



New South Wales Government
Independent Planning Commission

Hume Coal Project and Berrima Rail Project SSD-7172 and SSD-7171

Statement of Reasons for Decision

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EXECUTIVE SUMMARY

Hume Coal Pty Limited (the Applicant), a subsidiary of Pohang Iron and Steel Company (POSCO), has sought planning approval to develop a new underground coal mine to extract approximately 50 million tonnes of run-of-mine coal over 23 years in the Southern Highlands region of NSW (the Hume Coal Project) and associated rail infrastructure to transport coal to Port Kembla (the Berrima Rail Project) (together referred to here as the 'Project').

The Applicant lodged concurrent State significant development (SSD) applications for the Project in March 2017 (the Applications). Following the Preliminary Assessment Report (PAR) prepared by the Department of Planning, Industry and Environment (Department) in December 2018, the then Minister for Planning requested the NSW Independent Planning Commission (Commission) conduct a Public Hearing into the Project, assess the merits of the Project, and prepare a report to summarise the Commission's findings. As such, the Commission conducted a Public Hearing in February 2019 and provided the Commission's Initial Report on the Project in May 2019, in which it found that it was not able to adequately assess the merits of the Project based on the material before it. The Commission made several recommendations to this end.

In response to the recommendations made in the Commission's Initial Report, the Applicant provided further information for the Department to assess. The Department provided its Final Assessment Report (FAR) to the Commission on 8 June 2021, and the Minister for Planning and Public Spaces requested the Commission conduct a further Public Hearing into the Project and determine the Applications within 12 weeks. The Department's whole-of-government assessment again concluded the Project is not in the public interest and should be refused development consent.

The Commission is the consent authority in respect of the Applications under section 4.5(a) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and clause 8A of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) because the Department received more than 50 'unique' submissions from the public objecting to the Applications and also because the local Council objects to the Applications.

The Commission Panel determining the Applications is comprised of Mr Peter Duncan AM (Chair), Professor Alice Clark and Mr Chris Wilson. In June and July 2021, the Panel met with the Applicant, the Department, Wingecarribee Shire Council, Coal Free Southern Highlands, independent mining engineering experts, independent groundwater experts, and the Department's water group (DPIE Water). A virtual site inspection was undertaken in June 2021 and a physical locality tour was undertaken in August 2021 (while observing the requirements of NSW's COVID-19 public health orders).

The Commission also conducted an electronic Public Hearing on 12 and 13 July 2021 (the Public Hearing). The Commission heard from the Department, the Applicant, various community group representatives and individual community members via video conference and telephone. In total, 73 speakers presented to the Commission over the two days. The Commission invited written submissions from the public between 8 June 2021 and 23 July 2021, receiving a total of 432 unique written submissions comprising 72 in support of the Applications, 358 objecting to the Applications and two neutral submissions. An additional 181 form submissions were received by the Commission, all in objection to the Applications.

The Commission received additional material in July 2021, and reopened submissions to the public on the new material between 2 August 2021 and 9 August 2021, during which time a further 46 written submissions were received (five in support of the Applications and 41 objecting).

Concerns raised both by speakers at the Public Hearing and in written submissions to the Commission primarily focused on the following key issues:

- mine design;
- subsidence;

- groundwater drawdown (with respect to the effects on bore water users and the practicability of make-good provisions);
- risks to surface water, including to Sydney's drinking water catchment area;
- impacts to local biodiversity;
- greenhouse gas (GHG) emissions, including contribution to climate change and associated inter-generational impacts;
- impacts to Aboriginal and historic heritage;
- amenity impacts, including noise; visual amenity and air quality;
- adverse impacts to existing industries, including tourism and agriculture;
- social impacts, including ongoing stress and disharmony associated with the Project and managing the environmental and social impacts on people's property and way of life, and incompatibility of the Project with the local community's aspirations for the identity of the region and the rural aesthetic and landscape character; and
- land use compatibility conflicts.

Submissions received in support of the Project primarily related to:

- economic benefits to the region and NSW, including employment generation and flow-on benefits to local businesses;
- historical coal mining at Berrima Colliery as a local precedent;
- the relative quality of the coal product; coal as a strategic resource, including for steel production and electricity generation;
- the benefits of the proposed rail connection for transport (avoiding the need for road transport of coal); and
- the suitability of the mining method for managing subsidence and a range of other environmental impacts.

In making its determination, the Commission has relied on material including the whole-of-government assessment conducted by the Department. The Commission has considered the Applications in accordance with relevant legislation and guidelines, has been informed by appropriate expertise and has considered the mandatory relevant considerations under s 4.15 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The issues raised in public submissions greatly assisted the Commission to critically examine the Department's assessment and have contributed to the Commission's consideration of the merits and impacts of the Project.

For the reasons outlined in this Statement of Reasons, the Commission finds that the benefits of the Project are outweighed by the negative impacts. The Commission concludes that, based on the potential for long-term and irreversible impacts, and the impacts of the Project on the social and environmental values of the region, the Project is not in the public interest. The Commission finds the impacts of the Project cannot be reasonably and satisfactorily avoided, mitigated and managed through conditions.

In summary, the Commission finds that:

- The Project will result in unacceptable groundwater impacts, based on the following:
 - groundwater modelling is limited by the parameters applied, lack of input data and the level of sensitivity analysis. Given these limitations it is uncertain if the model is able to accurately predict the drawdown impacts.
 - the modelled impacts should be considered to be the minimum impacts, and even if more data becomes available for the model, the re-modelled impacts are likely to be worse, not better;
 - the physical attributes of the groundwater resource and the density of private bores impacted results in the likelihood of unacceptable groundwater impacts, both generally and in the context of the Aquifer Interference Policy.
 - the proposed make-good provisions are impractical due to the number of private

boreholes affected and owing to the fact that the Applicant has not been successful in reaching agreement with the majority of impacted private bore owners.

- an approval would result in significant social distress for the community as many private bore users would be required to enter a prolonged and disruptive negotiation process with the Applicant with respect to access and make good arrangements.
- The Project will pose an unacceptable risk to Sydney's drinking water catchment because:
 - the lack of a contingency plan for surface water management results in a residual risk that untreated water would overflow into the Sydney drinking water catchment.
- The Project would result in adverse social impacts relating to:
 - residents' way of life;
 - the community;
 - surroundings;
 - personal and property rights; and
 - the community's fears and aspirations.
- The Project is incompatible with surrounding land uses because:
 - the Project would impact existing and desired future land uses, such as rural-residential, small-scale agricultural and tourism land uses.
 - the Project would result in land use conflicts and social impacts that cannot be appropriately managed and would have long-lasting negative amenity impacts on surrounding landholders.
 - the Project does not align with the aims and objectives of relevant strategic plans.

In conclusion, the Commission finds the issues relating to the impact on water resources and social impacts significant enough to warrant refusal. Further, the Commission finds that the Project's incompatibility with the land use objectives for the area is also reason enough for refusal, and that this incompatibility is exacerbated by the groundwater and social impacts. The Commission ultimately finds that the stated benefits of the Project do not outweigh the adverse environmental, social and economic impacts. On the basis of the Material considered as a whole, the Commission has determined to **refuse** the Hume Coal and the Berrima Rail Project Applications. The Commission's reasons for refusal are explained in full in this Statement of Reasons for Decision.

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DEFINED TERMS

ABBREVIATION	DEFINITION
AIP	<i>NSW Aquifer Interference Policy</i>
Applicant	Hume Coal Pty Limited
Applicant's Response Report	The Applicant's response to the Commission's Initial Report, dated April 2020
Applications	Hume Coal Project (SSD 7172) and Berrima Rail Project (SSD 7171)
Approved Methods	<i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW, 2016</i>
BAR	Biodiversity Assessment Report
Berrima Rail Project	The proposed rail infrastructure to support the Hume Coal Project mining operations and facilitate the transportation of coal by train to Port Kembla (Application Number SSD 7171)
BSAL	Biophysical Strategic Agricultural Land
CCPF	<i>NSW Climate Change Policy Framework, 2016</i>
CFSH	Coal Free Southern Highlands
Commission	Independent Planning Commission of NSW
Commission's Initial Report	The Commission's original report on the Project, dated 27 May 2019
Council	Wingecarribee Shire Council
CPP	Coal Preparation Plant
DCP	Development Control Plan
Department	Department of Planning, Industry and Environment
DPIE Water	Department of Planning, Industry and Environment, Water (the Department's Water Group)
Economic Guidelines	<i>Guidelines for the economic assessment of mining and coal seam gas proposals, 2015</i>
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environment Protection Authority
EPI	Environmental Planning Instrument
ESD	Ecologically Sustainable Development
FAR	The Department's Final Assessment Report, dated 8 June 2021
First Referral	The Commission received the Department's referral of the Project on 7 December 2018 and the Department's PAR.
GDE Guideline	<i>NSW Risk Assessment Guideline for Groundwater Dependent Ecosystems, 2012</i>
Hume Coal Project	The proposed new underground coal mine to extract 50 million tonnes of run-of-mine coal in the Southern Highlands region of NSW (Application Number SSD 7172)
ICNG	<i>Interim Construction Noise Guideline</i>
Infrastructure SEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i>
LEP	Local Environmental Plan
LGA	Local Government Area

LSC	Land and Soil Capability
LSPS	<i>Wingecarribee Local Strategic Planning Statement</i>
Mandatory Considerations	Relevant mandatory considerations, as provided in section 4.15(1) of the EP&A Act
Material	The material set out in section 6.2
MEG	Mining, Exploration and Geoscience
Mining SEPP	<i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>
Minister	Minister for Planning and Public Spaces
Net Zero Plan	<i>NSW Net Zero Plan Stage 1: 2020–2030</i>
NorBE	Neutral or beneficial effect
NPfI	<i>NSW Noise Policy for Industry</i>
NPV	Net Present Value
NSW Strategic Statement	<i>Strategic Statement on Coal Exploration and Mining in NSW, June 2020</i>
PAR	The Department's Preliminary Assessment Report, dated December 2018
Project	New underground coal mine to extract 50 million tonnes of run-of-mine coal in the Southern Highlands region of NSW (Hume Coal Project – SSD 7172) and associated rail infrastructure to support the mining operations and facilitate the transportation of coal by train to Port Kembla (Berrima Rail Project – SSD 7171)
Regional Plan	<i>South East and Tablelands Regional Plan 2036</i>
Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
RNP	<i>NSW Road Noise Policy</i>
ROM	Run-of-mine coal
RtS	Response to Submissions
SDWC SEPP	<i>State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011</i>
SEARs	Secretary's Environmental Assessment Requirements
Second Referral	The Commission received the Department's referral of the Project on 8 June 2021 and the Department's FAR
SEPP	State Environmental Planning Policy
SIA	Social Impact Assessment
SIA Guideline	<i>Social Impact Assessment Guideline for State Significant Mining, Petroleum Production and Extractive Industry Development, 2017</i>
Site	The Hume Coal Project mine surface infrastructure area, located seven kilometres north-west of Moss Vale; the underground mine project area; and the proposed Berrima Rail Project area
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
SSD	State Significant Development
VLAMP	<i>Voluntary Land Acquisition and Mitigation Policy</i>
VPA	Voluntary Planning Agreement
WLEP 2010	<i>Wingecarribee Local Environmental Plan 2010</i>

1. INTRODUCTION

1.1 The Minister's First Request

1. In March 2017, Hume Coal Pty Limited (**Applicant**) lodged concurrent State significant development (**SSD**) applications for the Hume Coal Project (SSD 7172) and associated Berrima Rail Project (SSD 7171) (**Applications**). Following the Department's initial assessment of the Applications, on 4 December 2018, the then Minister for Planning requested the Independent Planning Commission (**Commission**):
 - conduct a Public Hearing into the Applications;
 - assess the merits of the Project; and
 - prepare a report summarising the Commission's findings.
2. The Applications propose to develop a new underground coal mine to extract approximately 50 million tonnes of run-of-mine coal in the Southern Highlands region of NSW (**Hume Coal Project**), and associated rail infrastructure to facilitate the transportation of coal by train to Port Kembla (**Berrima Rail Project**) with an overall project life of 23 years. For the purposes of this Statement of Reasons, both the Hume Coal Project and the Berrima Rail Projects are together referred to as the **Project**.
3. The Department of Planning, Industry and Environment (**Department**) referred the Project to the Commission on 7 December 2018 and provided the Commission with its Preliminary Assessment Report (**PAR**), dated December 2018, which concluded that the Project would not be in the public interest and should not be approved.
4. The Commission Panel appointed to determine the Project was constituted of Professor Chris Fell AM (Chair), Mr George Gates PSM, Mr Geoffrey Sharrock and Ms Annelise Tuor.
5. On 26 and 27 February 2019, the Commission held a Public Hearing into the Project at the Moss Vale Services Club, at which 74 individuals and groups presented to the Commission Panel. Additionally, as part of its process, the Commission met with the Department, the Applicant, Coal Free Southern Highlands (**CFSH**) and conducted an inspection of the site and surrounding locality in February 2019.
6. On 27 May 2019, the Commission published its report on the Project (**Commission's Initial Report**), in which the Commission found that it was not able to adequately assess the merits of the Project based on the material before it. The Commission therefore sought additional information from both the Applicant and the Department to enable it to reach a position on the merits of the Project.
7. On 8 April 2020, at the request of the Department, the Applicant provided its response to the Commission's Initial Report (**Applicant's Response Report**) to the Department for assessment.

1.2 The Minister's Second Request

8. On 8 June 2021, the Minister for Planning and Public Spaces requested the Commission to:
 - conduct a further Public Hearing into the carrying out of the Project; and
 - make its determination of the Applications within 12 weeks of receipt of the Department's assessment report in respect of the Project.
9. The Minister's second request was received by the Commission on 8 June 2021.

1.3 The Department's Referral

10. On 8 June 2021, the Department referred the Project to the Commission for determination and provided the Commission with its Final Assessment Report (**FAR**).
11. Based on its additional assessment, the Department maintains its view that the Project is not in the public interest and does not accept that residual risks can be appropriately managed through post-approval conditions of consent. As such, the Department recommends that the Commission refuse to grant consent to the Project.

1.4 The Commission Panel

12. The Commission is the consent authority in respect to the Applications under section 4.5(a) of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**) and clause 8A of the *State Environmental Planning Policy (State and Regional Development) 2011* (**SRD SEPP**). This is because:
 - the Applications constitute SSD under section 4.36 of the EP&A Act; and
 - the Department received more than 50 'unique' submissions from the public objecting to the applications; and
 - the local Council objected.
13. Professor Mary O'Kane AC, Chair of the Commission, nominated Mr Peter Duncan AM (Chair), Professor Alice Clark and Mr Chris Wilson to constitute the Commission Panel determining the Applications.
14. Consistent with the then Minister for Planning's direction to the former Planning Assessment Commission dated 14 September 2011, which is taken to be a direction to the Commission pursuant to clause 7(1) of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017*, the appointed Panel does not include any of the members previously appointed to consider the Applications and conduct a Public Hearing (as identified in paragraph 4 above).

2. THE SITE AND LOCALITY

2.1 The Site

15. The site is in the Southern Highlands region of New South Wales and within the Wingecarribee Local Government Area (LGA).
16. The 'site' for the purposes of this Statement of Reasons is comprised of the Hume Coal Project mine surface infrastructure area, located seven kilometres north-west of Moss Vale; the underground mine project area; and the proposed Berrima Rail Project rail spur (Site).
17. The Department's PAR describes the Site and surrounding area at section 3, stating:

The main regional centres in the vicinity of the project are Moss Vale, Bowral and Mittagong, which are located between 3 and 15 km to the east and north east of the project.

There are two villages (Sutton Forest and Exeter) located within the project area, and three other villages (Medway, New Berrima and Berrima) in nearby areas.

The project area covers approximately 5,051 ha, which includes:

 - 1,253 ha of land held by the Applicant;
 - 2,402 ha of land held by other private landowners;
 - 1,296 ha of Belanglo State Forest; and
 - 97 ha of Crown and other government-controlled land.
18. The location of the Site is illustrated in **Figure 1**. The Project layout is illustrated in **Figure 2**, with the surface infrastructure layout shown in **Figure 3**.

Figure 1 Local Context (source: Department's FAR)

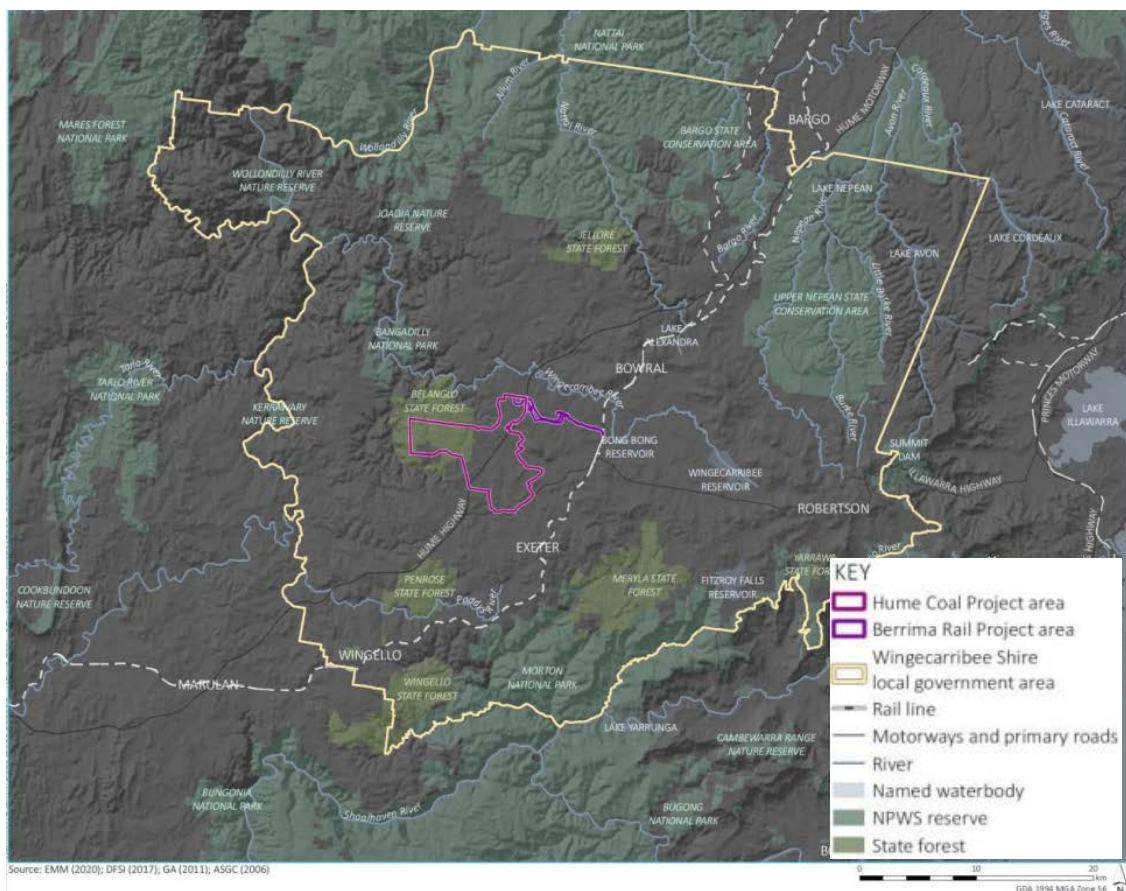


Figure 2 Project Layout (source: Department's FAR)

