BERRIMA RESIDENTS ASSOCIATION Inc

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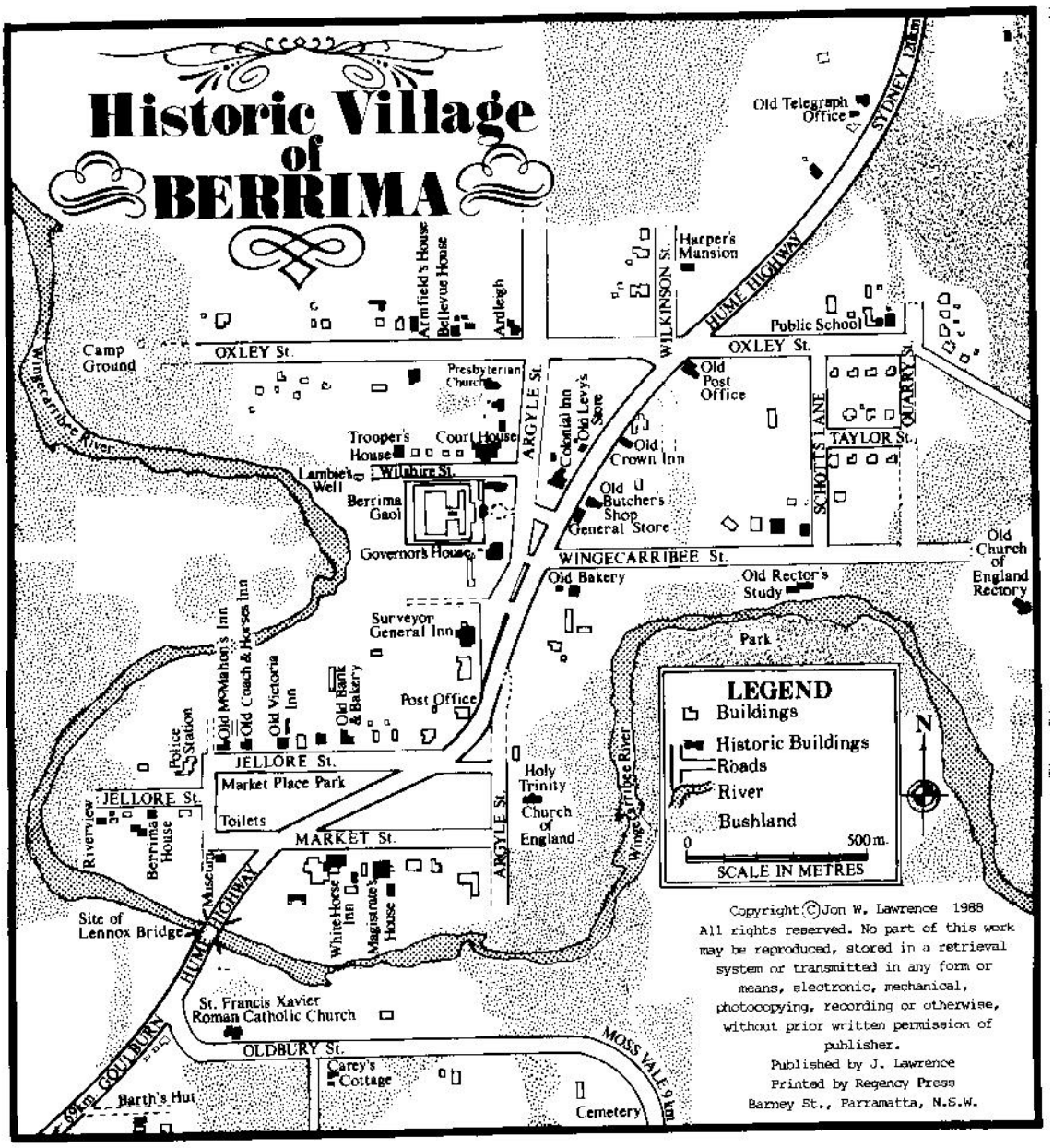
Submission by the Berrima Residents Association
Hume Coal EIS
June 2017



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The Berrima Residents Association strongly objects to the mine proposal by Hume Coal as set out in the EIS currently on exhibition and asks that the Hume Coal Project not be approved.

Background - Berrima Residents Association

The Berrima Residents Association (BRA) was formed in 1983 to provide a village forum to discuss issues affecting the Berrima community and to represent residents to government in planning and associated administrative matters. Members meet monthly in the church hall; non-members are welcome to also attend these public meetings. An executive Committee is elected at the AGM. The Association is an incorporated body in NSW and is managed by a constitution registered with the NSW Department of Fair Trading.

This submission on the EIS is divided into 6 sections. For completeness, comments on the Berrima Rail Project are included, although the submission was lodged separately.

1. Almost complete absence of assessment in the EIS of the impacts of the mine proposal on Berrima, its residents and its local business community

2. Inadequate consultation by Hume Coal with the Berrima community

3. Direct impacts of the mining proposal on the village from noise, dust, light pollution, groundwater drawdown and bores, groundwater contamination, bushfire risk, and traffic;

4. Adverse heritage and visual impacts and the associated commercial risks to local businesses that depend on tourism for their livelihood;

5. Cumulative risks to the community from the project due to: unique local geology; lack of detailed geological information; inadequate assessment of groundwater impacts; unproven mining method; and uncertain future demand for steel, metallurgical coal and prices.

6. Adverse impacts from the Berrima Rail Project;

1. Almost complete absence of any assessment in the EIS of the impacts of the mine proposal on Berrima

The Association draws the Department's attention to the almost complete absence of any reference to Berrima in the EIS, whether in relation to:

- the EIS describes the mine as being located 7.2 kms from Moss Vale, but omits to say that the proposed rail loop is actually 2 kms from the southern boundary of the Berrima Heritage Conservation Area (BHCA), which is a listed heritage item on the NSW State Heritage Inventory

- the proposed railway bridge over the Old Hume Highway is just 1250m from the southern boundary of the BHCA

- the rail maintenance siding and associated infrastructure between the Hume Highway and the Old Hume Highway is immediately adjacent to the Berrima Landscape Conservation Area (BLCA), which is also a listed heritage item on the NSW State heritage Inventory. This industrial maintenance facility, designed to operate 24 hours a day, is on land proposed to be included in the BLCA (Wingecarribee Shire Council, Local Planning Strategy, Berrima Village Precinct Plan, March 2016)

- the statement in the EIS that Berrima is '4 kms' from the mine is designed to mislead the reader
  - see Vol 1, p. 95. s. 5.1 Project location and character

- the EIS omits to mention that Berrima attracts over 200,000 visitors a year. Agricultural land uses are mentioned but the economically significant tourism and related service industries in Berrima (accommodation, cafes, museums) are omitted from the description of "character".

