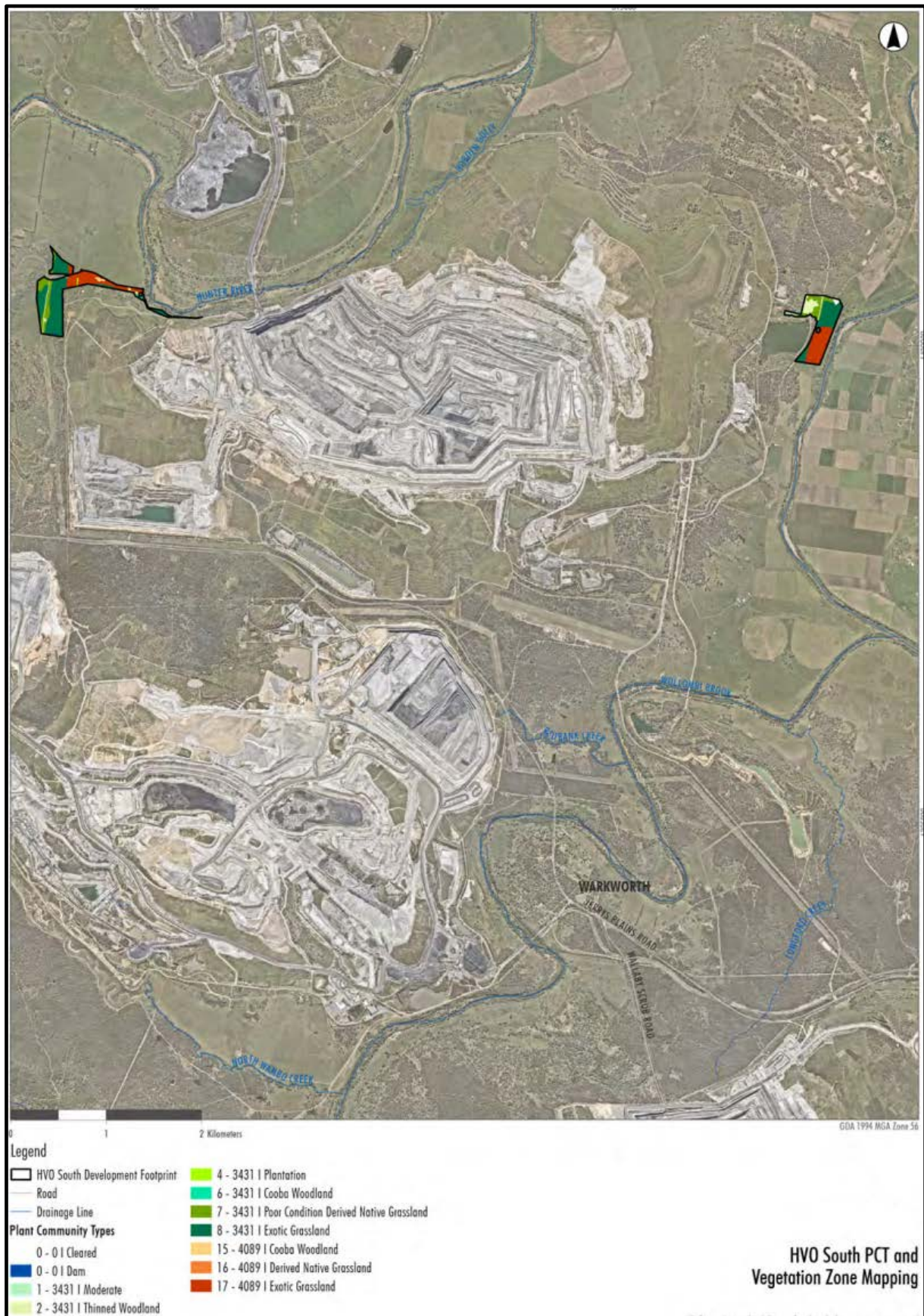


Figure 17 | HVO South PCT mapping (Source: Revised BDAR)

Table 13 | Direct impacts to threatened fauna

Species	Status (BC Act)	Direct impact area (ha)	
		HVO North	HVO South
Southern myotis (<i>Myotis macropus</i>)	Vulnerable	78.62	2.2
Hunter Valley delma (<i>Delma vescolineata</i>)	Endangered	224.9	8.7
Masked owl (<i>Tyto novaehollandiae</i>)	Vulnerable	57.7	18.1
Brush-tailed phascogale (<i>Phascogale tapoatafa</i>)	Vulnerable	123.32	2.5
<i>Eucalyptus camaldulensis</i> population in the Hunter Catchment	Endangered	0.8	1.1*

Note: * Includes impacts associated with the River Red Gum Additional Disturbance Area.

230. Eight of the vegetation zones within the PCTs described in **Table 12** and mapped within the development footprint of the project conform to threatened ecological communities (TEC) under the BC Act. The biodiversity impacts of the project on each TEC are summarised in **Table 14**.

Table 14 | Direct impacts to threatened flora

Threatened ecological community (TEC)	Status (BC Act)	Direct impact area (ha)	
		HVO North	HVO South
Central Hunter Grey Box-Ironbark Woodland in the NSW North Coast and Sydney Basin Bioregions	EEC	79.1	2.3
Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	EEC	1.06	0.15*
Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion	VEC	7.1	-

Note: * Includes impacts associated with the River Red Gum Additional Disturbance Area.

Indirect and prescribed impacts

231. The BDAR identifies potential indirect impacts on biodiversity as a result of the project including:

- drawdown impacts on groundwater dependent ecosystems (GDEs), particularly the River Red Gum endangered population;
- littering along the re-aligned Lemington Road;

- reduced viability of adjacent habitat due to edge effects including the spread of weeds and pathogens;
 - impacts from mining operations including noise, fugitive light spill and dust; and
 - reduced habitat connectivity.
232. The BDAR concluded that the project is unlikely to have significant drawdown impacts on the identified GDEs including the river red gum endangered population and Hunter Floodplain Red Gum Woodland EEC. The significance of the remaining indirect impacts was considered generally of low potential impact given the implementation of proposed mitigation measures.
233. The BDAR also identified a number of prescribed impacts on biodiversity as a result of the project including:
- impacts on habitat connectivity associated with threatened entities;
 - impacts on water bodies (including dams), water quality and hydrological processes that sustain threatened entities; and
 - impacts of vehicle strike on threatened entities.
234. Mitigation measures proposed to manage and limit indirect and prescribed impacts include a long-term rehabilitation strategy to establish native ecosystem connectivity in the final landform, wildlife road signage, and an adaptive management strategy for drawdown impacts.

6.2.4 Serious and Irreversible Impacts (SAIL)

235. An impact is regarded to be SAIL if it is likely to contribute significantly to the risk of an ecological community or species becoming extinct based on four principles set out in Clause 6.7 of the *Biodiversity Conservation Regulation 2017* (BC Regulation).
236. The Department had regard to the '*Guidance to assist a decisionmaker to determine a serious and irreversible impact*' (DPIE, 2019) when considering the potential for the project to result in SAIL.
237. The BDAR identified two species-credit species, one endangered population, and two TECs listed as potential SAIL entities relevant to the project which are discussed below.

Species credit species

238. SAIL-listed microbat species are listed as SAIL entities for breeding habitat only. The revised BDAR determined that there would not be an impact on the breeding habitat of either the large-eared pied bat or little bent-winged bat as a result of the project, as no suitable habitat is present within the development footprint, and therefore SAIL assessment of the microbat

species were not required. Offsetting for these species are captured for foraging habitat as part of the ecosystem credit requirement.

239. The swift parrot is SAI-listed for areas mapped as important habitat only. The revised BDAR determined that no important habitat for the species was present within the development footprint, and therefore SAI assessment of the swift parrot was not required. Offsetting for this species is captured as part of the ecosystem credit requirement.

Endangered population

240. *Acacia pendula* individuals of the endangered population in the Hunter Catchment do not occur within the disturbance area and would not be directly impacted by the project.

TECs

Weeping Myall Woodland in the Sydney Basin Bioregion CEEC

241. The *Weeping Myall Woodland in the Sydney Basin Bioregion CEEC* identified by the revised BDAR is 0.05 ha of poor condition DNG and conforms to the CEEC due to patches of characteristic canopy species. The CEEC does not occur within the disturbance area and would not be directly impacted by the project.

Hunter Floodplain Red Gum Woodland EEC

242. It is the role of the consent authority to determine whether the project is likely to result in a SAI. The Department has summarised the key considerations regarding SAI in the sections below for consideration by the IPC.
243. CPHR and HV Operation's and their BAM accredited assessors have provided information during the assessment process to inform the consent authority's decision of whether the impact to *Hunter Floodplain Red Gum Woodland EEC* would be a SAI. Having regard to all information that has been presented, the Department has carefully considered the principles outlined in the BC Act and BC Regulation, as well as the steps in the *Guidance to assist a decision-maker to determine a serious and irreversible impacts* (DPIE 2019).

Steps 1 and 2 – identify impacted relevant entities and evaluate risk of extinction

244. An impact is to be regarded as SAI if it is likely to contribute significantly to the risk of an ecological community becoming extinct based on the four principles set out in Clause 6.7 of the BC Regulation.
245. *Hunter Floodplain Red Gum Woodland EEC* is listed as an entity at risk of SAI on the basis of two principles in the BC Regulation, being:

1. *“It will cause a further decline of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline”; and*
2. *“It will further reduce the population size of the species or ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very small population size.”*

Step 3 – Avoidance and minimisation

Avoidance

246. The Department notes that CPHR provided advice in response to a number of HV Operation’s assessment documents throughout the assessment process. The original project was expected to impact approximately 1.6 ha of *Hunter Floodplain Red Gum Woodland EEC*. Advice provided by CPHR prior to the assessment of the amendment report included recommendations to minimise the impact of the project on the EEC.
247. In its amended application, HV Operations further avoided the impact of the project on the *Hunter Floodplain Red Gum Woodland EEC* with changes to the development footprint and the RRG Additional Disturbance Area.
248. CPHR’s initial advice on the amendment report concluded the impact to the EEC may constitute SAI and that it recommended the proposal be revised to avoid any further impact. CPHR noted that where avoidance was not feasible, HV Operations should engage with DPHI to *“identify and secure an area of equal or greater ecological value for protection and rehabilitation. This offset area must not be subject to any existing or proposed rehabilitation or conservation agreements.”* Further comments received from CPHR on the submissions report indicated that it recommended that *“the proposal should avoid all stands of the Hunter Floodplain Red Gum Woodland EEC within the site.”*
249. HV Operations provided further commentary on the avoidance measures taken to avoid impacts to the EEC, and noted that due to the proximity of the *Hunter Floodplain Red Gum Woodland EEC* to future mining operations and the Hunter River, no further avoidance is considered possible, and impacts associated with the proposed transmission line relocation have been assessed by the revised BDAR conservatively, though works are expected to primarily be associated with tree trimming and edge impacts with mature trees to be avoided where possible.

Minimisation

250. HV Operations reiterated that it would mitigate the impacts to the EEC through the enhancement and restoration of 6.6 ha of the EEC on site through the incorporation of the additional area into an existing restoration area managed under the River Red Gum Rehabilitation and Restoration Strategy (RRGRRS) required under the existing HVO North (DA

450-10-2003) and HVO South (PA 06_0261) consents. This restoration is in addition to offsetting requirements under the BAM for the EEC.

251. The RRGRS includes measures to restore the EEC on site through revegetation and management, which would result in a net gain for the Hunter Floodplain Red Gum Woodland EEC and improve protection to adjacent areas. The RRGRS would be revised to include an Ecological Restoration Plan (ERP) to inform weed control, vegetation re-establishment, protection measures and a TARP to ensure the continued improvement of the EEC.

CPHR advice on avoidance and minimisation

252. In its final advice on the project, CPHR noted efforts have been made to avoid the EEC and did not request further avoidance. CPHR notwithstanding noted the impact 'may' constitute a SAI given its listing under principle 1 and 2 under the BC Regulation and that management measures proposed for the RRGRS would be an important mitigation measure. CPHR requested recommended conditions of consent including the formalisation of HV Operations' commitments to the RRGRS and that CPHR be involved in developing the strategy to ensure its adequacy.

HVO final response

253. HV Operations responded to final recommendations and comments made by CPHR to confirm the avoidance and minimisation measures of the original and amended project design and clarify the commitments of the additional area of EEC proposed to be incorporated into the RRGRS. HV Operations note acceptance of CPHR's recommendation that the RRGRS be prepared in consultation with CPHR and submitted to the Planning Secretary for approval.
254. This response was prepared by Umwelt's senior principal ecologist and BAM accreditor assessor concluded that with the proposed avoidance and minimisation measures, including commitment to the additional area of EEC to be protected and enhanced, the project is not considered to result in the Hunter Floodplain Red Gum Woodland EEC being at risk of SAI.

Step 4 - Evaluate SAI

255. The residual direct impact of the amended project on the EEC is 1.06 ha located in HVO North and 0.15 ha in the RRG Additional Disturbance Area of moderate and low to moderate condition vegetation. This area represents 0.28% of the current estimated geographic extent of the TEC in NSW. Offset credit requirements for this impact are shown in **Table 15** and HVO intends to meet biodiversity offset obligations through the purchase of credits on the open market (where available), payment into the Biodiversity Conservation Fund (BCF), and the establishment of new stewardship sites or retirement of credits from existing stewardship sites.

6.2.5 Recommendations

256. The Department has recommended conditions to mitigate and manage potential residual impacts on biodiversity to ensure:
- impacts do not exceed those outlined in the revised BDAR;
 - opportunities are investigated for further avoidance of native vegetation;
 - a biodiversity sub-plan is prepared as part of the Construction Environmental Management Plan (CEMP) to manage the impacts to biodiversity associated with construction activities and a Biodiversity Management Plan is prepared to manage biodiversity impacts from the operation of the mine;
 - the RRGRS is updated to incorporate the additional 6.6 ha of *Hunter Floodplain Red Gum Woodland EEC* to the community and individuals already managed by the RRGRS;
 - indirect impacts are managed appropriately;
 - the development footprint is rehabilitated following the completion of works; and
 - all biodiversity impacts would be offset prior to the commencement of native vegetation clearing for each stage.

6.2.6 Conclusion

257. The BDAR for the project has been prepared in accordance with the strict requirements of the BAM and based on feedback from CPHR. The Department is satisfied that the project has been designed to avoid and minimise impacts on biodiversity values including to key ecological communities including the *Warkworth Sands Woodland EEC* and *Hunter Floodplain Red Gum Woodland EEC*.
258. The Department considers that sufficient information has been provided to demonstrate that the project's impacts would not be significant to the point where it would be likely to contribute significantly to extinction of the *Hunter Floodplain Red Gum Woodland EEC*, noting this is a decision for the consent authority.
259. Subject to the implementation of the recommended conditions, the Department considers that the project would avoid, minimise and mitigate impacts on threatened species and communities to the greatest extent practicable and that the residual biodiversity impacts of the project can be appropriately offset in accordance with the BOS.
260. .
261. The Department notes it is CPHR's position 'any' direct or indirect impact to the EEC is capable of being a SAI given the listing under principle 1 and 2 in the BC Regulation.

262. The Department's consideration of whether an impact is SAI is centred on the key statement from the BC Regulation Clause 6.7(2) that "*An impact is to be regarded as serious and irreversible if it is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct*".
263. The Department notes that this phrase or the individual words are not defined within the BC Act or BC Regulation. Whether a project would cause SAI to a specific community or species is a matter of fact and degree, and there is no simple 'rule' or 'formula' that can be applied to all communities and species. However, the Department considers that the above phrase should be interpreted to mean a real chance or possibility that the development would be an important or significant contributor to the chance or possibility that one of the relevant species or communities would become extinct as a result of the development.
264. Further, the Department notes that none of the relevant statutory documents relating to SAI state that 'any loss' of a species or community would necessarily contribute significantly to the risk of extinction.
265. The Department considers that sufficient information has been provided to demonstrate that the project's impacts would not be significant to the point where it would be likely to contribute significantly to extinction. This is because:
- the total direct impact of the project is estimated to be 1.2 ha or 0.28% of the current estimated geographic extent in NSW;
 - the impacts of the project have been assessed conservatively with impacts to the EEC from the transmission line relocation expected to primarily be associated with tree trimming and edge impacts with mature trees to be avoided where possible;
 - HV Operations commits to the incorporation of an additional 6.6 ha of *Hunter Floodplain Red Gum Woodland EEC* already managed by the RRGRRS, with proposed restoration and enhancement strategies including passive regeneration and assisted revegetation; and
 - HV Operations also commits to proposed mitigation strategies including the avoidance of mature trees where possible, pre-clearance surveys, information signage and clear delineation of easement boundaries.

6.2.7 Biodiversity offsets

266. Ecosystem and species credits required to offset the project are summarised in **Table 15**.

Table 15 | Summary of Biodiversity Credit Requirements

Biodiversity feature	HVO North		HVO South		Total
	With HBTs	Without HBTs	With HBTs	Without HBTs	
Ecosystems					
3431 - Central Hunter Ironbark Grassy Woodland					
EEC	2,131	9	65	-	2,205
Non-TEC	683	1,233	-	5	1,921
3485 - Hunter Valley Footslopes Slaty Gum Forest					
VEC	313	-	-	-	313
4015 - Central Hunter Swamp Oak Riparian Forest					
Non-TEC	-	65	-	-	65
4081 - Northwest River Oak River Red Gum Forest					
Non-TEC	-	39	-	-	39
4089 - Namoi-Upper Hunter River Red Gum Forest					
EEC	33	1	-	-	34
Non-TEC	3	10	20	-	33
Species					
Southern myotis (<i>Myotis macropus</i>)		2,024		59	2,083
Hunter Valley delma (<i>Delma vescolineata</i>)		2,567		106	2,673
Masked owl (<i>Tyto novaehollandiae</i>)		552		158	710
Brush-tailed phascogale (<i>Phascogale tapoatafa</i>)		3,331		67	3,398
<i>Eucalyptus camaldulensis</i> population in the Hunter Catchment		6		8	14

267. HVO has nominated a staged approach to the retirement of credits consisting of two stages across HVO North and HVO South relevant to separate components of the project. HVO has identified a credit allocation for each stage and would retire the credits prior to the disturbance occurring. Credit staging is summarised in **Appendix D** and shown in **Figures D1 and D2**.
268. HVO intends to meet biodiversity offset obligations through the purchase of credits on the open market (where available), payment into the Biodiversity Conservation Fund (BCF), and the establishment of new stewardship sites or retirement of credits from existing stewardship sites.

6.2.8 Recommendations

269. The Department has recommended conditions to mitigate and manage potential residual impacts on biodiversity to ensure:
- impacts do not exceed those outlined in the revised BDAR;
 - opportunities are investigated for further avoidance of native vegetation;
 - a biodiversity sub-plan is prepared as part of the Construction Environmental Management Plan (CEMP) to manage the impacts to biodiversity associated with construction activities and a Biodiversity Management Plan is prepared to manage biodiversity impacts from the operation of the mine;
 - the RRGRRS is updated to incorporate the additional 6.6 ha of *Hunter Floodplain Red Gum Woodland EEC* to the community and individuals already managed by the RRGRRS;
 - indirect impacts are managed appropriately;
 - the development footprint is rehabilitated following the completion of works; and
 - all biodiversity impacts would be offset prior to the commencement of native vegetation clearing for each stage.

6.2.9 Conclusion

270. The BDAR for the project has been prepared in accordance with the strict requirements of the BAM and based on feedback from CPHR. The Department is satisfied that the project has been designed to avoid and minimise impacts on biodiversity values including to key ecological communities including the *Warkworth Sands Woodland EEC* and *Hunter Floodplain Red Gum Woodland EEC*.
271. The Department considers that sufficient information has been provided to demonstrate that the project's impacts would not be significant to the point where it would be likely to contribute

significantly to extinction of the *Hunter Floodplain Red Gum Woodland EEC*, noting this is a decision for the consent authority.

272. Subject to the implementation of the recommended conditions, the Department considers that the project would avoid, minimise and mitigate impacts on threatened species and communities to the greatest extent practicable and that the residual biodiversity impacts of the project can be appropriately offset in accordance with the BOS.

6.3 Water Resources

273. Open cut coal mining has the potential to have impacts on both the groundwater and surface water environments of the wider locality. All mining operations have some level of impact on groundwater resources as the extraction of the coal seam leads to depressurisation and fracturing of the overlying strata, which can affect surrounding aquifers. The Department considers the incremental and cumulative groundwater impacts are the key water assessment issue for the project, including potential impacts to the Hunter River alluvium.
274. Mining operations can also lead to loss of surface water from overland flow and diversion of existing watercourses. In addition to impacts on water quantity, mining can result in decreased quality of the surrounding groundwater and surface water resources through seepage of poor quality water into the groundwater systems and/or uncontrolled releases to the local watercourses.
275. Impacts to surface and groundwater resources was an issue raised in public submissions during the exhibition of the original and amended application, including cumulative groundwater impacts from the existing HVO complex and other mining operations.
276. Measures to mitigate, manage and monitor impacts to water resources are implemented as part of the approved HVO complex. This includes the implementation of a comprehensive surface water management plan and groundwater management plan which include monitoring networks to identify potential changes to water quality.
277. The IEAPM provided advice on the original project with regard to water-related impacts which concluded there were no residual matters to be considered subject to the implementation of conditions. The Department considers this advice is consistent for the amended project as the amendments are predicted to result in lesser or consistent impacts to water resources compared to the original project.

6.3.1 Groundwater

278. Key groundwater and geological features that have the potential to be impacted by the project include:
- alluvial aquifers associated with the Hunter River and its tributaries such as Wollombi Brook, which form unconfined, permeable aquifers with fresh to brackish water quality;
 - regolith which does not form aquifers;
 - Permian interburden layers which form aquitards; and
 - Permian coal seams which generally form low to moderately permeable confined aquifers with poor groundwater quality.
279. The Hunter River and Wollombi Brook alluvial aquifers are considered to be highly productive aquifers under the Aquifer Interference Policy (AIP). The Permian aquifers are defined as 'less productive' aquifers under the AIP.
280. The project is located in an area subject to active and approved mining operations and therefore the Permian strata is subject to existing depressurisation. Groundwater impacts from the project are therefore generally anticipated to be incremental and cumulative to existing impacts.
281. Receptors that would potentially be impacted include downstream water users, private (third party) landholder water supply bores and groundwater dependent ecosystems (GDEs) including subterranean GDEs (Stygofauna). Key GDEs include river red gum vegetation stands and Central Hunter Ironbark Grassy Woodland and Central Hunter Swamp Oak Riparian Forest which are considered opportunistic users of alluvial groundwater. In addition, river red gums rely on river flooding for germination. Stygofauna are known to occur in alluvial sediments along the Hunter River and Wollombi Brook.
282. HV Operations prepared a groundwater assessment including numerical groundwater modelling. The groundwater model was subject to independent peer review, review by Water Group and the IEAPM. The groundwater model was determined to be fit for purpose. HV Operations resolved all residual assessment issues raised by the IEAPM, Water Group and the NSW EPA during the assessment of the project.
283. Consistent with the requirements of the AIP, cumulative drawdown has been calculated by comparing the impacts of the project to a baseline scenario where mining ceases after 2009 (which is when the Hunter Unregulated and Alluvial water sharing plan commenced). In this scenario, groundwater is modelled to recover from 2009, however this is not what has occurred in reality as the HVO complex has continued to mine in accordance with relevant development

consents in this timeframe. Modelled cumulative impacts are therefore conservative and generally result in an over estimation of alluvial drawdown and changes in surface water-groundwater interaction.