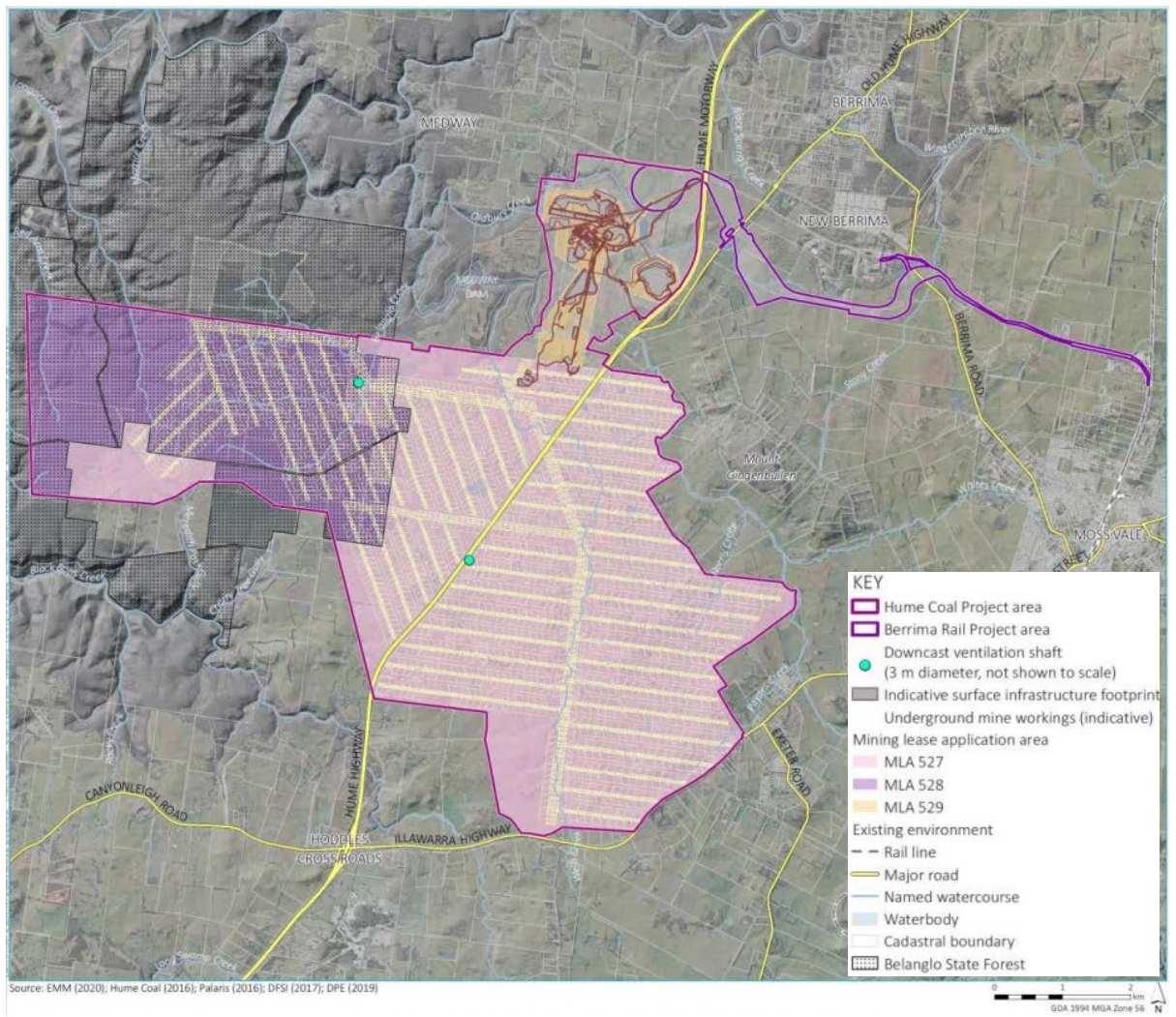
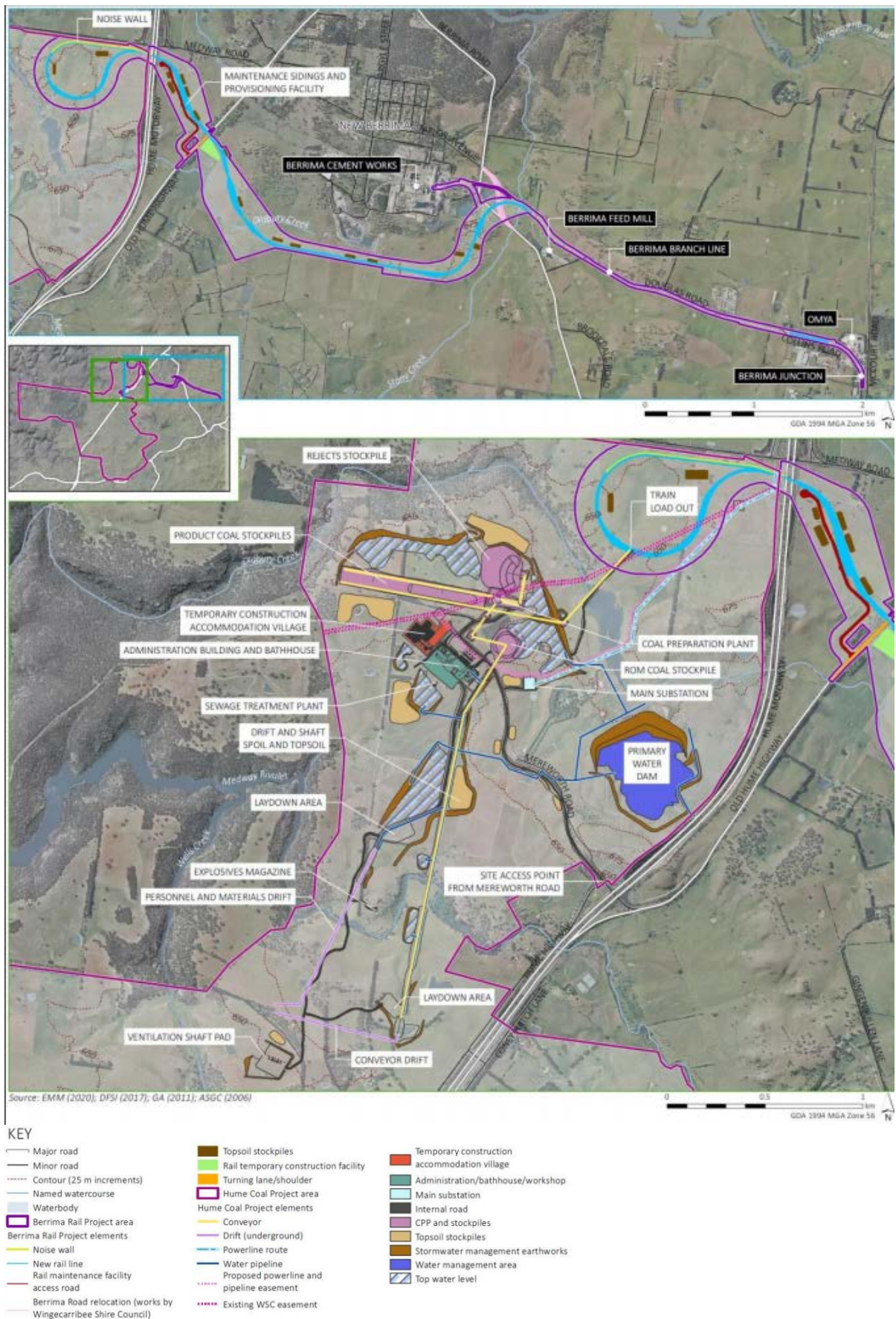


Figure 3 Surface Infrastructure – Hume Coal Project Berrima Rail Project Layout (source: Department's FAR)



19. Section 3.2 of the Department's PAR describes the environmental setting of the Site, noting the topography of the Site and its surrounds comprise rolling hills with some steeper slopes and gorges in the west of the Project area within the Belanglo State Forest. Aside from the forested area, native vegetation across the Site is limited to riparian vegetation and scattered paddock trees in some areas.
20. The Commission notes the Site is located within Sydney's drinking water catchment area. Section 3.2 of the Department's PAR states:

The project area is located within the upper reaches of Sydney's drinking water catchment, and there are numerous watercourses in and around the proposed mining area, including Medway Rivulet, Black Bobs Creek and Oldbury Creek.

21. The Commission also notes that there are several privately-owned properties in the Project area, or near the proposed surface facilities, which use groundwater for agricultural purposes and have registered bores (section 3.3 of the PAR).

2.2 Site Context

22. Section 3.1 of the Department's PAR describes the local and regional setting of the Site, and surrounding land uses as being characterised by low, rolling hills in a predominantly rural-residential and small-scale agricultural setting. Agricultural uses within the Site and surrounds include livestock grazing, vineyards, olive plantations and horticulture. This description is consistent with the Commission Panel's own observations.
23. The Commission understands that the Southern Highlands area is also characterised by areas of historic and heritage significance. Section 3.1 of the PAR describes that the National Trust of Australia has identified the towns of Berrima, Sutton Forest and Exeter as significant cultural landscape conservation areas. Additionally, there are three State-listed heritage items situated in the vicinity of the Site (including Oldbury Farm, Golden Vale and Hillview), and eight locally listed heritage items in the Project area.
24. The Project's mine surface infrastructure area is located approximately three kilometres from the historic town of Berrima, which is a popular tourism destination.
25. The Commission notes that coal mining has a long history in the Southern Highlands, including the Berrima Colliery, the Loch Catherine Mine, the Southern Colliery and numerous older, pre-mechanised mines (PAR Section 3.1). However, the Department notes historical coal mining in the region is small scale and ceased between 50 to 150 years ago, except for the Berrima Colliery, which ceased operations in 2013.

3. BACKGROUND

3.1 Chronology

26. The Commission acknowledges that the Project has been under consideration for an extended period, with the Applicant requesting the Secretary's Environmental Assessment Requirements (**SEARs**) in July 2015.
27. A brief summary of the Project history is provided at **Table 1** below.

Table 1 *Timeline of key events (source: derived from Table 1 of the Department's FAR)*

Date	Event
20 August 2015	The Department issued the SEARs for the Project.
March 2017	The Applicant submitted the Environmental Impact Statements (EIS) for the Project to the Department.
30 March 2017 to 30 June 2017	The Department publicly exhibited the EIS's and received 12,666 submissions, including: <ul style="list-style-type: none"> • 12,212 objections • 436 in support • 18 comments (neither objecting nor supporting).
29 June 2018	The Applicant submitted its Response to Submissions (RtS) report for the Project.
4 December 2018	Then Minister for Planning requested the Commission: <ul style="list-style-type: none"> • conduct a Public Hearing into the Applications; • assess the merits of the Project; and • prepare a report summarising the Commission's findings.
7 December 2018	The Commission received the Department's referral of the Project and the Department's PAR (First Referral).
26–27 February 2019	The Commission held a Public Hearing in Moss Vale.
27 May 2019	The Commission published its Initial Report on the Project, which did not determine the Applications but included a range of recommendations seeking additional information from the Applicant and the Department.
2 July 2019	The Department requested the Applicant provide a response to the Commission's Initial Report.
30 July 2019	The Department chaired a meeting between the Applicant, the then Water Group and the Department's peer reviewer (Hugh Middlemis) to identify pathways to clarify residual uncertainties and resolve issues of contention in the groundwater modelling.
8 April 2020	The Applicant provided its Response Report to address the Commission's Initial Report.
14 May 2020	The Department sought advice from key agencies and independent experts on the Applicant's Response Report.
June–July 2020	The Department received comments from DPIE Water; Water NSW; Environment Protection Authority (EPA); Resources Regulator; Mining, Exploration and Geoscience (MEG); Heritage NSW; Council; and, its independent experts on the Applicant's Response Report.
August–September 2020	The Applicant provided additional responses to issues raised by key agencies and independent experts.
8 June 2021	The Commission received the Minister's Second Request (section 1.1) as well as the Department's referral of the Project and the Department's FAR.

3.2 Original Application

28. The main components of the Project are described in Table 1 of the PAR, which is replicated in **Appendix A** of this Statement of Reasons. In summary, the Project includes the following:

- underground mining operation targeting the Wongawilli Seam in the Permian Illawarra Coal Measures, using the pine-feather technique and proposed to extract 50Mt of run-of-mine (**ROM**) coal over 19 years;
- construction of surface infrastructure, including the Coal Preparation Plant (**CPP**), ROM and product coal stockpiles, coal reject handling infrastructure and temporary (emergency) reject stockpile;
- construction of a new, 7.6 kilometre rail spur and loop connecting to the existing Berrima Branch Line, a railway bridge over the Old Hume Highway and a rail maintenance siding located between the Old Hume Highway, Medway Road and the Hume Motorway;
- clearing 10.3ha of native vegetation;
- up to 415 construction jobs and up to 300 operational jobs and a Capital Investment Value of \$533,328,391 (comprising \$498,044,957 for the Hume Coal Project, and \$35,283,434 for the Berrima Rail Project); and
- decommissioning and rehabilitation.

3.3 The Department's Preliminary Assessment Report

29. Key issues considered in the PAR included groundwater impacts, including impacts to the groundwater aquifer and groundwater bores; surface water impacts; impacts to Sydney's drinking water catchment; compatibility of land uses, including impacts to small-scale agriculture and tourism uses; safety risks associated with the mine design; and the Project's relatively low net economic benefits.

30. The conclusion in the PAR is provided in section 7, and states:

The Department considers that the economic benefits cannot be realised without significant adverse impacts on the environment and the local community, particularly in relation to groundwater impacts. At this stage, the Department does not consider that the economic benefits outweigh the likely adverse impacts on the environment and community.

Consequently, based on the information currently available, the Department considers that the project should not be approved (PAR page 41).

3.4 Council's Submission

31. Wingecarribee Shire Council (**Council**) provided a submission to the Department in June 2017 expressing concerns about coal mining in the Wingecarribee Shire more broadly and objecting to the Project on the grounds of potential impacts on ground water and water catchments; land use compatibility issues, social impact issues and impacts to the scenic rural landscapes of the Southern Highlands and its extensive historical features.

3.5 The Commission's Initial Report

32. As described at paragraph 6 above, the Commission finalised its Initial Report on the Project on 27 May 2019 following the Minister's First Request.

33. After careful consideration, the Commission found that it was not able to adequately assess the merits of the Project or adopt a definitive position on the Project as a whole based on the material before it. The Commission therefore sought additional information from both the Applicant and the Department to enable it to reach a position on the merits of the Project.

34. In its report, the Commission made 30 recommendations to enable it to reach a position on the merits of the Project. The Commission's recommendations are provided at **Appendix B** to this Statement of Reasons.
35. The Commission has considered the way its recommendations have been addressed by the Department and the Applicant in this Statement of Reasons.

3.6 The Applicant's Response Report

36. The Applicant provided its response to the Commission's Initial Report in April 2020 (**Applicant's Response Report**), at the request of the Department.
37. Paragraph 18 of the Department's FAR states:

Hume Coal's Response Report provides a response to each of the recommendations in the Commission's Report, based on additional specialist reviews and information, including:

- *peer review of mine design, safety and resource recovery, undertaken by Russell Howarth and Associates;*
- *project risk assessment (provided on commercial-in-confidence basis);*
- *updated water assessment, undertaken by EMM, including additional peer review by Dr Lloyd Townley;*
- *updated noise assessment, undertaken by EMM;*
- *updated greenhouse gas assessment, undertaken by EMM;*
- *updated visual assessment, undertaken by EMM;*
- *updated heritage assessment, undertaken by EMM, including a:*
 - *cultural landscape assessment, undertaken by Catherine Brouwer Landscape Architects;*
 - *Sorensen garden analysis, undertaken by Catherine Brouwer Landscape Architects; and*
 - *supplementary historical archaeological assessment, undertaken by EMM;*
- *assessment of groundwater dependence for heritage landscapes and gardens, undertaken by EMM;*
- *updated economic assessment, undertaken by BAEconomics, and peer review undertaken by Hon. Prof. Andrew Stoeckel;*
- *coal market review, undertaken by Wood Mackenzie; and*
- *updated social assessment, undertaken by EMM.*

3.7 The Department's Final Assessment Report

38. The Department's FAR, dated June 2021, was received by the Commission on 8 June 2021. The FAR states that a focus of the report was to address and respond to the recommendations in the Commission's Initial Report, particularly regarding groundwater impacts on bores and make good provisions, the mine design and the economic benefits of the Project (FAR, page vi).
39. The FAR gives consideration to "*the development applications, EIS, submissions and expert advice on the Project, Hume Coal's responses to these submissions, the Commission's Report, and Hume Coal's responses to the Commission's Report, in accordance with the requirements of the EP&A Act, including the objects of the Act and the principles of ecologically sustainable development*" (FAR, page viii).
40. The Department's findings are provided at section 4 of the FAR. Paragraph 323 of the FAR states:

Based on this assessment, the Department is not satisfied that the project achieves a reasonable balance between recovering a recognised coal resource of State significance and minimising the potential impacts on the environment and surrounding land users as far as practicable.

41. While the Department acknowledges the Project would have some benefits, including job generation, economic benefits and production of a high-quality coal resource, the Department does not consider that these benefits outweigh the Project's actual and perceived environmental and social impacts. At paragraph 326 of the FAR, the Department recommends that the Project should be refused consent by the Commission.

3.8 Council's Comments

42. The Commission met with Council on 29 June 2021 to hear Council's views on the Project. In the meeting, Council maintained its objection to the Project and noted its continued opposition to any new coal mining projects in the Wingecarribee Shire. Council noted that it supports the Department's FAR and the Department's recommendation for refusal of the Project.
43. At its meeting with the Commission, Council confirmed the community's concern about the Project, noting residents have been well organised in campaigning against the Project for the past 11 years. Council also noted this sustained community opposition has resulted in fear and anxiety over the *"impacts that a coal mine would have on the environment, their properties, their farms, their livelihoods, their health and their way of life"* (Meeting Transcript, page 7). Further discussion on the Council views and the relevant planning documents are discussed in sections 7 and 9 of this Statement of Reasons.

4. THE APPLICATIONS

4.1 The Project

44. The Department describes that while the Applicant submitted two separate development applications – being the Hume Coal Project (SSD 7172) and the Berrima Rail Project (SSD 7171) – the two projects form an integrated whole and to date have been assessed concurrently in Hume Coal's EIS's, the Department's PAR and the Commission's Initial Report (paragraph 5 of the FAR).
45. The main components of the Project are described at **Appendix A**, which is consistent with the Project description provided in the Department's PAR (Table 1) and FAR (FAR paragraph 6).
46. The Commission notes the Project life is proposed to be *"23 years, including 28 months of construction, 19 years of mining, and 2 years of rehabilitation with some overlap between the construction and operational phases"* (Table 1 of the Department's PAR).

4.2 Changes to the Applications

47. The Department notes that while the main components of the Project have remained generally unchanged since the original Applications, the Applicant identified some changes to the Project in its Response Report. Paragraph 7 of the Department's FAR states that proposed changes to the Project include:
 - *removal of the secondary temporary coal reject stockpile (western reject) from the project – the footprint of the main temporary stockpile (eastern reject) would remain unchanged, however the maximum stockpile height would increase by 4m, to a total height of 19m;*
 - *removal of the provisional water treatment plant from the project; and*
 - *confirmation of the rail alignment for the Berrima Rail Project (two options were originally proposed), with the 'alternative alignment' now the chosen alignment.*
48. The Commission notes that the Applicant formalised these changes by requesting an amendment to the Applications on 2 October 2020. The changes were accepted by the Department under delegation of the consent authority on 6 October 2020.

5. COMMUNITY PARTICIPATION & PUBLIC SUBMISSIONS

5.1 Site Inspection

49. Shortly after these Applications were referred to the Commission, and for the remainder of the Commission's consideration of the Project, the Greater Sydney Region was subject to COVID-19 restrictions, preventing the Commission Panel from conducting a physical Site inspection in the normal way. As an alternative, on 7 July 2021, the Applicant presented a virtual inspection of the Site and immediate surrounds to the Commissioners via Zoom (comprised of pre-recorded drone footage and video footage) so they could gain an understanding of the physical characteristics of the Site and locality. The virtual site inspection was recorded and was made publicly available on the Commission's website on 8 July 2021.
50. While the Commission Panel considers that the virtual Site inspection was thorough and complete, it determined that it would be assisted by undertaking an additional physical locality tour to view the broader context of the local area and its physical characteristics. The Panel individually undertook locality tours to the Site surrounds, including Berrima and Medway, in accordance with the public health orders in place at the time.
51. Commissioners Peter Duncan AM (Chair) and Commissioner Chris Wilson individually travelled to the locality of the Site and inspected the area on 9 August 2021, and Commissioner Alice Clark travelled to the locality of the Site and inspected the area on 20 August 2021. The Commissioners each travelled the same route and made observations from the same locations. A record of the physical locality tour was made available on the Commission's website on 24 August 2021.

5.2 Public Hearing

52. The Commission conducted a Public Hearing over two days on 12 and 13 July 2021. The Public Hearing was held electronically with registered speakers presenting to the Commission Panel via telephone or video conference. The Public Hearing was streamed live on the Commission's website.
53. The Commission heard from the Department, the Applicant, various community group representatives and individual community members. In total, 73 speakers presented to the Commission during the Public Hearing, including the Department and the Applicant. Presentations made at the Public Hearing have been considered by the Commission as submissions and are summarised below in section 5.3.

5.3 Public Submissions

54. The Department publicly exhibited the Applications from 30 March 2017 to 30 June 2017 and received a total of 12,666 submissions on the project, comprising 7,143 on the Hume Coal Project, 5,206 on the Berrima Rail Project, and 317 submissions on both projects. These submissions to the Department have been considered by the Commission in its determination of the Applications.
55. The Commission invited written submissions from all persons between 8 June 2021 and 23 July 2021. In this period, the Commission received a total of 432 written submissions on the Applications, comprising of:
 - 72 submissions in support of the Applications (16.7%);
 - 358 submissions objecting to the Applications (82.9%); and
 - two submissions commenting on the Applications, neither in objection nor support (0.4%).

The Commission also received form letters, which included an additional 181 form submissions objecting to the Applications.

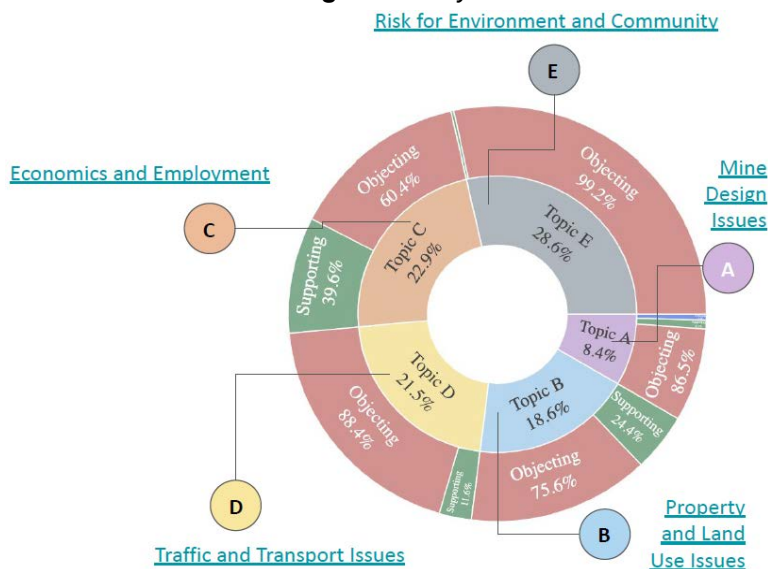
5.3.1 Public Submissions on Additional Material

56. On 14 July 2021, the Commission requested the Department provide responses to questions taken on notice during the Public Hearing held on 12 and 13 July 2021. The Department provided its response to the Commission in its letter dated 22 July 2021.
57. The Commission Panel considered it appropriate that interested parties be given the opportunity to comment on the Department's letter (including *Attachment A – Voluntary Planning Agreement details*), and reopened submissions to the public on the new material between 2 August 2021 and 5pm on 9 August 2021.
58. Excluding submissions that clearly did not relate to the additional material, the Commission received a total of 46 written submissions in the second submission period. These comprised of five submissions in support of the Applications and 41 submissions objecting to the Applications.

5.3.2 Topic Analysis

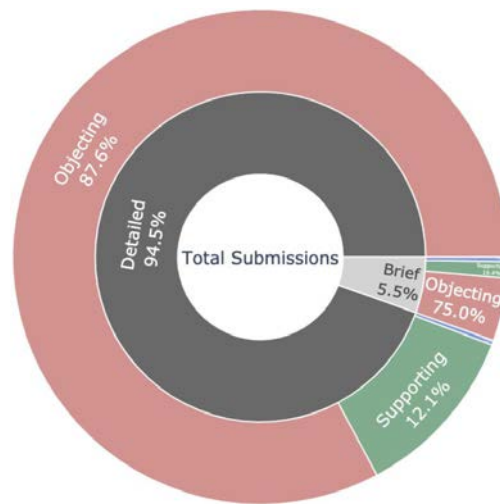
59. In addition to considering written submissions and verbal submissions at the Public Hearing, the Commission engaged a consultant to complete 'natural language analysis' to supplement the Panel's understanding of the matters raised in the submissions. The analysis included all written submissions received during the first and second submission periods, as well as the transcripts of the second Public Hearing. All form letters (petitions) were treated as a single unique submission, which is consistent with the manner in which the SRD SEPP defines submissions. Word frequency and cluster analysis was completed on unique author submissions (after multiple submissions from each single submitter had been amalgamated).
60. The natural language analysis demonstrates that the following composition of key issues were raised in the submissions:
 - risk for environment and community (28.6%);
 - economics and employment (22.9%);
 - traffic and transport issues (21.5%);
 - property and land use issues (18.6%); and
 - mine design issues (8.4%).
61. **Figure 4** below illustrates the composition of key issues raised in the submissions and the proportion of supporting and objecting submissions in each category.

Figure 4 Key Issues



62. **Figure 5** below shows the composition of brief versus detailed submissions and the proportion of supporting and objecting submissions in each category, indicating the vast majority of submissions are detailed (more than 4 words).

Figure 5 Length of Submissions



5.3.3 Geographic Distribution

63. **Figure 6** shows the geographic clustering of unique submissions, with clusters categorised as support (green) or objection (red).