- Photograph 5.1 to 5.4 (p.95) purports to illustrate 'character of the project area, include an image of the Berrima Cement Works, but not Berrima village

- the narrow definition of heritage impacts in the EIS excludes impacts on landscape values (including on *Berrima Landscape Conservation Area and surrounds*) and on 16 items of State Heritage significance (in the *Berrima Heritage Conservation Area*)

    - see Vol 1, p. 63. s. 3.4.2 Heritage Act 1977

- Berrima is not mentioned in the discussion of local history (see Historical context – Exploration and early settlement; Vol 1, p. 548. s. 22). The historical review presented suggests that nothing happened in the district between land grants around 1819 and the coming of the railway in the 1860s. This is a completely misleading report of the actual historical development of the area.

- The impression given to the reader is that the historical development and resulting cultural landscape is of no significance. This false impression is further compounded by the juxtaposition of a long text on the history of mining, which itself exaggerates the importance of the minor coal mining operations in the 19th century and omits the fact that the small Medway mine was closed due to concern over pollution of the Wingecarribee River, part of the Sydney water catchment.

- the Berrima Residents Association was never consulted by Hume Coal concerning the project, contradicting assertions made in the EIS, which state that stakeholders, including "*special interest groups, cultural heritage groups …and not-for-profit organisations"* where identified and consulted.

    - Hume Coal was aware of the existence of the Residents Association because the Association wrote to the GM of POSCO in Korea in late 2015

- Despite claims that Hume Coal provided "project briefings to interested stakeholder groups" and "issued formal letters to community members", no such communications were received by the Residents Association.
        - see Vol 1, p. 78, 79, s. 4.4. Stakeholder engagement process

        - If these claims are taken at face value then the omission to exclude the Berrima community from the consultation process must have been a deliberate decision
        - An information session was held in New Berrima (6 August 2016); no session was held in Berrima
            - See Vol 1, p. 85

- Noise assessments include those for New Berrima, but not Berrima, even though similar distances from noise sources and wind directions suggest that an assessment should be presented

    - See Table 11.4, Vol 1, p. 289. "Noise catchment areas"

    - This section does not include a discussion of the <u>cumulative</u> impacts on Berrima from rail movements on the proposed elevated rail overpass over the Old Hume Highway, with other rail and surface mine

operation noise and noise from traffic traveling on the Hume Highway and the Berrima Cement Works.The new rail overpass on the Old Hume Highway is located 2 km south of Berrima village on an elevated plateau about 100 higher that Berrima Village. The prevailing winds are such that noise and dust are likely to be directed toward the village located at a lower elevation on the Wingecarribee River.

- Assessment of economic benefit (see Vol 1, s.19, p 453) excludes impacts on tourism, which is the mainstay of business in Berrima. The visual impact of a large scale industrial enterprise on the experience of visitors attracted to an historic village can be expected to be negative and felt most locally. Accordingly, estimates of net economic benefit from the mine need to be discounted.

- The list of heritage items presented in Table 2.2 in Vol 10, Appendix T (Statement of Heritage Impact), p18 is misleading as only 8 items of State significance in Berrima are shown, when in fact there are 16 items of State significance located in Berrima.; incredibly, Berrima Correctional Centre is not included in the table. Is this sloppy research or an attempt to downplay Berrima heritage significance?

The above list of places in the EIS is not an exhaustive list of places but is indicative of where, in the EIS, any reasonable person would expect the fact of Berrima's existence would, at least be acknowledged, and an assessment of the impact on Berrima would be presented.

Berrima is located about 4 kilometers NE of the proposed surface infrastructure for the mine, which includes administration buildings servicing 414 employees in construction, and 300 full-time equivalent employees during operations; access roads; staff service buildings; overland conveyors; coal washery; coal stockpiles; coal reject handling facilities and stockpiles, surface groundwater facilities and rail load-out facilities, including an extensive rail-loop and rail maintenance yards.

It is not as if Berrima is an insignificant place or hard to find. Over 200,000 people visit Berrima every year from within Australia and overseas, attracted by Berrima's unique heritage and natural setting. Berrima is a key factor attracting tourists to the Highlands, not only from within NSW, but also from inter-state.

Berrima's national heritage significance is widely recognised. Founded in 1831, Berrima is the only settlement surviving virtually intact from the colonial Georgian period in Australia. Other colonial towns like Campbelltown and Windsor in NSW, and Richmond and Evandale in Tasmania, continued to develop, while Berrima remained frozen in time.

The imposition of a major industrial enterprise on the landscape just a few kilometers from the village, and through which tourist must pass to visit Berrima, threatens this unique heritage and demands that the EIS present a comprehensive and honest assessment of the impacts of the mine proposal. In this Hume Coal and the EIS fail.

The Association contends that avoiding any discussion of Berrima in the EIS is not an oversight on the part of Hume Coal but is deliberate policy to minimise the importance of Berrima in the EIS with the clear intention to mislead by avoiding any discussion or assessment of the impacts of the mine proposal on Berrima, its heritage significance, the amenity of residents and the risks to the livelihoods of its local businesses.

Accordingly, the Association contends that the *bona fides* of the company are compromised and the EIS significantly misleads the reader into concluding that local impacts are not significant, when the opposite is the case.

Inevitably, this raises questions as to what other parts of the EIS are misleading and deceptive, and raises doubts about the validity of the company's claims that the mine will have minimal adverse environmental, economic, heritage and social impacts on Berrima in particular, Sutton Forest and the Southern Highlands more broadly.

2. Inadequate consultation by Hume Coal with the Berrima Community

Hume Coal refused our offer of June 2016 to hold a public meeting in Berrima, in which the company could present its case in favour of mining. This is despite saying in its letter of February 2016 to the Association that:

> *"POSCO…looks forward to working with yourself and other residents of Berrima to resolve any outstanding issues as the project progresses though the statutory approval process."*

Although Hume Coal opened an office in Berrima in May 2016, this did not lead to consultations with our community. In our view, the office was an empty gesture designed to present the appearance of consultation while actually avoiding dialogue.

The Association wrote to Hume Coal on 3 June 2016 in the following terms:

> *"We appreciate that you would prefer to proceed to mining with the support of the community. Accordingly, to enable your company the opportunity to put its case to our community, we invite representatives of Hume Coal to participate in a public meeting in Berrima, at a mutually agreed time and date, where a panel of experts representing both sides of the issue can present the arguments in favour of, and opposed to, the Hume Coal Project, followed by time for questions from the audience."*

Previously, the Berrima Residents Association had written to the CEO of POSCO Dr. Oh-Joon Kwon in South Korea on the 4 December 2015 to express our concern over the proposed export coal mine. In particular, we stressed the close proximity of the mine to the historical village of Berrima; the impact of an export coal mine on the landscape; fears over loss of groundwater and pointed out that an alternative to constructing a *greenfields* mine in such a sensitive area would be to purchase an ongoing concern, that was either in-operation or closing due to current adverse market conditions.