284. The project has been designed to avoid and minimise impacts to groundwater resources including the removal of currently approved coal extraction from the Riverview South East Extension (RSEE), South Lemington Pit 1 and 2 (SLP 1 and SLP 2) mining areas.
285. Consistent with the approved development applications, a low permeability barrier wall is proposed to be constructed in the western arm of the paleochannel in the Carrington West Wing area to limit groundwater migration from the Hunter River (and associated alluvium) into the HVO North mining areas and potential migration of water from the backfilled HVO North pit to the Hunter River alluvium. The barrier wall would be constructed prior to undertaking mining within 100 m of the western arm of the Hunter River paleochannel. The IEAPM noted that the wall is expected to be beneficial for mitigating drawdown in the Hunter River alluvium.
286. The August 2025 amendment of the project resulted in consistent or reduced groundwater impacts compared to the original project. The minimisation of impacts is due to the reduced coal extraction and associated aquifer interference associated with the amendment, and mining for the amended project is not proposed to occur as close to the Hunter River or as deep as was proposed for the original project.
287. HV Operations assessed the groundwater impacts of the project against the AIP minimal impact considerations. The project would generally not exceed the Level 1 minimal impact considerations. The exception is the exceedance of the drawdown levels for high priority GDEs in a small area, however as described below the aquatic ecology assessment determined that the project is not predicted to affect the long-term viability of the identified GDEs.

Groundwater Drawdown

288. During mining operations, predicted drawdown levels ranged from no incremental drawdown compared to existing approved impacts, to up to two metres of cumulative drawdown in some areas. The maximum cumulative modelled drawdown is shown in **Figure 18** and **Figure 19**. The groundwater assessment identified the following maximum drawdown levels in the alluvium during mining operations:
 - 0.2 m to 0.5 m incremental and cumulative drawdown in the Hunter River alluvium, with maximum levels in a small area north of the Carrington Billabong;
 - no incremental or cumulative drawdown in the Hunter River Carrington West Wing area, south of the low permeability barrier wall;
 - no incremental drawdown, and up to two metres of cumulative drawdown in the Wollombi Brook alluvium

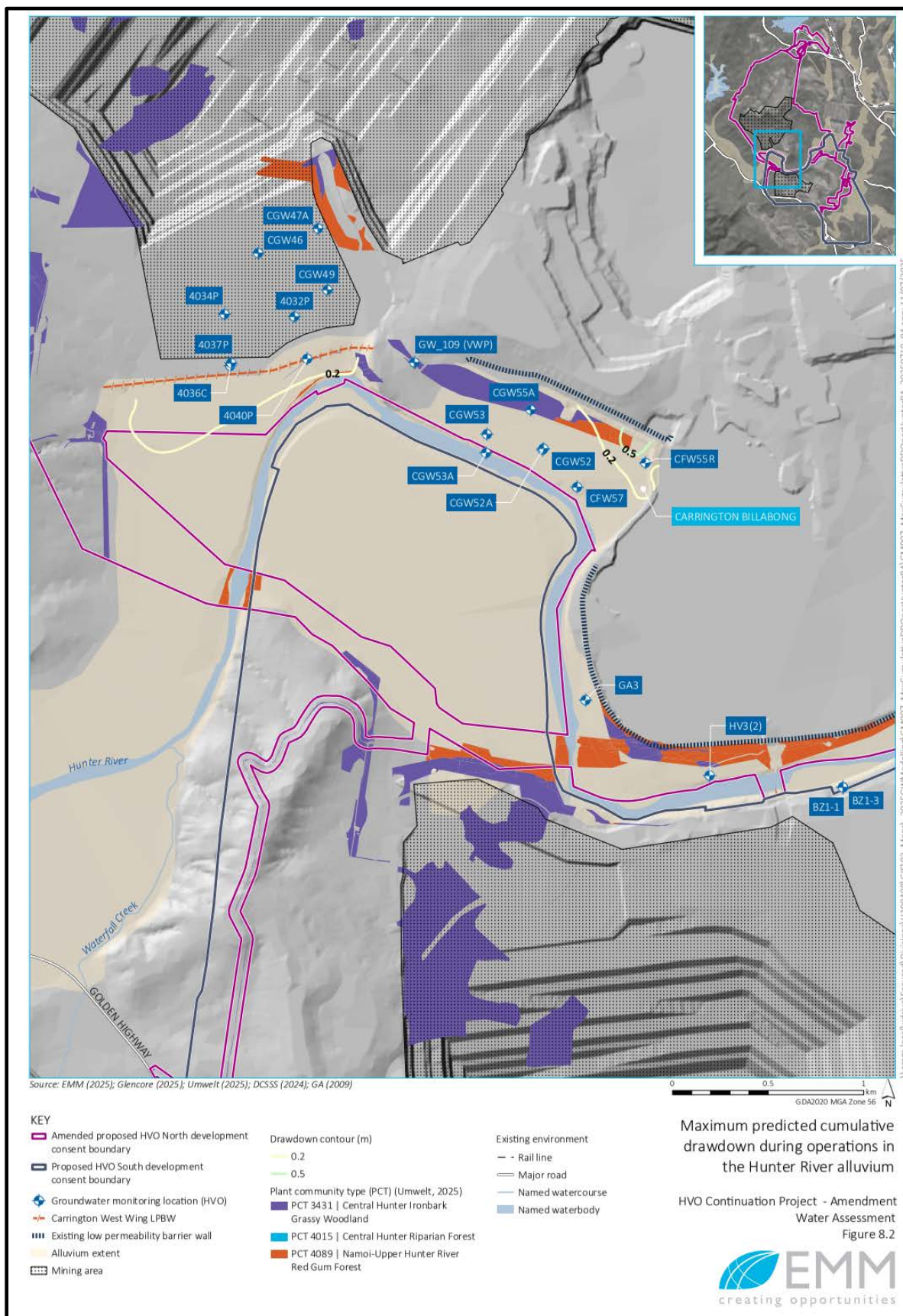


Figure 18 | Maximum predicted cumulative drawdown in the Hunter River alluvium

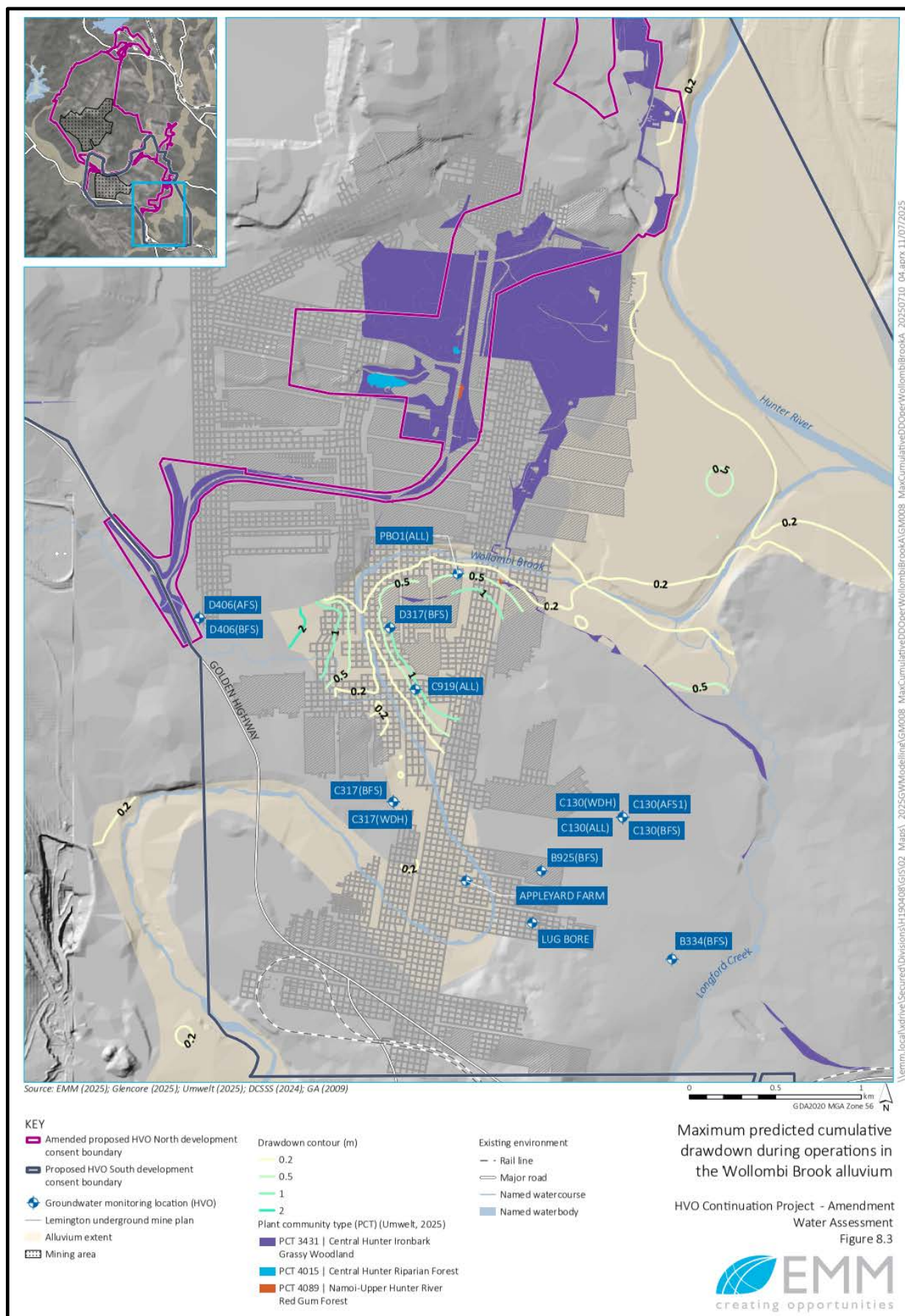


Figure 19 | Maximum predicted cumulative drawdown in the Wollombi Brook alluvium

289. Post closure of the mine, there is no predicted incremental drawdown in the alluvium. A maximum cumulative drawdown of up to two metres is predicted in the Carrington Billabong and Wollombi Brook alluvium and up to 0.5 m in the Carrington West Wing area, due to approved mining operations.
290. Despite the minor drawdown predicted in the Hunter River alluvium, the alluvium is modelled to remain saturated largely due to leakage of surface water through the bed of the Hunter River and the minor nature of the drawdown.
291. Areas with potential GDEs are not predicted to be dewatered over the project life. There are limited areas of the Hunter River alluvium that support river red gums that are subject to drawdown, and drawdown in these areas is limited to 0.2-0.5 m. The aquatic ecology assessment determined that impacts to the river red gum populations and Central Hunter Ironbark Grassy Woodland are likely to be minor or negligible, and the project would not prevent the long-term viability of the ecosystems. The IEAPM concluded that impacts to GDEs are not expected to be significant and recommended improvements to the long-term monitoring of GDEs in the water management plan.
292. The existing impact to the stygofauna from approved mining operations in the Hunter River paleochannel is high. The incremental impact to stygofauna associated with the amended project is low because there would be no additional excavation in the alluvium beyond what has already been approved.
293. There are no third-party water supply bores within the predicted extent of drawdown.

Groundwater Quality

294. The groundwater assessment concluded that the project would have a negligible impact on groundwater quality. The key consideration for groundwater quality is the potential for gradual increased salinity associated with the evaporation of water from the final void lake. The assessment concluded that this would not pose a risk to connected surface waters as the final void would remain a permanent groundwater sink and concentrated salt would remain in the void lake.

Final Void and post-closure impacts

295. The project would result in the reduction in the number of final voids at HVO North from three to two. There would be no change to the one approved final void at HVO South. The project would reduce the catchment area reporting to the final voids at both HVO North and HVO South by around 300 ha, which is a benefit of the project.
296. The voids have been designed as long-term groundwater sinks, consistent with the approved project. The final voids would reach equilibrium levels several hundred years after the cessation of mining operations. Long term post-closure modelling predicts that the

groundwater would flow from the surrounding spoil into the pit lake, which minimises risks to surrounding waterways and alluvial aquifers.

297. The incremental and cumulative post-mining groundwater drawdown is generally consistent with the predicted impacts during mining operations. The Hunter River alluvium is predicted to remain saturated due to the strong hydraulic connection with the Hunter River and the aquatic ecology assessment demonstrates that predicted water table changes would not prevent the long-term viability of GDEs.

6.3.2 Surface Water

298. Key surface water features with the potential to be impacted by the project include the Hunter River which divides HVO North and HVO South, and Wollombi Brook which flows through the southern portion of the site. The site is also drained by several minor watercourses including Bayswater and Parnells Creeks (see **Figure 20**).
299. There is an existing water management system implemented at the HVO complex to control the movement of water around the site. The system is implemented to meet requirements under the existing consents, EPL and as part of water licensing requirements for the existing complex. This existing system would be updated to manage the incremental impacts associated with the project and any new requirements under a revised EPL.
300. HV Operations prepared a surface water impact assessment for the project which was updated through and assessment of the application including for the amendments to the project. HV Operations resolved all residual assessment issues raised by Water Group and the NSW EPA during the assessment of the project.
301. The project would carry out mining operations within existing approved disturbance boundaries, including mining previously disturbed areas. The incremental impact of the project on adjacent surface water systems is generally expected to be minor or negligible.

Baseflow impacts

302. The surface water assessment concluded that there would be minimal to no changes to the annual flow and average duration of dry periods for Hunter River and most of its tributaries from baseflow losses. Only three ephemeral watercourses were found to have changes of 1% or more due to the amended Project. The duration of dry periods within the representative dry year are predicted to increase by 1%, 1% and 3% for Parnells Creek, Farnells Creek and Unnamed Tributary 1 at HVO North respectively. The predicted change in streamflow is negligible for the Hunter River and Wollombi Brook and minor for the ephemeral tributaries.
303. The IEAPM concluded that loss of downstream flows due to baseflow loss and leakage as predicted is not of concern.

Surface water quality

- 304. Key impacts to surface water quality are to the Hunter River. Discharges are regulated under the Hunter River Salinity Trading Scheme (HRSTS). Under the HRSTS controlled releases can occur during high flow periods. The surface water assessment concluded that discharge under the HRSTS is not expected to have an adverse effect on surface water quality or change the beneficial use of the Hunter River. Discharges would generally be below the 80th percentile background concentrations and all below the 95th percentile background concentrations which suggests expected discharges are within the existing natural range of the Hunter River.
- 305. The IEMP concluded that water discharges during operations are manageable under the HRSTS and EPL. The IEMP noted that updates to the groundwater model in the future should be undertaken to inform rehabilitation and closure planning to manage discharges from the final landform following the cessation of mining operations.
- 306. Other surface water impacts can be managed through the implementation of the water management system and erosion and sediment control measures to be implemented during operational and rehabilitation phases of the project to manage water quality.

Flooding

- 307. The flood modelling developed as part of the surface water assessment indicates there would be no broad scale changes to flood hazards categories predicted due to the project. Small changes predicted would not impact on the use of affected land or public safety or emergency management.
- 308. The proposed realignment and Hunter River bridge crossing of Lemington Road as part of the project would improve the flood immunity of the road adjacent to the river, which is a benefit of the project. The new crossing would have flood immunity up to the 10% AEP event.
- 309. Changes in predicted flood velocities are not expected to change the existing local geomorphic regime and predicted changes to the flow and flooding regime of the Hunter River are predicted to be minor.
- 310. The IEAPM concluded the flood modelling undertaken for the project has been peer reviewed and appears to be appropriate for the purpose of the Project. The IEAPM noted some localised risks associated with erosion and performance of flood levees are manageable by good design and performance monitoring.

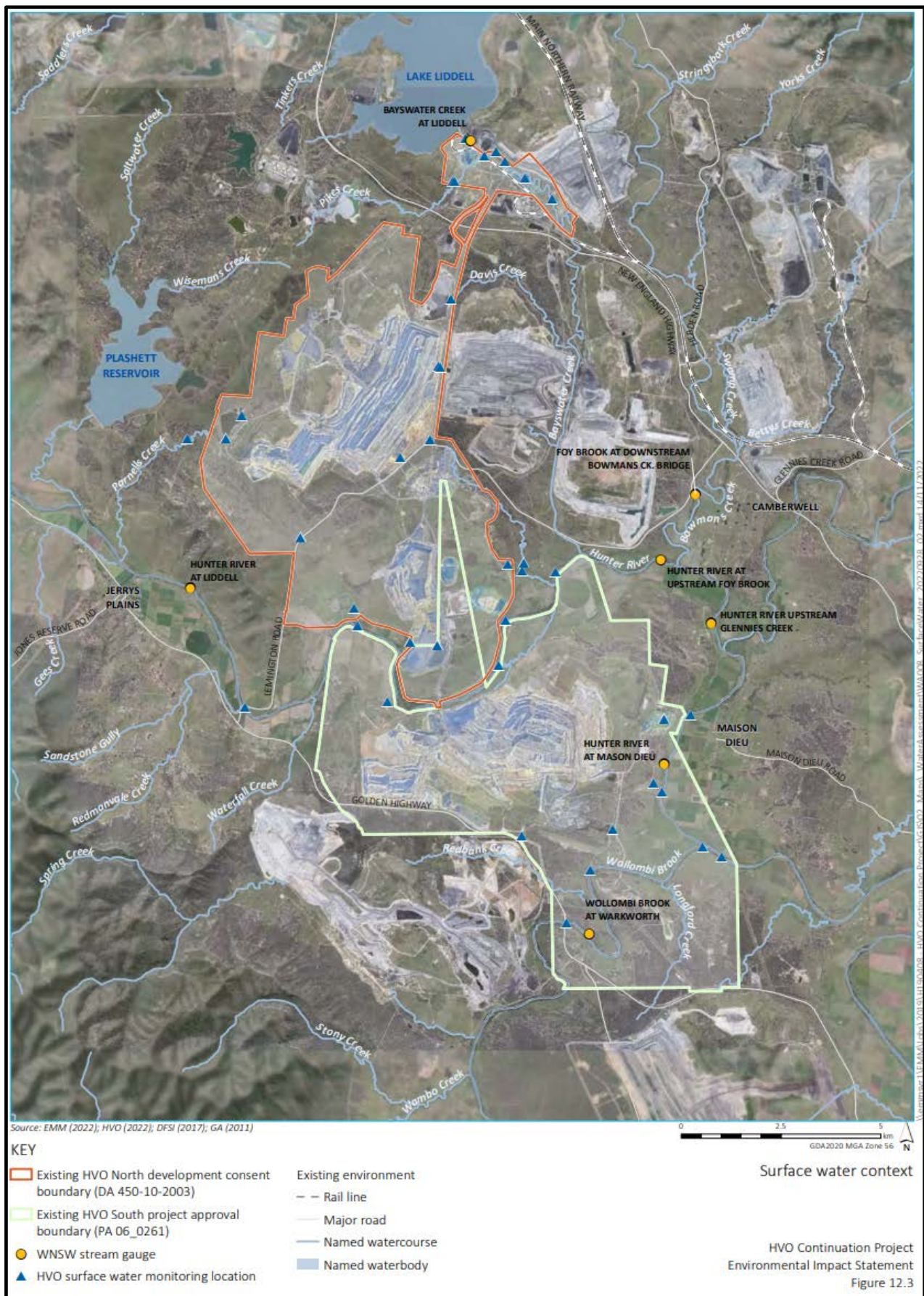


Figure 20 | Surface Water Context

6.3.3 Water Balance and Licensing

- 311. Water licencing provides for the strategic level NSW Government regulation of impacts to aquifers from water take. Potential water take for the project has been calculated by the water balance model prepared for the assessment.
- 312. HV Operations holds considerable water entitlement in the relevant surface and groundwater sources in the project area. HV Operations considers it holds sufficient entitlements to account for the predicted take in most water sources and can gain or purchase entitlement during periods of peak take above the existing entitlement, including from the Jerrys water source (4 ML/year).
- 313. Water Group did not raise residual concerns regarding the water balance or water licensing for the project.

6.3.4 Management and mitigation

- 314. HV Operations committed to the review and update of its existing complex Water Management Plan including a review of the existing surface water, groundwater and ecological monitoring to develop performance criteria and verify the findings of the assessment.
- 315. The management and mitigation proposed as part of the project are generally consistent with the existing mitigation measures in place at HVO. The Department generally agrees this is appropriate given the generally small incremental impacts associated with the project.
- 316. HV Operations committed to updating the existing groundwater monitoring network to include additional monitoring bores in the Carrington West Wing alluvium area (south of the Carrington West Wing low permeability barrier wall).
- 317. The Department has recommended conditions consistent with advice provided by the IEAPM and other government agencies. The recommended conditions include the preparation of a Water Management Plan and the development of strict water performance measures, monitoring requirements and a trigger action response plan (TARP) to ensure impacts are consistent with the predictions in the environmental assessments. The recommended conditions carry over relevant conditions from the existing consents including the requirement for a low permeability barrier wall to limit groundwater migration from the Hunter River.

6.3.5 Conclusion

- 318. The project involves the continuation of mining in an area subject to existing mining operations at a complex with existing infrastructure and management practices to minimise and monitor impacts to water resources. The potential impacts from the project are generally minor

incremental and cumulative impacts that would not result in significant impacts to aquifers, waterways and the ecosystems that depend on these water resources. This position was confirmed by the IEAPM which concluded there were no residual matters to be addressed subject to the implementation of conditions.

319. The Department has carefully considered the project's potential impacts on water resources, including concerns raised in public submissions and advice from government agencies and experts. The Department considers that the water-related impacts of the project could be appropriately managed through conditions of consent, should the IPC determine to approve the project, which incorporate recommendations from the IEMP.

6.4 Air Quality

6.4.1 Introduction

320. The project has the potential to affect ambient air quality through the generation of particulate matter (PM_{2.5}, PM₁₀, total suspended particulates and deposited dust) combustion related exhaust emissions (including nitrogen oxides and fine particulates) from mobile and stationary plant, and blasting related emissions (nitrogen dioxide).
321. These emissions can be generated during construction activities, mining operations, blasting, material handling and haulage. If not adequately managed, they have the potential to affect the amenity and wellbeing of surrounding communities and incrementally contribute to cumulative air quality impacts within the Hunter Valley mining precinct.
322. Air quality impacts were raised extensively in public submissions on both the original and amended project (see **Section 5.5**) and has therefore been treated as a key environmental assessment issue.
323. Accordingly, the Department's assessment focused on whether reasonable and feasible measures have been incorporated into the modelling and operational project controls, whether incremental and cumulative air quality impacts would exceed relevant air quality criteria, and whether residual impacts could be adequately managed, mitigated or compensated in accordance with the NSW EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (2022) (NSW EPA's Approved Methods) and the Department's Voluntary Land Acquisition and Mitigation Policy (VLAMP).
324. The Department's conclusions are based on whether these matters can be satisfactorily addressed over the life of the project, having regard to statutory requirements, existing consent conditions and established regulatory guidance.