Figure 6 Geographic Location of Unique Author Submissions



5.3.4 Key Issues Raised

64. Overall, 16.7% of the total submissions received in both submission periods and in the verbal submissions at the Public Hearing **support** the Project. Topics raised in support of the Project in presentations at the Public Hearing and in written submissions received by the Commission included:
- benefits to the local, regional and national economy;
 - employment generation;
 - flow-on employment benefits to suppliers and contractors and local businesses;
 - importance of coal as a strategic resource, including for steel production and

- electricity generation;
 - the relative quality of product coal, including lower impurities than international alternatives;
 - historical coal mining at Berrima Colliery as a local precedent;
 - the benefits of the proposed rail connection for transport, including avoiding the need for road transport of product coal;
 - the siting of surface infrastructure to minimise environmental and amenity impacts; and
 - suitability of the mining method for managing subsidence and a range of environmental impacts.
65. Overall, 82.9% of the total submissions received in both submission periods and in the verbal submissions at the Public Hearing **object** to the Project. Topics raised in objection to the Project in presentations at the Public Hearing and in written submissions received by the Commission included:
- social impacts, including the incompatibility of the Project with prevailing aspirations for the future of the local area, its economy and its character;
 - groundwater drawdown, its effects on bore water users, and the doubtful practicability of make-good provisions;
 - risks to surface waters, including to Sydney' drinking water catchment area;
 - GHG emissions, contribution to climate change and the associated inter-generational impacts;
 - visual impacts of the pit-top site and incompatibility with the local character;
 - health impacts of air pollution;
 - noise impacts from the pit-top site and railway;
 - subsidence risk, including to existing infrastructure;
 - impacts on local biodiversity;
 - impacts on historic heritage;
 - impacts on Aboriginal heritage;
 - relatively minor economic benefits;
 - deterrence or prevention of alternative land uses;
 - impacts on existing industries, such as tourism and agriculture; and
 - inadequacy of community consultation and engagement by the Applicant.

6. THE COMMISSION'S CONSIDERATION

6.1 The Commission's Meetings

66. As part of its proposal determination, the Commission met with various representatives of organisations as set out in **Table 2**. All meeting and site inspection notes were made available on the Commission's website.

Table 2 *Commission's Meetings*

Meeting	Date of Meeting	Transcript / Notes Available
Department	29 June 2021	2 July 2021
Applicant	29 June 2021	2 July 2021
Council	29 June 2021	2 July 2021
Coal Free Southern Highlands	29 June 2021	6 July 2021
Virtual site inspection	7 July 2021	8 July 2021
Independent mining engineering experts	9 July 2021	12 July 2021
Public Hearing	12–13 July 2021	14 July 2021
Independent groundwater expert	16 July 2021	19 July 2021
DPIE Water	19 July 2021	20 July 2021
Individual Locality Inspection (refer to paragraphs 50 and 51 above)	9 August 2021 and 20 August 2021	24 August 2021

6.2 Material Considered by the Commission

67. In making its determination in relation to the Project, the Commission has carefully considered the following material (**Material**), along with other documents referred to in this Statement of Reasons:
- the SEARs issued by the Department for the Hume Coal Project and the Berrima Rail Project, both dated 20 August 2015;
 - the Applicant's EIS for the Hume Coal Project, dated 8 March 2017, and its accompanying appendices;
 - the Applicant's EIS for the Berrima Rail Project, dated 9 March 2017, and its accompanying appendices;
 - all submissions made to the Department in respect of the Applications during the public exhibition of the EIS, from 30 March 2017 to 30 June 2017, including submissions from members of the public, community organisations and public authorities;
 - the Applicant's RtS, dated 29 June 2018, and its accompanying appendices;
 - the Applicant's Additional Information, various dates;
 - the Department's PAR, dated December 2018, including material considered in that report;
 - the Commission's Initial Report on the Project, dated 27 May 2019;
 - the Applicant's Response Report, dated 8 April 2020, and its accompanying appendices;
 - the Department's FAR, dated 8 June 2021, including material considered in that report;

- all matters raised at stakeholder meetings held with the Commission;
- all speaker comments made to the Commission at the two-day Public Hearing held on 12 July 2021 and 13 July 2021, and all material presented at the Public Hearing;
- all written submissions received and accepted by the Commission in the submission period up until 5pm on 23 July 2021;
- correspondence from the Applicant to the Commission dated 5 July 2021, 12 July 2021, 14 July 2021, 21 July 2021, 23 July 2021, 3 August 2021, and 9 August 2021;
- the Department's response to the Commission regarding potential conditions of consent, dated 20 July 2021;
- the Department's response to the Commission's Questions on Notice, dated 22 July 2021; and
- all written submissions received and accepted by the Commission regarding the Department's response to the Commission's Questions on Notice during the submission period up until 5pm on 9 August 2021.

7. STRATEGIC CONTEXT

7.1 South East and Tablelands Regional Plan 2036

68. The *South East and Tablelands Regional Plan 2036 (Regional Plan)* was adopted by the Department in July 2017 and provides the strategic direction for the South East and Tablelands region, reflecting “*community and stakeholder aspirations and opportunities for balanced growth, while protecting the region’s amazing natural environment*” (Foreword). The Regional Plan applies to the Wingecarribee Shire and therefore applies to the Project area.
69. The Regional Plan identifies the natural setting of the Wingecarribee Shire, noting that 38% of the LGA is comprised of either national park or nature reserves and that almost the entire Shire is located within the Sydney Drinking Water Catchment (page 66).
70. The Regional Plan also identifies the significant role that tourism plays in the region, noting each year (as at 2017) the Wingecarribee Shire receives an average of 1.3 million visitors, staying the equivalent of 925,000 nights and spending approximately \$220 million per year.
71. The Regional Plan identifies the following priorities for the region (extract from page 66):
- *Protect high environmental value lands including regionally significant biodiversity corridors.*
 - *Protect the Sydney Drinking Water Catchment.*
 - *Protect important agricultural lands as a resource for food security.*
 - *Protect the Shire’s valued heritage assets.*
 - *Provide ongoing access to high quality health and education services.*
72. The Commission notes the Regional Plan prioritises the tourism and agricultural industries within the Wingecarribee Shire. The Commission also notes that ‘Goal 1’ of the Regional Plan identifies seven priority growth sectors for the South East and Tablelands, including tourism; agriculture and aquaculture; freight and logistics; health, disability and aged care; public administration and defence; education and training; and renewable energy. Coal mining is not identified as a significant contributor to the strategic future for the Shire.

7.2 Strategic Statement on Coal Exploration and Mining in NSW

73. In June 2020, the NSW Government released its *Strategic Statement on Coal Exploration and Mining in NSW (NSW Strategic Statement)*, which aims to support responsible coal production.
74. The NSW Strategic Statement “*aims to provide greater certainty to explorers, investors, industry stakeholders and communities about the future of coal mining in the state. It sets out how the NSW Government will take a balanced approach, allowing exports to continue while there is global demand, but significantly scaling back where mining can occur and working to reduce its impacts and address community concerns*” (from the Minister for Regional NSW Industry and Trade’s Foreword on page 2). In order to achieve these objectives, the NSW Government will “*consider releasing a limited number of new areas for coal exploration. These will be areas where there are minimal conflicting land uses, where social and environmental impacts can be managed, and where there is significant coal production potential*” (page 8).
75. The Department’s FAR notes the Project is not a new exploration release area but is currently “*the only greenfield site currently under assessment by the NSW Government*” (page iii). In this regard, the Department concludes the intent of the NSW Strategic Statement, to focus on applications to extend the life of existing mines rather than prioritise new mines, is a relevant consideration for these Applications. The Department

concludes the land use conflicts and impacts on the existing industries in the area (including tourism and agriculture) are significant (Table 7, page 69).

76. The Commission has considered the objectives of the NSW Strategic Statement in section 9.16 below.

7.3 Wingecarribee Local Strategic Planning Statement

77. The *Wingecarribee Local Strategic Planning Statement (LSPS)* sets out the 20-year land use vision for the Wingecarribee Shire and provides a planning framework to meet the economic, housing, social and environmental needs of the community. The LSPS was originally adopted by Council on 24 June 2020. It is noted that following the adoption of the LSPS, a motion was considered at the Council meeting of 12 August 2020 where it was resolved that Council would undertake a review to consider draft amendments to the LSPS. Following re-exhibition of the LSPS in 2020 and 2021, Council's Interim Administrator determined that the draft amendments not be adopted at the Council meeting of 14 July 2021.
78. The LSPS is an important document for Council and the community in that it provides the direction and basis for future land use planning decisions including planning priorities and actions and how they fit within a local context and where they are to be located. The LSPS identifies that the effects of coal mining are a key issue and challenge for the community (page 9) and identifies a 2040 Vision for the Shire as coal mining free (page 19).
79. The LSPS also sets out a Planning Priority to maintain and enhance the connection with rural landscapes, identifying an Action to achieve this is to ensure the planning framework and policies reflect community values in ensuring the Wingecarribee Shire remains coal mining free (page 35).
80. These objectives were identified by Council at its meeting with the Commission on 29 June 2021, noting the significant community opposition to the Project.

7.4 Wingecarribee Regional Economic Development Strategy

81. In 2018, the NSW Government assisted local councils across NSW to develop Regional Economic Development Strategies (REDS) to identify actions crucial to achieving an economic vision for the region. The *Wingecarribee Regional Economic Development Strategy 2018-2022* presents the economic development strategy for the Wingecarribee region.
82. Regarding coal mining in the Wingecarribee Shire, the Strategy states:
- Mining provides a substantial immediate and long-term boost to a region's employment and economic prospects. However, it must be consistent with the Wingecarribee Shire's broader economic aspirations and at the moment it is not. For this reason, this strategy suggests Wingecarribee Shire Council monitor both opportunities in the mineral resource sector and community attitudes to mining and act if investment and community attitudes align (page 20).*

8. STATUTORY CONTEXT

8.1 State Environmental Planning Policy (State and Regional Development) 2011

83. The Project is classified as SSD under section 4.36 of the EP&A Act and clause 8(1)(b) of the SRD SEPP.
84. Under section 4.5(a) of the EP&A Act and clause 8A(1) of the SRD SEPP, the Commission is the consent authority for these Applications because the Department received more than 50 unique objections to the project during the exhibition period and the local Council objected.

8.2 Permissibility

85. At section 4.3 of the PAR, the Department identifies that the Hume Coal Project includes land zoned E2 Environmental Conservation, E3 Environmental Management, RU2 Rural Landscape, RU3 Forestry and SP2 Infrastructure under the Wingecarribee Local Environmental Plan 2010 (**WLEP 2010**), with the majority of the Site zoned E3 Environmental Management (approximately 70%) and RU3 Forestry (approximately 26%). The Commission notes mining development is prohibited in all of these land use zones.
86. However, as indicated by the Department's comments in the FAR (page iii), clause 7 of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (**Mining SEPP**) permits underground mining on any land where development for the purposes of agriculture or industry may be carried out. Therefore, the Hume Coal Project is permissible with consent under the Mining SEPP in the E2, E3, RU2 and RU3 zones. Agriculture and industry are not permitted uses within the SP2 zone. However, under clause 4.38(3) of the EP&A Act, this partial prohibition does not preclude development consent from being granted for SSD after undertaking a merit-based assessment.
87. The Berrima Rail Project includes land zoned IN1 General Industrial, IN3 Heavy Industrial, RU2 Rural Landscape, SP2 Infrastructure, E2 Environmental Conservation and E3 Environmental Management. The Commission notes the proposed Berrima Rail Project is permitted in the IN1 and IN3 zones but is prohibited in the other zones. However, clause 7(1)(b) of the Mining SEPP allows development for the purpose of mining, including "*transportation of materials extracted*" to be carried out on any land where development for the purposes of agriculture or industry may be carried out. The Mining SEPP therefore permits the Berrima Rail Project with consent in the IN1, IN3, E2, E3 and RU2 zones. While the Mining SEPP does not permit the Berrima Rail Project in the SP2 zone, under clause 4.38(3) of the EP&A Act this partial prohibition does not preclude development consent from being issued for SSD.

8.3 State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

88. As noted in paragraphs 86 and 87 above, despite mining development being prohibited in the Site's applicable land use zones under the WLEP 2010, the Project is permissible under clause 7 of the Mining SEPP, which allows underground mining to be carried out on any land where development for the purposes of agriculture or industry may be carried out.
89. Part 3 of the Mining SEPP sets out matters for consideration that a consent authority must consider before determining a mining development application. The Department has considered most of these matters at Appendix E of the FAR, with the exception of clauses 14 to 17, which are directed to conditioning the grant of consent. For completeness, the

Commission has considered all applicable clauses from the Mining SEPP and summarises its findings in the following paragraphs including section 9.

90. Clause 12AB identifies non-discretionary development standards for mining for the purposes of section 4.15 of the EP&A Act. The Department finds that *“the Project would not comply with one of the non-discretionary development standards for mining in clause 12AB, namely exceedances of the minimal impact considerations in the Aquifer Interference Policy at 94 bores on 72 landholdings based on the 67th percentile predictions, or 118 bores based on the 90th percentile predictions”* (Appendix E of the FAR, pages A6 and A7). The Commission notes that non-compliance with this non-discretionary development standard does not preclude the Commission from approving the Project. Groundwater drawdown at privately-owned bores is a key matter for consideration for the Commission and is discussed further in section 9.3 below.
91. Clause 12 of the Mining SEPP requires the consent authority to consider the compatibility of the proposed mine with other land uses. In doing so, the consent authority must consider the *‘existing, approved or likely preferred uses’* of land in the vicinity of the development; whether the development is likely to have a significant impact on the uses that are likely to be preferred uses of land in the vicinity; and, any ways in which the development may be incompatible with existing, approved or likely preferred uses.
92. The Commission agrees with the Department that the zoning provisions under the WLEP 2010 are relevant to the extent that they influence the existing, approved and likely preferred land uses in the project area and its surrounds.
93. As a result of advice from the Department and Council, public submissions and the locality tour, the Commission considers the existing, approved and likely preferred uses in the vicinity of the Site to include rural-residential, small-scale agricultural and tourism land uses. The Applicant’s proposed measures to manage and/or mitigate the impacts of the Project and to avoid or minimise any incompatibility are discussed and evaluated by the Commission at section 9 of this Statement of Reasons.
94. Clause 12A of the Mining SEPP requires the Commission to consider the NSW Government’s *Voluntary Land Acquisition and Mitigation Policy (VLAMP)*, and in particular, provisions of the policy for the mitigation or avoidance of noise or particulate matter impacts to nearby residents and provisions relating to acquisition of affected land.
95. The Commission has considered the VLAMP and agrees with the Department’s view that the voluntary acquisition provisions in the VLAMP should only be applied where the proposal has a clear net benefit and is in the public interest (Appendix E of the FAR, pages A8). The Commission’s consideration of whether the Project is in the public interest is discussed in section 9.17 below. The Commission also considers VLAMP further with regard to noise impacts in section 9.10.
96. Clause 14 of the Mining SEPP requires the Commission to consider whether consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure impacts of the Project on significant water resources (including surface and groundwater resources), threatened species and biodiversity are avoided or minimised to the greatest extent practicable, and that greenhouse gas emissions are minimised to the greatest extent practicable. These matters are considered in section 9 below.
97. Clause 14 of the Mining SEPP also requires the Commission to consider *“an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions”*. The GHG emissions of the Project are considered in section 9 below.

98. Clause 15 of the Mining SEPP requires the Commission to consider the efficiency of resource recovery and whether consent should be issued subject to conditions aimed at optimising the efficiency of resource recovery and the reuse or recycling of material. The Commission considers the proposed mining method in section 9.1 below.
99. Clause 16 of the Mining SEPP requires the Commission to consider whether consent should be issued subject to conditions relating to, amongst other things, the proposed method to transport materials with the aim to reduce the resource transport along public roads and limit truck movements in residential areas or on roads near schools. The Commission notes the Project would utilise rail transport and does not involve the transport of materials on a public road. However, as discussed in section 9.12 below, the Commission finds the additional rail movements will impact major road level crossings between Robertson and Moss Vale.
100. Clause 17 of the Mining SEPP requires the Commission to consider whether consent should be issued subject to conditions aimed at ensuring the rehabilitation of land that will be affected by the development, including the matters set out in cl 17(2). The Commission considers mine closure at section 9.13 below, and discusses the long-term impacts on groundwater and make good arrangements at section 9.3.

8.4 State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

101. The Site is within the Sydney drinking water catchment and therefore *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011* (**SDWC SEPP**) applies. Clause 10(1) of the SDWC SEPP requires a consent authority to be satisfied that the development would have a neutral or beneficial effect (**NorBE**) on water quality before issuing consent.
102. The Department, at Appendix E of the FAR, identifies that without a suitable water treatment plant, there is no contingency measure in the event that underground emplacement of water is not possible and the capacity of the primary water dam is exceeded. The Department and WaterNSW have formed the view that, without these contingency measures in place, there is considerable uncertainty and it cannot be demonstrated that the Project will have a NorBE on water quality as required by clause 10(1) of the SDWC SEPP (page A8).
103. The Commission considers this matter in section 9 below.

8.5 Site Verification Certificate

104. Clause 50A of the *Environmental Planning and Assessment Regulation 2000* (**Regulation**) requires mining development applications to be accompanied by either a gateway certificate or a site verification certificate that certifies the land on which the activity is to be carried out is not Biophysical Strategic Agricultural Land (**BSAL**) (section 4.2 of the Department's PAR).
105. On 22 April 2016, the Department issued a site verification certificate confirming no BSAL is present in the Project Area.

8.6 Integrated and Other NSW Approvals

106. In accordance with section 4.41 of the EP&A Act, a number of approvals are integrated into the SSD assessment process and are therefore not required to be separately obtained for the Project. As set out in section 4.5 of the PAR, these include:
- Various approvals relating to heritage matters under the *National Parks and Wildlife Act 1974* and the *Heritage Act 1997*; and
 - Certain water approvals under the *Water Management Act 2000*.

107. Under section 4.42 of the EP&A Act, a number of other approvals are required for the Project, but these approvals must be substantially consistent with any development consent for the Project. As set out in section 4.5 of the PAR, these include:

- A mining lease under the *Mining Act 1992*;
- An environment protection licence under the *Protection of the Environment Operations Act 1997*; and
- Consent under section 138 of the *Roads Act 1993* for the upgrade and realignment of public roads and networks.

108. In addition to the approvals listed above, the Applicant would also need to separately obtain permits and licences under the *Crown Lands Act 1989*, the *Forestry Act 2012*, *Work Health and Safety (Mines) Act 2013* and the *Dams Safety Act 1978* to carry out the Project if approved.

8.7 Section 4.15 Matters under the EP&A Act

109. In determining these Applications, the Commission has taken into consideration the following matters under section 4.15(1) of the EP&A Act (**Mandatory Considerations**) that are relevant to these Applications:

- the provisions of the following insofar as they apply to the land to which these Applications relate:
 - environmental planning instruments; and
 - any proposed instruments; and
 - any planning agreements that have been entered into under section 7.4 of the EP&A Act, and draft planning agreements that a developer has offered to enter into under section 7.4; and
 - matters prescribed under the Regulations;
- the likely impacts of the development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality;
- the suitability of the site for development;
- submissions made in accordance with the EP&A Act and Regulations; and
- the public interest.

110. At Appendix E of the FAR the Department states it has considered the Mandatory Considerations in its assessment of the Project, including the considerations in the PAR and the FAR. The Commission is generally satisfied with this assessment conducted by the Department.

111. The Mandatory Considerations are not an exhaustive statement of the matters the Commission is permitted to consider in determining the Applications. To the extent that any of the material does not fall within the Mandatory Considerations, the Commission has considered that material where it is permitted to do so, having regard to the subject matter, scope and purpose of the EP&A Act.

8.7.1 Relevant Environmental Planning Instruments

112. Section 4.4 of the Department's PAR identifies relevant Environmental Planning Instruments (**EPIs**) for consideration. The key EPIs include:

- WLEP 2010;
- Mining SEPP;
- SDWC SEPP;
- SRD SEPP;
- State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP);

- State Environmental Planning Policy No.33 – Hazardous and Offensive Development;
- State Environmental Planning Policy (Koala Habitat Protection) 2020 and 2021; and
- State Environmental Planning Policy No.55 – Remediation of Land.

113. The Commission agrees with the Department's assessment of EPIs set out at Appendix E of the Department's FAR. The Commission therefore adopts the Department's assessment but has also further addressed some of the EPIs, in particular the SDWC SEPP and Clause 12 of the Mining SEPP.

8.7.2 Relevant Proposed Instruments

114. The Commission has considered relevant proposed EPIs, including the draft *State Environmental Planning Policy (Remediation of Land)* and the draft *State Environmental Planning Policy (Environment)* in making its determination.

8.7.3 Relevant Development Control Plans

115. Pursuant to clause 11 of the SRD SEPP, development control plans do not apply to SSD. The Commission does not consider any development control plans to be relevant to the determination of the Applications.

8.7.4 Relevant Planning Agreements

116. The Commission does not understand there to be any Planning Agreement in place in relation to this Site or this Project.

8.7.5 Relevant Draft Planning Agreements

117. In its letter to the Commission dated 22 July 2021, the Department confirmed that, on 22 May 2017, the Applicant made an offer to enter into a Voluntary Planning Agreement (VPA) with the Minister. The Department advised the Commission that the VPA comprises an initial contribution of \$750,000 and an ongoing contribution of 5 cents per saleable tonne of coal, which equates to approximately \$2.1 million over the project life. The Department also advised the Commission that the contributions are proposed to be managed through the establishment of a Community Trust.

118. The Applicant made the VPA offer directly to the Minister, rather than the local Council. The reason for this, as advised by the Department, was because the Council objects to the Project and therefore did not enter into discussions with the Applicant regarding the VPA.

119. The Commission understands the Department has not publicly exhibited the VPA offer, which is not unusual before determination. The Department has advised the Commission that, in the event of an approval, a condition should be attached to the consent requiring the VPA to be entered into in accordance with the terms of the offer and within a specific timeframe, including notification and exhibition requirements.

8.7.6 The Likely Impacts of the Development

120. The likely impacts of the Project have been considered in section 9 below.

8.7.7 The Suitability of the Site for Development

121. Land use compatibility is discussed further at section 9.16 below. In summary, the Commission finds the Site is not suitable for the following reasons:

- the Project is incompatible with existing land uses, including rural-residential, small-scale agricultural and tourism land uses;
- the Project would compromise the community's capacity to achieve the objectives of the underlying land use zones identified under the WLEP 2010 on the Site;
- the Project does not align with the intent of relevant strategic plans that apply to the

Site, including the NSW Strategic Statement and the Wingecarribee LSPS, as it would result in land use conflicts and social impacts that cannot be appropriately mitigated;

- the Project is incompatible with desired future industries in the area, including agriculture and tourism.
- the Project is located in close proximity to a large number of privately held bores and is predicted to have a significant impact on the productivity of a significant number of those bores; and
- the Project is located within the Sydney Water Drinking Catchment, and in the absence of viable contingency measures to address excess mine water, could result in contaminating surface waters and the wider catchment.

8.7.8 Submissions

122. The Commission has considered submissions in section 5 of this report, which discuss the submissions received and the key themes raised.

8.7.9 The Public Interest

123. The Commission has considered the public interest in section 9.17 of this report, and ultimately finds the Project is not in the public interest.