Copies of the relevant correspondence **are attached** to this submission:

- **BRA Letter to POSCO Dec 2015; POSCO Letter to BRA Feb 2016;**
- **BRA letter to POSCO Sydney June 2016**

In our view, the company's decision not to engage with the Berrima community in a meaningful way, and to deny us any open public debate of the impacts of the mine on Berrima in the EIS, reflects Hume Coal's assessment that the adverse impacts of the mine plan on Berrima are significant and if they were brought into clear view, the chance that the project would be approved, would be diminished.

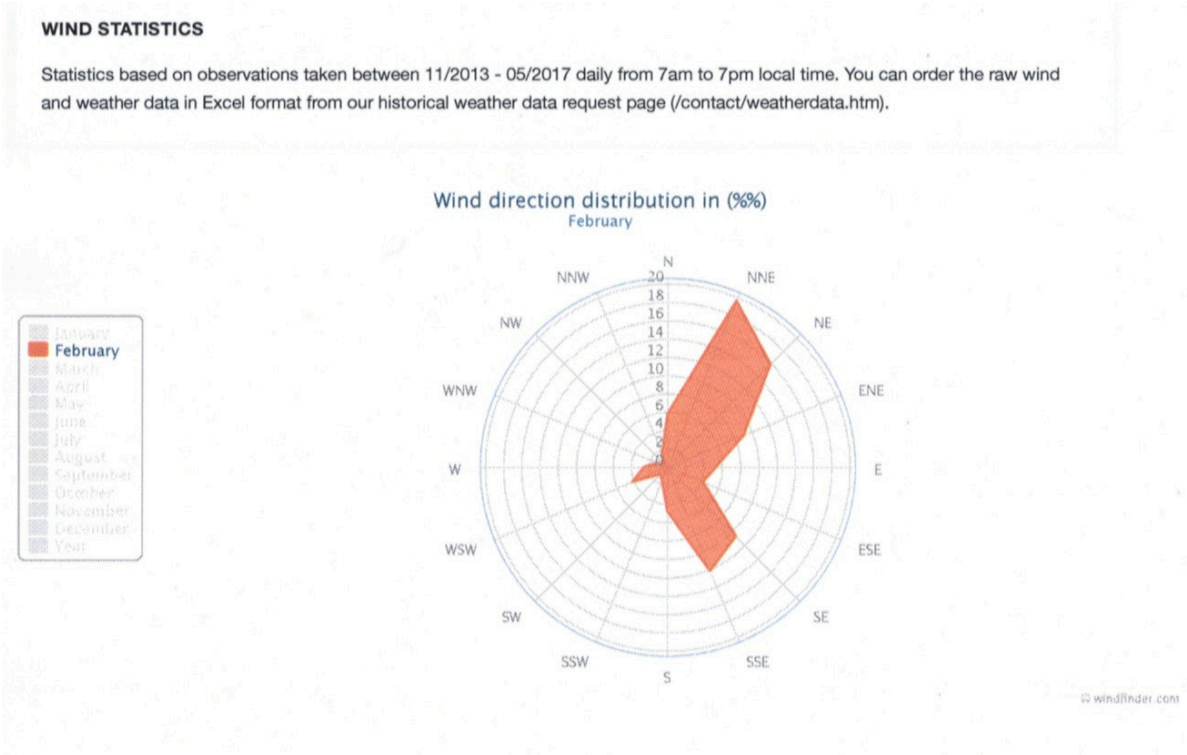
We consider that the company's presentation of the project, in so far as Berrima is concerned, in disingenuous and misleading.

3. <u>Direct impacts</u> on Berrima from noise, dust, light pollution, groundwater drawdown and bores, groundwater contamination, bushfire risk, and traffic

3. a. <u>Weather data used for modeling noise and dust impacts is problematic</u>

Modeling the impact on residents of dust and noise depends in part on meteorological data. Data was collected by Hume Coal from two weather stations, but only data from one station (the southern station), and only for one year (2013) is presented in the EIS.

- The wind speed and direction data presented in Table 11.5 is unrecognisable to any Berrima or New Berrima resident.
    - Official meteorological data for Moss Vale shows that for most of the year - September to March, (including the hot summers months), winds blow strongly to the NE (see www.windfinder.com/Moss Vale NSW)
        - i.e. in a direct line from the site of the proposed coal stockpiles and rail loop toward Berrima and New Berrima
        - as a result, <u>Berrima and New Berrima lie directly in the path of wind borne noise and dust, and any fire, during this hot summer period</u>



- Hume Coal's southern station is located near the Illawarra Highway and is quite remote from the two populations centres (Berrima and New Berrima), which are most impacted by noise and dust.

    - Accordingly, the assessments presented in the EIS of impacts of noise (and dust) on these residents should be discounted

    - **Hume Coal should be required to use official local meteorological data in its modeling of noise, dust and fire impacts, and be required to:**

        - **re-assess the noise and dust impacts on Berrima and New Berrima residents**

        - **undertake a risk assessment of the bushfire risk from the coal stockpiles under 'catastrophic' fire conditions, which have occurred in the Berrima area twice in the past two years**

3. b <u>Noise</u>

Noise impacts are presented in the EIS Vol 1 Main Report, pp 283-314.

Background noise monitoring and assessment in the EIS is inadequate and unrepresentative for residents of Berrima because:

- no station was installed in Berrima (see Fig 11.2, p.290).
- no station was installed on the Old Hume Highway, near the proposed rail maintenance siding, south of the Medway Road round-about

- the only weather station near local centres of population centres, Station BG-5, is located in bushland to the east of New Berrima. This location would not pick up background from traffic on the:

    - Old Hume Highway passing through Berrima

    - Noise from grinding at the Boral cement works heard in Berrima

- The strategic decision by Hume Coal to locate the BG-5 station in such a remote location means that estimates of the <u>cumulative impacts of noise</u> on residents from the Project, including from the rail transport and siding operations, will be <u>underestimated</u>

    - Accordingly, estimates of the number of properties expected to experience noise impacts is underestimated and unreliable

The EIS claims that noise from the rail maintenance facility would not lead to increased noise impacts (s. 11.4.5, p. 306, despite operating 24 hours a day.

However, no assessment is presented of the noise impacts from trains traversing the proposed elevated bridge over the Old Hume Highway, which one would expect to have significant noise impact on residents living just 1250 metres away, given the height of the rail bridge above the road, and the length of the coal train.