6.4.2 Assessment methodology

- 325. Air quality impacts were assessed by Jacobs (2022) for the original project, and Airen Consulting (2025) for the amended project. Both assessments were prepared in accordance with the NSW EPA's Approved Methods, to the satisfaction of the NSW EPA.
- 326. The Department considers these assessments provide an appropriate technical basis and analysis, consistent with regulatory expectations.
- 327. Given the scale, size and progressive nature of the HVO complex, the intensity and spatial distribution of air emissions would vary over time. This variability directly influences predicted air quality concentrations at surrounding receivers and is therefore a critical consideration in the Department's assessment.
- 328. To capture this variability, the air quality assessment modelled three future operational scenarios, year 3 (2029), year 8 (2034), and year 15 (2041), representing periods of worst-case operational air quality impacts. These scenarios were selected to represent combinations of peak material handling rates, maximum haul distances, and mining activities occurring closest to sensitive receivers.
- 329. For each scenario, both project-only (incremental) and cumulative impacts were modelled and assessed for HVO North and South individually as well as combined.
- 330. Cumulative modelling for the 2029 (year 3) and 2034 (year 8) scenarios included emission contributions from HVO North and South and nine surrounding approved mining operations, including Ashton Coal Underground, Mt Owen, Mt Thorley, Ravensworth, Rix's Creek North, Rix's Creek South, United Wambo, Wambo and Warkworth.
- 331. The 2041 (year 15) scenario included HVO North and South and only those surrounding operations approved to operate during that period, being Wambo and United Wambo.
- 332. A separate baseline 2024 scenario was also modelled to establish background air quality contributions from existing contributions from surrounding sources and other mining operations in the region.
- 333. The NSW EPA and Department consider this approach to be methodologically sound and consistent with best practice for this scale of mining project.

6.4.3 Mitigation measures

- 334. The HVO complex currently operates under an approved air quality management plan, that requires continuous implementation of a comprehensive suite of proactive air quality mitigation measures. These include real-time dust monitoring, meteorological forecasting, proactive routine dust suppression practices and day to day mine planning and reactive

controls designed to minimise dust generation. HVO has committed to continuing the implementation of these measures as part of the project.

335. In assessing air quality impacts, the air quality modelling incorporated proactive mitigation measures at the emission source by applying activity-specific control efficiencies to all relevant emission sources. For each dust-generating activity (such as topsoil stripping, drilling, haulage, drilling, coal handling, blasting or wind erosion), an emission reduction percentage was applied to uncontrolled emission rates to incorporate the effectiveness of HVO's routine operations implemented under the sites air quality management plan.
336. These control efficiencies were applied prior to modelling to derive controlled emission rates, that represent HVO's expected routine operations, with all reasonable and feasible proactive mitigation measures in place, rather than an unmitigated worst-case scenario.
337. This approach is consistent with the intent of the NSW EPA's Approved Methods and aligns with the application of the VLAMP framework, which requires impacts to be conservatively assessed assuming best practice mitigation at the source.
338. This modelling does not incorporate short-term reactive operational controls (such as temporary relocation of operations, increasing watering rates, or partial or complete equipment shutdowns triggered by real time monitoring). These measures are part of HVO's operational air quality management framework and are implemented in practice, however they are difficult to quantify for long-term air quality modelling and therefore excluded from the impact predictions to demonstrate compliance.
339. As a result, the modelling represents a conservative assessment, as actual emissions and off-site concentrations during operations would be lower when both proactive and reactive measures are applied. In practice, the daily implementation of the real time reactive controls would further reduce emissions. The Department considers this appropriate, as it ensures that predicted exceedances are not dependent on discretionary or intermittent operational responses.
340. Supplementary modelling undertaken by Airen Consulting demonstrates that the application of reactive controls would further reduce predicted air quality impacts, particularly during adverse dust-generating weather conditions. This supplementary information, together with the sites historical monitoring data and compliance history concluded that project incremental air quality impacts would be lower than those predicted in the conservative modelling, and would comply with the NSW EPA's Approved Methods air quality assessment criteria.
341. Sensitivity modelling was also undertaken in response to NSW EPA queries regarding moisture content assumptions for ROM and product coal. This analysis demonstrated that further refinement of model inputs (such as modifying ROM and product coal moisture content) would

result in negligible changes to predicted emissions and air quality concentrations at nearby sensitive receivers in Warkworth, Gouldsville, Camberwell, Glennies Creek and Maison Dieu.

342. Following clarification of modelling inputs, mitigation assumptions, modelling outputs and contour mapping, the NSW EPA did not raise residual concerns regarding the air quality assessment.

6.4.4 Annual average particulate matter impacts

343. Modelling predicts exceedances of the EPA's Approved Methods and the Department's VLAMP annual average cumulative criteria for PM₁₀ (25 micrograms per cubic metre (µg/m³)), PM_{2.5} (8 µg/m³) and deposited dust (4g/m²/month) at a number of private receptors, primarily in the Gouldsville and Camberwell areas (refer to [Figure 21](#)).
344. After incorporation of all reasonable and feasible mitigation measures, exceedances of the VLAMP criteria are predicted at 11 private residential receivers:
- PM₁₀, PM_{2.5} and deposited dust: 121, 596, 627, 860, 861, 862 and 863;
 - PM₁₀ and deposited dust: 624 and 628; and
 - deposited dust: 619 and 629.
345. In accordance with the VLAMP, these receivers are therefore eligible for voluntary mitigation.
346. These receptors are located approximately 5.4 km to 11 km from the project within an established mining precinct, in close proximity to several other open-cut mines, including Ravensworth, Rix's Creek, Glendell, Warkworth, Mt Thorley and United.
347. The maximum contributions from the project (across all modelled years) are predicted to be minor, generally ranging from 1.1 to 3.3 µg/m³ for PM₁₀, 0.1 to 0.9 µg/m³ for PM_{2.5} and up to 0.4 g/m²/month for deposited dust.
348. The predicted cumulative exceedances are primarily driven by existing background levels and emissions from other operations, rather than the project itself. It is therefore likely that in the absence of other operations, the impacts from the project alone would not exceed the relevant VLAMP criteria.
349. The affected receivers are already subject to existing air quality mitigation or acquisition entitlements under existing approvals including Rix's Creek North, Rix's Creek South, Glendell, and Mount Owen. These entitlements apply across the full period of predicted project impacts.
350. Even if the other mining operations were to cease earlier than anticipated, the existing air quality mitigation and acquisition entitlements would remain valid, and rights could still be exercised under those approvals until the relevant consent(s) are surrendered.

351. In this context, the project would not introduce additional air quality mitigation obligations for these receivers. Rather, it would contribute to existing impacts (only minor increases in air quality contributions) at receivers within an established mining precinct who are already afforded mitigation rights for other projects.
352. The Department has carefully assessed these matters and considers that the project would not significantly contribute to existing cumulative impacts and that additional mitigation rights are not warranted.
353. There are no receivers eligible for acquisition rights under the VLAMP. The Department notes that 42% of one vacant lot held by receptor 121 is predicted to exceed the VLAMP criteria for the annual average deposited dust (cumulative) acquisition criterion. However, when considering the contiguous landholding of receptor 121 as required by the VLAMP, less than 25% of the landholding is predicted to exceed the criterion. Accordingly, the VLAMP acquisition criterion would not be met. The Department has recommended that existing mitigation rights be carried forward if the project is approved.
354. Exceedances of the VLAMP criteria for PM₁₀, PM_{2.5} and deposited dust were originally predicted at private residential receptors 621 and 626, making them eligible for air quality mitigation rights under the VLAMP. However, since the assessment, these properties have been acquired by mining companies and are now considered to be mine owned land. As a result, these properties are no longer eligible for mitigation under the VLAMP and mitigation rights would not be afforded to these receptors.
355. Potential air quality impacts at these locations would be managed through project specific conditions of consent for mine owned land, which require ongoing air quality monitoring, notification of potential particulate matter health risks, and flexibility with tenancy (including termination without penalty) to support informed decision making and management of potential health risks.
356. The assessment predicted exceedances of the VLAMP criteria for PM₁₀, PM_{2.5} and deposited dust at receptors 102, 264, 507, 592, 623, 830 and 833. While they consist of a dwelling on privately owned land, the assessments confirmed that the dwellings aren't considered to be a place of residence or a workplace. Accordingly, they are not eligible for mitigation rights under the VLAMP and mitigation rights would not be afforded to these receptors.

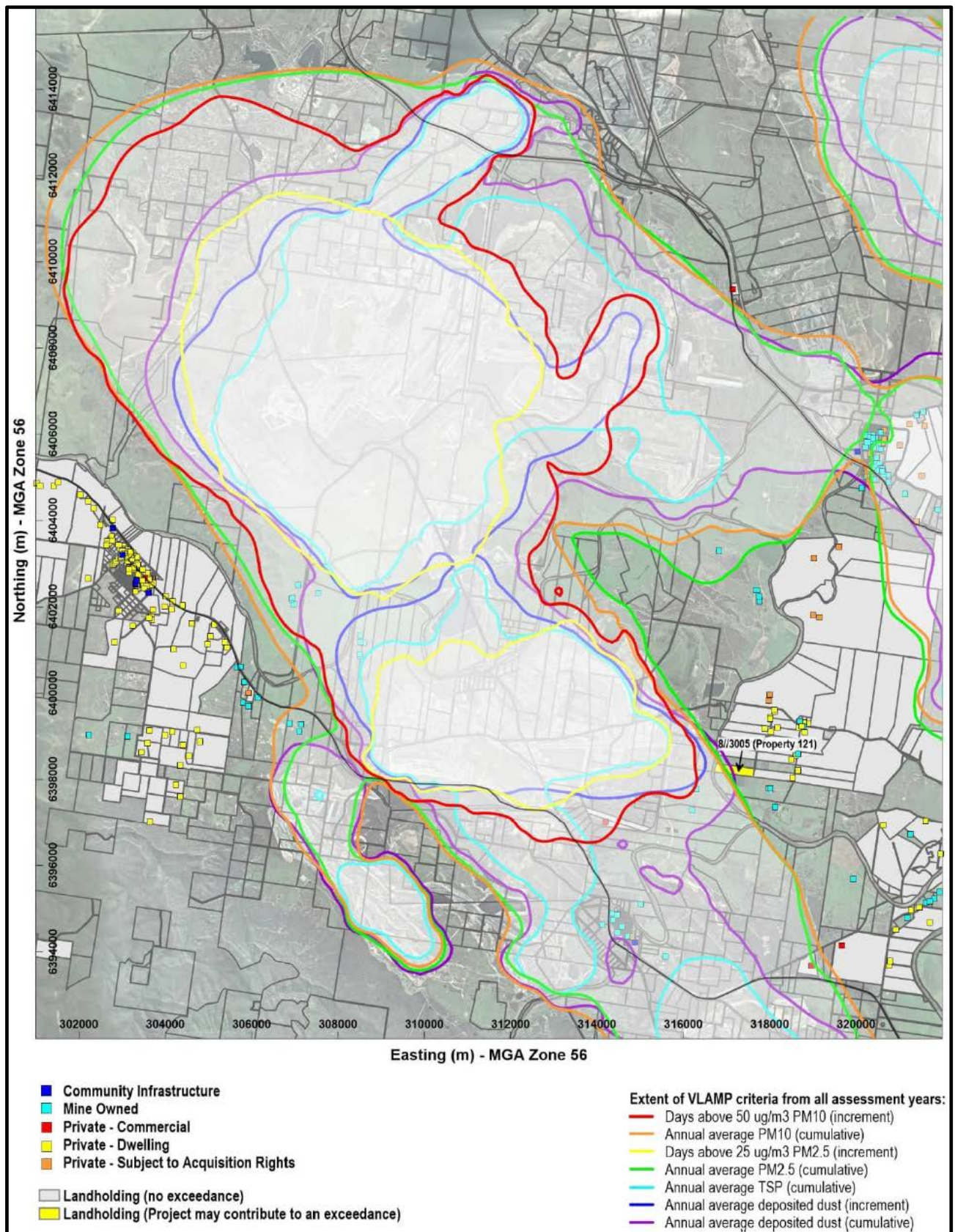


Figure 21 | Modelled Extent of VLAMP Criteria

6.4.5 24-Hour average particulate matter impacts

Project-only impacts

- 357. On a project only basis, the modelling predicts no exceedances of the VLAMP's 24-hour PM_{10} ($50 \mu\text{g}/\text{m}^3$) or $PM_{2.5}$ ($25 \mu\text{g}/\text{m}^3$) and deposited dust criteria ($2\text{g}/\text{m}^2/\text{month}$) at private residential receptors.
- 358. Exceedances are predicted at one private commercial receptor (the aerodrome, receptor 833), which is not a workplace or place of residence and is not eligible for mitigation or acquisition under the VLAMP.
- 359. Any exposure at this location is expected to be brief and intermittent, as people use this location for short term aviation-related activities.
- 360. The exceedances are primarily driven by HVO South operations and would occur on a limited number of days in year 3 (2029), with project only 24-hour PM_{10} contributions reaching $63 \mu\text{g}/\text{m}^3$ ($13 \mu\text{g}/\text{m}^3$ above the criteria) for approximately eight days in the modelled year. When the combined HVO North and South emissions are considered, concentrations at this receptor reach $65 \mu\text{g}/\text{m}^3$ ($15 \mu\text{g}/\text{m}^3$ above the criteria), for up to around 12 days a year.

Cumulative impacts

- 361. Cumulative air quality impacts in the Hunter Region have long been recognised as a key community concern and have been frequently raised in a large number of submissions. These concerns largely relate to short-term (24-hour) particulate matter exceedances, which typically occur during dry or dusty conditions.
- 362. Under the Department's VLAMP framework, assessment of 24-hour particulate matter impacts is only required for a project-only basis. The VLAMP does not prescribe criteria for cumulative 24-hour particulate matter, as robust cumulative assessment is technically challenging due to high variability in background concentrations (24-hour particulate matter levels) and limitations in current modelling approaches.
- 363. Notwithstanding the absence of cumulative criteria under the VLAMP, a contemporaneous cumulative analysis was undertaken to assess whether the project has the potential to contribute to exceedances of the NSW EPA's cumulative 24-hour average PM_{10} and $PM_{2.5}$ criteria.
- 364. Without reactive control measures in place, the modelling indicates that several receivers in the Warkworth, Camberwell, Glennies Creek and Maison Dieu areas are likely to experience cumulative 24hr PM_{10} exceedances of the NSW EPA's Approved Methods criteria of $50 \mu\text{g}/\text{m}^3$ on more than five days per year, and up to 141 days at the most affected receptor.

365. The incremental contribution from the project to these cumulative exceedances is predicted to be up to 27 $\mu\text{g}/\text{m}^3$ for PM_{10} and up to 20.1 $\mu\text{g}/\text{m}^3$ for $\text{PM}_{2.5}$ at the most affected receptor.
366. These predicted cumulative concentrations are consistent with historically observed conditions in the Hunter Valley (during prolonged drought, dust storms and bushfires) and are not expected to materially change as a result of the project. That is, the affected receivers are predicted to experience cumulative exceedances with or without the contribution from the project.
367. The project would continue implementing the existing established real-time dust monitoring and management system, which incorporates proactive and reactive measures that are expected to substantially reduce the frequency and severity of exceedances under actual operating conditions.

6.4.6 Existing impacts

368. Receivers 120, 121, 122, 123 and 471 currently hold existing air quality mitigation rights under the HVO South consent (MP 06_0261). Given the project is extending the duration of impacts, the Department has recommended the continuation of existing air quality mitigation entitlements if the project is approved.

6.4.7 Other air quality impacts

369. The assessment also considered total suspended particulates, deposited dust, diesel exhaust emissions (fine particulates and nitrogen oxide) from mobile equipment and stationary plant and emissions from blasting (post blast fume assessed as nitrogen dioxide).
370. Modelling indicates compliance with the relevant NSW EPA criteria at all privately-owned sensitive receptors not already subject to acquisition rights, subject to continued implementation of proactive and reactive best practice operational and blast management controls.

6.4.8 Conclusion

371. The Department considers that air quality impacts of the project have been appropriately assessed using conservative, best practice methodologies consistent with the NSW EPA's Approved Methods and the VLAMP and to the satisfaction of the NSW EPA.
372. The air quality modelling demonstrates, where exceedances are predicted, these are largely attributable to existing background and regional mining contributions, with the project making only minor contributions to existing impacts.

373. No project-related exceedances of the VLAMP criteria are predicted at private residential receptors that do not already hold equivalent air quality mitigation or acquisition rights under another mining consent in force at the time the obligation would otherwise apply. Therefore, no new air quality mitigation rights have been afforded as a result of the project.
374. Five receivers currently hold existing air quality mitigation rights under the HVO South consent (MP 06_0261). Given the project is extending the duration of air quality impacts, the Department has recommended the continuation of these mitigation rights if the project is approved.
375. While the Department recognises that the predicted residual air quality impacts are not insignificant, they are considered to be generally consistent with those of the approved mine.
376. The project would principally extend the duration of air quality impacts over a longer period at receivers already afforded mitigation or acquisition rights and contribute to cumulative mining impacts in the locality.
377. The Department notes that with the application of reactive controls the project is predicted to comply with the NSW EPA's Approved Methods incremental air quality assessment criteria at all receivers. Notwithstanding the project would contribute to cumulative exceedances.
378. Subject to the recommended conditions of consent, the Department is satisfied that the predicted air quality impacts are conservative and represent a worst case scenario and can be minimised, managed and, where necessary, compensated during mining operations to achieve an acceptable level of environmental performance.
379. To ensure this occurs, the Department has recommended conditions requiring HV Operations to:
- continue existing air quality mitigation rights to private receptors 120, 121, 122, 123 and 471 if requested by the landowner;
 - manage affected receivers (including mine-owned receivers) to minimise dust-related health risks;
 - apply real-time dust monitoring and proactive controls;
 - implement and maintain a comprehensive air quality management plan;
 - implement all reasonable and feasible measures to minimise air quality emissions and ensure compliance with contemporary air quality criteria;
 - coordinate air quality management with surrounding mines, including Mount Thorley Warkworth, United Wambo and Ravensworth;
 - respond effectively to enquiries or complaints; and

- publicly report on environmental performance.

6.5 Noise

6.5.1 Introduction

380. The project would generate noise from mobile equipment, fixed plant, alarms, construction activities, road traffic, rail movements and blasting affecting the surrounding receivers' amenity, particularly during noise enhancing meteorological conditions.
381. Noise impacts were raised in public submissions on both the original and amended applications and represent a long-standing amenity concern for surrounding communities, including Maison Dieu and Jerrys Plains. On this basis, noise has been treated as a key environmental issue.
382. Accordingly, the Department's assessment focused on whether operational and construction noise impacts can be avoided or minimised where practicable, and whether any residual impacts can be appropriately managed or compensated through the application of the relevant NSW noise policy framework.
383. Noise impacts were assessed against the relevant NSW guidance, including the *NSW Noise Policy for Industry* (NPfI), *Interim Construction Noise Guideline* (ICNG), *NSW Road Noise Policy*, *Rail Infrastructure Noise Guideline* and the VLAMP.
384. Consistent with this framework, the assessment distinguished between:
- Project noise trigger levels (PNTLs), which are used to assess residual impacts and determine eligibility for mitigation or acquisition under the VLAMP; and
 - Achievable noise levels (ANLs), which represent the level of noise performance that can reasonably be achieved during ongoing operations following implementation of all feasible and reasonable mitigation measures.
385. The Department has considered the assessment findings, together with advice provided from the NSW EPA, in determining appropriate operational noise limits and the recommended application of mitigation and acquisition provisions for affected receivers.

6.5.2 Assessment approach

386. Potential noise impacts were assessed using five representative worst-case noise-generating scenarios targeting project years predicted to have the highest potential noise impacts, being years 3 (2029), 6 (2032), 8 (2034), 12 (2038) and 15 (2041).
387. Sound power levels adopted in the modelling were primarily based on measured in-service data for plant and equipment. The project design was refined throughout the development

phase to identify and incorporate reasonable and feasible mitigation measures aimed at minimising noise impacts at surrounding sensitive receivers.

388. Key mitigation measures incorporated in the modelling include:

- progressive attenuation of the mining fleet;
- optimisation of haul routes for significant noise generating mobile equipment to reduce noise exposure to sensitive receivers;
- construction of a roadside bund along exposed sections of the haul road from the Mitchell Pit towards the Howick CPP; and
- temporary targeted equipment shutdowns during adverse noise enhancing meteorological conditions.

389. During the assessment, the NSW EPA requested additional information regarding sleep disturbance criteria, background noise assumptions, treatment of HVO North and HVO South as separate operations or combined operations, and the proposed noise management approach in Jerrys Plains. Following provision of additional information by HV Operations, the NSW EPA advised that the noise assessment was adequate for the purposes of assessing the impact of the project.

390. The Department considers the assessment methodology to be appropriate and consistent with best practice for a mining project of this scale and complexity.

6.5.3 Operational noise limits

Project noise trigger levels and achievable noise limits

391. In accordance with the NPfI, the assessment established PNTLs as the benchmark criteria used against the predicted operational noise impacts.
392. The assessment demonstrated that, despite the incorporation of all reasonable and feasible mitigation measures, predicted noise levels would exceed the PNTLs at a number of receivers under worst-case operational activities and meteorological conditions.
393. HV Operations investigated additional mitigation measures, including more extensive and frequent operational shutdowns during adverse weather conditions, to test the feasibility of achieving compliance with the PNTLs.
394. This testing demonstrated that compliance with the PNTLs across all assessed scenarios would, under some meteorological and operational scenarios, require substantial changes to mining operations including large-scale, whole-of-mine operation shutdowns rather than localised or temporary shutdowns of equipment or mining areas.
395. Achieving full PNTL compliance would require mining operations to shut down for approximately 71% of the time for HVO North and 52% of the time for HVO South. The assessment concluded that shutdowns of this magnitude would not be operationally feasible and would compromise the viability of the project.
396. Accordingly, ANLs were developed in consultation with the Department and the NSW EPA, consistent with the NPfI. The ANLs were derived from worst-case noise predictions at the most exposed receiver within each noise assessment group (NAG) and demonstrated that these levels could be achieved after the implementation of all reasonable and feasible mitigation measures, while still allowing the project to operate in a practical and efficient manner.
397. Compliance with the ANLs while accommodating the project schedule, would instead require localised and targeted operational shutdowns (specific plant, equipment, or operational areas driving exceedances at particular receptors) of approximately 38% of the time for HVO North and 30% for HVO South based on the worst-case result during the night time period. These limited shutdowns were considered operationally feasible and form a central component of the project's noise management framework.
398. The NSW EPA supported the use of the ANLs as a basis for determining operational noise limits and amended the proposed ANLs to align with the transitional arrangements of the NPfI, noting that lower noise levels have been demonstrated to be achievable based on existing operations.

399. The Department considers it appropriate to adopt the ANLs, as amended by the NSW EPA, as the basis of the enforceable operational noise limits for the project. These limits would apply at all times and under all meteorological conditions, consistent with the NSW EPA's recommended EPL conditions.
400. The NSW EPA also noted that the ANLs are derived from worst-case noise predictions at the most exposed receiver within each noise assessment group, and that applying these limits across each group is acceptable.
401. Accordingly, noise generated by the project must not exceed the relevant day, evening and night noise limits at any receptor within each noise assessment group.
402. Notwithstanding this, the PNTLs remain relevant for assessing residual impacts and determining mitigation and/or acquisition eligibility under the VLAMP. In this way, the ANLs regulate ongoing operational noise performance, while the PNTLs provide the benchmark for determining whether additional receiver-based mitigation and compensation is warranted.

Predicted operational impacts

403. **Table 16** summarises privately-owned receivers predicted to experience operational noise impacts under worst case operational and meteorological conditions, along with the corresponding management approach under the VLAMP (see **Figure 5** for locations of the affected receivers).