8.8 Additional Considerations

124. In determining these applications, the Commission has also considered:

- NSW Noise Policy for Industry (NPfI);
- Interim Construction Noise Guideline (ICNG);
- NSW Road Noise Policy (RNP);
- NSW Aquifer Interference Policy (AIP);
- Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA, 2016) (Approved Methods);
- NSW Risk Assessment Guideline for Groundwater Dependent Ecosystems (NOW, 2012) (GDE Guideline);
- Guidelines for the economic assessment of mining and coal seam gas proposals (NSW Government, 2015) (Economic Guidelines);
- Social Impact Assessment Guideline for State Significant Mining, Petroleum Production and Extractive Industry Development (SIA Guideline);
- NSW Climate Change Policy Framework (CCPF); and
- NSW Net Zero Plan Stage 1: 2020–2030 (Net Zero Plan).

9. KEY ISSUES

9.1 Mine Design

125. The proposed mine design is based on the 'pine-feather' mining method, which is relatively uncommon and has not previously been used in NSW.
126. The proposed mining method has been discussed in detail in the Applicants' EIS and subsequent expert advice commissioned by the Applicant. The proposed mine design has been supported by extensive modelling, including modelling of pillar stability.
127. The Department consulted the Resources Regulator, Subsidence Advisory NSW and Mining, Exploration and Geoscience (**MEG**), and commissioned independent mining experts Emeritus Professor Jim Galvin and Doctor Ismet Canbulat to review the mine design.
128. As part of its consideration of the Project, the Commission met with the Department's independent mining experts, with the Department in attendance, to discuss the proposed mine design.
129. There is general agreement between the Applicant and Department, and their respective experts, regarding the following risks and benefits of the pine-feather mining method:
 - the pine-feather method has the potential to minimise subsidence by leaving pillars of coal in place;
 - coal pillar dimensions can be adapted to improve their long-term stability;
 - the pine-feather method allows for adaptation of mine plans; and
 - the resource recovery rates are significantly lower than typical long-wall mining recovery rates and may be further reduced if it is necessary to adapt the mine plan.
130. Some aspects of the proposed mining method that are not agreed, or remain uncertain, include:
 - the short-term and long-term stability of the coal pillars based on the dimensions proposed;
 - the resource recovery and economic implications of any adaptations to the coal pillar dimensions;
 - the impacts on groundwater behaviour of any adaptations to the coal pillar dimensions or mine plan;
 - the economic and safety risk presented by potential entrapment of equipment; and
 - the sensitivity of the Project economics to changes in resource recovery arising from unforeseen geological limitations.
131. The Commission notes that the extent of proposed resource recovery is limited by the mining method, which is based on the need to minimise subsidence. While the choice of mining method is optimised in an effort to minimise environmental impacts, it will result in an inefficient recovery of the resource.
132. The proposed pine-feather mining method is a key determinant of the potential impacts of the Project and is discussed further in relevant key issues sections.

9.2 Subsidence

133. The Commission heard from speakers at the Public Hearing and received written submissions supporting the Project and noting that the predicted minimal subsidence is a key benefit of the proposed pine-feather mining method.

134. The Commission also received submissions that raised concerns regarding the uncertainty of predicted subsidence levels and potential impacts to critical surface infrastructure, including the existing Sydney to Moomba Gas Pipeline, the M31 Hume Motorway and telecommunication fibre optic lines. Submissions also cited the shallow depth of cover and the relatively small set-off from surface infrastructure (based on a relatively narrow angle of draw) as potentially adding to subsidence risk.
135. Subsidence Advisory NSW provided written advice to the Department, dated 4 July 2017, which noted that the worst case maximum vertical surface subsidence predicted in the Applicant's EIS is 20 millimetres. Subsidence Advisory NSW stated:
- The predicted worst case surface movements are well within those outlined in Australian Standard AS2870 "residential slabs and footings" expected to account for low to moderately reactive clay soils. Therefore, SA NSW considers that the predicted subsidence would not result in noticeable damage to surface infrastructure.*
- SA NSW has no objection to the Hume Coal Project provided the Department of Planning & Environment ensures the mine operator is required to adhere to the maximum vertical surface subsidence predictions as outlined in the Subsidence Assessment Report dated 3 December 2016 as part of the conditions of approval (page 1).*
136. The Department's PAR acknowledged that the proposed mining method was selected to limit subsidence impacts to sensitive surface infrastructure (page 26).
137. The Applicant submitted advice from mining engineer Mr Russell Howarth, dated January 2020, following the Commission's Initial Report on the Project, which stated:
- The mine has been planned and laid out to minimise surface subsidence. Geotechnical modelling has determined that the subsidence effects on the surface will be minimal and unlikely to be discernible against natural ground movements with climate. Hume Coal has three geophysical monitoring devices in the ground over the project area to monitor and record natural ground movements prior to mining. Mining induced vertical subsidence is predicted to be less than 20mm. Surface subsidence will be regularly monitored by survey to check actual outcomes against those planned. There is a low risk of subsidence damage associated with the pine feather layout proposed. This principal hazard is capable of being controlled by operational management with the development of a Principal Hazard Management Plan (PHMP) for subsidence (pages 29 and 30).*
138. Dr Gang Li, the Principal Subsidence Engineer of the Resources Regulator, provided the Department with advice, dated 8 October 2020, regarding the potential subsidence impacts of the Project. Dr Li identified significant risks associated with the novel mining method, shallow depth of cover, and mining near to critical surface infrastructure including the Moomba to Sydney Gas Pipeline, Hume Motorway and the Illawarra Highway. Dr Li recommended a range of changes to mine design to safeguard surface infrastructure (page 3), including:
- commencing secondary extraction away from critical surface infrastructure and using subsidence data to verify subsidence modelling; and
 - using a 35-degree angle of draw to define minimum set-off distances from major infrastructure corridors.
139. The Department made the following statement at paragraph 156 of the FAR regarding the proposed mine design, long-term stability, mine safety and subsidence:

The Department accepts that these uncertainties and risks may be able to be addressed through further geotechnical modelling and risk assessment by Hume Coal. The Department further acknowledges that the geotechnical and subsidence risks could be mitigated through changes to the mine design based on more conservative assumptions (e.g. through increasing the web pillar widths) or commencing mining further away from critical infrastructure.

140. The Commission questioned the Department's independent mining engineering experts, Professor Jim Galvin and Doctor Ismet Canbulat, about the Project's likely subsidence impact at its meeting on 9 July 2021. Professor Jim Galvin noted the need to leave appropriate set-aways from surface infrastructure, in particular from the major telecommunication fibroptic lines in the area. Professor Galvin was comfortable that subsidence impacts could be adaptively managed through changes to mine design (Meeting Transcript, page 20).
141. Dr Canbulat advised that, if the mine were approved, the Applicant should commence mining away from sensitive surface infrastructure to establish baseline subsidence levels and then use this data to inform the design of barrier pillars for critical infrastructure. Dr Canbulat also advised that subsidence levels would be low even in the event of pillar failure (Meeting Transcript, page 20).
142. The Commission considers the predicted minimal subsidence levels to be a key advantage of the proposed mining method over longwall mining. There is general agreement between the Department's experts, the Resource Regulator and the Applicant that subsidence could be kept within the predicted limits through monitoring and adaptive management of the mine design. This could ensure the safeguarding of key surface infrastructure and minimise other subsidence-related impacts. The implications of such adaptive management for resource recovery and Project economics are discussed further in Section 9.14 of this report.

9.3 Groundwater

143. At the Public Hearing and in written submissions, the Commission heard concerns from members of the public regarding groundwater impacts. By way of a brief summary, the main concerns identified include the following:
 - significant impacts on the highly productive aquifer;
 - the extent of groundwater drawdown from the Project impacting private bores;
 - the unacceptable magnitude of the number of private bores impacted by the Project; and
 - the make good arrangements are not suitable and, in the event of an approval, will result in significant distress as private landowners negotiate with the Applicant.

Groundwater Model

144. The Commission's Initial Report made three recommendations that related specifically to groundwater impacts. 'Recommendation 5' suggested the Department engage an independent expert to review the groundwater model and consider how the uncertainties in the groundwater model can be resolved. The 'uncertainties' referred to in Recommendation 5 include disagreement on the class of the model, whether a wider range of input parameters in the modelling sensitivity analysis is required, and if additional geological information is required. The Commission understands this recommendation includes further advice regarding whether the groundwater model is fit for the purpose of predicting potential impacts on groundwater.
145. At paragraphs 49 to 51 of the FAR, the Department describes how the Department and the Applicant responded to Recommendation 5. The Applicant engaged Dr Lloyd Towney to conduct an independent review of the groundwater modelling undertaken for

the Project. Dr Towney concluded that the modelling undertaken for the Project is fit for purpose (FAR paragraph 50). The FAR describes that this conclusion is consistent with previous expert reviews, as well as the independent review commissioned by the Department and undertaken by independent expert Mr Hugh Middlemis, all of which concluded the groundwater model provided in the RTS is fit for purpose (FAR paragraph 51). Given this apparent agreement about the groundwater model, the Applicant did not undertake any additional modelling in response to the Commission's Initial Report (FAR paragraph 52).

146. Further to the expert conclusions described in paragraph 145 above, the FAR notes Dr Towney considers that the range of input parameters used in the sensitivity analysis is sufficient and should not be extended (FAR paragraph 54).
147. However, at its meeting with the Commission on 19 July 2021 (paragraph 66) DPIE Water confirmed the concerns it raised with the Department with respect to the limitations of the submitted groundwater modelling, including the model input data, parameters and sensitivity analysis. DPIE Water does not agree with the other experts that the groundwater model is fit for purpose.
148. In DPIE Water's view, there is a "*high degree of uncertainty*" in the groundwater model (page 4 of the meeting transcript). DPIE Water indicated the groundwater model would only be fit for purpose if appropriate input parameters were used. DPIE Water concludes the input parameters are not sufficient and as a result the model has not been appropriately calibrated or sensitivity tested. Consequently, in DPIE Water's view, the model is not fit for the purpose for the assessments that are required for this Project (page 3-4 of the meeting transcript). DPIE Water maintains that the limitations could be addressed by using additional data points and by using higher conductivity values. However even in that case, DPIE Water notes it is likely that the predicted impacts would be worse. The Department agrees with DPIE Water's position that the predicted impacts should be seen as a minimum.
149. In terms of data collection, at its meeting with the Commission on 29 June 2021 (paragraph 66), the Applicant identified that an active program by landowners opposed to the Project has prevented the Applicant from gaining access to collect data and monitor private bores. This is consistent with the statement provided to the Commission at its meeting with Coal Free Southern Highlands on 29 June 2021 (paragraph 66), which indicates a number of landowners have taken legal action against the Applicant to prevent any access for the purpose of drill holes (Meeting Transcript, page 12).
150. The difficulties faced by the Applicant to access the land for drill hole and bore monitoring have resulted in the groundwater modelling being based on limited data (as discussed in paragraph 148 above). There remains disagreement amongst the groundwater experts on the ramifications of this lack of data and how it impacts on the model outputs.
151. In weighing up the Material before it with respect to the groundwater model, the Commission notes there has been general agreement among the independent experts that the model is fit for purpose, but this view is not supported by DPIE Water. DPIE Water remains concerned that the groundwater modelling is limited by the parameters applied, lack of input data and the level of sensitivity analysis. Given these limitations it is uncertain if the model is able to accurately predict the drawdown impacts as they relate to private bores over the course of the mining operations. The Commission also notes the position of the Department and DPIE Water that even if more data becomes available, the predicted impacts are likely to be worse. Residual concerns also remain as to whether the modelling of impacts provides accurate information on the potential for on-going ground water contamination post mine closure.

152. The Commission notes that the Applicant proposes to collect further data to inform the input parameters and undertake further sensitivity analysis in the post-approval phases. However, as identified in paragraph 149 above, the Applicant has been unable to collect further data to inform the current Applications.
153. Based on the Material before it, the Commission finds there is sufficient uncertainty in the groundwater model predictions, with respect to the available data, input parameters and the sensitivity analysis, to lead to the conclusion that the modelled impacts should be considered as the minimal impacts (discussed further in paragraph 157 below).

Impact on private bores

154. In its FAR and letter to the Commission dated 22 July 2021, the Department confirmed that the Project is predicted to result in drawdown exceeding the minimal harm considerations in the AIP (drawdown of more than 2 metres) at up to 94 registered privately-owned bores based on the Applicant's 67th percentile predictions, or up to 118 registered privately-owned bores based on the 90th percentile predictions. The Department concludes the number of affected bores is significant and will result in significant drawdown issues continuing for a number of decades (FAR paragraph 80).
155. The Commission heard from the Applicant at the Public Hearing and notes its written submission to the Commission dated 23 July 2021 that describes that the predicted impacts, particularly in relation to inflows, drawdown and recovery are comparable to other recently approved mining projects, including the Tahmoor South Coal Project (SSD 8445) in the region.
156. With respect to the comparison to the Tahmoor South Coal Project, the Department maintains "*the number of affected landholders, the greenfield nature of the mine, the shallow nature of the mine and the aquifers and the practicality of the make good arrangements in a manner that is acceptable to the affected landholders is still a significant issue*" (Department's letter dated 22 July 2021 and paragraph 73 in FAR). The Department notes there are a number of factors that make a direct comparison between Tahmoor South and this Project unhelpful, including the following summary:
 - the two mine locations have different geology and hydrogeology – in the Hume Coal Project circumstances, the Hawkesbury Sandstone and the coal seam are separated by a thin layer of shale, which contributes to the high levels of groundwater drawdown;
 - in the Tahmoor South situation, the mining company has more than 30 years of data to draw on when predicting potential impacts. This historic database demonstrates that actual impacts have proven to be substantially less than predicted impacts – so while the current model for Tahmoor predicted historical operations (pre-dating the AIP) would have affected 72 bores, only 2 bores have required make good to date; and
 - in the Tahmoor South situation, 46 bores are predicted to result in drawdown exceeding the minimal harm considerations, but the historical database from previous mining only indicates 20 bores are likely to require make-good.
157. The Department maintains that the Applicant has not provided sufficient evidence to support the claim that the actual impacts to private bores might be less than the impacts predicted in the groundwater model, and therefore the Department and DPIE Water maintain the predictions should be seen as a minimum and are significant (Department letter dated 22 July 2021). The Commission agrees that this is an appropriate approach.
158. The Department and DPIE Water maintain that the density of bores in this location results in a high number of bores impacted by the Project in comparison to other recent mining projects.

159. In consideration of the Material above, the Commission finds that, while the peak annual inflows, drawdown and recovery of the Project can be compared with other approved mining projects, the consequences of this Project are much greater by virtue of the number of affected private bore users and the differing geological and hydrogeological context. The physical attributes of the groundwater table and the density of private bores results in unacceptable impacts generally and in the context of the AIP.

Make Good Provisions

160. In terms of the make good arrangements, the Commission's Initial Report recommended the Department pay particular attention to the practical adequacy of the make good provisions, with an independent review if necessary ('Recommendation 6').
161. At its meeting with the Commission on 29 June 2021, the Applicant maintained its view that the proposed make good arrangements provide a credible pathway to address impacts on each bore.
162. However, the Department's view is that, by virtue of the number of bores impacted, the make good provisions are unfeasible and impractical. Additionally, the Department has formed the view that the proposed make good provisions will result in substantial disruption to the local community as a consequence of ongoing negotiation, implementation and dispute resolution processes (paragraphs 97 to 102 of the FAR).
163. From its meeting with DPIE Water on 19 July 2021, the Commission is of the view that the make good provisions established under the AIP were not devised to overcome groundwater take of the magnitude identified or for such a large number of bores. Furthermore, the difficulties preventing the Applicant from collecting data (paragraph 150 above) generates additional concerns regarding the workability of the make good arrangements and the ability for the make good arrangements to be satisfactorily negotiated with private bore users.
164. In weighing up the Material before it, the Commission considers that the make good arrangements represent a best-case scenario for restitution, but there are a number of factors in this case that are likely to inhibit this in practice, such as the number of bores impacted, legal access issues, lack of data and the magnitude of drawdown predicted. Even if some make good arrangements were successfully negotiated, there are likely to be significant impacts in the form of interim disruption to groundwater dependent land uses while dispute resolution processes occur.
165. In terms of long-term groundwater impacts, the Commission raised questions in its meeting with the Department's independent groundwater expert (Mr Middlemis) regarding the management of potential groundwater impacts following mine closure. The Department advised that the Applicant would be responsible for make good arrangements of groundwater impacts up until the surrender of the mining lease, and that adequate make good arrangements would be a requirement before the mining lease is surrendered.
166. Based on the Material before it, the Commission finds the proposed make-good provisions to be impractical due to the number of private bores affected and owing to the fact that the Applicant has not been successful in reaching an agreement with the majority of private bore owners. The Commission agrees with the Department's conclusion that, if approval was granted, the process of executing the necessary make good agreements will be compromised by the significant landowner opposition to the Project, resulting in ongoing disruption and costly dispute resolution processes. The Commission concludes that the environmental, social and economic cost to a significant number of private bore owners during the proposed negotiation process is an adverse impact of a scale that warrants refusal of the Project.

167. In summary, with respect to the overall groundwater impacts, the Commission finds the Project warrants refusal given:
- there is residual disagreement between independent experts and DPIE Water regarding groundwater modelling and its ability to accurately predict impacts given the lack of data, input parameters and sensitivity analysis;
 - the Commission considers the predictions to be minimum impacts, noting that even if more data became available, the impacts are likely to be greater;
 - the physical attributes of the groundwater resource coupled with the number of private bores affected results in unacceptable groundwater impacts, particularly when considered against the AIP; and
 - the proposed make-good provisions are impractical given the number of private bores affected, the unreliability of the model, the lack of in-principle agreement between the Applicant and private bore owners, the likely ongoing lack of in-principle agreement between the Applicant and private bore owners, and the resultant disruptive and costly dispute resolution processes.

9.4 Surface Water

168. At the Public Hearing and in written submissions, the Commission heard concerns from members of the public regarding surface water impacts from the Project, including significant concerns about the contamination of Sydney's drinking water catchment.
169. The Commission's Initial Report requested the Applicant confirm whether a water treatment plant is included in this Project ('Recommendation 7'). In the Applicant's Response Report, the Project was amended to specifically exclude the water treatment plant instead relying solely and to rely on water storage in above ground dams and in underground workings to manage surplus site water.
170. The Applicant proposes to manage water by temporarily storing it in the Primary Water Dam (**PWD**) on the surface before pumping it underground into the voids behind the sealed bulkheads (FAR paragraph 104). However, during the Department's assessment concerns were raised by Water NSW and the Department about the capacity of the PWD, particularly during wet climate scenarios. Based on numerous climate scenarios, the Department notes the time for the PWD to reach capacity gradually reduces over time, from 16.5 years to 0.5 years (FAR paragraph 106). Water NSW maintains its concerns about the proposed reliance on storage in the PWD without a contingency plan (FAR paragraph 107). Given the long lead time likely to be required to get approval for the implementation of a contingency strategy such as a water treatment plant, and there being no guarantee of obtaining such an approval, Water NSW considers there to be an ongoing risk of untreated discharge water into Oldbury Creek, which would have a detrimental impact on surface water quality flowing into Sydney's drinking water catchment. Untreated discharge water would not meet the NorBE test for water quality required under clause 10(1) of the SDWC SEPP (paragraph 102).
171. The Department concludes that:
- "given the novel mining technique, the residual stability issues raised by the Department's independent mine engineering experts, the scale of the proposed underground mine water storage, the potential risks associated with such storage, the finite capacity of the PWD, as well as the sensitivity of the downstream environment, the Department considers that risks remain associated with the removal of the provisional water treatment facility from the project" (FAR paragraph 113).*
172. The Department finds the Applicant's assessment of the risks to be inadequate given there are other uncertainties around the stability of mined areas and the capacity to manage the underground storage of water. The Department maintains concerns that in circumstances where wet climate conditions occur or the Applicant has insufficient

storage capacity in the PWD, there would be consequential contamination of the downstream environment and drinking water catchment which is unacceptable.

173. Water NSW made a submission to the Commission dated 19 July 2021 that reiterates its residual concerns with the Project. These concerns include its view that:

- the Applicant has not demonstrated the Project can achieve a NorBE on water quality;
- there is a lack of contingency for the treatment of mine water should the proposed method of re-injecting water into the mine voids not be possible for any given reason; and
- there are remaining concerns regarding the sufficiency of the PWD to be the only water management system for different climate scenarios. In the event that untreated mine water overflows from the PWD, Water NSW maintains this would not result in a NorBE on surface water quality.

174. The Commission finds that, while the Applicant states the level of risk of the PWD overflowing is small, the consequences of untreated water flowing into Sydney's drinking water catchment would be significant. The Commission shares Water NSW and the Department's concerns that, if the predicted storage of water underground is unexpectedly disrupted (for example a disruption to underground mining) resulting in greater need for short term surface water storage options, the Applicant has not proposed a suitable contingency measure. Without such a contingency plan, un-treated water is likely to be discharged from the lease area into Sydney's drinking water catchment. Without the water treatment plant, the Commission supports the Department's conclusions regarding surface water impacts, that the Applicant has not demonstrated sufficient avoidance of potential surface water contamination and, in circumstances of contamination, the Commission finds the consequences are likely to be unacceptable.

9.5 Biodiversity

175. The Applicant submitted two Biodiversity Assessment Reports (**BAR**) for the Project, one for the mine component of the Project (Hume Coal BAR) and one for the Berrima Rail component (Berrima Rail BAR). Both reports were prepared by EMM and were submitted with the EIS.

176. The Hume Coal BAR identified the following direct impacts on terrestrial biodiversity:

- Clearing of paddock trees, with an effective clearing area (according to the paddock tree calculator) of 8.3 ha of PCT 731 Broad-leaved Peppermint – Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion (low condition); and
- The clearing of paddock trees, with an effective clearing area of 8.3 ha, that represent habitat for the Koala, Southern Myotis and Squirrel Glider.

177. The Hume Coal BAR calculated that a total of 101 ecosystem credits and 582 species credits are required to offset predicted biodiversity impacts.

178. The Berrima Rail BAR included assessment of a preferred and an alternative route option for the railway and noted that both options had been designed to avoid biodiversity impacts. The Berrima Rail BAR identified that 44 species credits would be required to offset impacts to the Squirrel Glider under the alternative route option. Under the preferred route option, an additional 14 species credits would be required to offset impacts to the Paddy's River Box. The BAR also identified that a total of 6 ecosystem credits were required.