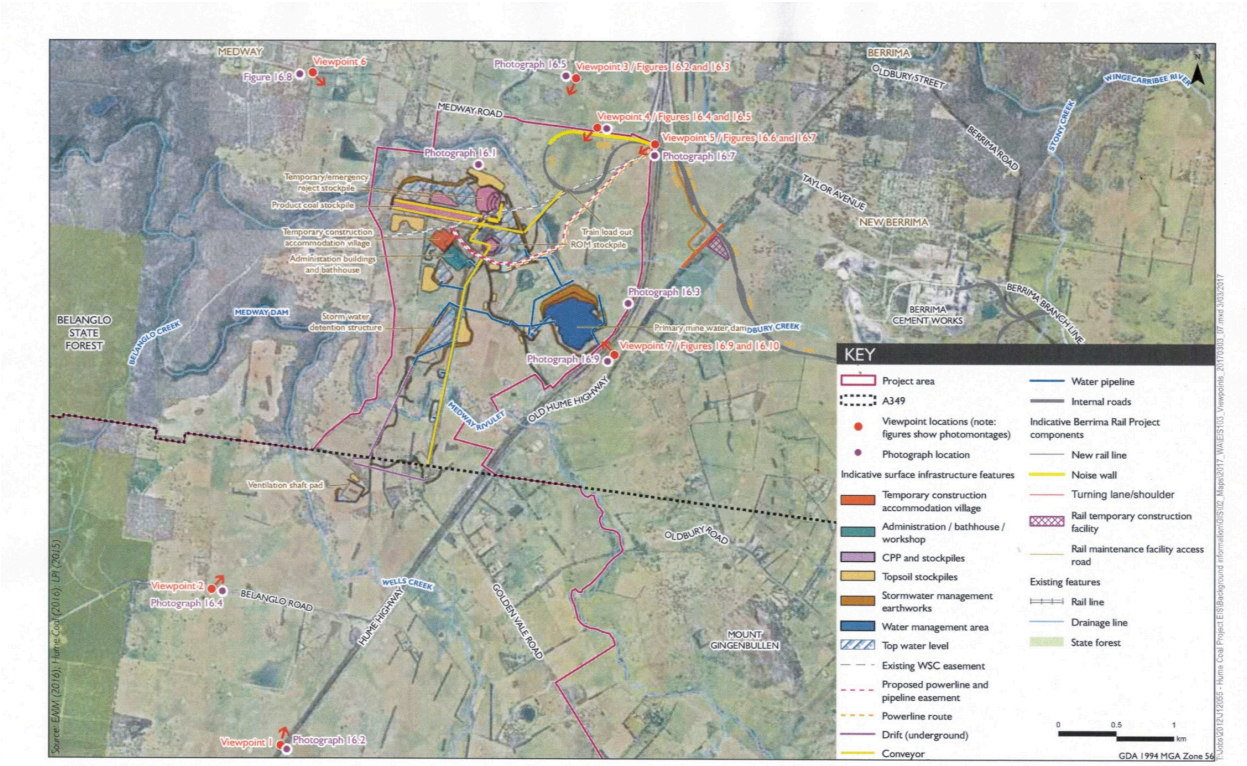
- Hume Coal should be required to model impacts on residents from this noise source
    - It should be noted that the Berrima Residents Association has asked the Department of Planning to relocate the maintenance siding to the west side of the Hume Highway (See BRA submission of the Rail Project EIS)
        - Relocating the facility would avoid noise, light, dust and heritage impacts
- Noise from helicopters moving back and forth to the proposed heli-pad are an additional source of noise pollution; this requires a separate impact assessment.

3. c <u>Dust</u>

The major sources of coal dust pollution is from:

- the 2.2km covered overland conveyor from the drift portal to the ROM coal stockpile
- the ROM coal stockpile, next to the Coal Preparation Plant (CPP) with a capacity of 60,000t
- 2 separate temporary/emergency rejects stockpiles
- 2 washed coal stockpiles with approximate total capacity of 300,000t and up to 20m high; one for metallurgical coal and one for thermal coal
- conveyors transporting washed product from the stockpile to the train load-out bin, which will be partially enclosed
- coal in train wagons, intended to be covered (Vol 1, s.2.3.4, p17)

The location of these facilities is shown in Figure 16.1 below, taken from the EIS Vol 1, p. 398.



Viewpoint, photomontage and photograph locations

Hume Coal Project
Environmental Impact Statement
Figure 16.1

The section describing the washed product stockpile (s.2.8 in the EIS Vol 1, p.30) does not provide information on its physical dimensions of the product stockpile. However, Table 16.4 (Vol 1, p.400) notes that the stacker will be up to 20m high.

Based on the scale on the Figure, it is estimated that this stockpile is about 800m long.

Table 12.14 "*Best practice dust control measures review*" (Vol 1, p. 338) states that "water sprays will be fitted to the ROM and product stockpiles: and that the "water spray intensity will be adjusted in real-time based on …. wind speed and temperature"

- the EIS does not provide any assessment of the capacity of the watering system to cope with extreme weather conditions, as experienced on 11 February 2017.

- The temporary rejects stockpile is a potentially major source of dust

    - If the slurry operation is halted for any reason, the rejects stockpile could grow substantially as coal continues to be washed in the CCP creating new rejects.
    - If this pile is not controlled with water sprays or applied with impermeable films, wind is likely to whip up dust and in summer blow this toward Berrima.

The product stockpiles are to be "aligned with dominant westerly air flow to reduce erodible surface area during peak wind events".

- As noted in this submission, the prevailing wind direction for most of the year, including the hottest summer month of February, is NNW

- Contrary to the claim in the EIS, the planned E-W alignment of the stockpile places it perpendicular to the prevailing wind direction and thus maximizes the risk of coal dust blowing toward Berrima, which is located directly up wind during these months

    - Coal dust poses serious risks to personal health for Berrima residents. A study published by the Lock the Gate Alliance in March 2016 (*Free Loaders Air and Water Pollution from NSW Coal Mines*) details the 38 pollutants emitted into the air by NSW coal mines.
    - anecdotal evidence from residents living near underground coal mines in the Southern Coalfield indicates that coal dust settles on roofs and vehicles, on solar panels, enters domestic water tanks supplied by rain water off roofs, and accumulates over time. Berrima residents are in the front line to receive this fall-out.

3. d. <u>Light pollution</u>

Night lighting of mine surface infrastructure, including on the 20m high stacker, high product stockpiles, on conveyors, around buildings and along roadways, as well as at the proposed maintenance siding, which will operate 24 hours a day, will be visible from Berrima village and by travellers on the Highway, Medway Road and the Old Hume Highway.

As the Hume Highway cuts north-south across the rail line and through the mine surface works, traffic will experience a lit-up large scale industrial complex set in an otherwise rural environment. Residents and tourists exiting the Highway to visit Berrima from the south, and tourists leaving Berrima toward the south, will see lit-up administrative and industrial buildings.

The brightly lit tower at the Boral Cement Works at New Berrima is a very prominent in the night sky; so much so that it is known locally as “Mt Boral”.

The light pollution from the cement works, combined with additional light pollution from the Hume Project, would create an arc of industrial light stretching high into the night sky across the landscape south of Berrima; this would have

- an adverse impact on the amenity of residents, and be

- incompatible with the heritage significance of Berrima as the best example in Australia of a colonial-era settlement

3. e Groundwater drawdown and bores

The Berrima Residents Association has commented elsewhere on the inadequate modeling in the EIS of impacts on groundwater and the drawdown in the water table resulting in the loss of production from bores.