Table 16 | Summary of Operational Noise Limit Exceedances

Noise Exceedance	Management Approach	Number of Receptors	Receptor ID
HVO North			
Significantly affected receivers (>5dB exceedance)	Acquisition	0	-
Marginally affected receivers (3-5dB exceedance)	Noise mitigation at receiver	22	NAG 5B: 326, 328, 330, 437, 487. NAG 5A: 348, 362, 389, 390, 392, 393, 394, 395, 397, 399, 400, 402, 403, 405, 406, 421, 423. NAG 3: 327 ¹ .
Negligibly affected receivers (1-2dB exceedance)	Noise mitigation at source	87	NAG 3: 311, 317, 321, 322, 324, 427, 428, 429, 430, 431, 434, 436, 440, 481, 952. NAG 5A: 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 349, 350, 351, 352, 353, 355, 356, 357, 358, 359, 360, 361, 363, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 380, 381, 383, 384, 385, 398, 401, 404, 407, 408, 409,

Noise Exceedance	Management Approach	Number of Receptors	Receptor ID
			411, 413, 414, 415, 417, 418, 419, 420, 422, 482, 484, 835, 836, 837, 838, 839, 840. NAG 5B: 466, 488, 489.
HVO South			
Significantly affected receivers (>5dB exceedance)	Acquisition	0	-
Marginally affected receivers (3-5dB exceedance)	Noise mitigation at receiver	8 ²	NAG 1B: 121. NAG 1A: 160, 161, 162 ¹ , 256, 258, 261, 497.
Negligibly affected receivers (1-2dB exceedance)	Noise mitigation at source	15 ³	NAG 1B: 120 ³ , 122 ³ , 123 ³ . NAG 1A: 163, 260 ³ . NAG 1C: 244 ³ , 245 ³ , 246 ³ , 247 ³ , 498. NAG 3: 308 ³ , 311 ³ , 317 ³ , 434, 436.

¹ During the assessment of the project HV Operations identified that Receptor 327 and 162 had recently been demolished. These receivers are therefore excluded from the calculation of total numbers of exceedances in this report.

² All of these 8 receptors already have mitigation rights under the existing HVO South development consent.

³ All of these 11 receptors already have mitigation rights under the existing HVO South development consent. Despite these receptors not being eligible for noise mitigation for project related impacts under the VLAMP, existing mitigation rights will be carried over for the existing project.

404. The assessment predicts that no privately-owned receivers would be significantly affected by operational noise (that is, no project-related exceedances greater than 5 dB above the relevant PNTLs for either HVO North or HVO South).
405. Following the implementation of all reasonable and feasible avoidance and mitigation measures at the source, the modelling predicts a number of privately owned receivers are predicted to experience residual project noise impacts.
406. The assessment predicts 98 receivers would experience negligible exceedances (up to 2 dB above the VLAMP criteria). A further 29 privately owned receivers (equivalent to 24 landholders) are predicted to experience marginal exceedances (3-5 dB above the VLAMP criteria) (see **Table 16**), including:
- 22 receivers (19 landholders) in Jerrys Plains, where the project would result in new marginal impacts relative to existing operations, within noise assessment group (NAG) 5A and NAG 5B (see **Figure 23** for locations); and
 - Seven receivers (5 landholders) in Maison Dieu, where marginal impacts already occur under existing mining approvals, within NAGs 1A and 1B (see **Figure 22** for locations).
407. Consistent with the VLAMP, exceedances of up to 2 dB above the relevant criteria are characterised as ‘negligible’. These impacts are generally not discernible by the average

listener and do not warrant the application of receiver-based mitigation or acquisition measures.

408. While the project would result in audible noise at some receivers under certain noise-enhancing meteorological conditions, the predicted impacts fall within the negligible range and would not result in an unreasonable loss of residential amenity. Therefore, these impacts are considered acceptable in the context of the policy framework.
409. Exceedances in the order of 3–5 dB above the criteria are characterised as marginal impacts under the VLAMP. Where moderate operational noise impacts are predicted at residences on privately owned land, the VLAMP provides that voluntary mitigation measures should be considered as an appropriate means of protecting residential amenity, where the development is otherwise considered to be in the public interest and where residual impacts remain after the application of all reasonable and feasible mitigation measures are implemented at the source.
410. The 29 receivers predicted to experience marginal impacts comprise of ‘isolated rural properties’ and ‘receivers located within a village setting’, each of which warrants separate consideration.
411. On this basis, the Department considers it appropriate to apply voluntary mitigation rights to privately owned residences within Jerry’s Plains that are predicted to experience moderate residual operational noise impacts.
412. For isolated receivers, alternative mitigation options are limited to further reduce noise impacts through noise mitigation at the source. Consistent with the NPfl and VLAMP, which prioritises receiver-based treatments for isolated receivers, voluntary mitigation should be afforded to these receivers.
413. Accordingly, the Department considers that mitigation to the following 12 isolated rural receivers is appropriate:
- Five receivers in Jerrys Plains (326, 328, 330, 437 and 487, within NAG 5B); and
 - Seven receivers in Maison Dieu (121, within NAG 1B and receivers 160, 161, 256, 258, 261, 497 in NAG 1A).
414. The seven receivers in Maison Dieu already hold noise mitigation rights under the existing HVO South consent, which would continue to apply as part of this project.
415. The remaining 17 receptors are located within the village setting of Jerrys Plains, within NAG 5A (348, 362, 389, 390, 392, 393, 394, 395, 397, 399, 400, 402, 403, 405, 406, 421 and 423). The Department considers that:

- predicted noise levels in this locality is consistent with the existing approved noise environment, including impacts permitted under the existing HVO development consents and the operational noise limits prescribed under EPL 640; and
- the project would not materially increase cumulative industrial noise levels in this locality beyond those already approved.

416. In this context, the project would not result in a material change to the existing noise environment for these receivers located in a village setting. Therefore, additional project-specific receiver mitigation is not warranted for these receivers under the VLAMP.
417. This approach is consistent with the policy framework, which recognises that where impacts are consistent with an established and approved industrial noise environment, further mitigation may not be necessary.
418. The Department notes that receivers 162 and 327 were predicted to experience marginal exceedances (3-5 dB above the VLAMP criteria). On this basis, it was identified in earlier assessments as potentially eligible for mitigation under the VLAMP. However, the dwellings have since been demolished and are no longer considered a sensitive receiver under the NPfI or the VLAMP. As a result, predicted noise levels at these locations are no longer relevant to the impact assessment and therefore are not eligible for mitigation under the VLAMP.
419. Operational noise is predicted to comply with applicable criteria at other sensitive land uses, including churches, schools and commercial premises.

6.5.4 Existing and retained mitigation rights

420. Several receivers already hold noise mitigation rights under existing approvals for HVO South or surrounding mining operations. As the project would extend the duration of noise exposure at these locations, the Department considers it reasonable to retain the existing mitigation rights to maintain continuity for affected landholders, despite noise predictions for the project being lower than the relevant criteria (receptors 120, 122, 123, 163, 244, 245, 246, 247, 308, 311 and 317).

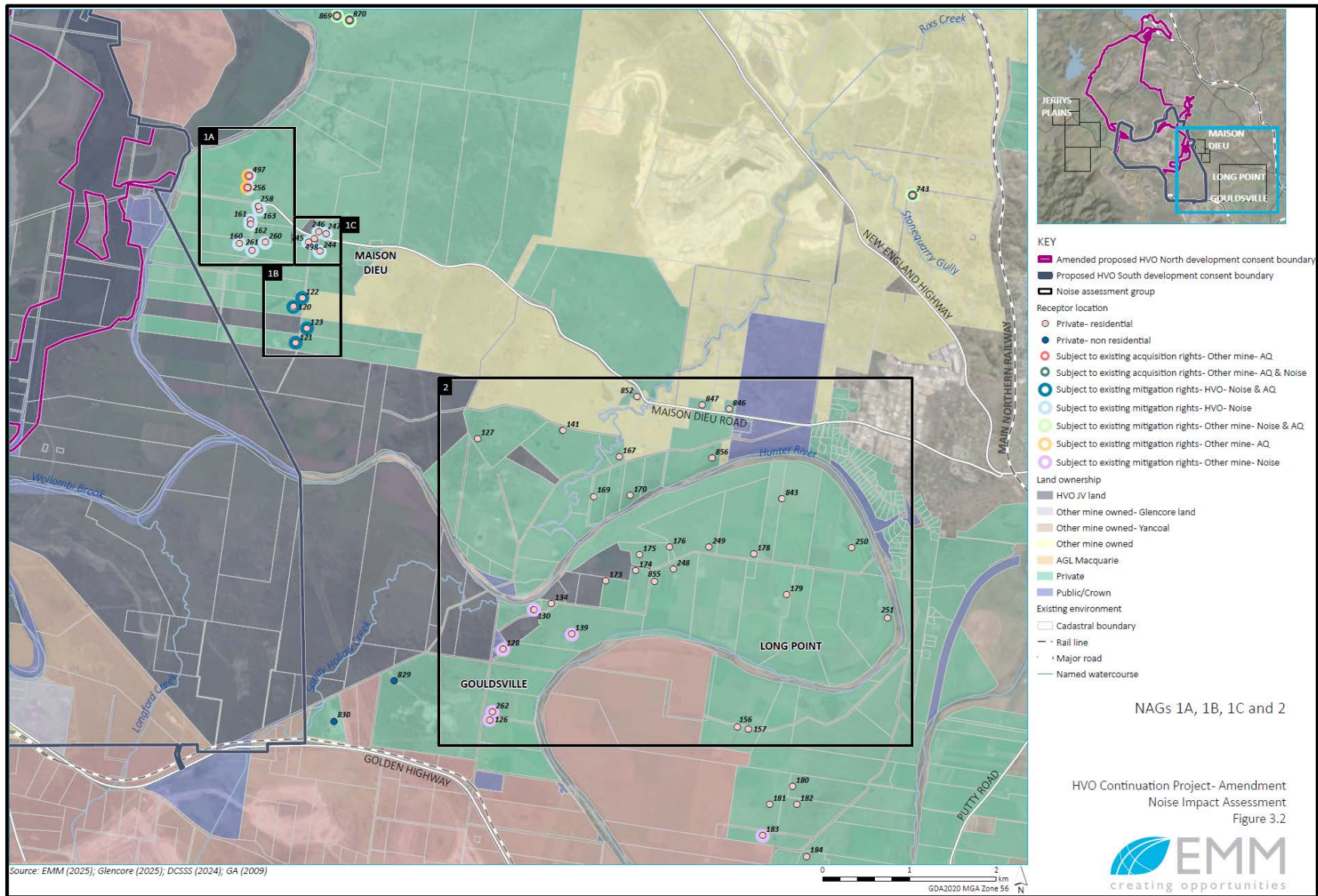


Figure 22 | Noise Assessment Groups 1A, 1B, 1C and 2

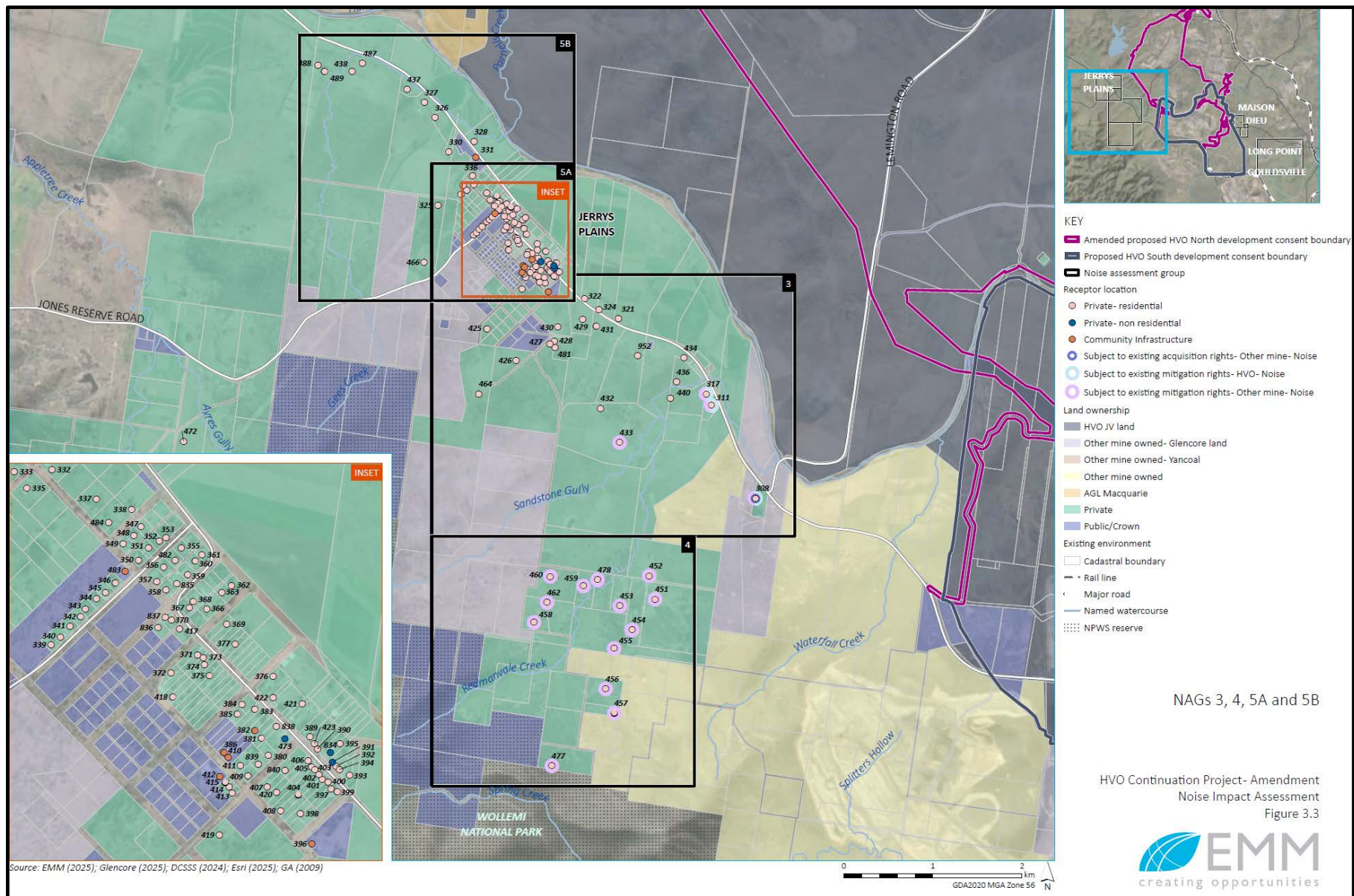


Figure 23 | Noise Assessment Groups 3,4, 5A and 5B

6.5.5 Cumulative noise

- 421. Cumulative operational noise impacts were assessed in combination with surrounding mines including Wambo Underground, United Wambo, Rix's Creek South, Mount Thorley Warkworth, Ravensworth and Ashton.
- 422. Cumulative modelling predicts one additional receiver (308) would be affected beyond those receivers identified under the project-only assessment, where cumulative noise impacts exceeded the recommended amenity noise levels.
- 423. Receptor 308 already holds noise mitigation rights under the HVO South development consent and the Department is recommending the existing mitigation rights be retained for this project.
- 424. Overall, the Department considers that HV Operations has implemented reasonable and feasible measures to minimise operational noise. Residual cumulative impacts (exceedances of the PNTLs) would remain at some receivers, however, they are characterised as being an extension of existing mining related noise, rather than a material change to the current acoustic environment.

6.5.6 Construction noise

- 425. Construction noise was assessed in accordance with the ICNG for the worst-case construction scenarios, including the Lemington Road realignment (HVO North) and enlargement of Parnells Dam (HVO North) and Lake James (HVO South).
- 426. Construction noise was assessed cumulatively with operational noise at the nearest sensitive receivers. The standard construction hours are Monday to Friday, 7.00 am to 6.00 pm and Saturday, 8:00 am to 1:00 pm (no Sundays or public holidays).
- 427. The assessment predicts exceedances of the ICNG 'noise affected' management level of 45dB(A) at some private receivers in Maison Dieu (NAGs 1A, 1B and 1C, see [Figure 22](#) for locations), during peak construction periods and noise enhancing weather conditions. Predicted levels remain below the ICNG's 'highly noise affected' management level criterion of 75dB(A).
- 428. These impacts would be intermittent, infrequent and limited in duration. Construction noise at all other assessed receivers is predicted to comply with the ICNG's management levels.
- 429. While essential construction activities may occur outside of standard construction hours, the Department requires all out of hours works to comply with operational noise limits. This has been formalised in the recommended conditions of consent, requiring that any out of hours

construction activities comply with the operational noise criteria to ensure construction does not contribute to noise impacts above general mining operations.

430. The Department considers that all construction noise impacts can be appropriately managed through recommended conditions of consent including the preparation of a construction environmental management plan.

6.5.7 Low frequency noise and sleep disturbance

Low frequency noise

431. Low frequency noise was assessed in accordance with the NPfI. The NPfI identifies low frequency noise as a potentially annoying characteristic that may require modifying factors to predicted noise levels. Initial modelling indicated that low frequency modifying factors could apply to the project at a number of receivers.
432. Following further analysis and refining the noise model to incorporate additional attenuation measures of key plant items (excavators, drills and loaders), the assessment reduced the application of low frequency noise to three receptors (324, 362 and 952) in year 12 (2038) and 12 receptors (376, 379, 389, 407, 408, 420, 421, 422, 440, 473, 840 and 841) in year 15 (2041). These receptors are located within an established mining precinct, characterised by established cumulative industrial mining noise.
433. The 90th percentile assessment results were conservatively adjusted to include the low frequency modifying factor and compared against the project noise trigger levels, in accordance with the NPfI. The application of the low frequency modifying factor resulted in marginal exceedances of the relevant criteria, however, the results remained within the range of existing approved noise levels.
434. The Department considers that the assessment has appropriately accounted for low frequency noise and demonstrated that feasible and reasonable mitigation measures have been implemented to minimise low frequency noise at the source.
435. Given the small number of affected receivers, the minor nature of the exceedances, and the fact that the modelling applied conservative low frequency modifying factors, additional site-specific mitigation or mitigation rights are not considered warranted to manage any residual impacts. Instead, the Department has recommended operating conditions requiring HV Operations to minimise noise from construction and operational activities, including low frequency noise. No residual matters were raised by the NSW EPA regarding low frequency noise.

Sleep disturbance

436. The assessment also considered sleep disturbance from short-term, high-noise events generated by operating equipment.
437. No exceedances of applicable sleep disturbance criteria of $L_{A1, 1 \text{ minute}}$ 46 dB and L_{Amax} trigger level 52 dB are predicted. Consistent with NSW EPA advice, the Department has recommended a sleep disturbance criterion of 46 dB $L_{A1, 1 \text{ minute}}$ for all residences to ensure that sleep disturbance impacts remain consistent with the noise levels predicted in the assessment.

6.5.8 Road and rail noise

Road noise

438. Operational traffic volumes associated with the project are not expected to materially increase compared to the existing HVO complex. Traffic noise associated with the project would remain broadly consistent with the existing approved operational noise. Traffic noise associated with the Lemington Road realignment is predicted to comply with the NSW Road Noise Policy.
439. The Department therefore considers that road traffic noise associated with the project is unlikely to result in any significant additional impacts and could be managed in accordance with a noise management plan.

Rail noise

440. HV Operations would continue transporting coal from site to the Port of Newcastle within the current approved productions limits. The project would not increase the existing demand on the rail network relative to the currently approved operations.
441. Rail noise impacts are therefore not expected to materially change relative to existing approved operations. The Department considers that rail noise could continue to be managed through the existing consent conditions and noise management plan.

6.5.9 Conclusion

442. The Department considers that the noise impacts of the project have been appropriately assessed in accordance with the relevant NSW noise assessment framework, including the NPfI, ICNG, NSW Road Noise Policy, Rail Infrastructure Noise Guide and the VLAMP.
443. The assessment demonstrates that, following implementation of reasonable and feasible mitigation measures, the project would comply with the proposed ANLs and applicable criteria for construction noise, operational noise, sleep disturbance, road and rail noise.

444. The Department acknowledges that the project would extend the duration of noise impacts at some receivers already affected by the existing HVO complex and other surrounding mining operations, with limited incremental impacts at a small number of additional receivers.
445. While residual exceedances of the PNTLs is predicted to occur at some privately owned receivers, these impacts are generally consistent with the established mining context of the locality and can be appropriately minimised, managed or compensated through the recommended conditions and the application of the VLAMP.
446. The Department has recommended conditions requiring HV Operations to implement mitigation, retain existing rights, comply with contemporary noise limits, maintain active noise management systems, investigate complaints and engage transparently with the community. These include:
- undertake additional noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the following residences, if requested by landowner;
 - HVO North: 326, 328, 330, 437 and 487; and
 - HVO South: 121, 160, 161, 256, 258, 261 and 497;
 - Carry over existing mitigation rights from the HVO South approval, despite not being required for project related impacts for receivers 120, 122, 123, 163, 244, 245, 246, 247, 260, 308, 311 and 317.
 - comply with one set of contemporary noise criteria and operational noise limits, that applies to both the HVO South and North projects and includes the ANLs and sleep disturbance criterion;
 - prepare and implement a comprehensive Noise Management Plan, including real-time noise monitoring and an active management system with early warning alert system to identify and manage potential exceedances;
 - implement all reasonable and feasible measures to minimise operational, construction and low frequency noise;
 - investigate noise complaints and implement applicable management measures; and
 - communicate with the community regarding mining activities, including through public reporting of monitoring results, and effectively responding to enquiries and complaints.
447. Subject to these conditions, the Department considers that the noise impacts of the project can be managed to achieve an acceptable level of environmental performance, consistent with NSW policy and the established mining context of the area.

6.6 Social

448. The EIS includes a social impact assessment (SIA) prepared by suitably qualified social scientists in accordance with the *Social Impact Assessment Guideline for State Significant Projects*.

6.6.1 Existing social environment

449. The HVO mining complex is a longstanding Hunter mine operating since 1949, with a predominately local workforce. Some 99% of the workforce resides in the Hunter region, with 26% residing in the Singleton LGA, 23% residing in the Maitland LGA, 19% residing in the Cessnock LGA and the remaining 31% residing in surrounding Hunter LGAs. The project would provide ongoing operational employment for up to around 1,500 FTE workers and create approximately 600 temporary construction jobs over a 5-year period.

6.6.2 Assessment of social impacts

450. The social impacts and benefits of the project are consistent with the existing social impacts and benefits associated with the approved mine, noting they would be extended in time relative to the approved operations.
451. Social impacts are generally focused on those people who reside close to the mine (through amenity impacts such as noise and dust), while social benefits are experienced by a wider geographic spread of residents (particularly by way of increased employment and economic opportunities).
452. Surveys completed to inform the EIS SIA indicate of impacts to surroundings and amenity rated by community respondents, the impacts of air quality (31%), noise and vibration (28.6%), climate change (24.4%) and visual amenity (21.4%) all rated as highly negative impacts.
453. The SIA did not identify any social impacts of high significance (after mitigation), with all potential impacts ranked as low to medium significance. The key social impacts identified for the project relate to the:
- continued generation of dust and noise;
 - continued traffic congestion and road delays during construction and operations;
 - impact on community cohesion due to divergent opinions on the project;
 - possible increased housing demand impacting rental affordability and availability; and
 - direct impacts on cultural artefacts.