179. Both BARs proposed development of detailed biodiversity offset packages following approval, with a commitment to implement all offsets within 12 months of Project approval.
180. In its RtS, the Applicant responded to concerns raised regarding biodiversity, including changes to offset calculations requested by OEH and revised the assessment of GDEs based on the revised groundwater model.
181. The Applicant's RtS included revised ecosystem credit requirements of 152 credits for the Hume Coal component of the Project and 7 ecosystem credit requirements for the Berrima Rail component of the Project.
182. With regards to the proposed offsetting strategy, the RtS indicated that biodiversity offsetting would rely on the presence of suitable vegetation and threatened species habitat within Hume Coal owned land that will not be disturbed as part of the Project. Section 13.4.2 of the RtS states:
- Given the large area of native vegetation and threatened species habitats that will not be impacted on Hume Coal-owned land, it was determined that the area contained sufficient credits to offset the project's impacts. This preliminary offset analysis will be used as a basis for developing a final biodiversity offset package for the project...*
183. With regards to terrestrial groundwater dependent ecosystems, Section 13.3.1 of the RtS states:
- The upper reaches of Belanglo Creek and a patch of terrestrial vegetation south of Wells Creek are predicted to have a high risk of impact (approximately 13 ha and 6 ha, respectively). Belanglo Creek contains known habitat for the Koala and potential habitat for the Large-eared Pied Bat, Southern Myotis and Yellow-bellied Sheath-tail Bat, while the patch of terrestrial vegetation south of Wells Creek represents Southern Highlands Shale Woodland; a critically endangered ecological community. The water table is predicted to exceed 10 mbgl for these ecosystems during mining and therefore has a higher risk of drawdown impact during period of prolonged drought.*
184. Section 13.3.1 of the RtS also states that predicted biodiversity impacts associated with borewater drawdown will be subject to adaptive management on the basis that impacts are only expected if drought occurs, stating:
- Terrestrial vegetation has a facultative (opportunistic) dependence on groundwater, but can exist using other water sources outside of periods of prolonged drought. Accordingly, no impacts are expected to these ecosystems on Belanglo Creek and south of Wells Creek if periods of prolonged drought are not experienced during mining. Monitoring and management triggers are therefore proposed in the BAR...*
185. The Department's PAR addressed the biodiversity impacts of the Project within Table 11 (page 37), stating:
- The Department and OEH consider the project has largely been designed to avoid and minimise direct impacts of the project on biodiversity.*
- The Hume Coal Project would involve clearing of up to 8.3 ha of native vegetation and threatened species habitat and requires 101 ecosystem credits and 582 species (Koala, Squirrel Gilder and Southern Myotis) credits.*
- The Berrima Rail Project would involve clearing of up to 2 ha of native vegetation and threatened species habitat and requires 6 ecosystem credits and 44 species (Squirrel Gilder) credit.*
- The Department and OEH consider that the biodiversity impacts would not be significant and could be managed through the following:*
- *Offset any impacts in accordance with NSW Biodiversity Offsets Scheme.*

- *Prepare and implement a Biodiversity Management Plan in consultation with the OEH.*

186. The Department's FAR did not make any changes to the findings presented in the PAR.
187. The Commission notes that the ecosystem credit requirements cited in the Department's PAR are based on the EIS and do not capture the revisions in the RtS.
188. The Commission notes that the Applicant has not proposed a finalised offset package and further work is necessary to determine the appropriateness of the Hume Coal owned land for offsetting.
189. The Commission agrees with the Department's finding that the biodiversity impacts of the Project could be managed through offsetting in accordance with the NSW Biodiversity Offsets Scheme and implementation of a suitable Biodiversity Management Plan.

9.6 Greenhouse Gas Emissions

190. The predicted GHG intensity of the Project was raised as a major negative impact of the Project by members of the public at the Public Hearing and in written submissions to the Commission.
191. Mr Derek White of community group Coal Free Southern Highlands raised concerns about other coal mines having been approved without due consideration of their cumulative GHG emissions (Public Hearing Day 1 Transcript, pages 42-44).
192. Mr Nic Clyde of Lock the Gate noted the rise in global atmospheric CO₂ concentrations since the Project was submitted, recent bushfire activity, and the duty of care on decision makers to protect citizens from the effects of climate change (Public Hearing Day 1 Transcript, pages 35-37).
193. In its response to the Commission's Initial Report on the Project, the Applicant provided a supplementary GHG emissions assessment, prepared by EMM and dated April 2020 (Supplementary GHG Assessment). The Supplementary GHG Assessment included a Greenhouse Gas Emissions and Mitigation Study prepared by Coalbed Energy Consultants and dated March 2020 (Coalbed Energy Report). The Coalbed Energy Report provided updated estimates for fugitive GHG emissions by deriving a site-specific emission factor significantly lower than the estimate provided in the EIS.
194. The Applicant's revised predicted greenhouse gas emissions for the Project are provided in Table 3 below.

Table 3 *Project Greenhouse Gas Emissions (tCO₂-e) (source: adapted from Applicant's Supplementary Greenhouse Gas Assessment)*

Scope	GHG Source	Annual Average	Life of Project	Proportion of Total
Scope 1	Ventilation gas	505	11,611	0.01%
	Diesel/petrol use	7,245	166,634	0.16%
Scope 2	Upstream electricity	67,479	1,552,006	1.5%
Scope 3	Downstream fuel and electricity	7,868	180,957	0.17%
	Downstream thermal coal use	1,908,329	43,891,559	41%
	Downstream coking coal use	2,645,838	60,854,284	57%
Total	All sources	4,637,263	106,657,050	100%

195. The Applicant's Supplementary GHG Assessment lists the following GHG mitigation commitments (page 1):

- *Hume Coal will ensure all product coal are only sold to end users who are signatories to the Paris Agreement;*
- *Hume Coal commit to use as much renewable energy sources as possible to provide electricity to its operations;*
- *Hume Coal commit to establishing solar power cells and storage batteries to provide power to the Administration Block;*
- *Hume Coal will offset all fugitive gas emissions generated by the underground coal extraction operations through planting of an appropriate native species on its own land holdings;*
- *Hume Coal commit to ongoing investigations on methods and technologies to reduce the required diesel consumption of the Project;*
- *Hume Coal will support research initiatives for alternative means to reduce its overall emissions and footprint; and*
- *Hume Coal commit to preparing a comprehensive GHG mitigation and monitoring plan for the Project.*

196. The Coalbed Energy Report calculated the GHG offsetting that could be achieved through the proposed tree planting, stating:

Hume Coal has total land ownership of in excess of 1300 Ha, of which it has identified some 155Ha that would be suitable for mitigation measures. CSIRO modellings states that:

– 7.4 tCO₂ / Ha / year of mitigation is possible under Australian conditions;

– This would create an Offset estimate of ~300 tCO₂-e per hectare (over 40 years). In Hume Coal's 155Ha of potential revegetation = ~46,500 tCO₂-e.

It is therefore feasible that tree planting could easily offset Scope 1 estimates from mining coal (11,611 t CO₂-e), and some of Scope 2 or 3 (page 19)...

A key point is that tree planting offsets of ~0.046 Mt relative to 113 MtCO₂-e is – in the overall scheme of things - insignificant, but in conjunction with other Carbon initiatives could be expanded, supported and funded (page 20).

197. The Department's PAR includes the following finding on GHG emissions at Table 11:

The Department considers GHG emissions would be minimal and could be managed through the implementation of all reasonable and feasible measures to minimise the release of GHG emissions (page 37).

198. The Department's FAR provides further discussion on GHG emissions at Table 7, which states:

Hume Coal has updated its GHG assessment using more accurate site-specific emission factors.

The updated assessment indicates that total average annual Scope 1 to 3 GHG emissions from the project (including the end use of coal) would be approximately 4.6 MtCO₂-e, of which 98% would be associated with the downstream burning of the coal resource.

If accounted wholly within Australia, the GHG emissions would equate to about 1% of Australia's Nationally Determined Contribution (NDC) 2030 emissions target. Whilst it is likely that some of the coal would be burnt in Australia and would need to be accounted for locally, the Department accepts that much of the coal from the project would likely be exported, and therefore contribute to other countries NDCs.

The Department is satisfied that Hume Coal's mitigation and offsetting measures, particularly the commitment to offsetting fugitive GHG emissions through tree planting, and selling coal products only to countries that are signatories to the Paris Agreement, are consistent with best or leading practice for coal mining projects in NSW (page 74).

199. Regarding the proposed GHG mitigation measures, paragraph 290 of the Department's FAR states:

The Department is satisfied that Hume Coal's mitigation and offsetting measures are consistent with best or leading practice for coal mining projects in NSW.

200. The Commission notes that the predicted Scope 1 GHG emissions are beneath the threshold for the Clean Energy Regulator Safeguard Mechanism (100,000 tCO₂-e/year) and the Project would not be subject to reporting requirements or an assigned baseline emissions level under the Australian Government's National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.
201. However, the Project would meet the facility reporting threshold (25,000 tCO₂-e) for Scope 1 and Scope 2 emissions under the National Greenhouse and Energy Reporting Act 2007 and would be required to report on Scope 1 and Scope 2 emissions.
202. The Applicant has committed to offsetting all fugitive GHG emissions (11,611 tCO₂-e) through tree planting. Whilst no explicit commitment to ongoing protection of the trees was made, this could be secured through an appropriately worded condition if the Commission was minded to approve the Applications.
203. The Commission notes that fugitive emissions predicted in the Coalbed Energy Report are based on limited borehole testing and that some outlying data was identified and discounted. However, the Commission accepts that the methane levels are likely to be low relative to other underground coal mines in NSW.
204. The Applicant has not made a commitment to offset GHG emission from petrol and diesel use at the site (166,634 tCO₂-e), which account for the majority of Scope 1 emissions and are significantly more than the predicted fugitive emissions (11,611 tCO₂-e).
205. The Applicant's GHG mitigation commitments do not include direct ventilation gas abatement, such as pre-mining drainage.
206. Notwithstanding the relative insignificance of the proposed tree planting as a GHG offsetting measure, the Commission notes that the predicted Scope 1 emissions of the Project are low relative to other underground coal mines in NSW, due to the predicted low gas content of the coal reserve.
207. The Commission notes that Scope 3 emissions, which are overwhelmingly caused by the downstream use of coking and thermal coal, are predicted to account for approximately 98% of the total GHG emissions of the Project. The Commission acknowledges that there is limited potential for the Applicant to directly reduce Scope 3 emissions.
208. The Department's FAR notes that the total GHG emissions of the Project would equate to approximately 1% of Australia's Nationally Determined Contribution (NDC) 2030. The Commission calculates that the total GHG emissions for the life of the mine (106.7 MtCO₂-e) if accounted for entirely within Australia, would equate to approximately 2.2% of the emissions budget for the period 2021-2030 (4764-4832 MtCO₂-e) as per Australia's Nationally Determined Contribution Communication 2020. However, the Project extends beyond the NDC timeframe of 2021-2030 and the NDC applies to GHG emissions covered in Australia's national GHG inventory only.

209. In making its determination on the Project, the Commission has weighed the impacts of the total projected GHG emissions of the Project, with consideration of the cumulative impacts of GHG emissions, against the Project's benefits.
210. The Project would be a new net-contributor of GHG emissions. The Commission considers that the Project's GHG emissions make it inconsistent with regional objectives for the promotion of sustainable development and, when weighed against the Project's relatively minor economic benefits, GHG emissions contribute to the land-use incompatibility of the Project.

9.7 Aboriginal Heritage

211. The Commission notes Table 11 of the Department's PAR states:

206 Aboriginal sites were identified within the Hume Coal Project area, 20 of which would be affected by direct disturbance footprint (3 totally disturbed, 10 partially lost and 7 totally lost).

11 Aboriginal sites were identified within the Berrima Rail Project area, 8 of which would be affected by direct disturbance footprint (6 partially lost and 2 totally lost) (page 38).

212. The Commission notes the Department's view in the PAR that impacts to Aboriginal heritage could be managed through conditions requiring protection of all items, as well as the implementation of management plans prepared in consultation with relevant authorities.
213. While the Commission's Initial Report did not include specific recommendations relating to aboriginal heritage matters, the Applicant addressed its proposed measures to mitigate any potential impacts in its Response Report, stating:

An Aboriginal cultural heritage management plan (ACHMP) will be prepared in consultation with the registered Aboriginal Parties (RAPs) and DPIE, which will detail management of Aboriginal heritage items during construction and operation of the Project generally in accordance with the measures outlined in Chapter 21 and Appendix S of the EIS.

214. Table 7 of the FAR states that the Department is of the view that the Project would have significant impacts on the cultural landscape value of the area (page 76). The Department also considers that there remains uncertainty about the potential for subsidence and resultant impacts on archaeological resources of the area (Table E1 of the FAR).
215. The Commission is of the view that uncertainties about the potential for subsidence is not a prohibitive issue, and that Aboriginal heritage items could be protected through mitigation and management measures. However, the Commission considers that the impacts to Aboriginal heritage items contributes to the overall impacts of the Project on the cultural landscape, as discussed further in the following sections.

9.8 Historic Heritage

216. The Commission heard concerns from speakers at the Public Hearing and received written submissions about impacts of the Project on local heritage, including impacts to the town of Berrima.
217. Section 3.1 of the Department's PAR states:

There are three State-listed heritage items in the vicinity of the project (Oldbury Farm, Golden Vale and Hillview), eight locally-listed heritage items in the project area, and the National Trust of Australia has identified a significant cultural landscape conservation area for Berrima, Sutton Forest and Exeter.

218. The Commission's Initial Report sought additional information relating to heritage matters (Recommendations 16 to 19).
219. In response to the Commission's Recommendations, the Applicant provided updated and new studies, including the following:
- Updated Visual Impact Assessment (prepared by EMM, dated 2 April 2020);
 - Groundwater Dependence Assessment for Cultural Heritage Landscapes and Gardens (prepared by EMM, dated 6 April 2020);
 - Cultural Landscape Assessment (prepared by Catherine Brouwer Landscape Architects, dated 23 March 2020);
 - Sorensen and Mereworth Gardens Analysis (prepared by Catherine Brouwer Landscape Architects, dated 23 March 2020); and
 - Supplementary Historical Archaeology Assessment (prepared by EEM, dated 6 April 2020).
220. The Applicant's responses to Recommendations 16 to 19, and the Department's conclusions regarding these responses, are considered by the Commission in the following sections.

Heritage Gardens

221. 'Recommendation 16' in the Commission's Initial Report sought additional information regarding the impact of water table drawdown on heritage items and historic gardens.
222. In its Response Report, the Applicant stated that impacts to groundwater resources will not result in impacts to heritage items (including gardens, plantings and landscape settings) within or in the vicinity of the Project area.
223. Paragraph 223 of the FAR states that the Department is satisfied that the groundwater drawdown impacts are unlikely to result in significant impacts on heritage gardens.
224. As described in paragraph 219 above, detailed analysis has been undertaken regarding the locally heritage listed 'Mereworth' property and its Sorensen designed garden. The Commission notes the differing views about the significance of the Mereworth gardens – while the Applicant's landscape consultant finds the garden is of local significance, Heritage NSW does not agree with this assessment and considers the gardens to be of state significance (paragraphs 217 to 219 of the FAR).
225. The Department acknowledges that the Project would have significant impacts on the Mereworth gardens, particularly visual impacts during the 20-year life of the mine (paragraph 222 of the FAR), however the Department is of the view that the Project could be managed such that it would not result in significant long-term impact on Mereworth and its garden after the closure of the mine. The Department also notes that Mereworth and its garden is owned by Hume Coal and would not be publicly accessible during the Project life.
226. The Commission agrees with the Department that impacts to Mereworth and its garden, and other historic gardens surrounding the Site, could be managed to ensure that no significant long-term impact is caused.

Archaeological Assessment

227. 'Recommendation 17' in the Commission's Initial Report sought a response to the matters raised by the Heritage Council of NSW in its correspondence to the Department dated 17 August 2018.
228. In its Response Report, the Applicant referred to the updated and new studies (listed at paragraph 219).

229. Paragraph 212 of the Department's FAR states that Heritage NSW has reviewed the updated and supplementary information provided by the Applicant and considers that it is not adequate for a number of reasons, including inadequate fieldwork and mapping; inadequate assessment of archaeological potential; and, deficient subsidence predictions.
230. The Department's position is set out at paragraphs 214 and 215 of the FAR. The Department notes that the Resources Regulator considers that subsidence uncertainty remains given the low depth of cover and the novel mining method proposed, and if subsidence was to occur, archaeological resources in the wider project area beyond the surface infrastructure areas could be impacted.
231. The Department is of the view that uncertainties remain regarding potential subsidence risks of the Project and therefore the Department agrees with Heritage NSW that the assessment is not adequate.
232. As discussed in section 9.2 above regarding subsidence impacts, the Commission notes Professor Galvin's view that subsidence impacts could be adaptively managed through changes to mine design. The Commission considers that the predicted minimal subsidence levels are a key advantage of the proposed mining method and notes that there is general agreement between the Department's experts, the Resource Regulator and the Applicant that subsidence could be kept within the predicted limits through monitoring and adaptive management of the mine design.
233. The Commission finds that the remaining uncertainties regarding potential subsidence impacts to archaeological resources could be managed or mitigated subject to additional fieldwork and mapping, further assessment of the archaeological potential at the Site, and the imposition of relevant conditions such as unexpected finds protocols.

Cultural Landscapes

234. The Commission heard concerns from speakers at the Public Hearing and received written submissions about the impacts of the Project on the rural character of the area and its cultural landscape, including the visual impacts of the Project.
235. The Commission notes that Council raised concerns about the potential impacts of the Project to the heritage and cultural landscapes of the area in its 2017 submission to the EIS. Council stated:
The intact historic landscape around the project area is very significant and is recognised both by the National Trust and the 1991 Wingecarribee Heritage Study. The EIS claims the project will only have a minimal impact on this landscape, however Council disagrees with this conclusion. The conclusion appears to be based on the ratio of land area affected, with little consideration of neither the qualitative aspects of the impact, nor the importance for the area's identity.
236. The Commission also notes Council's comments regarding historic mining of the area and its impact on the landscape. In its 2017 submission to the EIS, Council stated:
The EIS mentions in a number of places about the mining heritage of the region which may give the wrong impression about the character and nature of the Wingecarribee Shire. Council refutes any implied justification or normalisation of any new coal mine in the Shire. Yes, there was a history of some small mines in the Shire which featured in a historically economic benefit to the Shire. Rather the Shire is now living with the environmental legacy left from these mines.
237. 'Recommendation 18' in the Commission's Initial Report sought further consideration of the Project's visual impact on the cultural landscape, and preparation of an updated Statement of Heritage Impact Assessment in response to Recommendations 16 and 17 discussed above.

238. The Commission acknowledges the Applicant's response to Recommendation 18, and its Updated Heritage Impact Assessment (including a Cultural Landscape Assessment) and Updated Visual Impact Assessment.
239. As noted at paragraph 216 above, the National Trust of Australia has identified the towns of Berrima, Sutton Forest and Exeter as significant cultural landscape conservation areas. The Commission notes the Department's comments at paragraph 227 of the FAR that none of these identified cultural landscapes have any current statutory status.
240. Regarding the Applicant's Cultural Landscape Assessment, paragraph 228 of the FAR states:
- The assessment acknowledges that the cultural landscapes have historical, aesthetic and research value, but that based on the statements of significance for the identified cultural landscapes, they do not meet the criteria for state listing.*
241. Paragraph 229 of the FAR states that the Applicant's assessment concludes impacts of the Project on the cultural landscape as a whole are assessed as being 'low'. The assessment considers visibility of the proposed surface infrastructure from key heritage items in the landscape will be limited, and other existing industrial facilities have a presence in the landscape (such as the Berrima Cement Works and Berrima Feed Mill).
242. The Commission notes Council's view of the importance of the aesthetic landscape to the identity of the Southern Highlands, as expressed during its meeting with the Commission on 29 June 2021. Reading from extracts of its 2017 submission to the EIS, Council stated:
- The undulating nature of the Shire will mean that the mine will have – will be visible at numerous vantage points across the landscape. Even in glimpses or views from the motorway of mining infrastructure and activity that have negative connotations impact on the perceived aesthetic qualities of the landscape. The proposed coal mine and associated railway would be visual to Berrima, the Southern Highlands visitors entering and leaving from the Hume Highway as well as potential visitors driving through on the Hume Highway.*
- It is foreseeable that the area to become associated with the mine potentially lose its appeal... there are significant elements of this project that add risk to the Shire's economic development opportunities. Among these are the risks to our water resources, the Southern Highlands brand of agriculture and the Southern Highlands tourism appeal (page 6, Meeting Transcript).*
243. The Commission notes the views of Heritage NSW:
- Heritage NSW has advised that it considers that the construction and operational phases of the project would have a significant detrimental visual impact upon the significance of the Berrima, Sutton Forest and Exeter Cultural Landscape. The agency considers that the cultural landscape itself, with wide open meadow landscape and relatively open views, is of significance, and blocking views of it, as well as considerable physical change to its content, would adversely impact the landscape (paragraph 230 of the FAR).*
244. The Commission acknowledges that NSW Heritage does not consider the proposed mitigative planting measures to be an appropriate visual impact response.
245. The Commission notes the Department's view at paragraph 232 of the FAR that it agrees with Heritage NSW that the Project would have a detrimental impact on the cultural landscape, and that the placement of large industrial infrastructure within the landscape is not consistent with many of the values for which the cultural landscape was formulated.
246. The Commission agrees with the Department and Heritage NSW and finds that the Project would have a negative impact on the cultural landscape and detrimentally impact

the existing and desired future landscape setting. The Commission also agrees with Council's view that the presence of the proposed mine would negatively impact the perceived aesthetic qualities of the landscape and the identity of the Southern Highlands.

9.9 Visual Amenity

247. The Commission heard concerns from speakers at the Public Hearing and received written submissions about the impacts of the Project's surface infrastructure and new rail line on the visual amenity of the area and on views from surrounding residential properties.
248. The Commission notes Council's comments during its meeting with the Commission on 29 June 2021 where Council highlighted the community's concerns about impacts to the visual amenity of the area and how those impacts may affect the visual heritage of the landscape and the local tourism industry.
249. The Commission also notes Council's comments at paragraph 242 above that the undulating nature of the Site means that the Project will be visible from numerous vantage points across the landscape and that views of the Project from the Hume Motorway for passing motorists will negatively impact the perceived aesthetic qualities of the Southern Highlands region.
250. 'Recommendation 15' in the Commission's Initial Report sought further consideration of the Project's visual impact. The Commission requested additional visual impact analysis be undertaken, including analysis from additional viewpoints, preparation of an accurate survey and further assessment of the impacts of night-time lighting.
251. The Commission acknowledges the Applicant's response to Recommendation 15, and its Updated Visual Impact Assessment.
252. The Department considers that the Applicant's Updated Visual Impact Assessment includes detail of all major elements in the Surface Infrastructure Area within the landscape (FAR paragraph 195). The Department also notes the additional viewpoint analysis and photomontages prepared by the Applicant, including photography from 21 viewpoints representative of the landscape character within the Project view zone and 13 viewpoints within the Mereworth Garden area (FAR paragraph 196).
253. The Applicant's Response Report states:
- The assessment now contains tabulated dimensions of all major elements in the Surface Infrastructure Area, labelled plans showing their locations (and spatial arrangement), and an oblique aerial rendering from the north-west showing their relative heights and relationship to Mount Gingenbullen and the Moss Vale Industrial Enterprise Zone to the east of the Hume Motorway.*
- The assessment of visual effects and sensitivity identified that there was some residual impact that should be mitigated. The resultant mitigation strategy was developed through collaboration with the Heritage Consultant (page 9).*
254. The Commission notes the Department's view at paragraph 205 of the FAR:
- The Department is satisfied that Hume Coal's updated UVIA is generally adequate to enable the assessment of visual impacts on receptors in the locality. This assessment indicates that the project would have some visual impacts on receptors, including 10 rural residences, views from some surrounding rural lands and tourism-related agribusiness, and for commuters on roads including the Hume Motorway, Old Hume Highway and Medway Road.*
255. The Department considers that the scale of the visual impact is similar to other mines in the region and in NSW. Paragraph 207 of the FAR states:

The scale of the visual impacts on receptors, putting aside the significance of the cultural landscape, is not dissimilar to other mines and large industrial facilities in the region and the State, and the Department is satisfied that these visual impacts could be appropriately minimised and managed through Hume Coal's mitigation measures and appropriate conditions of consent. Notwithstanding, the visual impacts would contribute to the project's amenity impacts on some surrounding receivers, particularly those in the Medway Road area.