The EIS discusses "make good provisions" in s. 7.7.2 in Vol1, p. 187. However, no provision is made for compensating landowners in Berrima who have bores and who experience a loss of production following the commencement of mining.

The Department should make it a condition of mine approval, that bores not currently identified in Section 7.7 5ii, as outlined in Appendix O of the water assessment report, but are located in the *Berrima Heritage Conservation Area* or in the *Berrima Landscape Conservation Area*, are included in appropriate "make-good provisions"

3. f. Bushfire risk

On 11 February 2017, the Australian Bureau of Meteorology reported that the noon temperature in Berrima had reached 40 degrees Celsius, with wind gusts reaching 65 km/hour (or 18m/second). Similar conditions prevailed the day before and on the following day, the Rural Fire Commissioner declared fire conditions in the region to the west of the Highlands to be 'Catastrophic'.

Wind conditions in February (averaged 2013-2017) are shown on page 8 above (extracted from www.windfinder.com/Moss Vale NSW).

Air-borne coal dust blown off the stockpiles also poses a significant fire hazard during periods of extreme and catastrophic fire danger

- The EIS does not present any assessment of the potential increase in risk during bushfires or other localised fires (e.g. on the Highway) from air-borne coal dust during 'peak wind events' such as occurred in Berrima on 11 February 2017.

- The Hume Highway passes about 1,500m to the east of the end of the coal stockpile and car accidents, such as the on illustrated below on the Highway at Goulburn in November 2014, could lead to serious fires threatening the mine itself and Berrima.

3. g. Traffic

The construction and operation of the Hume project will necessarily increase traffic on the Hume Highway and local roads over its 23-year life, as a result of the

- movement of employees, particularly post-construction when the mine is operated by 414 full time employees

- delivery of construction materials and mining equipment over the 2 year construction phase

- movement of heavy earth-moving machinery

- the 24 hour operation of the maintenance siding

Increased traffic to service this large industrial enterprise will put pressure on Council to upgrade roads, thus changing the existing rural character of the Southern Highlands

- adversely impacting on the heritage significance of the Berrima Sutton Forest Cultural Landscape that encompasses the mine area but also on traffic in historic Berrima during the week and on weekends
    - imposing costs on Council and ratepayers

The proposal to make Mereworth Road the main entry to the mine is problematic.

- It is unlikely that traffic to the mine coming south on the Hume Highway will exit at Medway Road, travel east, turn right onto the Old Hume Highway, continue south for 2 km, pass under the Hume Highway to join Mereworth Road

- More likely, is the scenario that traffic coming to the mine will continue past the Medway Road exit for 2 kms before slowing down (in the fast moving right lane) to turn right into the short median strip at Golden Vale Road in order to make a U-turn back on to the Hume Highway, then travel north for 500m before taking the Berrima exit and turning left onto Mereworth Road.

    - This maneuver is particularly dangerous but can be avoided if an alternative entrance to the mine is opened off Medway Road, to the west of the Hume Highway. In doing so, traffic heading south to the mine along the Hume Highway could exit at Medway Road and turn right toward the west along Medway Road to the new mine entrance.

    - **The Department should make the construction of a secondary entrance to the mine off Medway Road, to the west of the Hume Highway, a condition of approval.**

4. Cumulative risks to the community from the project due to: unique local geology; lack of detailed geological information; inadequate assessment of surface and groundwater impacts; unproven mining method; and uncertain future demand for steel, metallurgical coal and prices.

Hume Coal must demonstrate that their understanding of the local geology and the efficacy of their proposed mining method is sufficient to make valid claims about impacts on the ground and surface water, particularly as the project is in the Sydney Water Catchment Area

- The failure of the EIS to present detailed information in these areas means that the project exposes the community to unacceptable cumulative risks

- It is clear that the serious local environmental risks associated with the project outweigh the claimed financial benefits to the NSW Government

4. a. Unique local geology

The experience of mining the Illawarra Coal Measures on the south Coast of NSW is not transferable to the Southern Highlands

- In the Sutton Forest area, the Wongawilli coal seam (proposed to be mined) is overlain directly by the Hawkesbury Sandstone, which is a major regional aquifer.

- On the South Coast, the sediments at the top of the Illawarra Coal Measures and the Triassic Narrabeen Group of siltstone, claystone and sandstone are absent.

    - See Fig 2, in Ben Fitzsimmons and Rod Doyle, *Hume coal – An overview*, in Naj Aziz and Bob Kininmonth (eds.), Proceedings of the 17th Coal Operators' Conference, Mining Engineering, University of Wollongong, 8-10 February 2017, 90-98. (**Copy attached)**

- As the aquifer (Hawkesbury Sandstone) directly overlays the Wongawilli Seam, the water flows into the mine will be of crucial importance to the mine operation and safety.

4. b. Lack of detailed geological information in the mine lease area

Hume Coal has not demonstrated that it has fully mapped the surface and subsurface geology of the mine lease area, either in terms of the size of the resource to be mined or in the location of igneous intrusive rocks which pepper the mine lease area.

Hume Coal has not demonstrated that it has confidence in the size of the coal resource it intends to mine.

- We refer the Department to following quote from page 94 of the *Fitzimmons and Doyle* paper (referenced above)

> *"Difficulties in obtaining land access has directly resulted in not being able to further improve the level of confidence in the Resource Assessment from Inferred to Indicated or to a Measured status."*

Hume Coal has not been able to explore and drill on many properties in the lease area because the Land and Environment Court denied access based on definitions of "significant improvements" in the relevant legislation.

It is unacceptable that a mine plan be approved on the basis of only an "*inferred or indicated*" and not a "*measured resource*".

- Inadequate knowledge of the available resource raises the very real risk that the mine can not be developed as proposed in the EIS.

- This uncertainty with the size of the "economic resource" available to be mined introduces another unacceptable risk with the mine project.

4. c. Inadequate assessment of the surface and groundwater impacts

Claims made by Hume Coal that the impacts on surface and groundwater from mining will be minimal cannot be substantiated by the modeling presented in the EIS

In May 2017, *the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development* (IESC) provided advice to the NSW Department of Planning and the Australian Government Department of the Environment and Energy, advised on whether the proposed project assessment used:

- Relevant data and information, and
- Application of appropriate methods and interpretation of model outputs

This was in relation to impacts on:

- Groundwater
- Surface water
- Water quality
- Groundwater Dependent Ecosystems (GDEs)
- Subsidence

In particular, the report notes that the Hume Coal project has the following key potential impacts on water resources:

- Drawdown in landholders' bores, largely within the Hawkesbury Sandstone
- Drawdown of the water table resulting in loss of baseflow and subsequent changes to the flow regime and water quality in waterways
- Drawdown of the water table impacting groundwater dependent ecosystems (GDEs), including riverine GDEs, terrestrial vegetation and subsurface ecosystems
- Water quality impacts to Oldbury Creek, Medway Rivulet and the Wingecarribee River, and riparian vegetation in these waterways as a result of discharge from site stormwater basins (SBs)
- Water quality impacts to aquifers and groundwater fed surface waters as a result of storing rejects in underground voids

The ISEC report noted deficiencies in the modeling presented in the EIS and recommends methodical improvements and additional monitoring.