454. The Department has considered the potential social impacts of climate change on the locality in **Section 6.1.5**.
455. The SIA outlines that the project is expected to result in several social benefits of high to very high significance (after mitigation), including:
- ongoing employment and stability of the local population;
 - improved access and travel experience from the realignment of Lemington Road and construction of the new Hunter River bridge;
 - continued royalty payments to the NSW Government;
 - ongoing provision of community grants;
 - continued procurement opportunities for local businesses;
 - allowing more time for transition planning; and
 - improved rehabilitation outcomes including the reduction of final voids from three to two compared to the existing development consents.
456. During the public exhibition periods, most of the submissions in support of the project related to the potential socio-economic benefits the project would provide, including the:
- ongoing job security and employment opportunities;
 - positive socio-economic benefits on individuals, families, and the economy; and
 - ongoing community contributions and support.
457. However, the potential cumulative impacts of multiple construction projects on both rental housing and short-term accommodation in the local area was identified as a critical issue by service providers and local councils in both the SIA and agency advice. The SIA indicates that the availability of rental and short-term accommodation in the local area is already constrained.
458. Both Muswellbrook Shire and Singleton Councils highlighted that the demand for temporary accommodation in the local area is expected to increase given there are multiple large-scale developments with construction occurring over the next five years. Cumulative demand for temporary accommodation could place upward pressure on rental prices in the area, and impact low-income and vulnerable groups needing access to affordable rental housing or short-term emergency accommodation.
459. In relation to these concerns, it is important to note that the project is a brownfield expansion of an existing mining complex which would not result in any significant increase in its operational workforce, thereby not resulting in a significant increased demand on the local housing supply.

460. Notwithstanding, it is acknowledged that the project includes a range of construction activities which would require a peak construction workforce of approximately 600 personnel in the first five years of the project. Of the 600 personnel, the SIA estimates that approximately 30% (180 workers) may require accommodation in a worst-case scenario.
461. In light of this, and in consideration of the comments made by both Muswellbrook Shire and Singleton Councils, the Department considers that preparation of a Construction Workforce Accommodation Strategy would be warranted to ensure there is sufficient accommodation for the construction workforce and minimise potential impacts on the local rental market.
462. If the project does not proceed, there would be a loss of up to 1,500 direct jobs (approximately 10% of the Hunter region's direct mining employment per the *NSW Coal Industry 2026–50* as of 2025, with the proportion expected to increase over time as other mines in the Hunter reach closure) and the potential loss of indirect jobs connected to the mining industry. The SIA identifies the need for sensitive transition planning due to the existing economic and cultural reliance on the mining industry in the local area, with mining workers making up the largest proportion of workers in the regional area (3,751 mine workers in Muswellbrook LGA and a further 6,817 in the Singleton LGA), totalling approximately 35.4% of all jobs in the subregional area.
463. As a number of mines in the region have either ceased operation or approaching closure in 2030 to 2050, the SIA expects the impacts coal mining in the region would likely be concentrated between 2030 and 2040. The loss of direct and indirect jobs may also have flow on effect on people's health and wellbeing.
464. Surveys completed to inform the EIS SIA indicate that 94.1% of worker respondents (427 workers) believed it was important that the project continue. A large proportion of worker respondents (82.6%) felt at least some confidence in finding work in the mining industry if they were not employed by HV Operations. The supplier survey showed that 72.6% of supplier respondents (124 suppliers) were at least slightly dependent on HV Operations for revenue.
465. This is further reinforced by the large number of supporting submissions received during exhibition of the EIS and amendment report, noting that 93% of submissions received were in support of the project, with reasons for support noting employment and economic benefits, including sustained job security and employment opportunities.
466. The project would allow more time for transitional planning, providing opportunities for:
- workers to transition to new industries through reskilling;
 - planning to manage the loss of direct and indirect economic benefits from the mine;
 - further community input into the project's closure planning; and

- economic diversification and alternate jobs that have not yet been realised.
467. Both Muswellbrook Shire and Singleton Councils provided detailed agency advice highlighting the importance of timely closure planning, in consultation with the community, to ensure a successful transition and to minimise the potential socio-economic impacts of the mine closure.
468. In response, the Department has recommended a condition requiring the preparation of a Rehabilitation Strategy prior to the commencement of the project. The Rehabilitation Strategy would include a post-mining land use strategy and must investigate ways to minimise adverse socio-economic effects associated with rehabilitation and mine closure.
469. HV Operations has also committed to implementing a variety of other measures to minimise potential social impacts and enhance social benefits, including:
- the development of a Social Impact Management Plan (SIMP);
 - the preparation of a local participation plan to identify measures to encourage local participation in the workforce;
 - continuing to operate a community consultative committee (CCC) for the life of the development;
 - a funding program, to the value of one million dollars over the first 10 years of the project, to fund projects aligned with Closing the Gap initiatives, including job readiness programs, and briefings to assist Aboriginal suppliers to tender for HV Operations work; and
 - the continuation of the community grants and scholarship programs.

6.6.3 Voluntary planning agreements

470. HV Operations completed negotiations for voluntary planning agreements (VPAs) with Singleton and Muswellbrook Shire Councils, allocating 1% of the project CIV between them based on proportion of the site within each LGA boundary.
471. Approximately 96% of the project site is located within the Singleton LGA. Singleton Council agreed in principle to a VPA for the amount of \$6.56 million at its ordinary meeting in February 2024.
472. Approximately 4% of the project site is located within the Muswellbrook LGA. HV Operations provided a letter of offer to Muswellbrook Shire Council in January 2024 regarding the establishment of a VPA including proposed draft general terms for the amount of \$203,000. Muswellbrook Shire Council provided a response in April 2024 seeking \$50,000 per year for the life of the project plus contribution toward employment of an environmental officer, as well as commitments to supplier expenditure percentages. Muswellbrook Shire Council later

resolved to a counteroffer of a reduced amount in an ordinary council meeting in June 2024 of \$40,000 per year for the life of the project.

473. Negotiations between Muswellbrook Shire Council and HV Operations have not progressed to an agreement prior to the Department finalising its recommendation for the project, however the Department is satisfied that a contribution from HV Operations to Muswellbrook Shire Council of \$215,000 (CPI adjusted \$203,000) would be satisfactory given the small percentage of the project located within the Muswellbrook LGA and the CIV of the project.

6.6.4 Conclusion

474. Overall, the Department considers the project would result in net positive social benefits by supporting ongoing employment, providing funding for State and local community, and allowing more time for transition planning to lower carbon sources of energy. To ensure this occurs, the Department has recommended conditions requiring HV Operations:

- enter into a VPA with both Singleton and Muswellbrook Shire Councils;
- continue to operate a CCC for the life of the development;
- prepare a Rehabilitation Strategy, which would include details relating to minimising the adverse socio-economic effects associated with mine closure;
- develop and implement a SIMP, in consultation with both Singleton and Muswellbrook Shire councils;
- develop and implement a CEMP), in consultation with Singleton Council, which would include a Construction Workforce Accommodation Strategy sub-plan.

475. The Department recognises that while the project is expected to deliver net social benefits, the project would result in continued amenity impacts, particularly air quality and noise impacts, and has recommended conditions relating to these impacts as outlined in Sections 6.4 and 6.5.

6.7 Economics

476. The EIS includes an economic impact assessment (EIA) prepared in accordance with the *Guidelines for the economic assessment of mining and coal seam gas proposals*. The EIA includes a cost benefit analysis (CBA) to estimate the net present value of the project to the NSW community and a local effects analysis (LEA) to assess the likely impacts of the development in the Lower Hunter region.
477. The *NSW Coal Industry 2026-50* describes that the NSW Government is to consider the impact of mine closures on the NSW economy and supporting industry job security when assessing

proposed extensions to existing mines. The policy notes that coal mining is important in supporting the economy and local jobs and that proposals to extend coal mining can support continuation of these economic benefits in the short to medium term.

6.7.1 Costs and benefits to NSW

478. The EIA estimated that the project (HVO North and HVO South) would generate direct and indirect benefits in the order of \$5,692.4 million, in net present value (NPV) terms. This includes:
- a net producer surplus not attributable to NSW of \$1,819.9 million;
 - royalties attributable to NSW of \$2,185.9 million; and
 - company income tax attributable to NSW of \$372.9 million.
479. The quantitative cost-benefit analysis (CBA) estimated that the indirect costs of the project would total approximately \$91.4 million (NPV) attributable to NSW. Most of these costs are internalised by HV Operations and relate to biodiversity offset costs and mitigation offset costs of \$73.8 million, with incremental indirect costs including GHG emissions, traffic and transport impacts, and loss of surplus to other industries (i.e. agricultural land) totalling \$17.6 million.
480. Overall, the project is expected to generate net benefits to NSW of \$5,692.4 million (NPV). This estimate assumes a discount rate of 7 per cent, however the CBA also included a sensitivity analysis which applied alternative discount rates (i.e. 4 per cent and 10 per cent) accounting for sustained decreases in export coal prices and the possibility of future carbon pricing. Under all modelled scenarios, the project is expected to result in a net benefit for NSW.
481. Comments from NSW Resources note that coal price forecasts assumed in the CBA are lower than Consensus Economics forecast coal prices, and therefore if coal prices are higher over the life of the project than those assumed in the CBA, then both revenues and royalties would be significantly higher than those calculated. NSW Resource estimates total royalties attributable to NSW of approximately \$4,200 million.
482. The Amendment Report contains a revised EIA which includes an analysis of the value of GHG externalities resulting from the project. The GHG sensitivity analysis within the revised EIA indicated that GHG emissions costs for the project are estimated at \$3.8 million (NPV) based on the incremental expected Scope 1 and 2 emissions for the project and Australia bearing the full cost of the GHG externalities.
483. The GHG sensitivity analysis included scenarios that increased the proportion of costs attributed to NSW and higher costs per tonne of carbon emissions. The total cost of GHG

externalities were then apportioned based on the ratio between the population of NSW and Australia, resulting in approximately 32.7 per cent of apportionment to NSW.

484. Three additional price trajectory scenarios were modelled based on the social cost of carbon by the United States Government:

- low-price trajectory starts at \$352 per tonne of CO₂-e in 2025 and grows at an average rate of 1.7 per cent annually to \$334 per tonne of CO₂-e by 2050;
- mid-price trajectory starts at \$344 per tonne of CO₂-e in 2025 and grows at an average rate of 1.6 per cent annually to \$518 per tonne of CO₂-e by 2050; and
- high-price trajectory starts at \$603 per tonne of CO₂-e in 2025 and grows at an average rate of 1.2 per cent annually to \$803 per tonne of CO₂-e by 2050.

485. Table 17 below summarises the total net benefits of the project under the adjusted apportionment method and price trajectory scenarios described above.

Table 17 | Net benefits of the project

HVO complex	Low-price trajectory (\$M)	Mid-price trajectory (\$M)	High-price trajectory (\$M)
Direct benefits [^]	\$2,768.1	\$2,768.1	\$2,768.1
Indirect benefits [^]	\$2,941.9	\$2,941.9	\$2,941.9
Total GHG Costs (to Australia) [^]	\$2,129.9	\$3,445.9	\$5,637.7
Apportionment to NSW (%)	32.7%	32.7%	32.7%
Indirect (Environmental costs)			
GHG emissions [^]	\$696.49	\$1,126.82	\$1,843.54
Other indirect incremental costs	\$13.82	\$13.82	\$13.82
Net benefit	\$4,999.69	\$4,569.36	\$3,852.64

Note:

[^] \$ million NPV @ 7 per cent real interest rate

*Other indirect incremental costs include costs that are not operationalised or capitalised such as: transport impacts and loss of surplus to other industries.

486. The results of the analysis above indicated that the project would still have a net benefit to NSW under all scenarios:

- Low-price trajectory includes a total GHG cost to Australia of \$2,129.9 million and results in a net benefit of \$4,999.69 million (NPV) attributable to NSW;
- Mid-price trajectory includes a total GHG cost to Australia of \$3,445.9 million and results in a net benefit of \$4,569.36 million (NPV) attributable to NSW; and
- High-price trajectory includes a total GHG cost to Australia of \$5,637.7 million and results in a net benefit of \$3,852.64 million (NPV) attributable to NSW.

6.7.2 Local economic effects

487. The project's operational workforce is projected to peak at 1,407 full time equivalent (FTE) jobs in 2034 across HVO North and HVO South, with an average of 1,311 FTE jobs over the life of the project excluding on-site contractors.
488. The local effects analysis (LEA) conservatively assumed that the majority of the local effects of the project would be attributable to the Lower Hunter (statistical area level 3 (SA3)) and would result in a net benefit to the Lower Hunter SA3 region of \$1,778.1 million (NPV).
489. The Department has considered the potential economic impacts of climate change on the locality in **Section 6.1.5**.

6.7.3 Conclusion

490. The amended project is estimated to generate net benefits of \$5.69 billion NPV to NSW, average 1,311 FTE jobs over the life of the project and cost an estimated \$3.8 million NPV in GHG emissions costs. The contribution of the project to the NSW economy remains significant across low to high price trajectories modelled for GHG emissions and low to high discount rates for coal prices.
491. The Department considers that the project would result in net positive economic benefits to local and regional areas in proximity to the project, and to the State of NSW. The continuation of the economic benefits of the existing complex (including local job security) in the short to medium term is consistent with the *NSW Coal Industry 2026-50*.
492. The Department notes that without the project, mining operations at the HVO complex would cease by the end of 2026. The closure of the mine would mean the benefits to the NSW economy described above would not be realised and job security would not be secured for the existing operational workforce.

6.8 Other issues

493. The Department's consideration of other issues is summarised in **Table 18** below.

Table 18 | Assessment of other issues

Issue	Findings and conclusions
Traffic	<u>Lemington Road realignment</u> • The project includes the realignment of Lemington Road from its existing location between HVO North and HVO South, to the south of HVO South to allow for the progression of mining. • The amended project included refinement of the proposed realignment to avoid areas of BC Act-listed Warkworth Sands Woodland EEC and Central Hunter Grey Box-Ironbark Woodland EEC, and to minimise the potential for changes to travel time to local road users. • Lemington Road is the primary access point joining the Golden Highway and New England Highway between Singleton and Muswellbrook, and provides access to the HVO complex, Ravensworth Operations and several mine-owned rural residential properties. Traffic surveys showed that through-traffic along Lemington Road (i.e. vehicles travelling its full length) made up approximately 4% of the total daily trips recorded. • As part of the proposed realignment, HVO would also replace the existing single-lane low level crossing over the Hunter River (i.e. Moses Crossing) with a new bridge. The new bridge across the Hunter River would substantially improve the flood resilience of the road, providing a significantly more reliable access between the New England Highway and Golden Highway. • In relation to impacts on travel time, the proposed realignment would: ○ increase travel time by approximately 1.4 to 2.3 minutes for road users travelling from the New England Highway along Lemington Road before heading north along the Golden highway (and vice-versa); and ○ decrease travel time by approximately 9 to 10 minutes for road users travelling from the New England Highway along Lemington Road before heading south along the Golden highway (and vice-versa). • The realignment would include upgrades to the intersection at Comleroi Road with the Golden Highway to include an auxiliary left turn (AUL)/channelised right turn (CHR) type treatment. • HVO has confirmed that the intersection design would cater for the current Golden Highway alignment or the revised alignment as approved under the United Wambo Open Cut Coal Mine (SSD-7142), should it be implemented. TfNSW confirmed it generally agreed with the proposed intersection design, however identified some additional matters to be clarified at the detailed design phase. • The Department considers that the proposed realignment of Lemington Road, including construction of a new bridge over the Hunter River, would not result in any significant adverse impacts on the local road network, rather it would largely improve its reliability and efficiency. <u>Other traffic matters</u>

Issue	Findings and conclusions
	• The EIS includes a detailed traffic and transport impact assessment to assess the impacts of the project and proposed road network changes on road transport. The assessment included traffic modelling and a road safety audit. The assessment included consideration of project-related traffic as well as cumulative traffic associated with other resource projects and background traffic growth in the region. • Given there would be no changes to the existing approved operational workforce, the project would not significantly alter traffic movements associated with the existing mining complex, other than a short-term spike during construction activities, and an increase in the duration of mine-related traffic volumes associated with the extended life of the mine. • Construction activities for the project would generally be undertaken onsite, outside of the road corridor to minimise their interruption with the road network. This includes the construction of Lemington Road where the new alignment would be completed prior to closing access from the existing alignment. Tie-in works for Lemington Road would be undertaken with appropriate temporary traffic controls. • Construction of the project is anticipated to occur over 5 years, with construction activities predicted to peak in Year 2. During this period, all intersections within the local road network would continue to operate at acceptable levels of service (LoS D [near capacity] or higher), except for the following intersections during the morning peak hour (6.00 am–7.00 am): ○ Lemington Road/New England Highway intersection – predicted to operate at LoS F (unsatisfactory); ○ Old New England Highway/New England Highway intersection – predicted to operate at LoS E (at capacity). • Construction traffic would be managed by a construction traffic management sub-plan within the CEMP, prepared in consultation with TfNSW and Singleton Council, and would include a Drivers' Code of Conduct and measures to minimise traffic safety issues and local road user disruptions during construction. • In relation to the Lemington Road/New England Highway intersection, the transport assessment determined that by managing outbound heavy vehicles using Lemington Road during the morning peak hour, the intersection performance would improve to LoS E (at capacity) and queuing would reduce to approximately 20 m (roughly three car lengths). Importantly, this queuing can be contained on Lemington Road without affecting the safety or performance of the intersection. • The Department acknowledges the residual recommendation from TfNSW for HVO to upgrade the Lemington Road/New England Highway intersection to improve safety. Given that the implementation of heavy vehicle management during peak hours proposed by HVO would minimise impacts to the intersection LoS during peak construction periods, the Department considers that the upgrade of the Lemington Road/New England Highway intersection by HVO is not required. • In relation to the Old New England Highway/New England Highway intersection, with the closure of Liddell Coal Operations in 2023, and removal of traffic associated with that project, this intersection would operate at LoS D. Notwithstanding, HVO has

Issue	Findings and conclusions
	committed to directing drivers to use Liddell Station Road access rather than the Old New England Highway during the morning peak hour to minimise this impact. - TfNSW did not raise concerns regarding the project impact on the level of service of these intersections. - Operational scenarios modelled for the project include 2025, 2035 and 2045, with some intersections predicted to perform at LoS F (unsatisfactory) in later years primarily due to the background traffic growth on the road network and would not be driven by project-related traffic (i.e. the transport assessment concludes that these intersections would operate at LoS F without the project-related traffic). This would be the case at intersections along the New England Highway (including intersections of Lemington Road, Old New England Highway and Liddell Station Road access). - The transport assessment demonstrates that the operational phase of the project would not result in any significant decline of the safety and efficiency of the local road network. - The Department is satisfied that the project is unlikely to result in any significant traffic or transport-related impacts, subject to the proposed road works and mitigation measures. In this regard, the Department has recommended conditions requiring HVO to implement a Traffic Management Plan, in consultation with TfNSW and Council.
Blasting and Vibration	- HVO is currently approved to conduct the following number of blasts between 7 am to 6 pm Monday to Saturday: - up to 3 blasts per day or 12 blasts per week (averaged over a calendar year) at HVO North; and - up to 3 blasts per day or 15 blasts per week (averaged over a calendar year) at HVO South. - The amended project would not increase the currently approved blasting frequency, and blasting is proposed to occur within the currently approved blasting hours of 7 am to 6 pm. The Department considers that blasting should be restricted to not commence until 8 am to minimise blasting occurring during temperature inversions during the early morning and has recommended conditions to this effect. - Blast modelling indicates that, with the appropriate blast design (e.g. reduced bench heights and charge mass) the project can be readily managed to comply with applicable ground vibration and airblast overpressure criteria at all surrounding privately-owned receptors. - The blast assessment also included consideration of blast-related impacts on infrastructure (including the Hunter Valley Gliding Club, powerlines and telecommunications, dams, railway lines and roads), which found that blasts can be readily managed to comply with applicable criteria, subject to standard measures such as reducing maximum instantaneous charge (MIC) when blasting near some features, and temporary road closures. - Similar to the existing blast practices on site, modelling identified conditions where specific blasting management may be required to meet criteria at identified heritage sites, including:

Issue	Findings and conclusions
	○ when blasting within 1,500 m of the Great Lodge, Carrington Homestead and Wandewoi Homestead; and ○ within 500 m of the CM-CD1 Aboriginal cultural heritage site, and with no blasting occurring within 20 m. • With the implementation of appropriate mitigation measures and other standard best practice blast management, the Department considers that the project can be managed such that blasts would meet applicable amenity and structural damage blast criteria at all sensitive receptor locations. • The Department has recommended conditions requiring HVO to: ○ manage blasting to comply with all relevant criteria at private properties, public infrastructure and heritage items; ○ limit blast frequency and hours; ○ keep the public notified and up to date regarding blasting operations, and facilitate feedback and complaint management; ○ provide for structural property inspections and investigations on request; ○ repair any structural damage to buildings or infrastructure caused by the project; ○ manage blasting operations to avoid flyrock-related safety risks, including a road closure management plan; and ○ update and implement a comprehensive Blast Management Plan, including a detailed monitoring program.
Aboriginal Cultural Heritage	• The project would result in impacts to Aboriginal heritage from direct disturbance associated with open cut mining and construction of supporting infrastructure. • An Aboriginal Cultural Heritage Assessment (ACHA) was prepared for the original project which involved consultation with 33 Registered Aboriginal Parties (RAPs) in accordance with the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010</i> (DECCW, 2010). RAPs received the updated ACHA (ACHA Addendum) and ongoing additional information prepared throughout the assessment of the application including for the amendments to the project, HVO newsletters and notification of the HVO North Mod 8 determination in April 2025. • RAP responses were largely supportive of the methodology and recommendations of the ACHA, with comments received pertaining to consultation and assessment methodology including cultural values reporting and social enhancement strategies. RAP consultation during preparation of the ACHA Addendum generally indicated support for the avoidance and minimisation of impacts to culturally modified trees along the Lemington Road re-alignment corridor and improvements made to the social enhancement strategies proposed by HVO including access to the site for knowledge-sharing and documentation purposes, employment and business programs and Closing the Gap initiatives. • The project has been designed to avoid impacts to nine sites of high significance, seven sites of moderate significance and 66 sites of low significance. The project design was amended during the assessment in response to advice from Heritage

Issue	Findings and conclusions
	NSW to avoid a three hectare section of a high significance artefact scatter and completely avoid two sites of high significance (culturally modified trees originally proposed to be impacted) by changing the Lemington Road alignment in areas of the Warkworth sand system. • The project would result in impact to the following Aboriginal heritage items: ○ two sites of high significance (stone artefact scatters); ○ 10 sites of moderate significance (stone artefact scatters); and ○ 187 sites of low to low-moderate significance (generally isolated finds and low density artefact scatters). • The ACHA notes that cultural materials considered to be of higher scientific and/or cultural value within the region typically consist of stratified stone artefacts within the Warkworth sand system. The two stone artefact scatter sites of high significance that would be directly impacted by the amended project are located within the Lemington Road realignment corridor and are reflective of high density cultural materials within texture contrast soils and a potential portion of the Warkworth sand system. • HVO would prepare a consolidated Aboriginal Cultural Heritage Management Plan (ACHMP) (including both HVO North and HVO South) which would provide detail on the proposed management measures, including: ○ salvage of surface stone artefacts; ○ additional archaeological investigation and salvage excavation focusing on nine sites with high artefact densities and/or which contain stratified cultural deposits (including both sites of high significance proposed to be impacted). • Heritage NSW requested that the ACHMP provides for additional consultation with the RAPs and Heritage NSW regarding additional mitigation or management requirements if regionally significant and/or highly culturally significant finds are identified during future salvage excavations. The Department has recommended conditions in this regard. • In its final advice Heritage NSW requested HVO consider the findings of Aboriginal heritage investigations for adjacent projects (such as the Hunter Transmission Project) and consider their findings when developing investigative methods for the Warkworth Sands deposits in the project area during the development of the Aboriginal Cultural Heritage Management Plan (ACHMP). HVO agreed to the recommendation as part of the ACHMP. • HVO addressed all residual matters raised by Heritage NSW during the assessment. • With the implementation of appropriate mitigation measures and other standard best practice Aboriginal cultural heritage management, the Department considers that the project can be managed effectively. The Department has recommended conditions requiring HVO to update and implement an ACHMP in accordance with the relevant guidelines.