256. The Commission finds that the Project would have a negative visual impact given the sensitivity of the receiving environment and significance of the cultural landscape. As discussed in section 9.8 above, the Commission considers that the placement of large industrial infrastructure within the landscape is inconsistent with many of the values for which the cultural landscape was formulated and for what is intended. The Commission finds that the presence of the proposed mine (and views of the mine surface infrastructure from the surrounding locality) would have a negative impact on the actual and perceived aesthetic qualities of the local landscape and more broadly the desired character of the Southern Highlands. It is also noted that coal trains accessing Port Kembla to and from the Site will become a regular feature in the broader landscape accentuating the presence of the Project and further highlighting the Project's inconsistency with the existing and desired character of the Southern Highlands.

9.10 Noise

257. The Commission acknowledges that there were concerns raised at the Public Hearing and in written submissions regarding the potential noise impacts resulting from the Project, including construction noise, operational noise and increased traffic and rail noise.
258. Council raised concerns about the Project's noise impacts on nearby residents in its 2017 submission to the EIS, where it states its view that the EIS downplayed the noise impacts that the Project will have on many residents, particularly during the construction phase (page 9). At its meeting with the Commission on 29 June 2021, Council commented that noise impacts remain a significant concern for the community and, if the Project is approved, noise impacts will have an ongoing negative impact on the amenity of residents (page 3, Meeting Transcript).
259. 'Recommendation 11' of the Commission's Initial Report recommended the Applicant explore opportunities to further mitigate the noise impacts of the Project.
260. The Commission acknowledges the Applicant's response to Recommendation 11 and its Updated Noise Assessment (prepared by EMM, dated 1 April 2020). In summarising the Updated Noise Assessment, the Applicant's Response Report states the assessment found that no further mitigation measures are recommended. Notwithstanding, the Applicant commits to investigating further noise mitigation measures post-approval in consultation with landholders.
261. The Commission notes that the changes proposed to the temporary coal reject stockpiling would change the noise emissions associated with the Project since the original Applications, and that these changes are accounted for in the updated noise assessment (paragraph 257 of the FAR).
262. The Commission notes paragraph 25 of the Department's FAR which states that the EPA considers the revised noise assessment to be adequate. The EPA recommended that if the Project is approved, real-time noise monitoring should be undertaken.
263. Paragraphs 260 and 261 of the FAR state:

In terms of residual impacts and consideration of the updated VLAMP, the assessment found that:

- 9 properties would be marginally impacted (ie. 3 to 5 dBA above criteria), and would be entitled to additional mitigation measures under the policy (Locations 4, 5, 6, 7, 8, 10 1416, 15 and 16); and
- 2 properties would be significantly impacted, and would be entitled to voluntary acquisition under the policy (Locations 11 and 12).

All of these properties are located on Medway Road to the north and north-west of the project area.

264. The Department states that “the number of properties predicted to be affected by operational noise associated with the project is similar to those of other large coal mining projects in NSW” (paragraph 265 of the FAR).
265. The Commission has considered the Department’s comments in the FAR that VLAMP “should be seen as a mitigation measure of last resort, and that voluntary acquisition and mitigation rights should only be applied where the proposal is assessed as having a net benefit and in the public interest” (paragraph 267 of the FAR).
266. The Commission has also considered the Department’s comments at the Public Hearing:

The assessment found that there would be some significant localised impacts, for example, noise impacts along Medway Road, such that mitigation acquisition rights under the New South Wales Government’s Voluntary Acquisition and Mitigation Policy or the VLAMP would apply; however, under the VLAMP the application or voluntary acquisition rights are only applied where the proposal is assessed as having either a net benefit or it was in the public interest.

The Department does not consider that the project is in the public interest. As such the Department does not consider that the residual noise impacts on the Medway Road residence and provision of voluntary acquisition rights and mitigation rights are acceptable... (Day 1 Public Hearing Transcript, page 13).

267. The Commission notes that VLAMP encourages “innovative approaches to negotiated agreements that help mitigate impacts and are tailored to individual landowner circumstances” (VLAMP, page 6).
268. The Commission notes that the Project would cause noise impacts to a significant number of properties, with two properties being significantly impacted. Noise impacts – including construction noise, operational noise and increased noise from rail movements – would result in amenity impacts to nearby residents that are inconsistent with the rural and village lifestyle of the Site’s particular setting. Overall, the Commission finds that the Project does not result in sufficient economic benefit to justify such significant disruption and impact. The Commission’s detailed consideration of whether the Project is in the public interest is provided at section 9.17 below.

9.11 Air Quality

269. The Commission heard concerns from speakers at the Public Hearing and received written submissions about the impacts of the Project on air quality, including concerns with respect to coal dust emissions and prevailing winds carrying coal dust to the surrounding properties and locality causing health and amenity impacts.
270. The Applicant submitted an Air Quality Impact Assessment as part of the EIS (prepared by Ramboll Environ Australia, dated 14 February 2017). The air quality modelling in the assessment found that for both construction and operational phases of the Project, the predicted concentrations of particulate matter, gaseous emissions and dust deposition levels would be negligible at sensitive receivers. The Applicant proposes to cover loaded and empty trains to minimise fugitive dust emissions associated with transporting the coal.

271. The PAR describes how the Department and EPA consider that air quality could be adequately managed consistent with the EPA's relevant guidelines and subject to the Applicant preparing Air Quality Management Plan in consultation with the EPA.
272. The Commission's Initial Report recommended the Department confirm the suitability of the assumptions in the Applicant's air quality modelling with respect to prevailing wind data ('Recommendation 12').
273. In the FAR, the Department advised its position remains the same as in the PAR. The Department advised that, on reviewing the Applicant's Response Report, the EPA did not raise any further issues with respect to wind data or modelling (FAR paragraph 278), although it recommended that real time monitoring of air quality would be required if the Project was to be approved (page 74 of the FAR).
274. The Commission notes the Department's conclusion that the concentrations of particulate matter, gaseous emissions and dust deposition levels would be negligible at sensitive receivers. This conclusion implies that this includes windborne coal dust, noting the PAR and FAR do not specifically refer to this.
275. Notwithstanding, the Commission notes the EPA has not raised concerns with the modelling, predictions and outcomes and that the Project would need to be licensed under the *Protection of the Environment Operations Act 1997*. On the basis of the Department's conclusions and the EPA advice to the Department, the Commission is satisfied that the Project meets the applicable air quality criteria and that additional mitigation and management measures could be imposed through conditions, such as conditioning air quality limits at relevant receivers in accordance with the EPA's relevant guidelines and a requirement to prepare and implement an Air Quality Management Plan.

9.12 Transport

276. The Commission heard concerns from speakers at the Public Hearing and received written submissions about the traffic and transport impacts of the Project. Particular concern was raised regarding the proposed additional coal train movements and associated noise impacts to residents. The Commission also received written submissions and heard from speakers at the Public Hearing in support of the Project who commented on the benefits of using rail infrastructure to transport coal, thereby reducing the potential increase in truck movements on roads.
277. The Commission notes the Department's consideration of traffic and transport impacts of the Project in the PAR. Table 7 of the FAR provides a summary of the Department's evaluation in the PAR. The Department states:

During the construction and operation of the Hume Coal Project, there would be up to 378 additional daily light and heavy vehicle movements using the local road network (between 0.2% to 29% traffic increases on various roads).

During construction of the Berrima Rail Project, the peak daily movements would be 80 vehicles for the construction stage of Berrima Rail Project from Old Hume Highway (approximately 3% traffic increase).

During the operations of the Berrima Rail Project, there would be 10 heavy and 10 light vehicle movements per day, accessing the rail maintenance facility access road (approximately 1% traffic increase).

There would be additional delays of up to a 24 minutes per day at the major road level crossings between Robertson and Moss Vale, and associated safety risks within the local road network.

The Department and RMS consider that the traffic impacts would not be significant and could be managed subject to identified road and intersection upgrades and best practice traffic management.

278. The PAR outlines the Department's view that traffic impacts would not be significant and could be managed. The Department's view remains the same in the FAR. Additionally, the Commission notes that no further comments were received from Transport for NSW (TfNSW) or Council in relation to traffic issues (FAR page 74-75).

279. Regarding train movements, Table 7 of the FAR also provides a summary of the Department's evaluation in the PAR:

The maximum daily movements on the Berrima Branch Line would be 34 trains (17 in each direction). This would be equivalent to 77% of the practical line operating capacity.

[Australian Rail Track Corporation] noted the performance improvements in its rail network resulting from the project.

The Department considers that any residual rail issues could be adequately managed by including the design and use of the proposed level crossings and railway bridges in the conditions.

280. The Commission notes the Department's view in the PAR and that its view remains the same in the FAR. Additionally, the Commission notes that no further comments were received from the Australian Rail Track Corporation in relation to rail transport issues.

281. Council's view of traffic and transport issues is set out in its 2017 submission to the EIS, and the appended technical advice prepared by Council's Traffic Engineer on impacted intersections, bottlenecks and road segments. Council's submission raises concern about various elements of the Applicant's traffic analysis, including its view that "operational traffic appears to be unrealistically minimal in movement numbers" (paragraph 68 of submission), and concerns about the ability for Moss Vale town centre to absorb additional traffic. Council also raised concerns about the proposed increased frequency of delays at level crossings due to additional rail movements.

282. While traffic impacts were raised as one of the key amenity impacts to residents at Council's meeting with the Commission on 29 June 2021, the Commission notes it was not Council's primary topic of concern. Rather, Council discussed its overarching policy of opposition to any new coal mining because of ongoing concerns regarding land use conflict, social impacts and environmental impacts.

283. The Applicant's Response Report provides its proposed measures to mitigate any potential traffic impacts from the Project.

284. The Commission finds that the Department's position is sound and agrees that the existing rail system can accommodate the additional movements. However, the Commission considers that coal trains crossing the landscape, as well as the impact of additional delays at level crossings (up to a 24 minutes per day at the major road level crossings between Robertson and Moss Vale) and associated vehicle safety risks, compound the negative impacts that the Project will have on the broader landscape and its overall incompatibility with the existing and future land use objectives of the area.

9.13 Mine Closure

285. The Applicant's RtS addresses decommissioning and closure at Section 19.2, stating:

A detailed closure plan will be produced five years prior to planned closure and therefore well before rehabilitation activities commence. This plan will consider any advances in technologies, rehabilitation methods and outcomes from rehabilitation trials at the time to ensure the methods applied on site will achieve the desired results.

The overarching rehabilitation objective of both the Hume Coal Project and Berrima Rail Project is to restore the land to its pre-mining land use.

286. The Applicant's RtS addresses post-mining Land and Soil Capability (**LSC**) at section 12.1. which states that 58 hectares of land in the surface infrastructure area will have a reduced LSC class post mining. The Applicant notes that the land will nonetheless be capable of supporting the post-mining land use of grazing on improved pasture (RtS, page 286).

287. The Department' PAR includes the following comments on agriculture and rehabilitation (Table 11, page 38):

279 ha of land would be disturbed for the project, including:

- *117 ha of land (or 2% of the project area) for the mine infrastructure area;*
- *25 ha of land for the rail line;*
- *73 ha of land would be temporarily disturbed for the construction workers camp and site administration; and*
- *64 ha would be temporarily disturbed during the construction of the Berrima Rail Project.*

The Department considers that the agricultural impacts would not be significant and could be managed through the following:

- *Include rehabilitation performance criteria.*
- *Implement progressive rehabilitation where possible.*
- *Prepare and implement a Rehabilitation Management Plan.*

288. The Department' FAR makes the following comments regarding agriculture and rehabilitation (Table 7, pages 76 and 77):

The Department's consideration remains similar to the PAR in relation to direct impacts on agricultural land.

However, the Department notes that the project's impacts on groundwater resources is likely to have impacts on agricultural land use in the groundwater affectation [sic] area. In this regard, approximately one third of the affected bores are licensed for irrigation purposes. It is also predicted to have some impact on pastures during prolonged drought conditions.

The Department acknowledges that Hume Coal has committed to make good the groundwater impacts, but as outlined above the Department considers that the make good arrangements are not suitable or practical.

289. The Commission raised questions in its meeting with the Department and its independent groundwater expert, Mr Hugh Middlemis, regarding the management of potential groundwater impacts following mine closure. The Department advised that the mining company would be responsible for make-good of groundwater impacts up until the surrender of the mining lease, and that adequate make-good arrangements would be a requirement before the mining lease is surrendered (Meeting Transcript, page 10). Mr Middlemis noted that additional groundwater data would become available during mine operation which could be used to inform post-closure groundwater management (Meeting Transcript, page 9). However, as discussed elsewhere in this Statement of Reasons, given the impacts are already considered to be unacceptable based on the existing modelling available, the Commission is not satisfied that any post-closure impact would be acceptable.

290. The Commission notes that a reduction in LSC is proposed for 58 hectares of land in the surface infrastructure site. However, the Commission agrees with the Department's finding that surface impacts could be appropriately managed to adequately support pre-disturbance land uses.

9.14 Economics

291. The Commission received written submissions and oral presentations at the Public Hearing regarding the scale of the predicted economic benefits of the Project and arguments that the predicted economic benefits do not justify the likely impacts.
292. The Commission also received submissions which highlighted the predicted employment generation and broader economic impacts as key benefits of the Project.
293. Council raised concerns in its meeting with the Commission regarding the potential impacts of the Project on alternative industries in the LGA, stating:

Much of the Shire's current growth and opportunity are being driven because of these regional influences and the Shire is not in the need of growth it stimulates such as a mine proposed by Hume Coal in the EIS. Rather, the impacts of a new coal mine puts some of these regional opportunities at risk. The majority of the Shire falls within the Sydney drinking water catchment area and the integrity of this catchment is critically important to the residents and the economy of Greater Sydney and New South Wales (Meeting Transcript, page 5).

294. The Applicant commissioned BAEconomics to prepare a revised economic analysis in response to the Commission's Initial Report (report dated March 2020). The assessment found that the Project would generate a net economic benefit to NSW of \$192 million based on strict application of the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals (2015) (page 77) or \$290 million based on a broader interpretation of the guidelines, including benefits to workers (page 77).
295. The Department commissioned BIS Oxford Economics to undertake a review of the revised BAEconomics Economic Impact Assessment (report dated July 2020). BIS Oxford Economics maintained its earlier concerns regarding the treatment of benefits to NSW workers, stating:

...the analysis of benefits to NSW workers remains unconvincing. It appears conceptually and mathematically inconsistent with the approach recommended in the Guidelines and refers to a wide variety of generic arguments rather than providing project-specific evidence. We again recommend that benefits to workers be disregarded (page 35).

296. BIS Oxford Economics also identified residual uncertainty surrounding the economic implications of the proposed mining method, stating:

The pine feather method to be used in the HCP is untested in Australia. Past debates about the HCP have raised concerns about the safety, viability and resource recovery rates of the pine-feather method in respect of the project (page 10).

...it is not clear if any contingencies have been allowed for in the base project costings – and these might be relevant if mining operations prove more complex than originally anticipated. If there are (still) concerns about project operating cost blowouts this may be an issue worth investigating in more detail (page 11).

...We note that no production-specific sensitivity tests have been undertaken in the 2020 EIA, though these are not specifically required by the Guidelines and some of the pricing sensitivity tests which are required could be seen as covering similar issues.

Accordingly, while we have no specific reason to doubt the production volumes suggested in the 2020 EIA, these issues should be noted by the Department (page 11).

297. Regarding the cost of the Project's GHG emissions, BIS Oxford Economics note that the predicted cost has reduced by approximately \$19 million from the EIS stating:

This confines the impacts of greenhouse gas emissions to NSW rather than using a global basis for the analysis. This has the practical effect of reducing the size of the externality substantially, relative to the 2017 EIA. However, as indicated, this appears consistent with the stipulations of the Technical Notes (page 29).

298. The BIS Oxford Economics review found that the Net Present Value (**NPV**) is likely to be more marginal and sensitive to externalities than is indicated by the BAEconomics assessment but finds that the Project would remain viable even with the omission of material items such as benefits to workers.

299. The Department's FAR states:

There is now adequate agreement between the economics experts on the net economic benefits of the project, with the Department's expert estimating that the project would have a net benefit of \$194 million in net present value terms which is less than Hume Coals estimates in the EIS.

The Department accepts that the project as proposed would have a net economic benefit to NSW and a range of benefits to the Southern Highlands region, and that sensitivity analysis indicates that the project (as designed) would remain of positive net benefit even when considering a range of potential economic variables.

However, any required changes to the mine design (eg. as a result of the identified web pillar stability issues) has the potential to affect the economic benefits of the project. As such, there remains some uncertainty about the extent of economic benefits of the project (Table 7, page 72 and 73).

300. Further, the FAR states:

...the estimated net economic benefits of the project are relatively low in comparison to many other coal mining projects in the Southern Coalfields and across NSW. For example, comparing total estimated (indirect and direct) net benefits the Tahmoor South Coal Project in the Southern Coalfields is predicted to have an overall NPV of some \$665 million, and the recently refused Dendrobium Extension Project was predicted to have an overall NPV of \$1,073 million, compared to Hume Coal's overall NPV of \$290 million.

The scale of the relatively lower benefits associated with the project needs to be carefully weighed up against the potential impacts of the project on the environment and the community (page 39 and 40).

301. Professor Jim Galvin, in the meeting between mining experts and the Commission, commented on uncertainties surrounding the proposed mining method, including the equipment used, stating:

...the risk of whether the method will work or not should come into the economic assessment (page 10).

...there's really no way that you can lay down at this stage or even during the operating life of the mine a definite mine plan (page 15).

302. The Commission acknowledges the lack of consensus on the Project's NPV and the discrepancies in preferred methodology between the Applicant's consultants and BIS Oxford Economics. Of particular concern to the Commission is the lack of sensitivity testing to a range of resource recovery scenarios. However, even allowing for the downside of the reported sensitivities, the Commission is satisfied that the Project is likely to generate a positive NPV.

303. The Commission agrees with the Department that the predicted economic benefits of the Project are low relative to other mining projects, and must be carefully weighed against potential impacts on the environment and community, including those impacts that are difficult or impossible to quantify and are reported alongside NPV.

9.15 Social Impacts

304. The Commission received written submissions and heard from speakers at the Public Hearing in opposition to the Project because of social impact concerns. The Commission's consideration of these issues is set out under the key themes below, pursuant to some of the key categories in which social impacts may occur as outlined in the *Social Impact Assessment Guideline* (Department of Planning and Environment 2017) (**SIA Guideline**) including:
- Impact on way of life
 - Impact on community;
 - Impact on surroundings;
 - Personal and property rights; and
 - Fears and aspirations.

Social Impact Assessment Guidelines

305. 'Recommendation 24' in the Commission's Initial Report recommended the Applicant update its Social Impact Assessment in accordance with the Department's SIA Guideline and ensure its consistency with the assumptions of the revised Economic Impact Assessment.
306. In its Response Report, the Applicant notes that it prepared an Updated SIA which identifies the Department's guidelines as the primary assessment guideline used.
307. The Department acknowledges that the Applicant has updated its SIA in accordance with the Commission's recommendation (paragraph 235 of the FAR) and accepts that the Updated SIA has been undertaken in a manner that is generally consistent with the SIA Guideline and provides a suitable basis for consideration of the social impacts of the Project (paragraph 237 of the FAR).
308. The Commission notes the Applicant has also confirmed that the underlying assumptions used in both the Updated SIA and the revised Economic Impact Assessment are the same (paragraph 236 of the FAR).
309. 'Recommendation 25' in the Commission's Initial Report required the Department, regardless of any further assessment provided by the Applicant, to assess the Project in accordance with the SIA Guideline and to report on the findings of this assessment in its FAR.
310. The Commission has considered the key positive and negative social impacts identified in the Applicant's Updated SIA, as discussed in the paragraphs below.

Impact on way of life

311. As outlined in the SIA Guideline, social impacts to people's way of life includes impacts on how people live, work, gain access to recreation activities and interact with each other on a daily basis.
312. The Commission received submissions raising concerns that the Project would adversely impact residents' way of life, including residential amenity, opportunities for employment and recreation, and the cohesion of the community.
313. The Commission heard objections on the basis that any jobs created are not needed in this Region and that the existing industries, including in food production, agriculture, viticulture, the equine industry, and the manufacturing of sustainable technologies provide sufficient job diversity, employment and training opportunities, and therefore the Project is not required for community benefit.

314. At its meeting with the Commission on 29 June 2021, Council confirmed the community's view in stating that, at the time of Council's meeting with the Commission, the Shire's unemployment rate was relatively low, at 2.7%. Council noted that the Project poses significant risk to the Shire's economic development opportunities, primarily through the risks to the water resources, the Southern Highlands brand of agriculture and the Southern Highlands tourism appeal (Meeting Transcript, page 6).
315. As discussed at Section 7 of this Statement of Reasons, the Commission notes the relevant strategic planning documents relating to the region identify seven priority growth sectors within the local economy, including tourism; agriculture and aquaculture; freight and logistics; health, disability and aged care; public administration and defence; education and training; and renewable energy. Notably, coal mining is not identified as a significant contributor to the strategic employment future for the Shire.
316. Council confirmed that the community has maintained a campaign against the Project for more than a decade. Council stated that the community is experiencing considerable fear and anxiety over the impacts that the Project would have on *"the environment, their properties, their farms, their livelihoods, their health and their way of life"* (Meeting Transcript, page 7).
317. The Commission notes the Applicant provided an Updated Social Impact Assessment (SIA), which was prepared in response to 'Recommendation 24' in the Commission's Initial Report. Section 7.1 of the Updated SIA provides analysis of *"the unmitigated and mitigated way of life impacts on the local and regional communities as a result of the proposed Project"* (page 102). The Applicant's assessment identifies three matters related to the impact of the Project on residents' way of life, including:
- *the non-resident workforce;*
 - *population change; and*
 - *employment and training opportunities* (page 102 of the Updated SIA).
318. The Commission also notes the Applicant's comments in the Response Report regarding the forecast economic benefits to the community of the Project. The stated benefits include direct employment opportunities, as discussed above, as well as opportunities to strengthen the skills base of the local workforce. The Applicant has also made commitments to provide apprenticeship and traineeship programs (page 144); giving employment preference to local suppliers where competitiveness criteria can be satisfied (page 25); and investments in community facilities through a VPA or similar mechanism (page 144).
319. The Applicant proposes to mitigate the impact a non-resident workforce would have on the local community through a *"workforce plan that outlines a code of conduct for both direct employees and contractors and encourages positive community participation, combined with an ongoing community engagement strategy [which] would mean that that any anti-social behaviour would be unlikely"* (page 102 of the Updated SIA).
320. The Commission notes the Department's view that the Project *"would have public benefits, including generation of a considerable number of jobs, as well as economic benefits for the Southern Highlands and NSW"* (paragraph 309 of the FAR) and that it has *"considered these public benefits associated with the Project in its overall assessment and evaluation of the Project"* (paragraph 311 of the FAR).
321. Regarding population change, the Applicant's assessment finds *"the fears held by the community that their lifestyle will be disrupted by the in-migrating workforce is unlikely to occur. The consequences would be minor as the community can easily adapt to any changes. Therefore, the mitigated impact on the way of life of local residents has been assessed as low negative during operations of the Project"* (page 103 of the Updated SIA).