Particular criticism was directed at:

- only "partially" satisfactory water models used, and only "partially" satisfactory estimates of impacts on surface and groundwater
- lack of sensitivity analysis in the ground water model
- uncertainty in predicting the number of private landholder bores predicted to be impacted
- uncertainties associated with the contours of groundwater drawdown contours
- the necessity for Hume Coal to submit detailed groundwater drawdown maps given the importance of the Hawkesbury Sandstone aquifer on the water table for landholders and GDEs, before mine approvals can be given
- lack of information concerning rate of groundwater recovery after mine closure
    - "make-good" provisions in relation to baseline modeling of landowners bores
    - the need for on-going data collection and updating of groundwater models implies further uncertainty over model efficacy and results

- uncertainty in base flow reduction of surface water into the surface watercourses, in into the Wingecarribee River, which has the most third party users (being part of the Sydney Water Catchment)

Modeling the groundwater impacts of coal mining in the Hume Coal MLA was commissioned by "Coal Free Southern Highlands" in 2013. The study was undertaken by the independent consulting firm *Pells Consulting*; the results were released in the report:

- "*Pells, S.E. and Pells, P.J.N.P. 2013 Three dimensional groundwater model of Hume Coal Prospect, Southern Highlands NSW. Draft consultant's report by Pells Consulting for Southern Highlands Coal Action Group. Ref P029.R1 3 October 2013.*
    - This study is currently being updated following the release of the Hume Coal EIS

The Pells' study finds that the Hume project will have very substantial impacts on groundwater levels in the mine area and extend well outside the mine footprint affecting water bores as well as landscape and flora dependent on groundwater.

In addition, the report concludes (p.47):

- *"Fracturing of the Hawkesbury Sandstone above the workings is a secondary effect. Conversely nothing meaningful can be achieved in reducing mine inflows, and groundwater drawdown, by altering the mining method."*

The study also concludes (p.48):

- *"It is reasonable to expect that most groundwater bores in the area will lose all or most of their current yields. This is fully consistent with observations of groundwater drawdown at the Berrima Colliery, which is just north of the modelled area."*

These uncertainties in the water modeling and impact assessment in the EIS noted above fundamentally undermines Hume Coal's claims that mining will result in minimal environmental impact and presents unacceptable environmental risks to the community from the project.

4. d. Unproven mining method

Hume Coal rejected traditional mining methods used in other underground coal mines in NSW and proposes a 'first workings with slender pillar system" approach. This is justified on the basis of the unique geology of the mine lease area and minimizing environmental impacts. (EIS Vol 1 Part C, p. 123).

The design involves the use of 'a non-caving mining method leaving coal pillars in place' and 'installing bulkheads to seal each panel immediately after extraction and backfilling".

The operational plan also includes returning 'all coal rejects underground to partially backfill mined-out voids' and allowing groundwater to fill the remaining void. (EIS Vol 1. P.16).

It is also anticipated that mining will use 'remote controlled continuous miners', presumably for safety reason, as the mine face will be subject to substantial groundwater in-flows making manned continuous machines too dangerous to operate.

Hume Coal claims that this mine design demonstrates "*Leading practice innovations*", while arguing at the same time that the individual design elements (our emphasis) are based on proven techniques.

It should be noted that the *Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC)* states that the mine method needs to be proven (on page 11, para.11)

- "*In this case the proponent has proposed an innovative potentially low impact mining method, and significantly reduced the quantity of coal that will be extracted. However, this modification of a first workings partial extraction has not yet been used in the Sydney Basin and it therefore still needs to be proven.* "

Claims by Hume Coal that this mining method is acceptable should be independently tested.

The Department of Planning should commission an independent study to assess whether this combination of mining methods is acceptable, and safe, in the situation of :

- an aquifer draining directly in active mine workings
- partially filling voids with contaminated coal rejects (injected as a slurry)
- allowing the partially filled void to fill with fresh groundwater
- allowing the mixing of fresh groundwater with coal reject slurry
- sealing the bulkheads to contain the backed-up groundwater under pressure

4.e. Forecast for steel, metallurgical coal demand and prices

Hume Coal estimates that about 35% of the available coal resource will be extracted, due to the mining method proposed.

- this is substantially lower than at other underground mines in NSW
- this low resource recovery inevitable affects the economics of the mine as the substantial overhead capital construction costs are spread over a lower extracted ROM coal level
- a low recovery rate makes the viability of the project, and its claims of community benefit, particularly venerable to future demand and prices for metallurgical coal
- international prices for metallurgical coal (benchmark contract prices and spot prices) are relevant here because Hume Coal is required to sell to its parent POSCO at competitive prices, otherwise it could be accused of transfer pricing, in which case revenues to Australian authorities would be reduced, thus diminishing community benefit from the project.

Forecasts of demand and prices for metallurgical coal are published by the Australian Department of Industry, Innovation and Science in its publication *Resources and Energy Quarterly*.

- The latest edition of the Quarterly (March 2017) **(copy attached)** reports :
  - a modest growth in annual world steel production of 1.2%, as growth in India is offset by falls in China. (Figure. 3.1, p. 26)
  - a high degree of volatility in Australian benchmark contract prices over the past 10 years and declining prices over the next 5 years (Figure 5.2, p 43)
  - world demand for metallurgical coal is projected to remain "steady" over the medium term (p.44)
  - metallurgical coal imports are forecast to increase at an average rate of 0.2% over the medium term, although imports into South Korea are expected to rise due to Korea meeting increased demand for steel imports from ASEAN countries
  - increased competition in metallurgical coal markets, particularly in North Asia, due to rising exports from Russia and Mongolia into the region as the Chinese import demand continues to fall from its peak in 2012.

  This weak demand and price forecast for internationally traded metallurgical coal imposes medium term financial risk for the project, potentially undermining the economic viability of the project.

The Department must weigh up the environmental risks from the project against the claimed benefits. The current weak international market for coal has caused mine closures in Australia. As noted above, the market is projected to remain weak. The Department must consider whether a new "greenfield" mine will actually survive these conditions over its projected life of over 20 years.

Section 4. Attachments:

Ben Fitzsimmons and Rod Doyle, *Hume coal – An overview*, in Naj Aziz and Bob Kininmonth (eds.), Proceedings of the 17th Coal Operators' Conference, Mining Engineering, University of Wollongong, 8-10 February 2017, 90-98.

Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development. *Advice to decision maker on coal mining project , IESC 2017-083: Hume Coal Project (EPBC 2015/7526) – New Development.* Canberra, March 2017

Resources and Energy Quarterly. March 2017. Department of Industry, Innovation and Science. Canberra, March 2017.

