



Planning

***PROPOSED MODIFICATION:
Werris Creek Coal Mine
(DA 172-7-2004 MOD 5)***



Environmental Assessment Report
Section 96(2) of the
*Environmental Planning and Assessment
Act 1979*

September 2009

Cover photograph: Aerial view of Werris Creek coal mine

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Published September 2009
NSW Department of Planning
www.planning.nsw.gov.au

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1. BACKGROUND

Werris Creek Coal Pty Limited (WCC) operates the Werris Creek Coal Mine, an open cut mine located about 4 kilometres (km) south of Werris Creek and 10 km north of Quirindi in the Liverpool Plains local government area (see Figure 1). WCC is a wholly-owned subsidiary of Whitehaven Coal Limited, the owner of the Tarrawonga, Glenroc and Narrabri Coal Mines near Narrabri, as well as the Canyon and Sunnyside Coal Mines, the Whitehaven Siding Coal Handling and Preparation Plant (CHPP) and associated rail loading facility near Gunnedah.

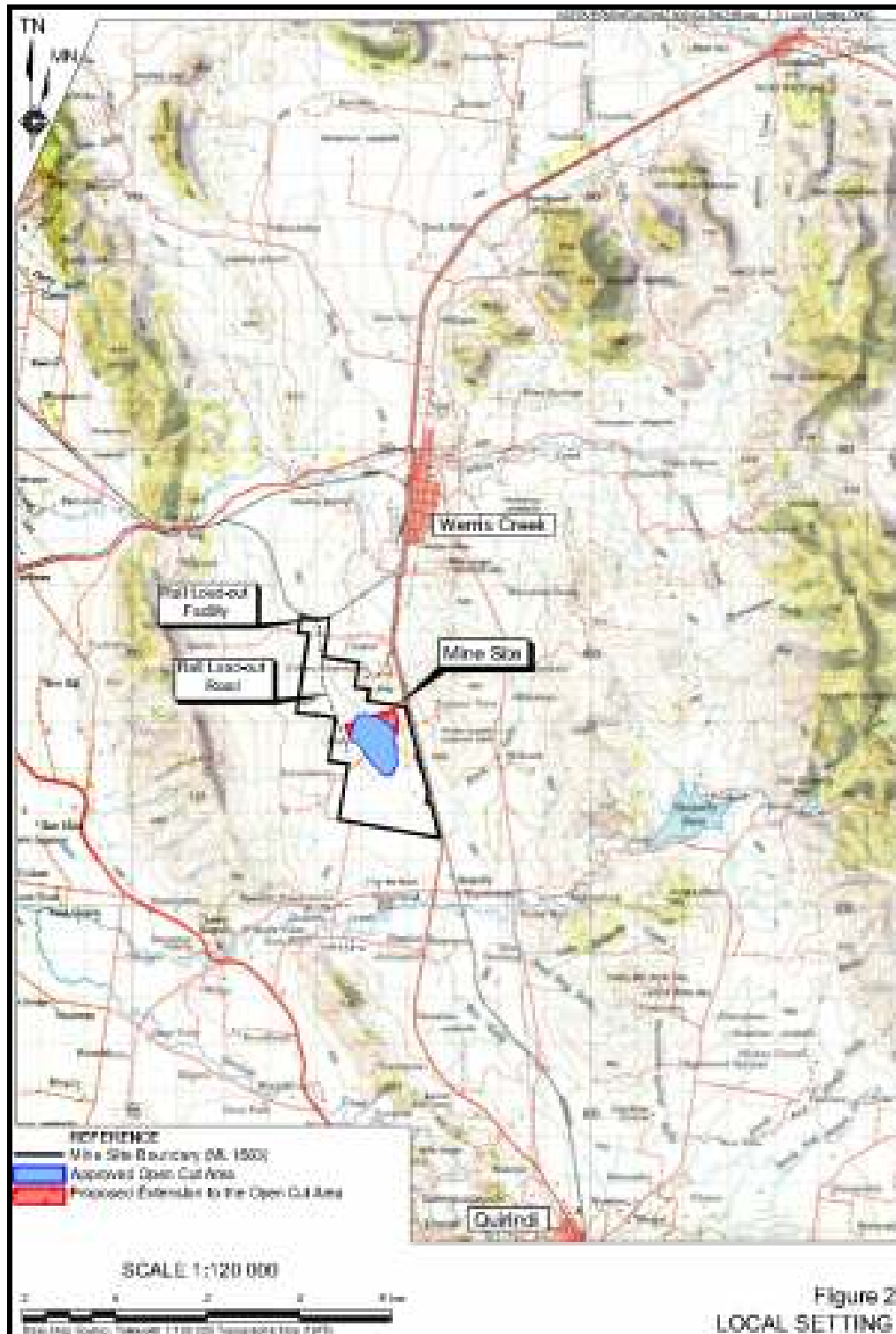


Figure 1: Werris Creek Coal Mine - Regional Context

On 18 February 2005, the then Minister for Infrastructure and Planning gave approval for the development of the Werris Creek Coal Mine and its associated infrastructure (DA 172-7-2004). Construction of the mine started in April 2005 and was completed with the commissioning of the rail loading facility in September 2005 (see Figure 2). The mine currently employs 70 full-time workers.