322. The Commission recognises that the Project has already had a significant impact on residents' way of life by causing anxiety about the Project's potential impacts to their properties and livelihoods, and by causing division and disharmony within the community. As discussed above in section 9.3 - Groundwater, the Commission is not satisfied that the predicted groundwater impacts are acceptable and considers that their impacts and mitigation requirements would likely cause dispute and disruption in the community (paragraph 252 of the FAR). Therefore, the Commission agrees with Council that the Project is likely to continue to cause division within the community if approved.
323. While the Commission accepts that the impacts of the non-resident workforce and population change could potentially be managed as proposed by the Applicant, in terms of the need for this Project, the Commission does not consider this Project would have significant benefit in terms of employment and training opportunities in the context of the existing industries in the region and the low unemployment rate.
324. In consideration of the Material before it and when balanced against the other matters considered in this Statement of Reasons, such as the potential impacts on the existing agriculture and tourism industries, the Commission finds the Project is not consistent with Council's strategic and sustainable employment objectives for the Shire or the prevailing community objectives for commercial activities in the area. The Commission finds that the benefits in terms of employment and training opportunities provided by the Project would not outweigh the risk to existing employment and training opportunities.
325. Overall, the Commission finds that the Project proposal is currently having, and the Project itself would continue to have, a negative impact on residents' way of life and that these impacts would likely persist beyond the life of the Project. Many of the benefits of the mine will be received for the life of the mine only, but the Commission finds the negative impacts will persist after mining operations have finished. In any case, despite these temporal concerns, the Commission finds these impacts would not be outweighed by the Projects stated benefits.

Impact on Community

326. The Commission has considered the community's expectations for the Site, and the concerns raised in the public submissions that the Project will adversely impact the community composition, cohesion, character and how it functions. The Commission also heard concerns that this Project does not align with community expectations for the region regarding future economic opportunities and the negative impact this Project will have on existing industries.
327. The Commission acknowledges that, while the majority of submissions received by the Commission object to the Project, there are also several submissions that have been made in support of the Project within the local community, and the Southern Highlands region more broadly with respect to job creation and economic opportunities.
328. During its meeting with the Commission on 29 June 2021, Council reiterated concerns that the Project has caused significant disruption, division and disharmony within the community for more than a decade, with the prospect of the mine causing distress to property owners, residents and businesses across the Shire (Meeting transcript page 7).
329. The Commission also notes Council's concerns about the potential impacts of the Project on the historic town of Berrima. Council noted Berrima is one of the best-conserved towns from the colonial period in Australia and has a significant collection of State Heritage Register listed properties concentrated in a small area. The surrounding landscape and rural setting is integral to its attraction as a tourist destination. The uniqueness of this village attracts a sizeable number of tourists each year, which has a flow on effect for the rest of the Southern Highlands. In Council's view, the EIS does not

adequately consider the potential impacts on this locality (Council Meeting transcript page 6).

330. The Commission notes the Applicant's view that the negative social impacts of the Project would be outweighed by the positive impacts, and that "*negative social impacts tended to be more localised or of shorter duration and lower magnitude... with the positive impacts demonstrating benefits of long duration and benefit to the whole region*" (page 125 of the Response Report), and that conditions could be attached to an approval to ensure appropriate mitigation of negative impacts.
331. At FAR paragraph 254, the Department confirms the concerns of the community, noting there remains strong local opposition to the Project and many submissions made to the Department disputed whether the Project has a 'social licence' within the local community and will fundamentally change the social fabric and sense of place of the locality, impacting on site suitability and land use compatibility considerations.
332. The Commission notes the Department's view at Table 7 of the FAR, which states:
- ...the Department remains concerned about the suitability of the site for the development of a greenfield coal mine given the transition of the area to a tourism and small agriculture / rural residential focus, which is reflected in the land use zoning.*
333. In weighing up the Material before it with respect to the Project's impact on the community, the Commission considers that the incompatibility of the Project with land use zones (discussed in section 9.16), the community's self-identity regarding the region's village and rural lifestyle and associated industries, and the values and expectations of the broader community, cannot be reasonably mitigated through measures such as community support programs, as proposed by the Applicant. The Commission is of the view that there is a strong connection between place, self-identity and how people perceive and value the environment and character of the region. The Project will negatively impact the composition, cohesion and character of the community and people's sense of place, as evidenced in the Material before the Commission and also as corroborated by the submissions received.

Impact on Surroundings

334. The Commission has considered the community's concerns about the impact of the Project to their surrounding environment, including their environmental amenity, surrounding landscape and access to water resources.
335. At FAR paragraph 238, the Department notes the described benefits of the Project, as outlined in the Applicant's Updated SIA, including:
- *increased employment and training opportunities, particularly local employment;*
 - *increased investment in community infrastructure and services through direct contributions; and*
 - *economic flow-on benefits.*
336. At FAR paragraph 239, the Department also identifies the key negative impacts of the Project, including:
- *potential antisocial behaviour from workers, especially during construction;*
 - *population growth changing the character of the area;*
 - *perceived increase in demand on emergency services and infrastructure;*
 - *potential impacts on mental health and wellbeing;*
 - *perceived and actual amenity, traffic, cultural heritage, and other environmental impacts; and*
 - *impacts on local businesses, particularly agriculture and tourism.*

337. The Department concludes the Project would result in significant localised impacts, including significant disruption, tension and likely dispute for the landholders whose groundwater supplies are predicted to be significantly impacted and that the Project would also have amenity impacts on the agricultural land users along Medway Road by way of noise and/or visual impact (FAR paragraphs 251 and 252). The Department is not satisfied that these impacts are acceptable, particularly with regard to the predicted groundwater impacts on such a large number of groundwater users, and the dispute and disruption that these impacts and their mitigation (or make good) requirements would likely cause in the community (FAR paragraph 252).
338. In terms of impacts on amenity and surroundings, while the Commission considers that some social impacts of the Project could be appropriately mitigated or managed, such as antisocial behaviour from workers, increased demand on emergency services, and even population growth, the Commission finds that overall, the negative social impacts identified at paragraph 336 (including mental health and wellbeing impacts; perceived and actual amenity, traffic, cultural heritage, and other environmental impacts; and impacts on local businesses, particularly agriculture and tourism) are not acceptable and cannot be appropriately managed through conditions.
339. The Commission notes the Department's view that *"the Project would have significant amenity impacts on a number of rural-residential land users in the Medway Road area, including noise and visual impacts"* and *"the residual risks cannot be adequately managed through approval conditions, given the potential impacts and uncertainties"* (paragraph 325 of the FAR).
340. The Commission is of the view that the Project would affect the identity of Berrima, and the Southern Highlands more broadly, through the further industrialisation of the landscape, which is likely to impact its capacity to remain a popular tourism destination and retain its identity as an aesthetic heritage town in a rural landscape. The Commission considers that this outcome is incompatible with the existing and future sustainable land use objectives of the region.
341. The Commission considers that the difficulties likely to arise from the implementation of any make good provisions, coupled with the need for mitigation in terms of noise, further compound the already identified unacceptable social impacts. As noted at paragraph 76, the Commission finds that the Project does not result in sufficient economic benefit to justify such significant disruption and impact.

Impact on Personal and Property Rights

342. The Commission understands the social impacts relating to personal and property rights includes issues related to economic livelihood and whether people experience personal disadvantage.
343. In terms of impacts to economic livelihood and personal disadvantage, the Commission heard concerns from several residents regarding the impact on existing industries, the impact on water resources and ongoing disruption concerns if the Project were to proceed. As discussed in the sections above, the Commission understands that impacts to water resources is a particularly significant concern for residents, many of whom rely on access to the highly productive groundwater aquifer for irrigation, stock and domestic purposes (paragraph 98 of the FAR). The Commission also heard concerns that amenity impacts, such as visual, noise and air quality, would compromise surrounding residents' enjoyment of their land and existing commercial pursuits that rely on the scenic landscape of the region.
344. The Commission's Initial Report made several recommendations regarding water resources, including requiring further assessment about the practical adequacy of the Applicant's groundwater 'make good' strategy.

345. After considering the Applicant's response in its Response Report, the Department maintains its view that the groundwater drawdown impacts on the local community are not acceptable for the reasons set out in section 2.2.2 of the FAR. Notably, the Department considers "*the predicted groundwater drawdown impacts on a large number of groundwater users' bores is unacceptable, as is the practicability of the proposed make good strategy*" (paragraph 325 of the FAR).
346. The Commission acknowledges there is potential for disruption to landholders from attempts to access their land, with written and verbal submissions indicating significant opposition to land access for project-related purposes and legal action undertaken by some landowners against the Applicant to prevent access for the purpose of drill holes (paragraph 149).
347. With regard to the Project's impacts on personal and property rights, the Commission finds the Project would cause stress and anxiety for those properties and industries adversely impacted by the Project's environmental and amenity impacts, and that these impacts would manifest themselves in other types of social impacts such as people's way of life, community, health and wellbeing and surroundings.

Community Fears and Aspirations

348. The Commission understands that the social impacts relating to people's fears and aspirations can relate to any type of social impact discussed in the paragraphs above.
349. The Commission received submissions raising objection to the Project on the basis that the Project will negatively impact the local economy by putting at risk existing industries and businesses that rely on the clean and green environment and scenic character of the region (such as tourism and agriculture) and by also compromising the attraction of residents who value the quiet rural character.
350. As articulated in the paragraphs above, the Commission finds the Project will have amenity and environmental impacts that would have negative social impacts on people's way of life, community, surroundings and property and personal rights. The Project will also impact existing, approved and likely preferred future land uses in the vicinity of the Project. These impacts, and the prolonged campaign of opposition to the Project, would further compound community fears and aspirations.
351. In conclusion, in terms of social impacts, the Commission is of the view that the claimed economic and social benefits of the Project are not sufficient to warrant the negative social impacts. Therefore, the Commission finds the negative social impacts of the Project are significant enough to warrant refusal.

9.16 Land use compatibility

352. The Commission heard the community's concerns regarding Site suitability and the compatibility of the proposed land use with the existing and desired future land uses in the area. As required by Clause 12 of the Mining SEPP, described at paragraphs 91 to 93 above, the Commission has considered the compatibility of the proposed mine with other land uses. In doing so, the Commission has considered the '*existing, approved or likely preferred uses*' of land in the vicinity of the Site.
353. The Commission acknowledges the Southern Highlands region is known for its rural land uses, small-scale agriculture, scenic landscapes and tourism. Section 3.1 of the Department's PAR describes the existing land uses within the Project area and the surrounding land uses, stating:

The project area and its surrounds are characterised by low, rolling hills with predominantly rural-residential and small-scale agricultural land uses. This includes scattered rural residences, livestock grazing and various rural businesses (e.g. vineyards, olive plantations and horticulture).

The land is largely cleared for agricultural purposes and mainly comprises pastured fields, interspersed with small-scale cropping and remnant native vegetation.

354. As discussed at paragraphs 85 and 86 above, the Project area includes various land use zones under the WLEP 2010, including E2; E3; RU2; RU3 and SP2. An extract of the objectives of each of the five applicable land use zones under the WLEP 2010 is provided at **Appendix C**. The Commission notes that while mining development is prohibited in all of these zones, the Mining SEPP permits underground mining on any land with development consent, and therefore the Project is permissible with consent and the Commission may determine the Applications. Nevertheless, the objectives of each of the applicable land use zones under WLEP 2010 have been considered by the Commission.
355. The applicable land use zones provide for a restricted range of development and land use activities that generally aim to protect, manage and restore the ecological, scientific, cultural and aesthetic values of the area, while also permitting limited land uses for economic and employment development, recreation and community amenity. Overall, the land use objectives aim to maintain the existing rural landscape character of the area, and where development is permitted, the objectives aim to ensure that development is of a scale and character that is compatible with the existing landscape setting.
356. As described in section 7.3 above, the Wingecarribee LSPS identifies the effects of coal mining as a key issue and challenge for the community (page 8) and identifies a vision for the Wingecarribee Shire as being coal mining free (page 19). The LSPS includes objectives to support and promote the diverse and thriving local agriculture industry (Planning Priority 2.1), to maintain and enhance the connection with rural landscapes (Planning Priority 2.2), and to facilitate rural tourism (Planning Priority 2.3).
357. As discussed at section 8 above, the Commission has considered the land use compatibility requirements under the Mining SEPP and the objectives of the NSW Strategic Statement.
358. The Commission notes the Department's consideration of the land use compatibility requirements under the Mining SEPP, and that it *"remains concerned that the project is not compatible with the 'existing, approved and likely preferred land uses' of the area (which are focused on protection of historic, ecological cultural and aesthetic values)"* (Table 7 of the FAR, page 69).
359. The Commission notes Council's view, as stated in its meeting with the Commission on 29 June 2021:
- [The Project is] incompatible with the strategic direction our community would like to see this area go in in a number of ways in terms of land use and character, environmental and natural resources impacts, the strategic direction for energy production in the local area and, of course, lifestyle amenity and we don't believe it's – it's compatible with any of those uses for our community (Meeting Transcript, page 8).*
360. The Commission notes the Applicant's view in the Updated Social Impact Assessment. that the applicable strategic plans present challenges for the Project, such as meeting environmental objectives and avoiding land use conflicts (page 72), however the Applicant considers that interruptions to current land uses will be minimal during operation of the Project and the successful adoption of proposed enhancement strategies during closure would provide viable post mining land uses (page 113).
361. The Commission notes the Department's view that the Site is not suitable for the proposed development given the *"rural-residential and small-scale agricultural land use*

of the area, along with the growing tourism and heritage landscape focus, and the predicted impacts on these land uses” (page ix of the FAR).

362. The Commission finds that the Project would diminish the community’s capacity to achieve the objectives of the underlying land use zones identified under the WLEP 2010, namely, to protect and enhance the existing land uses in the area.
363. In addition to the provisions of the WLEP 2010 and the Mining SEPP, the Commission has considered the objectives of the NSW Strategic Statement, even though it is not directly applicable to the Project. In this regard, the Commission supports the Department’s conclusion that the Project does not align with the intent of the NSW Strategic Statement because the Project:
- is for a new mine, rather than an extension of an existing mine;
 - would result in inefficient resource recovery and relatively marginal economic benefits;
 - would result in the further industrialisation of the local and regional landscape; and
 - would result in ongoing land use conflicts.
- However, even ignoring the NSW Strategic Statement, these issues are nonetheless merit matters that the Commission considers support the refusal of the Project.
364. Similarly, the Commission considers that the Project does not align with the intent of the Wingecarribee LSPS because it would:
- have negative social impacts that cannot be appropriately mitigated;
 - has already caused significant disruption, division and disharmony in the Southern Highlands community and risks causing continued division within the community;
 - result in land use conflicts; and
 - would have adverse implications for existing and future sustainable land use objectives and the prevailing community objectives for commercial activities in the area, including tourism and agriculture.
365. The Commission supports the Department’s view that the Project would not be compatible with the ‘*existing, approved or likely preferred uses*’ of the rural and environmentally zoned land in the vicinity of the development.
366. The Commission is of the view that the Project is incompatible with existing land uses, including rural-residential, small-scale agricultural and tourism land uses, and is incompatible with desired future industries in the area, including agriculture and tourism.

9.17 Objects of the EP&A Act and Public Interest

9.17.1 Objects

367. The Commission has assessed the Project against the relevant Objects of the EP&A Act and is satisfied with the Departments consideration of the Objects of the EP&A Act as set out in Appendix E of the FAR.
368. The Commission notes the Project is located within the highly productive Hawkesbury Sandstone aquifer, and that the likely impacts to the groundwater resources are unacceptable and unable to be reasonably managed through make-good provisions, as described in section 9.3 of this Statement of Reasons. As described in section 9.15, the Commission finds that the Project’s economic benefit to the community is marginal and does not justify the Project given the negative social impacts of the Project. Further to this, the Project’s water management strategy, which does not include a contingency plan such as a water treatment plant, poses a risk to Sydney’s drinking water catchment (section 9.4). Therefore, the Commission finds the Project does not achieve Object (a)

because it does not promote the social welfare of the community and does not properly manage environmental considerations.

- 369. The Commission finds the threat to water resources is sufficient enough to warrant a precautionary approach in order to avert environmental damage, as discussed at paragraphs 384 to 386 below. Therefore, the Commission finds the Project cannot be carried out in a manner that is consistent with the principles of Ecologically Sustainable Development (**ESD**), thereby does not satisfy Object (b) of the EP&A Act.
- 370. The Commission notes the Project is a permissible land use under the applicable planning policies and achieves Object (c).
- 371. With respect to biodiversity conservation, the Commission considers the Project's biodiversity impacts could be managed through standard avoidance, mitigation and offsetting measures. However, the Project's impacts on groundwater resources and potential impacts on surface water resources, including the risk to Sydney's drinking water catchment, are unacceptable and therefore the Commission finds the Project is inconsistent with Object (e).
- 372. In terms of heritage matters, the Commission finds the Project would have a negative impact on historic heritage and adversely affect the existing and desired future cultural landscape setting (section 9.8). Therefore, the Commission concludes that Object (f) is not achieved.
- 373. The assessment of these Applications included consultation with the local Council, NSW government authorities and the Department. Therefore, the Commission finds Object (i) is satisfied.
- 374. In terms of community participation, the Commission is satisfied the community has been provided with sufficient opportunity to participate in the assessment process, thereby achieving Object (j).
- 375. For the reasons set out above, the Commission is of the view that the Project does not satisfy Objects (a), (b), (e) and (f).

9.17.2 The Public Interest

- 376. Through the Public Hearing and submissions process, the Commission received a large volume of submissions made in objection to the Project (87% of total submissions). Objections were submitted by impacted community members, other individuals, experts, interest groups, and from within the local area and across the Greater Sydney and NSW area. The Commission, like all consent authorities, must consider community concerns regarding development applications, however, the number of submissions that object to a Project is not the only measure of the public interest which the Commission is bound to consider.
- 377. In considering whether the Project is in the public interest, the Commission has weighed up the manner in which the Project achieves the Objects of the EP&A Act and the principles of ESD and also the Project's social and economic benefits.

Ecologically Sustainable Development.

- 378. The Commission received public submissions objecting to the Project on the grounds that it does not satisfy the principles of ESD. It was submitted that the risks to the environment, in particular groundwater, triggered or engaged the precautionary principle in a way that should result in a determination by way of refusal. Submissions also raised GHG emissions of the Project as contributing to a non-sustainable form of development.
- 379. Section 4.15 of the EP&A Act sets out matters that the Commission, as the consent authority, is bound to take into account to the extent they are relevant to the determination of the Project. Included in the relevant matters are the likely impacts of

the Project, including 'environmental impacts' (s 4.15(1)(b)), and the 'public interest' (s 4.15(1)(e)).

380. The principles of ESD are relevant to the Commission's determination on an assessment of the 'Key Impacts' (see from section 9.1 of this Statement of Reasons). This is reinforced by the objects of the EP&A Act which include the facilitation of ESD (s 1.3(b)), and the protection of the environment (s 1.3(e)).

381. The EP&A Act adopts the definition of ESD found in the *Protection of the Environment Administration Act 1991*, as follows:

ecologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

- (a) the precautionary principle...*
- (b) inter-generational equity...*
- (c) conservation of biological diversity and ecological integrity.... and*
- (d) improved valuation, pricing and incentive mechanisms.*

382. The Commission has given consideration to the principles of ESD in its assessment of each of the 'Key Impacts' as set out in section 9 of this Statement of Reasons. The aspects of ESD considered include those set out in the paragraphs immediately following.

(a) the precautionary principle

383. The precautionary principle is triggered where both of the following preconditions are satisfied:

- there is a threat of serious or irreversible environmental damage; and
- there is a lack of full scientific certainty as to the environmental damage.

384. The Commission has considered the evidence before it with respect to the potential for serious or irreversible harm, predominantly in association with impacts on water resources. It considers that such a threat exists. However, notwithstanding the concerns regarding the model, data, parameters and sensitivity analysis discussed above, there is, in the Commission's view, certainty regarding the likely minimum impacts to the groundwater that will be caused by the Project. These are the impacts identified by DPIE Water which have not been adequately addressed by the Applicant.

385. There is also the threat of serious environmental damage resulting from the potential for surface water contamination of Sydney's drinking water catchment. In the case of surface water contamination, it is likely that the resultant environmental damage would happen too late to allow for effective responses or mitigation. There is, however, a degree of scientific certainty about what the environmental damage would be.

386. While there is both modelling uncertainty and uncertainty regarding the possibility of unexpected disruption to the storage of water underground, the Commission finds that these kinds of uncertainty do not meet the second threshold for the application of the precautionary principle. Notwithstanding this, the risk and extent of likely known environmental harm from carrying out the Project would, in any event and for the reasons set out elsewhere in this Statement of Reasons, justify the Commission refusing consent for the Project.

(b) inter-generational equity

387. There are three principles that underpin intergenerational equity, namely the conservation of options (maintain the natural and cultural diversity), the conservation of

quality (maintain the quality of the earth) and the conservation of access (maintain access to the natural and cultural resources of the earth).

388. The Commission finds that, on balance, the social impacts of the Project would adversely affect both current and future generations. The Commission is also not satisfied that the appropriate remediation obligations have been established for when mining ceases.
389. The Commission also finds the potential impacts on water resources could endure beyond the closure of the mine.
390. The Commission notes that GHG emissions of the Project would result in intergenerational inequity. While there would be relatively minor economic contribution being realised during the life of the mine, the adverse impacts of climate change are likely to extend well beyond that timeframe.
391. On the basis of the above, the Commission has formed the view that the Project is unsatisfactory in terms of intergenerational equity.

(c) conservation of biological diversity and ecological integrity

392. As set out in section 9.5, the Commission notes that while further work is necessary to determine the appropriateness of the Hume Coal owned land for biodiversity offsetting, the Commission finds that any potential biodiversity impacts could be reasonably mitigated and/or offset to enable the long-term biodiversity outcomes to be achieved for the region. The Commission finds that appropriate conditions could be imposed to identify, avoid and mitigate biodiversity impacts and require all residual biodiversity impacts to be offset in accordance with government policy.