5. Heritage impacts, Visual impacts and Associated commercial risks to local businesses that depend on tourism for their livelihood

5. a. Heritage impacts

In 2016, the Berrima Residents Association commissioned the highly respected heritage consultant Ms Colleen Morris to undertake a study of the heritage significance of this area. The 169 page study, undertaken in conjunction with Christine Hay, was completed in May 2017, and is entitled

- *Cultural Landscape Assessment. Berrima, Sutton Forest, Exeter Area*. May 2017. 169pp. **(copy attached)**

- **This cultural landscape study forms part of this submission as the content and conclusions are supported by the Berrima Residents Association**

The adverse impacts on the heritage significance of the *Berrima, Sutton Forest and Exeter Area* are described in detail in the *Statement of Heritage Impacts* (SOHI) prepared by Colleen Morris in June 2017 for the Berrima Residents Association **(copy attached)**

- **the SOHI forms part of this submission as the content and conclusion are fully supported by the Berrima Residents Association**

Berrima's close proximity to the proposed mine means that necessarily Berrima will be affected by the development of a large underground export coal mine

- the proposed rail loop is actually 2 kms from the southern boundary of the Berrima Heritage Conservation Area (BHCA)

- the proposed railway bridge over the Old Hume Highway is just 1250m from the southern boundary of the BHCA

Berrima's national heritage significance is widely recognised.

Founded in 1831, Berrima is the only surviving settlement, virtually intact, from the colonial Georgian period in Australia. Other colonial towns like Campbelltown and Windsor in NSW, and Richmond and Evandale in Tasmania, continued to develop in the 19th and into the 20th century, while Berrima remained frozen in time.

The imposition of a major industrial enterprise on the landscape just a few kilometres from the village, and through which tourist must pass to visit Berrima, threatens this unique heritage.

Berrima's heritage is protected by the:

- *Berrima Heritage Conservation Area* (BHCA),
    - covering the central village commercial and residential precincts, and the

- *Berrima Landscape Conservation Area*,
    - Covering the sparsely settled, rural and areas of native vegetation surrounding Berrima, which forms a rural "curtilage" or "buffer zone" around the village

- these two Conservation Areas are listed as items on the NSW State Heritage Inventory

The historic village of Berrima is an integral part of the Southern Highlands that is also affected by the Hume Coal project - the Berrima, Sutton Forest Exeter area.

The Study by Colleen Morris demonstrates that the "*Berrima, Sutton Forest and Exeter Area*" has state significance as a unique cultural landscape. The reader is referred to the "Statement of Significance" for the area - see Executive Summary of the Study (p.4-6)

The Hume Coal project will have significant adverse impacts on the heritage values of Berrima village, its protected rural "curtilage' and on the Sutton Forest and Exeter areas lying above the proposed underground workings.

The Hume Coal EIS completely fails to address the heritage issues from the mine project because the EIS, conveniently,

- excludes any discussion of Berrima and the heritage impacts on the community

- confines assessments to the heritage impacts from the surface infrastructure, mainly at Mereworth

- ignores the impacts on the wider physical landscape; e.g. due to loss of groundwater and on 'groundwater dependent ecological communities'

- ignores the impacts on the cultural landscape of the area through the imposition of a large industrial enterprise on a historic rural landscape

- ignores the adverse impacts on tourism

5. b. <u>Visual Impacts</u>

The adverse impacts to views are described in detail in the *Statement of Heritage Impacts* (SOHI) prepared by Colleen Morris in June 2017 for the Berrima Residents Association **<u>(copy attached)</u>**

- **the SOHI forms part of this submission as the content and conclusion are fully supported by the Berrima Residents Association**

Berrima is located a just few kilometers NE of the proposed surface infrastructure for the mine, which includes:

- administration buildings
  - servicing 414 employees in construction, and
  - 300 full-time equivalent employees during operations;
- access roads;
- staff service buildings;
- overland conveyors;
- coal washery;
- coal stockpiles;
- coal reject handling facilities and stockpiles,
- surface groundwater facilities
- rail load-out facilities
- an extensive rail-loop and
- a separate rail maintenance yard
- noise abatement wall
- extensive perimeter planting

The sites proposed for the surface mine infrastructure, the rail tracks and the separate maintenance sidings are visible:

- from the Old Hume Highway (south of Berrima),

- from the Hume Highway, as it divides the main surface infrastructure (to the west) and the maintenance siding (to the east), and

- from Medway Road, between Medway and the Old Hume Highway.

Views from these locations will be adversely impacted by the Hume project. Hume Coal proposed noise wall and boundary planting will actually <u>detract from the landscape</u>, rather than enhance it, as claimed in the EIS.

5. c. Associated commercial risks to local businesses that depend on tourism for their livelihood

Over 200,000 people visit Berrima every year from within Australia and overseas, attracted by Berrima's unique heritage and natural setting.

The photo shown above, taken in June this year, illustrates the visitors who come into Berrima on a winter weekend.

Tourists are attracted by the experience of visiting an historic village from the colonial period set in a gently undulating rural landscape of farms and areas of native vegetation less than a 2 hour drive from anywhere in Sydney or Canberra.

Berrima has the largest number of historic houses listed on the State Heritage register in one place in NSW. Visitors wander the streets laid out in 1831 by Assistant Surveyor Robert Hoddle to see numerous dwellings and commercial building dating from the 1830s, as well as enjoying seeing Berrima's infamous Gaol opened in 1839; the two exceptionally important churches; the Alexander Pugin designed Catholic Church and the colonial architect William Blackett's first church, the Anglican *Holy Trinity Church*; the District Museum; the Berrima Courthouse Museum and State heritage listed National Trust (NSW) property Harper's Mansion.

Tourism is the lifeblood of the dozens of businesses in Berrima, which include retail shops, cafes, restaurants. The Surveyor-General Inn, in the centre of the village, is the oldest continually licensed hotel in Australia.

Section 5. Attachments:

Colleen Morris. *Statement of Heritage Impact of Hume Coal Southern Highlands Proposal on the Berrima, Sutton Forest and Exeter Cultural Landscape*. June 2017. 43pp.

Colleen Morris (in association with Christine Hay). *Cultural Landscape Assessment. Berrima, Sutton Forest, Exeter Area*. May 2017. 169pp.

Berrima Rail Project

Submission by the Berrima Residents Association - *Berrima Rail Project EIS* (Hume Coal EIS Vol. 3A, Appendix D) June 2017

The Berrima Residents Association strongly objects to the rail project proposal by Hume Coal as set out in the Rail Project EIS currently on exhibition.

The Berrima Residents Association (BRA) was formed in 1983 to provide a village forum to discuss issues affecting the Berrima community and to represent residents to government in planning and associated administrative matters. Members meet monthly in the church hall; non-members are welcome to also attend these public meetings. An executive Committee is elected at the AGM. The Association is an incorporated body in NSW and is managed by a constitution registered with the NSW Department of Fair Trading.