Issue	Findings and conclusions
	In relation to the Commonwealth Section 10⁸ application referenced in Heritage NSW's original advice, HVO has confirmed that the then Federal Minister for the Environment and Water, Hon. Tanya Plibersek determined not to make a declaration in this instance as the area subject to the application which would be impacted by the project does not meet the Commonwealth's requirements to be identified as a 'significant Aboriginal area in accordance with Aboriginal tradition'.
Historic heritage	- A number of listed and unlisted heritage items are located within the current and proposed development consent boundaries; however no listed heritage items of significance would be directly impacted by the amended project. Mining activities would not occur closer to any identified heritage items than currently approved. - One unlisted heritage item of assessed locally contributory significance (Remnant stockyards) would be totally and directly impacted by the amended project due to the construction of the internal haul road between HVO and Ravensworth. Management measures recommended include archival photography prior to impact. - Although the proposed Lemington Road realignment intersects with the mapped area related to the locally listed 'Archerfield Homestead and outbuildings', no physical heritage items associated with the homestead would be impacted by the amended project. Importantly, the homestead and associated outbuildings occur approximately 1.5 km from the proposed realignment. - Two unlisted heritage items (Oaklands Homestead and associated structures and Carrington Homestead) of assessed local significance are expected to be indirectly impacted (minor visual) by the amended project; however, the existing landscape is characterised by mining activities and associated infrastructure and therefore the impact is considered to be able to be absorbed into the landscape. - Impacts to heritage items were considered by the blast assessment which concluded that potential blasting impacts can be readily managed to comply with applicable criteria for heritage items within 1.5 km of the blast (Great Lodge, Carrington Homestead and Wandewoi Homestead). Other heritage items are expected to comply with applicable criteria without additional blast control measures. - Overall, the Department considers that the historic heritage related impacts of the amended project would be similar to those of the existing approved mining complex, and can be appropriately managed. - To ensure this occurs, the Department has recommended conditions requiring HVO to protect heritage items outside the disturbance area including from blast-related impacts.

⁸ Section 10 of the Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth) (ATSIHP Act)

Issue	Findings and conclusions
Visual	• A visual impact assessment was prepared for the original project and assessed the potential changes in visual impacts relative to the approved operations at 12 key viewpoints surrounding the project representative of views from private residences in Maison Dieu, Long Point, Jerrys Plains and Camberwell, along with views from the local road network. • When considering the potential visual impacts of the project, it is important to note that, although the amended project would increase the duration of visual impacts at HVO North and South by 20 years and 12 years respectively, it would: ○ not increase the approved heights of overburden emplacement areas; ○ continue to operate largely within existing and approved disturbance footprints; and ○ provide for the opportunity to contemporise the approved final landform by incorporating natural landform design principles. • Importantly, proposed mining activities would maintain the existing natural ridgeline between HVO North and the Jerrys Plains township, continuing to provide a barrier from visual impacts. • The visual assessment concluded that, with the exception of the realignment of Lemington Road and transmission infrastructure, the project would not introduce any new project elements into the landscape at any of the assessed viewpoints, and visual impact at each of the assessed viewpoints would not materially change when compared with the currently approved operations. • Visual impacts were assessed to be slight to moderate at most, and no viewpoint was considered to be subject to a significant impact, and therefore no additional mitigation measures were considered necessary. Progressive rehabilitation and ongoing revegetation of mined areas is expected to contribute to improved visual amenity over time. • In response to submissions made by Coolmore Australia (Coolmore) and the Hunter Thoroughbred Breeders Association, HVO undertook additional visual assessment from two key sensitive locations on Coolmore-owned land. This assessment concluded that the views would not significantly change from the existing baseline views and the proposed final landform. • Overall, the Department considers that visual impacts would be generally consistent with the approved mine, noting the duration of impact would be extended, and that predicted impacts are acceptable and can be readily managed in accordance with the recommended conditions of consent.
Rehabilitation and land use	• The amended project disturbance area primarily consists of existing mining areas and areas of rehabilitation which sustains low intensity cattle grazing. • The original project area comprised predominantly (more than 80%) of existing disturbed and/or rehabilitated land with land and soil capability (LSC) ranging from Class 4 (moderate capability) to Class 8 (extremely low capability). Of the currently

Issue	Findings and conclusions
	undisturbed area, approximately 75% was mapped as having an LSC between Class 4 (moderate capability) to Class 6 (low capability), with only 271 ha of Class 3 (high capability) being mapped across the mining complex. • The original project EIS included an assessment of Biophysical Strategic Agricultural Land (BSAL) in areas which would require new mining leases (MLs) to confirm if any BSAL was present. The assessment confirmed that no BSAL was present, and site verification certificates (SVCs) were subsequently issued by the Department in 2021 and 2022 (SVC-12575722 and SVC-41389276) respectively. The SVCs are applicable to the amended project as no changes are proposed to the additional MLs presented in the EIS. • As part of its rehabilitation activities for the amended project, HVO would establish 4,818 ha of land suitable for grazing (approximately 56% of the final landform). A four-year grazing trial monitored by the Department of Primary Industries which commenced in 2014 concluded that livestock weight gain on rehabilitated land outperformed cattle grazing on unmined analogue sites. In this regard, the Department has recommended conditions of consent requiring HVO to prepare a rehabilitation strategy and comply with strict rehabilitation objectives, including restoring land capability to pre-existing productive capacity. • The response to submissions clarified that the baseline impacts to land available for agricultural use were calculated by using the land that would be used for agriculture within the project boundary under current approvals combined with the land currently used for agriculture within the additional disturbance area for the original project. The baseline impact was calculated to be approximately 4,182 ha. The original project was calculated to provide a net increase of 138 ha of land to be used for agriculture post-mining, and the amended project is calculated to provide a net increase of 636 ha. To ensure this occurs, the Department has included strict rehabilitation objectives within the recommended conditions of consent. • In its advice on the EIS, DPI Agriculture agreed with these conclusions and confirmed it considered that the impacts proposed by the project are acceptable in the context of the site. • As stated in Section 3.1 mapped Equine and Viticulture CIC land also occur in the locality but are generally concentrated around the Hunter River and other alluvial lands. There are no areas of Equine and/or Viticulture CIC located within the project area. A mapped Equine CIC is approximately 2.5 km from the nearest point of the project area (i.e. HVO North). Importantly, HVO North (which is the closest mining area to the CIC), would continue to progress away from the CIC, in a south-easterly direction. • The Department acknowledges that Coolmore, the Hunter Thoroughbred Breeders Association, and a number of other associated organisations objected to the project, primarily raising concerns regarding potential air quality, water, noise and visual impacts on the equine industry.

Issue	Findings and conclusions
	• The Department also acknowledges a residual comment from Muswellbrook Shire Council requesting the inclusion of consent conditions to encourage the improved use and monitoring of mine buffer land. • The Department's assessment of these matters is provided in previous sections of this report. In summary, the Department considers these matters have been appropriately assessed in accordance with the relevant NSW policies and guidelines and the potential impacts can be managed in accordance with the recommended conditions of consent. • As stated in Section 3.1, the Hunter Valley Gliding Club is also located immediately adjacent HVO South. In accordance with the current HVO South development consent, HVO already has an agreement in place with the gliding club to address impacts associated with the mining complex, along with an Amenity Management Plan. • The Department has recommended these conditions be retained as part of the consent conditions for the project. Importantly, it should be noted that, although the HVGC raised some concerns regarding the project in its submission, the submission was formally lodged in support of the project. • Overall, the Department considers that the project is unlikely to have any significant direct impacts on agriculture and other land uses in the locality, and that indirect impacts can be appropriately managed under the recommended conditions of consent.
Hazards	• The original project EIS includes a preliminary hazard analysis (PHA) to assess the hazards and risks associated with the project including bushfire, dangerous goods storage, fire and explosion, prescribed dams and vibration risk in accordance with the <i>Hazardous Industry Planning Advisory Paper No.6 – Hazard Analysis</i> (HIPAP 6), and the <i>Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Planning</i> (HIPAP 4). The original EIS also provides a summary of previously completed contamination assessments for the site. • The PHA consequence analysis identified that there would be no incidents which would result in offsite impacts, hence, the potential for fatality or injury or environmental impact to occur would be negligible. Further to this, the PHA states that the acceptable risk criteria published in HIPAP 4 would not be exceeded. The amended project does not propose any changes to the items assessed by the PHA and therefore the conclusions remain applicable. • The manufacturing and storage of ammonium nitrate emulsion which would occur as part of the amended project is already an approved activity at HVO South, and therefore the amended project would not increase the currently approved storage limits of any of the dangerous goods required by this process. • Consistent with the advice provided by Fire and Rescue NSW (FRNSW), the Department has recommended conditions requiring HVO to ensure the development is suitably equipped to respond to fires and assist FRNSW and emergency services if there is a fire in the vicinity of the site.

Issue	Findings and conclusions
	• Further to this, HVO has committed to reviewing the sites safety management systems and emergency response procedures to ensure consideration of the FRNSW <i>Fire Safety Guideline – Emergency Services Information Package and Tactical Fire Plans</i> (Fire and Rescue NSW, 2019). • The previously completed contamination assessments for the site included a preliminary site investigation (PSI) from 2018, a detailed site investigation (DSI) from 2020 and a supplementary DSI from 2021. • Conclusions from the PSI indicated areas assessed (HVO North facilities, Newdell/train load-out facilities, HVO South facilities and Old Lemington facilities) has a moderate to high potential for contamination to be present however it was considered suitable for the current land use subject to implementation of relevant management measures such as a pollution incident response management plan (PIRMP) required under the existing EPL. • The DSI assessed the South Lemington area identified exceedances of criteria were generally related to ecological receptors and the risk to on-site human receptors were unlikely to present an unacceptable risk, subject to implementation of relevant management measures such as drip trays under equipment/plant. • The supplementary DSI further assessed the potential impacts of hydrocarbons in the South Lemington area and concluded that impacts were unlikely to present an unacceptable risk to on or off-site human and ecological receptors, with no further assessment of potential off-site risks or remediation required. • The Department considers that hazards associated with the project can be effectively managed in accordance with the recommended conditions of consent.

7 Evaluation

494. The Department has carefully considered the likely environmental, social, and economic impacts of the Hunter Valley Operations Continuation Project (SSD11826681 and SSD11826621). The Department's assessment draws on an extensive range of information provided by HV Operations, government agencies, independent experts, members of the public and special interest groups. The Department's assessment has considered the relevant matters and objects of the EP&A Act and has been guided by a range of strategic NSW government policies and plans.
495. Section 4.15 of the EP&A Act sets out the specific evaluation requirements for the project. In summary, evaluating the merits of the project involves weighing up the potential benefits against the potential impacts and considering its consistency with relevant statutory requirements, government policy and the public interest. These matters will need to be finally weighed up by the consent authority, the IPC.

Benefits

496. The project would facilitate the extraction of additional coal resources that would allow for continuation of mining at an existing, long-established complex. Being an established mine, the extension reflects an efficient and optimised approach to extract the resource where existing equipment, infrastructure, processing facilities and transport operations can be utilised, minimising the need for additional disturbance.
497. The project would provide substantial economic benefits to the state of NSW, the broader Hunter region and the locality. Sensitivity analysis indicates that economic benefits are likely to be realised even under a range of variables. The coal mining sector plays a vital role in the Hunter economy, accounting for 58% of all economic output and the project would contribute to these ongoing economic benefits in the medium term.
498. The project would provide an average of around 1,300 FTE and up to around 1,400 FTE jobs over the life of the project. The extension of mining operations would support the continuation of economic benefits and industry job security in the Hunter region in the short to medium term. The HVO complex is a significant employer in the Hunter region, accounting for almost 10% of direct employment in the local mining industry. The closure of the mine without the project would impact job security and the continuation of economic benefits to the Hunter and NSW.
499. Social benefits of the project would include the benefits associated with ongoing employment and stability of the local population, contributions to Council, ongoing employment and local

traineeships, improved access from the realignment of Lemington Road and construction of the new Hunter River bridge.

500. During the public exhibition of the original and amended applications the Department received 2,060 submissions in support for the project (around 92% of all submissions) which primarily cited the economic and social benefits of the project.

Impacts

501. The project would result in a range of direct and indirect environmental, social and economic impacts. The Department received 153 objections to the project (around 7% of all submissions) from members of the public and special interest groups.
502. GHG emissions and associated impacts on climate change were raised in most submissions objecting to the project and is a key consideration for the Department. The assessment of the project has been undertaken over a period of over five years since the issue of SEARs for the applications and NSW Government policy on GHG and climate change has changed substantially during this period.
503. The project has been amended in response to feedback from the Department and NSW EPA, and additional information has been provided during the assessment to enable an assessment of the consistency of the project with contemporary NSW Government policy assessment requirements for development applications, as outlined in the *NSW Guide for Large Emitters*, the *NSW Coal Industry 2026–50* and other relevant guidance.
504. The project would generate approximately 15.3 CO_{2-e} of Scope 1 and Scope 2 gross GHG emissions or 7.97 Mt CO_{2-e} of net GHG emissions after offsetting or further abatement/mitigation over the project life as required under the Commonwealth Safeguard Mechanism, with further reductions committed to by HV Operations, in line with NSW emissions reduction targets.
505. As confirmed by the NSW EPA in its advice, the net Scope 1 and Scope 2 GHG emissions from the project follow a downward trajectory that is consistent with the NSW emissions reduction trajectory.
506. However, the additional GHG emissions from the project, including Scope 3 emissions from the burning of the coal resource, would contribute to climate change impacts at the global level (in terms of increases to global GHG emissions) and would contribute to environmental, social and economic impacts (including climate changes impacts) in the locality. Climate change projections for the Hunter region (including the project area and locality) indicate rising temperatures and increases in sea levels, increased fire risk, and more frequent extreme weather events.

507. The project involves the continuation of existing impacts associated with the HVO complex including to surface and groundwater, amenity and traffic.
508. The HVO complex has existing infrastructure and management practices to minimise and monitor impacts to water resources. The potential impacts from the project are generally minor incremental and cumulative impacts that would not result in significant impacts to aquifers, waterways and the ecosystems that depend on these water resources.
509. The project would result in a range of other impacts including to biodiversity, Aboriginal and non-Aboriginal heritage, and would contribute to existing social impacts associated with the complex.

Conclusion

510. The Department has carefully assessed the likely impacts and benefits of the project in accordance with the requirements of section 4.15 of the EP&A Act. These impacts have been considered having regard to relevant statutory requirements, policies, public submissions, agency and independent expert advice received.
511. The Department's consideration of the impacts and benefits the project is guided by NSW Government policy including the *NSW Coal Industry 2026-50* which states that the NSW Government will continue to allow approvals for extensions to existing mining operations between 2026 to 2050 where it can be demonstrated that the environmental impacts of the project can be managed, in order to support ongoing job and energy security.
512. The Department considers the GHG impacts of the project are consistent with the requirements under NSW Government policy for the following reasons:
- GHG avoidance and mitigation has been developed in accordance with the *NSW Guide for Large Emitters* and has been carefully reviewed by the EPA and the IEAPM, and these measures have resulted in the avoidance of 43% of the Scope 1 emissions associated with the original application;
 - the HVO complex would be subject to the Commonwealth Safeguard Mechanism, which requires progressive decreases below the baseline of Scope 1 emissions, and be required to further minimise and/or offset emissions over time;
 - HV Operations have committed to offset and/or mitigate emissions in line with the NSW emissions reduction trajectory, which are more onerous than the emission reduction targets required under the Commonwealth Safeguard Mechanism;
 - the Department has recommended conditions of consent to ensure the GHG mitigation measures and/or offsetting described above are achieved;

- as outlined in the *NSW Coal Industry 2026-50*, overall, the NSW Government expects that emissions from the coal mining sector will decline consistent with NSW's targets from 2030 in line with forecast production declines and the implementation of mitigation technologies, and that the NSW coal sector should not be expected to commit to deeper reductions than other sectors of the economy;
- the project is consistent with NSW Government policy related to GHG and the coal mining sector, including as set out in the Net Zero Future Act and its guiding principles;
- the project would export coal primarily to countries that are signatories to the Paris Agreement or otherwise have their own 2030 and/or 2050 emissions reductions targets, such that Scope 3 emissions associated with the project (which the Department accepts are significant) can reasonably be expected to be mitigated in the countries of combustion, and it is the intention of the NSW Government to continue to support the energy and industrial needs of international trading partners; and
- the operation of the project would be subject to the NSW EPA's regulation of GHG emissions under EPLs as outlined in the *Climate Change Licensee Requirements*.

513. The Department considers that the other impacts of the project can be appropriately managed and mitigated. Those impacts are generally of the scale of the existing mining operations and would occur at a complex with existing infrastructure and management practices to monitor and minimise impacts. The Department has recommended a range of conditions which are considered appropriate to manage residual environmental impacts, including but not limited to:

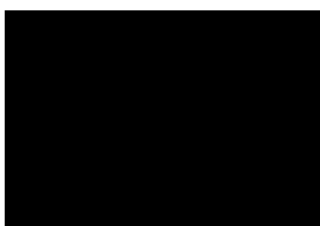
- an updated River Red Gum Restoration Strategy to ensure the project delivers a net benefit to this EEC;
- strict performance measures for water resources supported by monitoring and TARP requirements to ensure impacts are consistent with the predictions in the environmental assessments including to the Hunter River and its alluvial aquifers;
- strict operational air and noise criteria and comprehensive noise and air quality management plans including real-time monitoring and an active management system to guide the implementation of both proactive and reactive measures to meet operating limits;
- contemporary rehabilitation objectives and the preparation of a rehabilitation strategy investigate including ways to minimise adverse socio-economic effects associated with rehabilitation and mine closure; and
- comprehensive management plans to manage social impacts, blasting and residual impacts to traffic, Aboriginal heritage

514. The Department considers the project is consistent with NSW Government policy including *NSW Coal Industry 2026-50*. The project is an extension to existing mining operations and the Department considers that the environmental impacts can be managed in accordance with NSW Government requirements. Approval of the project would be consistent with the position of the NSW Government for the coal sector to continue to be a reliable trading partner of high-quality coal while global demand for coal persists into the 2040s.
515. The project would provide ongoing employment security and economic benefits to the Hunter and NSW economy during the transition of the coal mining sector through to 2050 and as the sector continues to play its role in NSW meeting its legislated emissions reduction targets.
516. The Department has not provided an overall recommendation but rather has undertaken a comprehensive assessment and evaluation of the project to inform the IPC as the consent authority and assist it in its need to conclude if the project is in the public interest. Should the IPC determine to approve the project, the Department has provided recommended conditions.

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8 Appendices

Appendix A – List of Referenced Documents

A1 – Modification Report: Refer to ‘Modification Application’ under the ‘Assessment’ tab on the Department’s website at: [HVO North Open Cut Coal Continuation Project – NSW Government Major Projects](#) and [HVO South Open Cut Coal Continuation Project – NSW Government Major Projects](#)

A2 – Submissions: Refer to ‘Submissions’ on the Department’s website at: [HVO North Open Cut Coal Continuation Project – NSW Government Major Projects](#) and [HVO South Open Cut Coal Continuation Project – NSW Government Major Projects](#)

A3 – Submissions Report: Refer to ‘Response to Submissions’ on the Department’s website at: [HVO North Open Cut Coal Continuation Project – NSW Government Major Projects](#) and [HVO South Open Cut Coal Continuation Project – NSW Government Major Projects](#)

A4 – Amendment Report: Refer to ‘Amendments’ on the Department’s website at: [HVO North Open Cut Coal Continuation Project – NSW Government Major Projects](#) and [HVO South Open Cut Coal Continuation Project – NSW Government Major Projects](#)

A5 – Agency Advice: Summarised in **Table A5.1**. Refer to ‘Agency Advice’ under the ‘Assessment’ tab on the Department’s website at: [HVO North Open Cut Coal Continuation Project – NSW Government Major Projects](#) and [HVO South Open Cut Coal Continuation Project – NSW Government Major Projects](#)

Table A5.1 | Agency Advice

Agency	Advice summary
NSW Department of Planning, Housing, and Infrastructure	
Crown Lands	Advice on EIS
NSW Department of Climate Change, Energy, the Environment and Water	
Conservation Programs, Heritage and Regulation (CPHR)	- Advice on EIS - Advice on Submissions Report - Advice on Amendment Report - Advice on Amendment Submissions Report - Advice on residual matters
Environment Protection Authority (EPA)	- Advice on EIS - Advice on Submissions Report – Air and Noise - Advice on Submissions Report - GHG - Advice on Amendment Report – Air and Noise - Advice on Amendment Report - GHG - Advice on Amendment Submissions Report – Air and Noise - Advice on Amendment Submissions Report – GHG

Agency	Advice summary
	- Advice on residual air quality matters 1 - Advice on residual air quality matters 2
Heritage NSW (ACH)	- Advice on EIS - Advice on Submissions Report - Advice on Amendment Report - Advice on Amendment Submissions Report - Advice on residual matters
Water Group	- Advice on EIS - Advice on Submissions Report - Advice on Amendment Report - Advice on Amendment Submissions Report
NSW Department of Primary Industries and Regional Development	
NSW Resources, including the Resources Regulator	- Advice on EIS - Advice on Submissions Report - Advice on Amendment Report
Agriculture	- Advice on EIS - Advice on Submissions Report
Fisheries	Advice on EIS
Transport for NSW (TfNSW)	
	- Advice on EIS - Advice on Submissions Report - Advice on Amendment Report
Ausgrid	
	Advice on Amendment Report
Fire and Rescue NSW	
	Advice on EIS
Muswellbrook Shire Council	
	- Comments on EIS - Comments on Submissions Report - Comments on Amendment Report - Comments on Amendment Submissions Report
Singleton Council	
	- Comments on EIS - Comments on Submissions Report

A6 – Additional Information: Summarised in **Table A6.1**. Refer to ‘Additional Information’ folder under the ‘Assessment’ tab on the Department’s website at: [HVO North Open Cut Coal Continuation Project – NSW Government Major Projects](#) and [HVO South Open Cut Coal Continuation Project – NSW Government Major Projects](#)

Table A6.1 | Additional Information

Agency	Advice summary
HV Operations	
	Response to RFI on VLAMP details – 5 June 2026

Agency	Advice summary
	• Response to final CPHR advice – May 2026 • Response to RFI on phasing for gas pre-drainage study – May 2026 • Comment on NSW Coal Industry 2026-50 and Climate Change Licensee Requirements – April 2026 • Response to residual EPA advice (air quality) – April 2026 • Response to final Heritage NSW advice – March 2026 • Response to CPHR advice and revised BDAR – February 2026 • Response to air quality VLAMP – February 2026 • Response to final IEAPM advice – February 2026 • Response to residual agency advice – February 2026 • Response to EPA advice on GHG – October 2025 • Response to IEAPM advice and Ministerial letter – March 2025 • Supplementary response to EPA advice on air and noise – June 2024 • Supplementary response to EPA advice on GHG – June 2024 • Response to RFI on workforce accommodation – June 2024 • Clarifications on biodiversity and groundwater – May 2024 • Response to RFI on GHG – May 2024 • Response to workforce numbers – May 2024 • Response to TfNSW advice – May 2024 • Response to EPA advice on air and noise – April 2024 • Response to VPA and road closure – March 2024 • Response to residual agency advice – March 2024 • Additional targeted services BDAR addendum – February 2024
Independent Expert Advisory Panel for Mining	
	• IEAPM Advice – Hunter Valley Operations Continuation Project (SSD-11826681 and SSD-11826621) – July 2024 • IEAPM Advice – Hunter Valley Operations Continuation Project (SSD-11826681 and SSD-11826621) – February 2026
Torrent Consulting	
	• Peer Review of Flood Risk Assessment – July 2024

Appendix B - Amendments

In November 2023 and August 2025, key aspects of the project were amended in response to public submissions and agency advice via amendment reports.