(d) improved valuation, pricing and incentive mechanisms

393. The Commission is not satisfied that a practical mechanism has been proposed to ensure the Applicant remains liable for any costs associated with mitigating and/or offsetting the impacts of the Project and for compensating landowners in the event of damage or losses associated with the Project, such as groundwater impacts and rehabilitation post mine closure.

Commission's findings regarding public interest

394. In summary, the Commission finds that the Project is not consistent with the Objects of the EP&A Act, is not in the public interest and does not achieve the principles of ESD, because the Project does not achieve an appropriate balance between relevant environmental, economic and social considerations.
395. The Commission finds that on balance, and when weighed against the considerations, the likely benefits of the Project do not outweigh the negative impacts, and this warrants the conclusion that the Project is not in the public interest.

10. THE COMMISSION'S FINDINGS AND DETERMINATION

396. The Commission has carefully considered the Material before it as described in section 6.2 of this report. In addition, the views of the community were expressed through public submissions and comments received (as part of exhibition and as part of the Commission's determination process), as well as in oral presentations to the Commission at the Public Hearing. The Commission carefully considered all of these views as part of making its decision.

397. Based on its consideration of the Material and the public submissions, the Commission finds that the negative impacts of the Project are not outweighed by the stated benefits and cannot be reasonably mitigated through the imposition of conditions. Therefore, the Commission refuses the Applications for the Project for the reasons set out in this Statement of Reasons, as summarised below:

a) Mine design

- i. the proposed resource recovery is limited by the mining method. While the choice of mining method has been selected in a bid to reduce subsidence and minimise environmental impacts, it results in inefficient resource recovery and relatively marginal economic benefits.

b) Groundwater

- i. groundwater modelling is limited by the parameters applied, lack of input data and the level of sensitivity analysis. Given these limitations it is uncertain if the model is able to accurately predict the drawdown impacts.
- ii. the modelled impacts should be considered to be the minimum impacts, and even if more data becomes available for the model, the re-modelled impacts are likely to be worse, not better;
- iii. the physical attributes of the groundwater resource and the density of private bores results in unacceptable groundwater impacts generally and in the context of the AIP.
- iv. the proposed make-good provisions are impractical due to the number of private bores affected that would require make good agreements and owing to the fact that the Applicant has not been successful in reaching agreement with the majority of impacted private bore owners.
- v. an approval would result in significant social distress for the community as a large number of private bore users would be required to enter a prolonged and disruptive negotiation process with the Applicant with respect to access and make good arrangements.

c) Surface water

- i. there are remaining concerns regarding the capacity of the PWD as the only water management system, in the event that mining operations are interrupted for any reason preventing water re-injection into the mine voids for a period of time, or under different climate scenarios, given the Project does not provide a contingency.
- ii. this lack of contingency results in a residual risk that untreated water would overflow into the Sydney drinking water catchment, resulting in significant consequences.
- iii. it has not been demonstrated that the Project can achieve NorBE on water quality.

d) Greenhouse gas emissions

- i. the Project would be a new net-emitter of GHG emissions. When weighed

against the relatively minor economic benefits of the Project, the GHG emissions are not justified and furthermore, contribute to the land-use incompatibility of the Project.

e) Heritage

- i. the Project would have a negative impact on the cultural landscape and detrimentally impact the existing and desired future landscape setting of the area.
- ii. the Project would negatively impact the perceived aesthetic qualities of the landscape and the heritage identity of the Southern Highlands.

f) Amenity impacts

- i. construction noise, operational noise and increased noise from rail movements would result in amenity impacts that are inconsistent with the rural and village lifestyle of the Site's particular setting.
- ii. the noise impacts of the Project are not justified given the other impacts associated with the Project and its relatively marginal economic benefits.
- iii. the Project would have a negative visual impact given the sensitivity of the receiving environment and is inconsistent with many of the values for which the cultural landscape was formulated and for what is intended.
- iv. the presence of the proposed mine (and views of the mine surface infrastructure from the surrounding locality) would have a negative impact on the actual and perceived aesthetic qualities of the local landscape and the desired character of the Southern Highlands more broadly.
- v. coal trains accessing Port Kembla to and from the Site would become a regular feature of the landscape, further accentuating the presence of the Project and further highlighting the Project's inconsistency with the existing and desired character of the Southern Highlands.

g) Transport

- i. while the Commission finds the existing rail system can accommodate the additional movements, it considers that coal trains crossing the landscape, as well as the impact of additional delays at level crossings and associated vehicle safety risks, compounds the negative impacts of the Project on the existing and future cultural landscape values and land use objectives of the area.

h) Social impacts

- i. the Project will result in negative impacts on residents' way of life: in terms of how people live, work and interact with each other on a daily basis. The Commission finds the Project is not consistent with Council's strategic and sustainable employment objectives for the Shire or the prevailing community objectives for commercial activities in the area. The Commission concludes the economic benefits of the Project do not justify the negative social impacts and impacts to the agriculture and tourism industries. The Commission finds the Project proposal has caused, and the Project itself would continue to cause, a negative impact on residents' way of life and significant disruption and division in the Southern Highlands community.
- ii. the Project will result in negative impacts on the community: the Commission finds the Project will adversely impact the community composition, cohesion, character and how it functions. The incompatibility of the Project with surrounding land uses, the region's identity and associated industries will result in a negative impact on the social fabric of the community and will have long-lasting effects.

- iii. the Project will result in negative impacts on surroundings: the Project would negatively impact the perceived aesthetic qualities and amenity of the area through the further industrialisation of the landscape, which is likely to impact its capacity to remain a popular tourism destination and retain its identity as an aesthetic heritage town in a rural landscape. The Commission also finds the groundwater impacts and the difficulties likely to arise from the implementation of any make good provisions compound the already identified unacceptable social impacts.
- iv. the Project will result in negative impacts on personal and property rights: the Commission finds there is the potential for disruption to landholders relating to access for Project related purposes and the Project will cause stress and anxiety for those properties and industries adversely impacted by the Project's environmental and amenity impacts.
- v. the Project will adversely impact community fears and aspirations: the Commission finds the Project will have amenity and environmental impacts that will lead to social impacts on people's way of life, community, surroundings and property and personal rights. The Project will also impact existing, approved and likely preferred future land uses in the vicinity of the Project. These impacts, and the prolonged campaign of opposition to the Project, lead to negative social impacts in terms of community fears and aspirations.
- vi. the Project's economic benefit to the community is marginal and does not justify the Project given the other negative environmental, economic and social impacts.

i) Land use compatibility

- i. the Project is not compatible with the 'existing, approved or likely preferred uses' of the rural and environmentally zoned land in the vicinity of the Site, as required by Clause 12 of the Mining SEPP.
- ii. the Project would compromise the community's capacity to achieve the objectives of the underlying land use zones identified under the WLEP 2010, namely to protect and enhance the existing land uses in the area.
- iii. the Project would result in land use conflicts and social impacts that cannot be appropriately managed.
- iv. the Project is a new mine on a greenfield site and would have adverse implications for existing and future sustainable land use objectives and the prevailing community objectives for commercial activities in the area, including tourism and agriculture.
- v. the Project does not align with the aims and objectives of relevant strategic plans.

j) Economic considerations

- i. the Project will have some economic benefits for the Wingecarribee Shire, the region and for NSW more broadly through the creation of construction and operational jobs and the capital investment of the Project. However, these benefits are considered to be relatively minor and do not outweigh the adverse social, economic and environmental impacts of the Project.

k) Objects and Public Interest

- i. the Project does not achieve an appropriate balance between relevant environmental, economic and social considerations.
- ii. on balance, when weighed against the objects of the EP&A Act, ESD principles and socio-economic benefits, the Commission finds the potential impacts associated with the Project are too great to be reasonably managed, and the

social risks to the community are high. The likely benefits of the Project do not outweigh the adverse impacts, and this warrants the conclusion that the Project is not in the public interest.

398. In conclusion, the Commission finds that the issues relating to groundwater summarised in paragraph 397(b) are sufficient on their own to warrant refusal. In addition, the issues relating to social impacts summarised in paragraph 397(h) are also sufficient on their own to warrant refusal.
399. Further, the Commission finds that the Project's incompatibility with the land use objectives for the area described in paragraph 397(i) above is also reason enough for refusal. This incompatibility is exacerbated by the groundwater and social impacts discussed in paragraph 397(b) and (h) above.
400. The Commission ultimately finds that the stated benefits of the Project do not outweigh the adverse environmental, social and economic impacts and that, on the basis of the Material considered as a whole, consent should be refused.
401. The reasons for the Decision are given in the Statement of Reasons for Decision dated 31 August 2021.



Peter Duncan AM (Chair)
Member of the Commission



Professor Alice Clark
Member of the Commission



Chris Wilson
Member of the Commission

APPENDIX A – KEY COMPONENTS OF THE PROJECT

(source: derived from Table 1 of the Department's PAR)

Aspect	Description
Project Life	23 years, including: <ul style="list-style-type: none"> • 28 months of construction, • 19 years of mining, and • 2 years of rehabilitation with some overlap between the construction and operational phases.
Mining Project Area	Approximately 5,051 ha within the Wingecarribee local government area, comprising 5,039 ha of freehold land and 12 ha of Crown Land.
Mining Method	Underground mining operation using the pine-feather technique.
Key Infrastructure	Surface infrastructure area would include the coal preparation plant (CPP), run-of-mine (ROM) and product coal stockpiles, coal reject handling infrastructure and a temporary (emergency) reject stockpile: <ul style="list-style-type: none"> • over-land conveyors, rail load out facilities and rail loop; • up to three ventilation shafts; • surface and groundwater management facilities, including storages, pipelines and pumps; • on-site accommodation facility for up to 400 non-local construction employees only; and • administration, ancillary facilities, communications and power lines.
Target Coal Seam	Wongawilli Seam, in the Permian Illawarra Coal Measures at depths of approximately 70 m to 180 m (about 55% coking and 45% thermal coal).
Coal Extraction	Estimated 50 Mt of recoverable ROM coal at a rate of up to 3.5 Mtpa (approximately 39 Mt of saleable coal over lifetime of the Project).
Coal Processing	On-site processing in the Coal Processing Plant (CPP)
Coal Reject and Waste Management	<ul style="list-style-type: none"> • <u>Rejects</u>: processed and stored in the temporary surface emplacements within the mine site during operations with the option to reprocess these rejects before pumping them back underground to partially fill the mined-out voids. • <u>Excavated rock</u>: used to fill the surface infrastructure area and mine rehabilitation at the end of the Project Life.
Water	<ul style="list-style-type: none"> • <u>Groundwater</u>: total take of 2,093 ML a year for the mining project. Produced mine water would be stored underground behind 'bulkheads' (see section 6.2 of this report). • <u>Surface water</u>: on-site storage of 730 ML in the primary water dam (PWD) to contain the site and contaminated water across Project Life.
Traffic and Transport	<ul style="list-style-type: none"> • Approximately 200 car parking spaces on the mine site during construction for the accommodation village and 176 car parking spaces during operations. • <u>Construction traffic</u>: daily movements of up to 222 light and 132 heavy vehicles. • <u>Operational traffic</u>: daily movements of up to 358 light and 20 heavy vehicles. • Up to 8 train movements each day (4 in each direction) to the Port Kembla Coal Terminal.

Rail and Roadworks	<ul style="list-style-type: none"> • <u>Rail</u>: construction of a new 7.6 kilometre rail spur and loop connected to the existing Berrima Branch Line Branch Line, a railway bridge over the Old Hume Highway and a rail maintenance siding. • <u>Road</u>: new access to the mine site from Mereworth Road for all vehicles, upgrades to intersections in the local area, and construction of minor internal roads.
Biodiversity Offsets	The Project requires a total of 107 ecosystem credits and 626 species credits to offset the Project's clearing of 10.3 ha of native vegetation.
Heritage	<ul style="list-style-type: none"> • <u>Aboriginal</u>: 206 sites within the Hume Coal Project area (direct impact on 20 sites); and 11 sites within the Berrima Rail Project area (direct impact on 8 sites). • <u>Historic</u>: 8 historic items within the Project area, a portion of one of the listed items on the Wingecarribee Local Environmental Plan would be affected.
Agricultural Land	No Biophysical Strategic Agricultural Land (BSAL) is present within the Project area.
Rehabilitation	The Project site would be progressively rehabilitated, and 177 hectares of the disturbed land would be changed to a LSC Class 6 land use.
Hours of Operation	<ul style="list-style-type: none"> • <u>Construction</u>: Monday to Friday 7 am to 6 pm, Saturday 8 am to 1 pm and no work on Sundays or public holidays (except for limited minor works, works required by utility providers or affecting traffic flow, which would occur 24 hours a day, 7 days a week). • <u>Operation</u>: 24 hours a day, seven days a week.
Employment	<ul style="list-style-type: none"> • <u>Construction</u>: approximately 415 full-time positions. • <u>Operation</u>: up to 300 full-time positions, most of which are expected to be filled from Wingecarribee Shire and other surrounding areas.
Capital Investment Value	\$533,328,391, comprising \$498,044,957 for the Hume Coal Project, and \$35,283,434 for the Berrima Rail Project.

APPENDIX B – COMMISSION’S RECOMMENDATIONS FROM THE COMMISSION’S INITIAL REPORT

Recommendation Number	Commission’s Recommendation (Commission’s Initial Report)
R1	Because the Applicant and Department remain a considerable distance apart regarding their positions on the safety of the pine-feather method of mining, the Commission suggests that one of the Applicant or the Department, or both of them jointly, engage a new independent expert with experience in innovative coal mining technology with a view to resolving ongoing differences of opinion. This investigation would involve taking into account new information from the Resources Regulator.
R2	As a result of the outcomes of R1 , the Applicant needs to advise if there are consequences that would arise in relation to mine design and economics (resource recovery).
R3	The Applicant should provide the Project Risk Assessment to the Department, and any other relevant Government agencies, if necessary on a confidential basis, for consideration in any further Department or other Government assessment or response in the next stage of the assessment process.
R4	That the Department review the advice of Department of Industry - Water dated 24 April 2019 and the Applicant's correspondence of the 17 May 2019 and gives consideration to requesting the completion of the revised groundwater flow model, taking into consideration the advice provided.
R5	<p>Because the Applicant and Department of Industry - Water remain a considerable distance apart regarding their positions on the groundwater modelling, the Commission suggests that the Department or the Applicant, or both of them jointly (and in any case in consultation with Department of Industry - Water), engage a new independent expert (or alternatively a small technical group with Chair) with experience in groundwater modelling with a view to resolving ongoing differences of opinion. The independent expert/Chair should consider:</p> <ul style="list-style-type: none"> • what practical steps, if any, can be taken to make the model a class 2 model or seek agreement on the class of the model; • what additional work is required to establish the extent to which the emplacement of water in mined-out voids will reduce the level of drawdown in the later years of the Project; • the range used for the input parameters in the modelling sensitivity/uncertainty analysis and recommend if a wider range is required so that there is no unreasonable truncation of results; and • if additional geological information is required.
R6	That the Department give close attention to the practical adequacy of make good provisions during the final assessment process, with an independent review if necessary. This should include the practical aspects such as dispute resolution and economics as well as the technical.
R7	The Applicant is to confirm whether the provisional Water Treatment Plant does form part of the Project – and if so, provide suitable information to permit an appropriate assessment of its impacts.

R8	Should underground emplacement and water impounded have to cease for any reason, the Applicant is to confirm how long under normal mining operations it would take for the reject emplacement stockpile and Primary Water Dam to reach capacity.
R9	The Applicant is to provide greater detail on its surface level reject emplacement process, including the use of the temporary coal reject stockpile (as discussed in paragraph 188) once underground emplacement has been commenced.
R10	The Department is to consider and advise if Assessment Location No 7 should be afforded mitigation rights under the application of the <i>Noise Policy for Industry</i> .
R11	The Applicant and Department should explore opportunities to further mitigate noise impacts. Such opportunities may include more extensive noise monitoring, closer attention to atmospheric conditions, incorporation of any recently developed rail and rolling stock modifications, construction of noise bunds and physical barriers and stop-work when exceedances are observed.
R12	The Department's Final Assessment Report should confirm the suitability of the assumptions in the Applicant's modelling in relation to the prevailing wind data utilised as this was questioned by members of the public in submissions.
R13	The Applicant should undertake a more rigorous and detailed assessment of Project Greenhouse Gas Emissions, including Scope 3 end use of product coal, and this should be assessed prior to the Department's Final Assessment.
R14	The Applicant is to clearly define how it intends to mitigate/offset its greenhouse gas emissions through measures such as ensuring that all Project coal is only used within countries that are parties to the Paris Agreement.
R15	<p>Further visual impact assessment should be completed for assessment and should include at a minimum:</p> <ul style="list-style-type: none"> dimensioned plans of the Project area and the railway extension. The plans should include a survey with contours and the location and size of all works as well as the relative heights above ground level of significant structures, including the coal stockpiles, the coal loader and primary water dam walls; views of the Project area and railway extension from sensitive properties within and in the vicinity of the Project area (including heritage items), from the Hume Highway and Medway Road or any likely affected property. The distance and heights of the viewing points should be provided; views should be without mitigation measures (screen planting) and with mitigation measures in place after 5 years and 15 years; any findings in relation to groundwater impacts on gardens, plantings and landscape settings, and further assessment of the impacts of night-time lighting. <p>Any photomontages of the view impacts should be certified in accordance with the Land and Environment Court's Direction on use of photomontages http://www.lec.justice.nsw.gov.au/Pages/practice_procedure/directions.aspx.</p>
R16	Further information should be provided to allow the assessment of the potential impact of water table drawdown on heritage items (including gardens, plantings and landscape settings) within or in the vicinity of the Project area. The information should include confirmation of the existing level of the water table and the anticipated drawdown at both the 67 th percentile and the 90 th percentile.
R17	The Applicant should address the recommendations of the Heritage Council of NSW's correspondence to the Department dated 17 August 2018 as referenced in paragraph 283.

R18	The Statement of Heritage Impact Assessment should be updated in response to recommendations R16 and R17 , and the visual impact of the Project on the significance of the above items and the cultural landscape in accordance with an updated visual impact assessment. (see R15 in Visual Impact recommendations).
R19	The Applicant is to undertake further technical assessment on the impacts on private gardens, exotic trees and native vegetation from a declining water table.
R20	<p>The additional information provided by the Applicant, including the Updated Economic Impact Assessment prepared by BA Economics in October 2018, should be peer reviewed to determine:</p> <ul style="list-style-type: none"> i. whether the concerns and recommendations in the Economic Impact Assessment Review dated December 2017 prepared by BIS Oxford Economics (BISOE 2017) have been adequately addressed, including concerns about transparency in relation to project costs, revenues and externalities; and ii. the implications and reasonableness of changes/assumptions in the Updated Economic Impact Assessment including the change to the Project description from that in the Hume Coal Environmental Impact Statement and any cost implications. <p>Following the peer review, if the net economic benefit of the Project remains uncertain and there are outstanding concerns about the assumptions and/or information, a further Economic Impact Assessment should be prepared that is consistent with the recommendations in BISOE 2017 (as set out in pages 1-3 of the Executive summary of BISOE 2017) and any further recommendations of the peer review.</p>
R21	The Department should address whether assumptions in the Updated Economic Impact Assessment in regard to employment numbers and percentage of unskilled workers and whether these come from outside the local area are consistent with the assumptions used in the Social Impact Assessment
R22	The Applicant is to address the residual economic uncertainties, regardless of the strict interpretation of the 2015 Guidelines and Treasury Guidelines.
R23	The Applicant or the Department, or both of them, should review the market for coking coal, including the most recent forecasts by the Australian Government.
R24	The Applicant should consider updating its Social Impact Assessment in accordance with the Department's 'Social Impact Assessment Guidelines – September 2017' and ensure consistency with the assumptions of the revised Economic Impact Assessment.
R25	The Department, regardless of any further assessment provided by the Applicant, should assess the Project in accordance with its 'Social Impact Assessment Guidelines – September 2017' and report on the findings of this assessment in its Final Assessment Report.
R26	The Department should provide an updated and detailed assessment of all relevant components under Part 3 of the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i> with its Final Assessment Report, based on any additional information made available since the issue of the Department's Preliminary Assessment Report.
R27	The Applicant should update its consideration of the objects of the <i>Environmental Planning and Assessment Act 1979</i> and utilise the definition of 'Ecologically Sustainable Development' from the <i>Protection of the Environment Administration Act 1991</i> .
R28	The Department should provide an updated and detailed assessment of the public

	interest, the objects of the <i>Environmental Planning and Assessment Act 1979</i> and 'Ecologically Sustainable Development' with its Final Assessment Report, based on any additional information made available since the issue of the Department's Preliminary Assessment Report, including the further information recommended in this Report by the Commission.
R29	<p>The Department should include in its Final Assessment Report to the Commission an assessment of the public benefits of the Project which give consideration of whether:</p> <ul style="list-style-type: none"> i. the economic benefits of the Project outweigh its costs to the local community (section 4.15(1)(b) of the <i>Environmental Planning and Assessment Act 1979</i>); and ii. the public benefits of the Project outweigh the public benefits of other land uses (clause 12 (b) of <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>).
R30	The Department should invite relevant Government agencies to review and provide comment on any new information provided by the Applicant since the Department's Preliminary Assessment Report was published, including the content of this Report. In its Final Assessment Report to the Commission, the Department should consider any further Agency feedback as well as the content of this Report, the Materials, and any additional information produced in response to this Report and its recommendations.

APPENDIX C – WLEP 2010 LAND USE ZONE OBJECTIVES

Zone	Objective
E2 Environmental Conservation	<ul style="list-style-type: none"> To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values. To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
E3 Environmental Management	<ul style="list-style-type: none"> To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values. To provide for a limited range of development that does not have an adverse effect on those values. To encourage the retention of the remaining evidence of significant historic and social values expressed in existing landscape and land use patterns. To minimise the proliferation of buildings and other structures in these sensitive landscape areas. To provide for a restricted range of development and land use activities that provide for rural settlement, sustainable agriculture, other types of economic and employment development, recreation and community amenity in identified drinking water catchment areas. To protect significant agricultural resources (soil, water and vegetation) in recognition of their value to Wingecarribee's longer term economic sustainability.
RU2 Rural Landscape	<ul style="list-style-type: none"> To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. To maintain the rural landscape character of the land. To provide for a range of compatible land uses, including extensive agriculture. To provide opportunities for employment-generating development that is compatible with, and adds value to, local agricultural production through food and beverage processing and that integrates with tourism.
RU3 Forestry	<ul style="list-style-type: none"> To enable development for forestry purposes. To enable other development that is compatible with forestry land uses.
SP2 Infrastructure	<ul style="list-style-type: none"> To provide for infrastructure and related uses. To prevent development that is not compatible with or that may detract from the provision of infrastructure. To ensure that the scale and character of infrastructure is compatible with the landscape setting and built form of surrounding development.