A. The adverse impacts of the proposed rail maintenance siding and related infrastructure on land between the Old Hume Highway and the Hume Highway, i.e. on the <u>east of the Hume Highway.</u>

The Association proposes that this facility be relocated to the <u>west of the Hume Highway</u> (see diagram below), and this be made a condition of approval of the Rail EIS.

The Association rejects the assessment that the rail "project will not have significant adverse visual impacts on the locality" (EIS Appendix M, p.22)

- the maintenance siding facility provides for the construction of:
    - two maintenance sidings
    - a shed for maintenance activities
    - a crib room, office, small ablutions building
    - provisioning points at each end of the double track sections for diesel locomotive refueling, water tanks, and sand storage
    - a shed at least the length of a one locomotive
    - new access road off the Old Hume Highway for fuel tanker, and other vehicles

- Minor maintenance tasks and refueling and oil refilling will take place 24 hours a day

- the adverse visual impacts are comprehensively assessed in the *Statement of Heritage Impacts (SOHI)*, by Colleen Morris (June 2017). A copy of the SOHI is included with the Association's submission.

    - The Association strongly supports the conclusions in the SOHI that the claims made in the EIS are invalid. The SOHI by Colleen Morris should be read in conjunction with this submission

- the proposed rail loop running parallel to Medway road will be visible from the Hume Motorway and mitigation measures, including boundary tree planting and the noise abatement wall, will dramatically alter the present pastoral landscape.

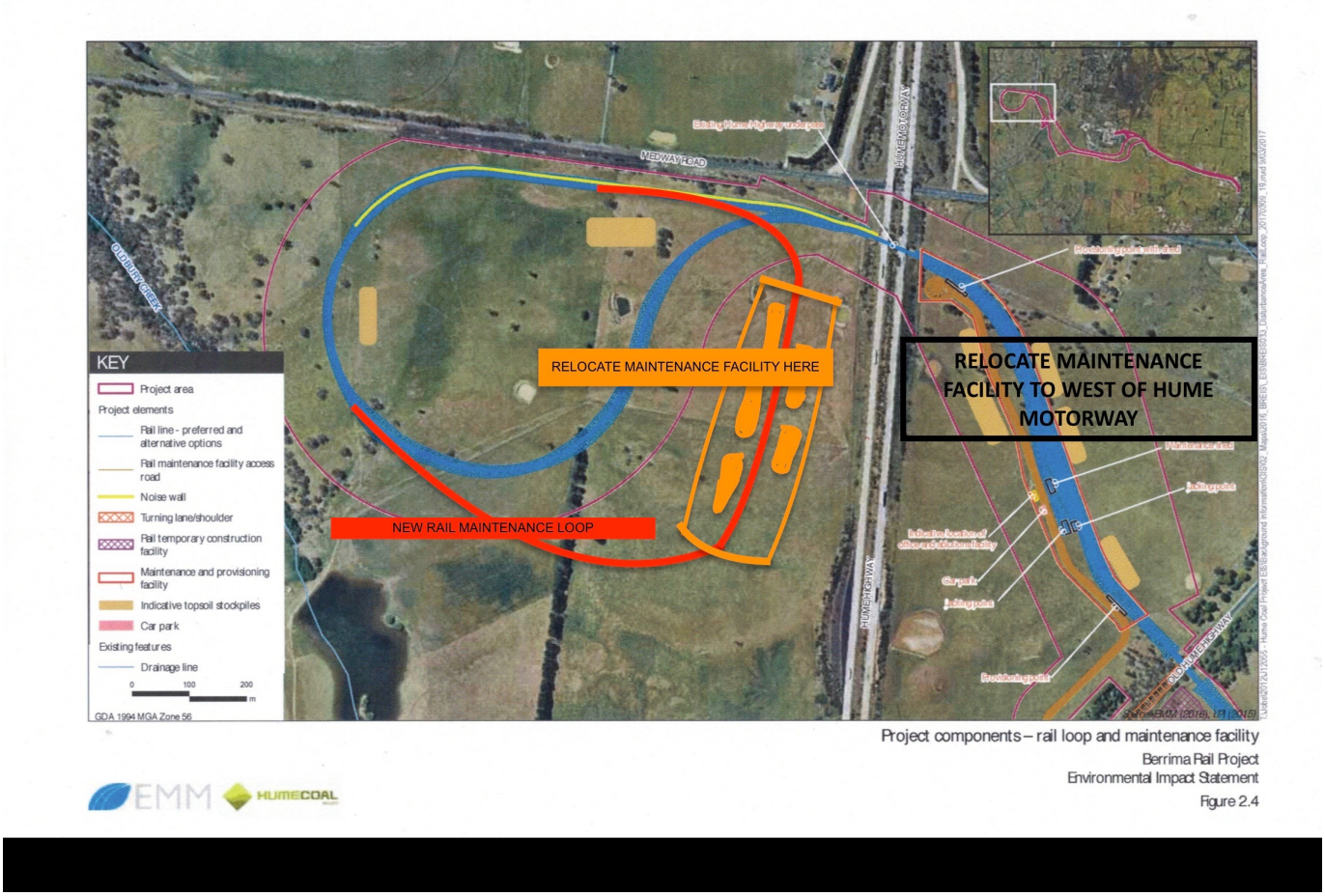
- The maintenance siding and associated sheds, and night lighting, will be highly visible from the Old Hume Highway and will be seen by visitors coming to Berrima on this road.

- The rural landscape surrounding Berrima is an integral part of Berrima heritage significance and the imposition of an industrial landscape on this site just 1.5km from Berrima will adversely its significance, diminish the visitor experience, which can be expected to reduce tourist numbers and adversely affect local businesses.

- **The Association asks that the maintenance siding, and associated structures, be relocated to land to the west of the Hume Highway and incorporated into the proposed rail loop.**

    - This proposal is illustrated in the attached diagram, which is based on Fig 2.4 in Vol. 3A, p. 16

    - The relocation of the maintenance siding to the west side of the Hume Highway would eliminate the adverse heritage and visual impacts of the installation if it were to remain on the east of the Hume Highway and adjacent to the Old Hume Highway.



Project components – rail loop and maintenance facility
Berrima Rail Project
Environmental Impact Statement
Figure 2.4

B. The construction of a grade separated crossing (railway bridge) over the Old Hume Highway

The Association proposes that a road bridge be constructed to take the Old Hume Highway over the rail line, instead of a rail bridge, and this be made a condition of approval of the Rail EIS.

- The EIS proposes the construction of a railway bridge over the Old Hume Highway.
    - the location of the bridge is 1250 metres from the southern boundary of the Berrima Heritage Conservation Area
    - all traffic travelling north toward Berrima would have to pass under the bridge

- No design details, length, height above ground, etc. on a rail bridge are included in the EIS.

- A bridge of the scale to allow fully loaded 800 m long coal trains to cross the Old Hume Highway will be highly visible on the flat landscape

- The high bridge can be expected to have significant adverse noise impacts, which might reasonable be expected to be heard in Berrima

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