A summary of the key amendments is provided in **Table B.1** below.

Table B.1 | HVO North key amendments

Component	Original project	Amended project
Project area	• Increase in the development consent boundary to accommodate an extension to the approved mining area, as well as the areas covered by proposed infrastructure to support the project (including the Lemington Road and transmission and telecommunication line realignments).	• Minor increase in the development consent boundary to accommodate additional disturbance areas associated with the construction of transmission lines across the project area and to provide flexibility with the location of transmission lines associated with the EnergyCo Hunter Transmission Project.
Mining method	• No change from existing project.	• No change from existing project.
Mining area	• Extension of open cut mining from the approved West Pit and Mitchell Pit areas, through Lemington Road into the Carrington Pit area. • Mining to the base of the Barrett seam in the Carrington Pit area. • A reduction in the proposed mining area within the Carrington West Wing area, compared to the approved mining area.	• Revised mining area. • Removal of coal extraction in gas Domain 1 for HVO North. • Coal extraction to the base of the Barrett seam in West, Mitchell and Carrington Pit areas. • Coal extraction to the base of the Bayswater seam in the Carrington West Wing area. • A reduction in the proposed mining area within the Carrington West Wing area, compared to the approved mining area (consistent with the original project).
Disturbance area	• An assessed additional disturbance area of approximately 926 hectares (ha) to that currently approved. • Relinquishment of approximately 6.7 ha of currently approved disturbance area. • Avoidance of Aboriginal heritage site CM-CD1 will be maintained.	• Minor additional disturbance areas associated with the construction of transmission lines. • A total additional disturbance area of approximately 903 ha to that currently approved. • Relinquishment of approximately 6.7 ha of currently approved disturbance area. • Avoidance of CM-CD1 would be maintained.

Component	Original project	Amended project
Total resource recovery	Extraction of approximately an additional 400 million tonnes (Mt) of run of mine (ROM) coal over that currently approved for extraction.	Extraction of approximately 307 Mt of additional ROM coal to that currently approved for extraction over the life of the project comprising approximately 200 Mt in areas beyond those currently approved for extraction.
Annual production	- No change to total annual ROM extraction rate (up to 22 million tonnes per annum (Mtpa)) than currently approved for extraction. - Removal of the currently approved separation of extraction limits between West Pit and Carrington Pit.	- Same as original project. - However, proposed HVO complex limit of 26 Mtpa ROM coal whilst maintaining limits of: - up to 22 Mtpa from HVO North - up to 13 Mtpa from HVO South.
Mine life	Mining operations at HVO North up to 31 December 2050.	Reduction in the proposed life of mining operations at HVO North up to 31 December 2045.
General infrastructure	- Realignment of a section of Lemington Road from Comleroi Road in the south to the existing Lemington Road in the north, joining the existing road alignment approximately 2.3 kilometres (km) south of the existing New England Highway/Lemington Road intersection. - HVO North access road to be realigned from the existing Lemington Road. - Closure of a small section of Liddell Station Road to accommodate the Hunter Valley loading point (HVLPP) product stockpile extension (if constructed), which is not currently accessible to the public. - Realignment of sections of Ausgrid and AGL transmission lines.	- Same as original project. - However, proposed expansion of the HVO North ROM coal stockpile.

Component	Original project	Amended project
	• Realignment of internal transmission lines to support mining activities. • Realignment of Telstra telecommunication lines. • HVO North mine infrastructure areas (MIA) upgrade. • Maintenance and ancillary activities as required to facilitate operations, including the replacement of plant and equipment where required. • Access roads to facilitate service provider access. • Use of demountable/temporary buildings and other ancillary temporary facilities to enable construction activities and mining operations as required. • Access road establishment to an existing mine-owned property east of realigned Lemington Road. • Maintenance and ancillary infrastructure required to support construction activities and mining operations within the project disturbance area, including communication towers, installation and maintenance of water supply works and works on waterfront land, construction and use of buildings for construction or mining operations, installation of environmental monitoring equipment including piezometers, and explosives storage and transport.	

Component	Original project	Amended project
Beneficiation	• Use of temporary coal stockpiles assembled in new mining areas, within the project disturbance area prior to processing or transport. • Receipt of ROM coal from HVO South via internal haul roads for processing at all coal preparation plant (CPP) facilities approved for HVO North. • Construction of a haul road to enable ROM coal to be transported to the neighbouring Ravensworth Operations ROM pad via haul truck until the end of Ravensworth Operations approved mine life.	• No change from original project.
Management of mining waste – overburden emplacement	• No change from existing project. • Overburden will continue to be emplaced across HVO within the Project disturbance area. • However, the sequence of overburden emplacement has been revised to reflect the extended mine life and additional mining areas.	• Same as original project. • However, the sequence of overburden emplacement has been revised reflecting the variances in the amended schedule.
Management of mining waste – coarse reject	• No change from existing project.	• No change from existing project.
Management of mining waste – tailings	• Additional tailings pipelines and pumps. • Removal, relocation and/or reprocessing of tailings from historic tailings storage facilities (TSFs) as required, including the Carrington TSF. • Emplacement of tailings within the northern extent of West Pit. • Emplacement of tailings at approved tailings facilities at Liddell Coal Operations (LCO).	• Same as original project. • However, relocation and/or reprocessing of tailings from Carrington TSF is no longer required.

Component	Original project	Amended project
	Continuous refinement of tailings and reject management strategy to meet operational needs which may also include trial or testing facilities in the approved disturbance area to inform the strategy.	
Product transport	- Upgrade of product coal infrastructure as follows: - New Newdell product stockpile and upgrade of the existing Newdell train loading facility. These works will include an upgrade of the existing stockpile plus new train loading bin, conveyors and support infrastructure such as access roads, power and communication services; or an extension of the product coal stockpile footprint at the HVLP to increase the total stockpile capacity of the load point (requiring the relocation of Ausgrid transmission lines and communication infrastructure in this area and the closure of a portion of Liddell Station Road). - The construction of a haul road to enable ROM coal to be transported to the neighbouring Ravensworth Operations ROM pad via haul truck for processing, from where product coal is then transferred to	- Same as original project. - However, with the inclusion of the ability to temporarily transport product coal by truck from the Howick CPP to the Liddell stockpile for transport to market via the Liddell coal handling and train loading facilities during upgrades of the Newdell loading point (LP).

Component	Original project	Amended project
	Ravensworth Coal Terminal (RCT) for transport to market.	
Water management	- Continuation of the ability to transfer water to and from other mining operations where permitted. - Improved flood protection levee for North Pit up to 1,000 year Annual Exceedance Probability (AEP). - Improved flood protection for Carrington West Wing levee up to 1,000 year AEP). - Additional mine/dirty water containment dams as required, as mining progresses. - Clean water diversion as required, as mining progresses, including an extension of the Mitchell clean water diversion. - Parnells Dam enlargement from approximately 1 gigalitre (GL) to approximately 4 GL, new spillway, and refurbishment of existing Hunter River Salinity Trading Scheme (HRSTS) discharge facility (no change to environment protection licence (EPL)/HRSTS approval). - Construction of the Carrington West Wing low permeability barrier walls (LPBW) prior to mining within 100 m of the remnant connected western arm of the paleochannel, as per the existing development consent requirement.	- Same as original project. - However, with the additional establishment of the Mitchell East levee to provide flood protection for the final void in Mitchell Pit and water management system and conceptual final landform revised.

Component	Original project	Amended project
Rehabilitation	- Progressive rehabilitation, with the post mining land use to comprise a mixture of grazing and native habitat areas. - The Alluvial Lands flood levee will be left in place in the final landform. - The Carrington and North Void TSF levees will be incorporated into the rehabilitated overburden dump/tailings capping, respectively, and will not be retained as levees. The Carrington West Wing levee will be partially removed and incorporated into the final landform.	- Same as original project. - However, revised final land use domains and removal of Carrington West Wing levee and incorporation of Mitchell East levee into final landform.
Final void	One final void at HVO North within the Carrington area, representing a reduction in the number of voids that will remain post mining compared to existing approved operations from three to one.	- Two final voids being: - one final void associated with the Mitchell Pit; and - final void in Carrington Pit (evaporative sink) as currently approved.
Operational workforce	No change from existing project.	No change from existing project.
Construction workforce	- Construction activities associated with: - Lemington Road realignment and associated works; - Transmission line and telecommunications decommissioning and realignment; - Upgrades to MIAs and relevant access roads; - Construction of the coal haulage route to Ravensworth Operations;	No change from original project.

Component	Original project	Amended project
	○ Upgrade of the existing Newdell LP train loading facility and construction of a new product coal stockpile or extension of the HVLP product stockpile; ○ Parnells Dam capacity increase, and other water management system works such as levee construction; and ○ Clean water diversion drains. • Approximately 600 temporary construction workers over an approximate five-year period. • Construction activities will generally be undertaken within standard construction hours (Monday to Friday 7.00 am to 6.00 pm, Saturday 8.00 am to 1.00 pm, and no work on Sundays or public holidays). However, some out of hours work may be required from time to time.	
Hours of operation	• No change from existing project.	• No change from existing project.

Table B.2 | HVO South key amendments

Component	Original project	Amended project
Project area	Changes to the development consent boundary primarily on the northern side of the Hunter River to reflect removal of the approval to construct a conveyor from HVO South to the Hunter Valley CPP. Other small changes are proposed to the consent boundary, primarily to align with cadastral boundaries inclusive of neighbouring Mount Thorley Warkworth (MTW) offset areas.	No change from original project.
Mining method	No change from existing project.	No change from existing project.
Mining area	- Continuation of coal extraction to base of the Bayswater Seam in Riverview and Cheshunt Pits. - Coal extraction in South Lemington Pit 1, South Lemington Pit 2 and the Riverview South East Extension area no longer proposed.	- Same as original project. - However, revised mining area.
Disturbance area	- Additional disturbance area of approximately 54.9 ha. - Relinquishment of approximately 173 ha of currently approved disturbance area.	- Additional disturbance area reduced to 47 ha. - Relinquishment of 173 ha as per the original project. - Removal of the disturbance area associated with the construction of the Liddell CPP and associated rail facilities, resulting in a further 94 ha reduction compared to the original project.
Total resource recovery	Approximately 210 Mt ROM coal over the project life.	Extraction of approximately 122 Mt of ROM coal from areas currently approved for extraction over the project life.

Component	Original project	Amended project
Annual production	Reduction in the annual ROM coal extraction rate from 20 Mtpa to 18 Mtpa	- Further reduction in the annual ROM coal extraction rate to 13 Mtpa. - Proposed HVO complex limit of 26 Mtpa ROM whilst maintaining limits of: - up to 22 Mtpa from HVO North - up to 13 Mtpa from HVO South.
Mine life	Mining operations at HVO South up to 31 December 2045.	Reduction in the proposed life of mining operations at HVO South to 31 December 2042.
General infrastructure	- Relocation of some 11 kilovolt (kV) and 66 kV Ausgrid transmission lines. - Realignment of internal transmission lines to support mining activities. - HVO South access road relocation to join the realigned Lemington Road. - Access roads to facilitate service provider access. - Use of demountable/temporary buildings and other ancillary temporary facilities including laydown areas to enable construction activities and mining operations as required.	- Same as original project. - However, construction of the LCPP and associated rail facilities is no longer proposed.
Beneficiation	- No transport of ROM coal from HVO South via overland conveyor to Hunter Valley CPP (i.e. approval for this conveyor will not be retained). - Ongoing use of temporary coal stockpiles assembled within the project disturbance footprint prior to processing or transport. - No change to processing limits.	- Same as original project. - However, construction of the Liddell CPP and associated rail facilities is no longer proposed.

Component	Original project	Amended project
Management of mining waste – overburden emplacement	No change from existing project.	No change from existing project.
Management of mining waste – coarse reject	No change from existing project.	No change from existing project.
Management of mining waste – tailings	- Liddell CPP tailings management will be integrated with HVO North when the Liddell CPP is constructed. - Removal, relocation and/or reprocessing of tailings from historic TSFs as required.	- Same as original project. - However, construction of the LCPP and associated rail facilities is no longer proposed.
Product transport	Only the construction of the long rail loop and coal loader adjacent to the Liddell CPP to be retained as an option for Liddell CPP.	- Construction of the Liddell CPP and associated rail facilities is no longer proposed. - Transport product coal by truck or overland conveyor from all CPPs to loading points (HVLP, Newdell LP and Liddell LP).
Rehabilitation	Progressive rehabilitation, with post mining and use to comprise a mixture of grazing and native habitat areas	- Same as original project. - However, revised final land use domains.
Final void	- One void to remain in Riverview Pit. - South Lemington Pit 1 void and neighbouring strip 1 and strip 2 borrow pit to be filled with overburden material sourced from adjacent out of pit dump.	Same as original project.

Component	Original project	Amended project
Water management	- Continuation of integrated water management with HVO North and water transfers with other mining operations (where permitted under the development consents that apply to those other mining operations). - Construction of Cheshunt and Riverview flood protection levees. - Lake James enlargement (from approximately 0.7 GL to 2.0 GL).	Same as original project.
Operational workforce	No change from existing project.	No change from existing project.
Construction workforce	- Construction activities associated with Lake James enlargement, and other water management system works such as levee construction - Approximately 600 temporary construction workers over an approximate five-year period. - Construction activities will generally be undertaken within standard construction hours (Monday to Friday 7.00 am to 6.00 pm, Saturday 8.00 am to 1.00 pm, and no work on Sundays or public holidays). However, some out of hours work may be required from time to time. - Construction workforce of around 600 required for the construction of the Liddell CPP and rail loop (to be constructed around year 13/ year 15 of the project should future operational requirements and/or market conditions deem it necessary).	- Same as original project. - However, construction of the LCPP and associated rail facilities is no longer proposed, and therefore no construction workforce required for that activity.
Hours of operation	No change from existing project.	No change from existing project.

Appendix C - Statutory considerations

Objects of the EP&A Act

A summary of the Department's consideration of the relevant objects of the EP&A Act is provided in Table C.1 below.

Table C.1 | Consideration of the modification against relevant objects of the EP&A Act

Object	Consideration
<i>(a) to promote the social and economic welfare of the community and a better environment by the proper management, development, and conservation of the State's natural and other resources,</i>	• The applications are permissible on most of the land in the project area, however there are small portions of land within the project area where the project is prohibited. • The applications would provide ongoing socio-economic benefits to the people of NSW and ongoing employment to the existing approximate 1,500 FTE workforce. • NSW Resources considers the applications to be an efficient use of resources. • The coal resource is located within existing coal exploration and mining lease areas, in a region that is dominated by coal mining operations. • The applications can largely be carried out using existing mine site and transport infrastructure. • The final landform would be improved to be sympathetic to the surrounding landscape.
<i>(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental, and social considerations in decision-making about environmental planning and assessment,</i>	• The Department's assessment has sought to integrate all significant environmental, social and economic considerations. • The Department considers that the applications can be carried out in a manner that is consistent with the principles of ESD, which have been considered through the EIS, Amendment Reports and the Department's assessment.
<i>(c) to promote the orderly and economic use and development of land,</i>	The Department considers the applications to be consistent with this object as the project would: • extend the life of the existing HVO mining complex (a brownfield site); • optimise resource recovery through the extraction of an additional 307 MT of ROM coal by mining in deeper seams and increasing the mining extent between the existing pits; and • continue the ongoing contribution to the local, regional and State economies.

Object	Consideration
<i>(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities, and their habitats,</i>	The Department considers the project to be consistent with this object as: • The project has been designed to minimise potential environmental impacts where reasonable and feasible to do so. • The project design was amended to realign a portion the proposed Lemington Road alignment to avoid impacts to the Warkworth Sands Woodland EEC and to two scarred trees of Aboriginal cultural heritage origin. • The project design was amended to reduce Scope 1 emissions and includes measures to mitigate potential GHG emissions in accordance with the <i>NSW Guide for Large Emitters</i> as well as the commitment to offset in line with the NSW emissions reduction targets. • HV Operations has sought to avoid and minimise potential impacts on biodiversity. Residual impacts would be offset in accordance with NSW Government Policy to achieve a net beneficial biodiversity outcome. • Both the precautionary principle and the conservation of biological diversity and ecological integrity have been applied in the assessment to avoid serious or irreversible damage to the environment wherever possible.
<i>(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</i>	• HV Operations has undergone several project redesigns to avoid potential impacts to a regionally significant Aboriginal site (CM-CD1), sites along Parnell Creek, and five scarred trees. The Department considers the proposed Aboriginal cultural heritage management and mitigation measures would adequately minimise the impacts. • One un-listed historic heritage item would be impacted by the project, the Department considers the proposed mitigation measures would adequately minimise the impacts.
<i>(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,</i>	• The Department has led a whole-of-government assessment of the project with other NSW and local government agencies and carefully considered all issues raised in its assessment.
<i>(j) to provide increased opportunity for community participation in environmental planning and assessment.</i>	• The Department publicly exhibited the original project and the August 2025 amendment and HV Operations considered and responded to all submissions. Changes were made to the project design in response to some of the matters raised during the public exhibition, as outlined in the Amendment Reports.

Matters for Consideration under 4.15 of the EP&A Act

The Department's consideration of the matters for consideration under section 4.15 of the EP&A Act is provided in **Table C.2** below.

Table C.2 | Matters for consideration under section 4.15 of the EP&A Act

Item	Consideration
Environmental Planning Instruments	
<i>Singleton Local Environmental Plan 2013</i>	Most of the project area is zoned RU1 - Primary Production under both the Singleton Local Environmental Plan 2013 (Singleton LEP) and the Muswellbrook Local Environmental Plan 2009 (Muswellbrook LEP). Open cut mining is permissible with consent under both RU1 zones. The project is permissible on most of the land in the project area, however there are small portions of land within the project area, zoned as SP2 – Infrastructure and C2 - Environmental, where the project is prohibited. However, section 4.38(3) of the EP&A Act outlines that development consent can be granted for SSD despite the development being partly prohibited by an EPI. The north-western corner of the HVO North project area is zoned SP2 - Infrastructure under the Muswellbrook LEP for the purpose of a power station. Open cut mining is prohibited in this zone. The project would require minor works related to the relocation of transmission lines in the SP2 zone, which the Department considers to be consistent with the purpose of the zone. Facilities for coal processing and transport, including the proposed rail loading facilities, are permissible with consent under section 2.9(1)(d) of the State Environmental Planning Policy (Resources and Energy) 2021, as the coal was mined from the adjoining land.
<i>State Environmental Planning Policy (Planning Systems) 2021</i>	The Independent Planning Commission is the declared consent authority for both SSD applications under section 2.7(1) of the Planning Systems SEPP, given the Department received more than 50 unique public objections on each application during the exhibition period.
<i>State Environmental Planning Policy (Resilience and Hazards) 2021</i>	<u>Hazardous or offensive development (Chapter 3)</u> A PHA was provided with the original EIS and considered during the assessment. The Department has considered the relevant circulars and guidelines during its assessment, including Applying SEPP 33 and HIPAP 4 – Risk Criteria for Land Use Safety Planning. The Department consulted with the relevant public authorities during the assessment, including the EPA. The PHA hazard identification and consequence analysis process identified that there would be no incidents at HV Operations that would result in offsite impacts and that the acceptable risk criteria in HIPAP 4 would be met. As the project is a brownfield site and is not expected to result in offsite impacts from hazardous incidents, the Department considers the project location to be suitable and compatible with existing and future land uses.

Item	Consideration
	The Department does not consider the project to be a hazardous industry as the proposed project mitigation measures, recommended consent conditions, and dangerous goods licences would minimise the risk to human health, life or property, and the environment. The Department does not consider the project to be an offensive industry as the proposed project mitigation measures, recommended consent conditions, and EPL would minimise the risk of a polluting discharge that would have a significant adverse impact on existing or future land use. <u>Remediation of land (Chapter 4)</u> The original EIS indicates that contamination is present within the project area, however the contamination does not present an unacceptable risk to human or ecological receptors. The Department accepts that remediation is not considered necessary and considers the project area to be suitable for the existing and proposed land use.
State Environmental Planning Policy (Resources and Energy) 2021	Part 2.3 of the Resources and Energy SEPP lists a number of matters that a consent authority must consider before determining an application for consent to undertake development for the purposes of mining. The Department has considered these matters in its assessment of the modification and has included a brief summary of these considerations below. <u>Compatibility with other land uses (Section 2.17)</u> The project is located on an existing brownfield open cut mining site. The HVO mining complex is largely surrounded by existing open cut coal mining and power generation operations. Agricultural land uses, including grazing and cropping, are also undertaken in the immediate area. The Department considers the project to be compatible with the existing, approved or likely preferred uses of the surrounding land. The Department's assessment has considered the potential noise, air quality, blast and visual impacts at nearby receivers and measures to avoid, mitigate and minimise any land use incompatibility. The Department considers that, subject to the recommended conditions, including performance measures and adaptive management, the project is not likely to have a significant impact on surrounding land uses. As assessed in Sections 5, 6 and 7, the Department considers the project to be in the public interest. <u>Voluntary Land Acquisition and Mitigation Policy (Section 2.18)</u> The Department's assessment has considered the NSW Government's Voluntary Land Acquisition and Mitigation Policy (VLAMP). There are currently 22 properties entitled to mitigation upon request (20 for noise, seven for air quality) under existing mining operations, and no properties subject to acquisition (all nine properties originally entitled to acquisition are now mine owned). The project would result in 28 properties being entitled to mitigation upon request (23 for noise and five for air quality).

Item	Consideration
	The Department is satisfied that, with the recommended conditions of consent offering appropriate landowner rights, the project can be managed to minimise amenity impacts on surrounding private properties. <u>Compatibility with mining, petroleum production or extractive industry (Section 2.19)</u> The project is located on an existing brownfield open cut mining site and is considered compatible with surrounding extractive land uses. The project would optimise resource extraction by mining in deeper coal seams and increasing the mining extent between the existing pits. <u>Natural resource management and environmental management (Section 2.20)</u> The Department has recommended a detailed suite of consent conditions to ensure the project is undertaken in an environmentally responsible way, including conditions related to water resources, biodiversity and GHG emissions. The Department has considered the GHG emissions of the project, including Scope 3 emissions, having regard to applicable State or national policies, programs or guidelines including but not limited to the <i>NSW Guide for Large Emitters</i>, NSW emissions reduction targets, guiding principles of the Net Zero Future Act, <i>NSW Coal Industry 2026-50</i> and Commonwealth Safeguard Mechanism. The Department considers that GHG emissions have been minimised to the greatest extent practicable under NSW Government policy requirements. <u>Resource recovery (Section 2.21)</u> The Department is satisfied the project would optimise the extraction of coal and can be carried out in a manner that minimises the creation of waste. The Department has recommended conditions requiring HV Operations to take all reasonable steps to minimise waste created by the project. <u>Transport (Section 2.22)</u> Pikes Gully Road and Liddell Station Road are local roads that are currently, and would continue to be, used for product coal haulage from Howick CPP to Newdell LP. Otherwise, product coal from the project would be primarily transported via rail to the Port of Newcastle, or by rail or conveyor for domestic use. The Department has recommended a condition to ensure that product coal can only be transported from the site via rail or conveyor. The Department has consulted with the relevant road authorities, including Transport for NSW, and has considered their submissions during the assessment of the project. The relevant roads authorities and Transport for NSW would be notified when the project is determined, and the determination will be available on the Department's website. <u>Rehabilitation (Section 2.23)</u> HV Operations has provided a Mine Closure and Rehabilitation Strategy for the mining complex in the EIS. The strategy would modernise the approved HVO final landform by

Item	Consideration
	incorporating natural landform design principles, which would result in a landform that is sympathetic to the surrounding landscape. The Department considers that the proposed final landforms and rehabilitation plans could be achieved to meet contemporary best practice in the NSW mining industry and has recommended a comprehensive suite of conditions relating to rehabilitation of land disturbed by the project. <u>Summary</u> Based on its assessment of the project, the Department considers that the project can be managed in a way that is generally consistent with the aims, objectives and provisions of the Resources and Energy SEPP.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	The Department has comprehensively assessed the modification's potential impacts on biodiversity in Section 6.2. The Department considers that the existing and recommended conditions are adequate to manage biodiversity impacts.
State Environmental Planning Policy (Transport and Infrastructure) 2021	If a development could affect public infrastructure or public land, the Infrastructure SEPP requires the Department to notify the relevant public authorities of the development and to consider responses received from the public authorities. The project proposes works on or adjacent to public roads, Crown land and a rail corridor, and would require the realignment of Ausgrid and AGL transmission lines and Telstra communication lines. The Department notified Muswellbrook Shire Council, Singleton Council, Transport for NSW, Crown Lands and Ausgrid about the proposed project. The Department has consulted with these public authorities and considered the matters raised in its assessment of the project (see Section 6). Where appropriate, the Department has also developed conditions of consent to address the recommendations and advice of these public authorities. The Department considers that such conditions would provide appropriate protection for public infrastructure and public land. As such, the Department considers that the requirements of the Infrastructure SEPP have been satisfied. <u>Development adjacent to rail corridors (Section 2.98)</u> The project proposes an extension to the Hunter Valley Load Point (HVLP) product stockpile which is adjacent to a rail corridor. The HVLP and Newdell Loading Point (Newdell LP) are located on a private siding. Works would be undertaken in consultation with the relevant owners and operators of this infrastructure. <u>Development with frontage to classified road (Section 2.119)</u> Lemington Road at HVO North and the proposed Lemington Road realignment at HVO South is a classified road. The Department has assessed the potential project impacts on Lemington

Item	Consideration
	Road and is satisfied that the project, with the recommended consent conditions, would not adversely impact on the safety, efficiency, or ongoing operation of Lemington Road. The Department is satisfied that where practicable and safe, vehicular access has been provided by a road other than a classified road and that upgrades, or construction, of new access points would be undertaken in accordance with current Australian road design standards. The Department does not consider the project to be sensitive to traffic noise or vehicle emissions.
The Public Interest	
C2 Ecological Sustainable Development	The EP&A Act adopts the definition of ESD found in the <i>Protection of the Environment Administration Act 1991</i>, as follows: <i>“ecological sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:</i> <i>a) the precautionary principle;</i> <i>b) inter-generational equity;</i> <i>c) conservation of biological diversity and ecological integrity; and</i> <i>d) improved valuation, pricing and incentive mechanisms.”</i> The Department has considered ESD and its related principles and programs. The Department has also had regard to the manner in which ESD and its principles and programs are addressed in the modification report. A summary of the Department’s consideration is below. <u>Precautionary Principle</u> The ESD precautionary principle requires that: “if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation”. The Department has assessed the project’s threat of irreversible environmental damage and considers that there is sufficient scientific certainty to enable the determination of the application. The Department has considered all the available information presented and consulted closely with independent experts and key government agencies to obtain advice on various aspects of the project. While it is acknowledged that the project would result in environmental impacts of varying significance, the key matters that could result in serious or irreversible damage relate to unmitigated GHG, biodiversity and water resource impacts. The EIS and Department’s assessment have identified management and mitigation measures to address potential environmental impacts, and includes commitments and requirements to implement monitoring, auditing and reporting mechanisms.

Item	Consideration
	Overall, the Department has assessed these matters in detail (see Section 6) and considers that the recommended risk-based conditions and performance measures would provide appropriate protection for the environment and minimise the potential for any serious or irreversible environmental damage. <u>Intergenerational Equity</u> The ESD principle of intergenerational equity requires that: <i>“the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations”</i>. Intergenerational equity has been addressed through maximising efficiency and coal resource recovery and developing environmental management measures which are aimed at ensuring the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The Department acknowledges that coal and other fossil fuel combustion is a contributor to climate change, which has the potential to impact future generations. NSW has set clear targets for reducing GHG emissions over the next decades and achieving net zero emissions by 2050 in the <i>Climate Change (Net Zero Future) Act 2023</i>. The Department considers the project is consistent with NSW Government policy regarding GHG emissions. As outlined in the <i>NSW Coal Industry 2026–50</i>, with regard to GHG, extensions to coal mines are required to meet the emissions requirements prescribed in key policy frameworks including the Australian Government’s Safeguard Mechanism and the EPA’s <i>NSW Guide for Large Emitters</i>. The GHG assessment for the projects has been completed in accordance with the <i>NSW Guide for Large Emitters</i> and HV Operations have demonstrated their obligations for emissions reduction and offsetting under the Safeguard Mechanism if the projects are approved. HV Operations have nominated to exceed these requirements by committing to additional offsetting in line with NSW emissions reductions targets. The NSW Government expects that overall emissions from the coal mining sector will decline consistent with NSW’s targets from 2030 in line with forecast production declines and the implementation of mitigation technologies. The Department consulted closely with the NSW EPA regarding the GHG impacts of the projects. The GHG assessment was prepared to the satisfaction of the NSW EPA and the agency noted in its final advice that the amended project’s net emissions follow a downward trajectory that is consistent with the NSW emissions reduction trajectory. The Department has recommended conditions intended to complement the NSW EPA’s regulation of GHG emissions in the NSW coal mining sector which is being progressively implemented at the time of writing. The Department considers that the socio-economic benefits of the project would benefit future generations, particularly through the provision of ongoing employment and population stability in the Hunter region, allowing more time for worker transition planning, and providing

Item	Consideration
	for energy security for NSW trading partners in the short to medium term as outlined in the <i>NSW Coal Industry 20026-50</i>. <u>Conservation of Biological Diversity and Ecological Integrity</u> The ESD principle of conservation of biological diversity and ecological integrity requires that: “<i>conservation of biological diversity and ecological integrity should be a fundamental consideration</i>” in decision making processes, such as the development consent process and the environmental impact assessment process which supports it. The Department considers that this principle has been applied through avoiding and minimising biodiversity impacts, including the project design amendment to realign a portion of the proposed Lemington Road alignment to avoid impacts to the Warkworth Sands Woodland EEC. The Department considers that the project’s potential impacts would be reasonably mitigated and/or offset to enable the long-term biodiversity outcomes to be achieved for the region. <u>Improved Valuation, Pricing and Incentive Mechanisms</u> The ESD principle of improved valuation, pricing and incentive mechanisms requires that “<i>environmental factors should be included in the valuation of assets and services</i>” in decision making processes, including by such means as the ‘polluter pays’ principle, full life cycle costing and cost-effective pursuit of environmental goals. Valuation and pricing of resource has been considered through economic, social and cost-benefit analyses which have been completed as part of the EIS. The cost benefit analyses sought to weigh up the project’s costs and benefits based on its full range of environmental, social and economic impacts. The Department has carefully considered the costs and economic benefits of the project and support the conclusion that it would deliver a significant net benefit to the local region and the State of NSW. The Department has also recommended performance-based conditions, where possible, to provide incentive to HV Operations to achieve environmental outcomes and objectives in the most cost-effective way.
Planning Agreements	
	HV Operations has commenced negotiations for voluntary planning agreements (VPAs) with Singleton and Muswellbrook Shire Councils. Singleton Singleton Council has agreed in principle to a VPA to the amount of \$6.56 million at its ordinary meeting on 20 February 2024. Muswellbrook The Department is satisfied that a contribution from HV Operations to Muswellbrook Shire Council of \$215,000 (CPI adjusted \$203,000) would be satisfactory.
Likely impacts of development, including environmental impacts on the natural and build environment and social and economic impacts in the locality	

Item	Consideration
	The Department has undertaken a comprehensive assessment of the likely impacts of the applications on the natural and built environment and the social and economic impacts on the locality. This has included the impacts of the Scope 3 emissions and the contribution of the project the broader impact of climate change, which would contribute to environmental, social and economic impacts on the locality.
Suitability of the site	
	The HVO mining complex is an established coal mine located in a longstanding coal mining precinct in the Hunter Valley. Mines in this precinct are supported by an extensive network of access roads, rail lines and rail loops, coal preparation plants, water management infrastructure and tailings dams.

Climate Change (Net Zero Future Act) 2023

In assessing the impact of GHG emissions of the proposed modification, the Department has considered the applicable policies, programs and guidelines. Specifically, the Department has carefully considered the proposed modification against the guiding principles in the *Climate Change (Net Zero Future) Act 2023*. The principles relate to how action to address climate change should be undertaken and what should be considered.

Table C.3 provides a summary of how the Department has considered these Guiding Principles.

Table C.3 | Summary of consideration of modification against Guiding Principles in the Climate Change (Net Zero Future Act) 2023

Guiding Principle	Consideration
1) <i>For this Act, the guiding principles are the principles set out in this section.</i>	Noted.
2) <i>There is a critical need to act to address climate change, which is a serious threat to the social, economic and environmental wellbeing of New South Wales.</i>	The project has avoided, minimised and committed offset emissions in accordance with relevant NSW Government policy guidance including the <i>NSW Guide for Large Emitters</i> .
3) <i>Action to address climate change should be taken as early as possible to minimise the cost and adverse impacts of climate change.</i>	The net emissions from the project follow a downward trajectory that is consistent with the NSW emissions reduction trajectory. The NSW Government expects that overall emissions from the coal mining sector will decline consistent with NSW's targets from 2030 in line with forecast production declines and the implementation of mitigation technologies.
4) <i>Action to address climate change should be taken in a way that—</i> <i>a) is fiscally responsible, and</i>	(a) & (b) The applications propose the continuation of mining at the existing HVO mining complex which:

Guiding Principle	Consideration
b) <i>promotes sustainable economic growth, and</i> c) <i>considers the economic risks of delaying action to address climate change, and</i> d) <i>considers the impact on rural, regional, and remote communities in New South Wales.</i>	- comprise the efficient recovery of a coal resource utilising existing infrastructure and an existing workforce; - would involve generally cumulative and incremental environmental impacts that can be managed in accordance with relevant NSW Government policy; and - would provide for the continuation of economic benefits from mining to the Hunter region and NSW. (c) & (d) The net emissions from the project follow a downward trajectory that is consistent with the NSW emissions reduction trajectory. The NSW Government expects that overall emissions from the coal mining sector will decline consistent with NSW's targets from 2030. The project would provide for the continuation of economic benefits from mining in the Hunter, which is a critical industry for the region. The project would provide job security for the existing workforce which comprises around 10% of the existing workforce directly employed in mining in the Hunter. The continuation of the economic benefits of the existing complex (including local job security) in the medium term while meeting emissions reductions requirements is consistent with the approach to mining extensions outlined in the <i>NSW Coal Industry 2026-50</i>.
5) <i>Action to address climate change should be consistent with the right to a clean, healthy and sustainable environment.</i>	The Department has concluded that the impacts associated with the project can be appropriately managed subject to the recommended conditions.
6) <i>Action to address climate change should be consistent with the principles of ecologically sustainable development described in the Protection of the Environment Administration Act 1991, section 6(2).</i>	The Department's assessment has concluded that the modification would not conflict with the principles of ESD as described in the <i>Protection of the Environment Administration Act 1991</i> (see Table C.2 above).
7) <i>Action to address climate change should involve appropriate consultation with affected persons, communities and stakeholders.</i>	The project was publicly exhibited following the lodgement of the original applications and the amended applications, and the Department received 1,041 and 1,187 unique submissions respectively from members of the public and special interest groups. The Department carefully considered all submissions, including those that raised concerns about climate change as well as social and economic impacts and benefits for regional coal mining communities. The Department consulted closely with the NSW EPA which is the lead regulator of GHG emissions in NSW. The GHG assessment and mitigation approach was prepared to the satisfaction of the

Guiding Principle	Consideration
	NSW EPA. The NSW EPA advised that the net emissions from the project follow a downward trajectory that is consistent with the NSW emissions reduction trajectory.
8) Action to address climate change should take into account the following—	-
a) <i>the knowledge and perspectives of Aboriginal communities,</i>	The applications included consultation with Registered Aboriginal Parties (RAPs) in accordance with the NSW government's Aboriginal heritage consultation guidelines. The views of the RAPs were considered in the Department's assessment of the applications.
b) <i>the best available science,</i>	Estimation of GHG emissions associated with the applications were undertaken in accordance with relevant guidance including the <i>NSW Guide for Large Emitters</i>. The GHG Assessment for the project was reviewed by the NSW EPA (including advice from the Net Zero Emissions Modelling Team) and the IEAPM.
c) <i>the knowledge of rural, regional and remote communities in New South Wales,</i>	The applications included quarterly meetings with HV Operations' existing community consultative committee (CCC), and the Department received submissions from members of the public and special interest groups during the exhibition of the original and amended applications that informed the Department's assessment.
d) <i>the need to support local communities, including Aboriginal communities, who may be affected by the action, including by—</i> (i) <i>considering the impact on local employment and industries, and</i> (ii) <i>diversifying local economies, and</i> (iii) <i>encouraging local procurement, and</i> (iv) <i>optimising job creation and employment transition opportunities, and</i> (v) <i>considering the impact on the amenity of local communities,</i>	The applications would result in the continued employment of up to 1,500 full time equivalents (FTE) across the HVO complex with the continuation of mining operations to 31 December 2045 at HVO North and 31 December 2042 at HVO South. The applications were prepared in consultation with Aboriginal communities and in accordance with relevant guidelines. The project would provide for ongoing economic benefits and job security to the Hunter region as the NSW Government coordinates an orderly economic transition to support coal producing regions through the Future Jobs and Investment Authority as demand for coal shifts over time. The impacts of the project to amenity have been comprehensively assessed in accordance with relevant guidelines and impacts are generally incremental and cumulative and can be managed by the mitigation proposed by HV Operations and as required under the recommended conditions of consent.

Guiding Principle	Consideration
e) <i>the need for education and skills diversification,</i>	The project would provide for ongoing economic benefits and job security to the Hunter region as the NSW Government coordinates an orderly economic transition to support coal producing regions through the Future Jobs and Investment Authority as demand for coal shifts over time.
f) <i>the need to ensure essential utilities and infrastructure are provided, including energy, water, telecommunications and transport,</i>	In 2020, the NSW Government launched the Electricity Infrastructure Roadmap to coordinate the transition to a largely decarbonised electricity grid over two decades.
g) <i>the impact of the action on consumer costs in New South Wales, including energy costs,</i>	In 2023, the NSW Premier issued directions to coal mines in response to a coal market price emergency. Directions for coal mines included a cap on the price of thermal coal sold to power stations in NSW and a requirement to reserve a proportion of future coal production to supply NSW coal fired power stations. The project would primarily provide export coal to international markets.
h) <i>the need to reduce the risk climate change poses to human health,</i>	The net emissions from the project follow a downward trajectory that is consistent with the NSW emissions reduction trajectory. The NSW Government expects that overall emissions from the coal mining sector will decline consistent with NSW's targets from 2030. On this basis, the applications would be consistent with the NSW Government policy approach to managing climate change risks to human health, socially disadvantaged groups and species survival.
i) <i>equity and social justice impacts on socially disadvantaged groups and economically vulnerable regions,</i>	
j) <i>the need to reduce the risk climate change poses to the survival of all species.</i>	
9) <i>Action to address climate change should take into account the impact on animals.</i>	The applications were informed by BDARs prepared in accordance with the Biodiversity Assessment Method, and included avoidance, minimisation and offsetting measures such that the Department considers that impacts would be acceptable.
10) <i>The Government of New South Wales is responsible for—</i> a) <i>urgently developing and implementing strategies, policies and programs to address climate change, and</i> b) <i>ensuring the Government of New South Wales pursues best practice in addressing climate change.</i>	The NSW Government has developed a range of strategies, policies and programs to address climate change. These policies as they apply to a development application for an extension to an existing coal mine have been considered in the Department's assessment. The Department considers the project is consistent with the relevant policy framework established since the passing of the Net Zero Future Act.

Appendix D - Summary of Biodiversity Credit Staging

Table D.1 | Summary of biodiversity credit staging

Biodiversity feature	HVO North				HVO South	
	Stage 1		Stage 2		Stage 1	
	Direct impact area (ha)	Credits	Direct impact area (ha)	Credits	Direct impact area (ha)	Credits
TEC ecosystem credits						
<i>Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions EEC</i>	1.1	34	-	-	-	-
<i>Hunter Valley Footslopes Slaty Gum Woodland in the Sydney Basin Bioregion VEC</i>	7.1	313	-	-	-	-
<i>Central Hunter Grey Box—Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions EEC</i>	77.8	2,160	1.3	36	2.3	65
Non-TEC ecosystem credits						
3431 - Central Hunter Ironbark Grassy Woodland	89	1,956	0.1	2	0.3	7
4015 - Central Hunter Riparian Forest	1.7	53	0.5	12	-	-

Biodiversity feature	HVO North				HVO South	
	Stage 1		Stage 2		Stage 1	
	Direct impact area (ha)	Credits	Direct impact area (ha)	Credits	Direct impact area (ha)	Credits
4081 - Northwest River Oak-River Red Gum Forest	1.8	39	-	-	-	-
4089 - Namoi-Upper Hunter River Red Gum Forest	1.1	13	-	-	0.6	20
Species credits						
Southern myotis (<i>Myotis macropus</i>)	77.5	1,990	1.1	34	2.2	59
Hunter Valley delma (<i>Delma vescolineata</i>)	224.6	2,559	0.3	8	8.7	106
Masked owl (<i>Tyto novaehollandiae</i>)	57.7	552	-	-	18.1	158
Brush-tailed phascogale (<i>Phascogale tapoatafa</i>)	121.5	3,277	1.8	54	2.5	67
<i>Eucalyptus camaldulensis</i> population in the Hunter Catchment	0.8	6	-	-	0.7	8
Biodiversity feature	RRG Additional Disturbance Area					
	Direct impact area (ha)			Credits		
TEC ecosystem credits						
Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions EEC				0.15	5	

Biodiversity feature	HVO North				HVO South	
	Stage 1		Stage 2		Stage 1	
	Direct impact area (ha)	Credits	Direct impact area (ha)	Credits	Direct impact area (ha)	Credits
Species credits						
<i>Eucalyptus camaldulensis</i> population in the Hunter Catchment				0.4	11	

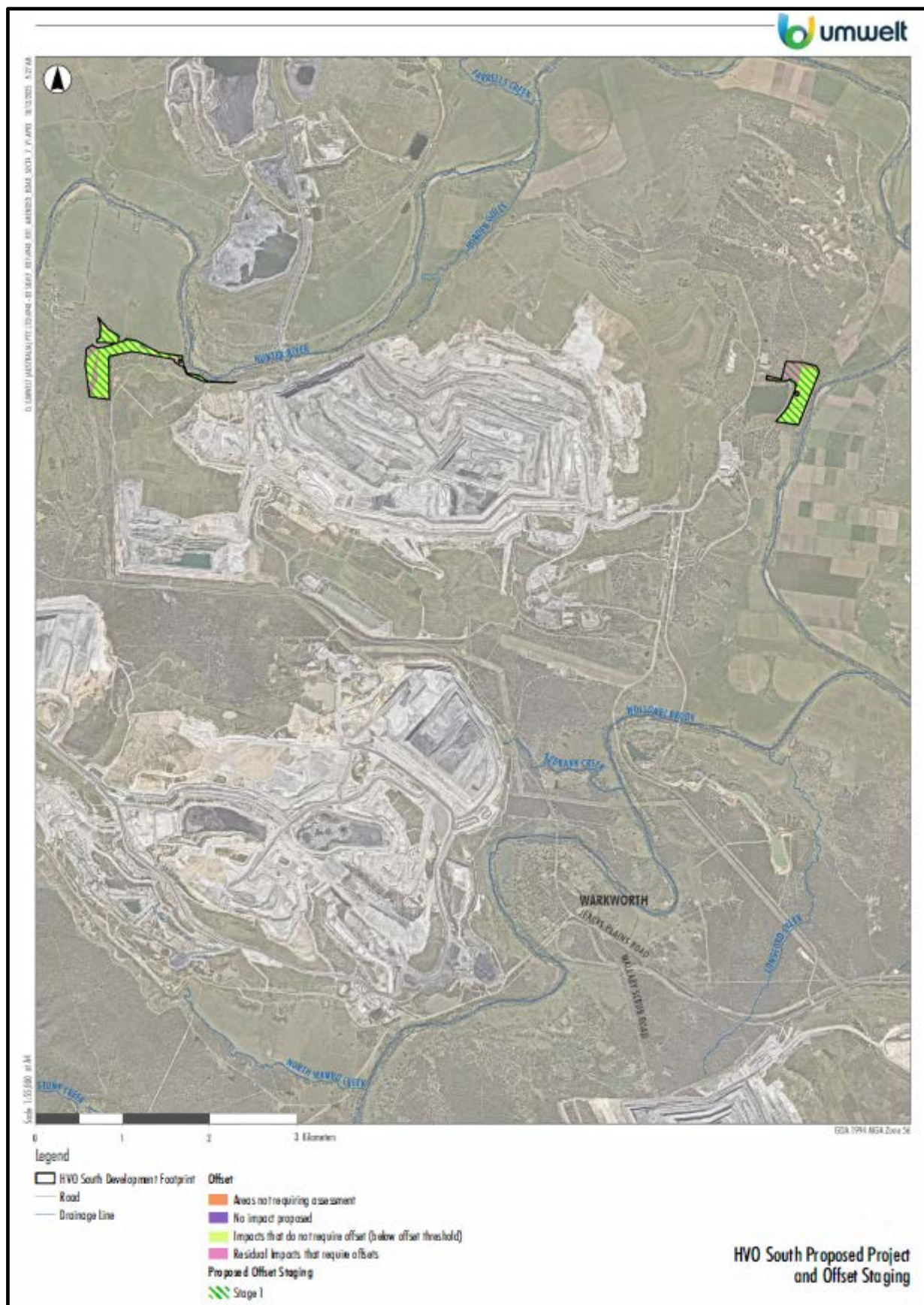


Figure D2 | HVO South biodiversity credit staging

Appendix E - Recommended Instrument of Consent

D1 – Recommended instrument of consent: Refer to ‘Recommendation’ under the ‘Assessment’ tab on the Department’s website at: [HVO North Open Cut Coal Continuation Project – NSW Government Major Projects](#) and [HVO South Open Cut Coal Continuation Project – NSW Government Major Projects](#)