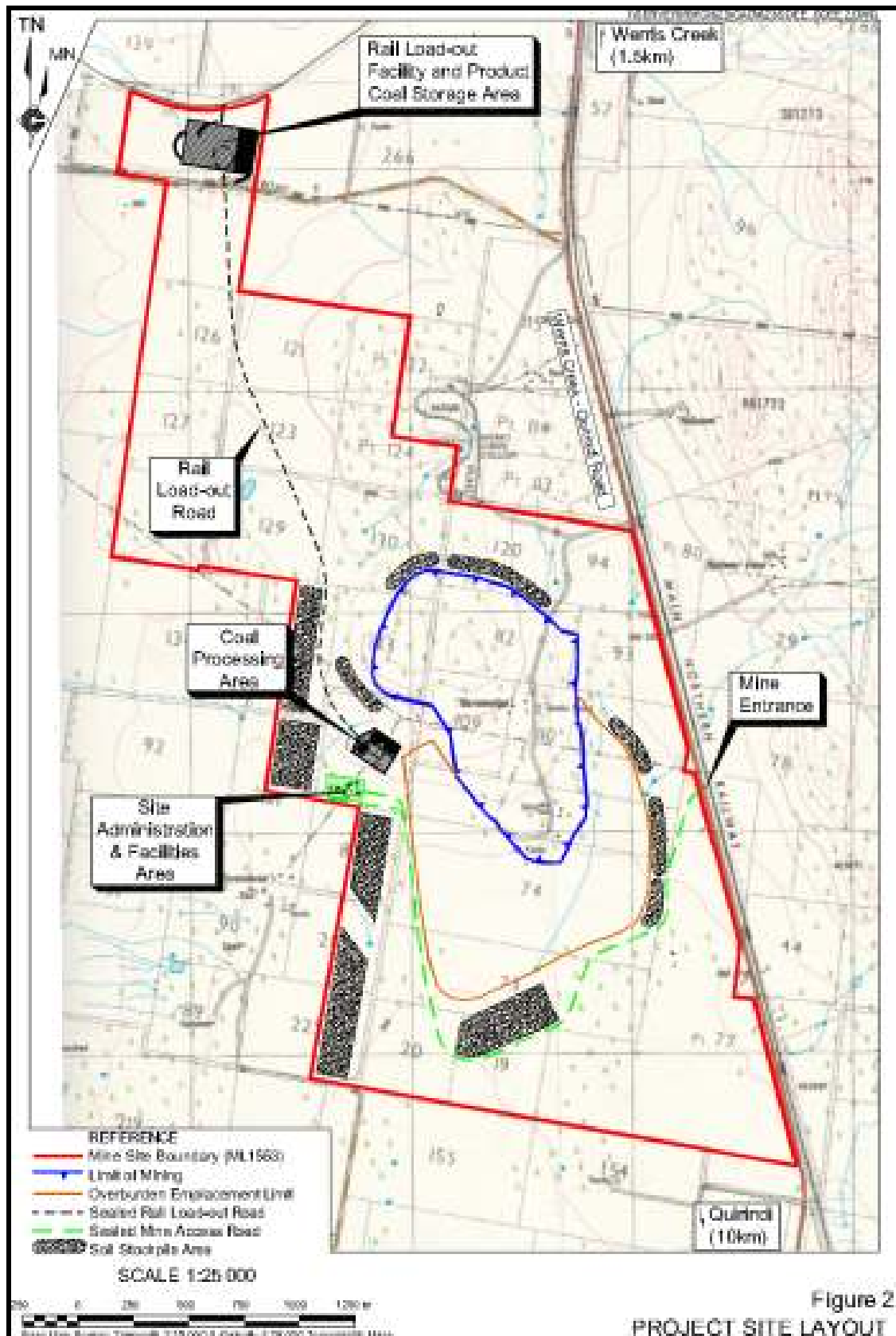


Figure 2: Site layout

Four modifications to the mine's consent have been approved since the original consent was granted. The first modification was to relocate the mine's access road entry. The second was for the temporary removal, secure storage and subsequent replacement of the "Narrawolga" Aboriginal grinding groove. The third modification in 2008 enabled WCC to:

- construct a new 35 megalitre (ML) capacity pit de-watering dam and make minor changes to the mine's water management system;
- increase the limit of coal despatched by road from 30,000 tonnes (t) to 50,000 t; and
- increase the capacity of the existing coal stockpile from 20,000 t to 100,000 t and its height from 5 to 15 metres (m).

The most recent modification in 2009 was for the establishment of an explosives Precursor Storage Facility and an alternative biodiversity offset strategy.

Under the existing development consent (as modified), WCC is allowed to:

- extract up to 2 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal a year for up to 10 years;
- process this coal on site;
- transport the product coal to local markets and the Port of Newcastle; and
- progressively rehabilitate the site.

Historically, residents in the region have had concerns associated with mining activities at Werris Creek. These have included noise, dust emissions, and the reduction in visual amenity associated with the overburden emplacement area. The operating practices at the mine and standards of environmental performance have progressively been adapted to address these issues, and many of the properties affected by these impacts have been purchased by WCC.

2. PROPOSED MODIFICATION

On 14 April 2009, WCC lodged a further modification application (DA 172-7-2004 MOD 5) under section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The application involves the following (refer Figure 3):

- extending the area of open cut mining for the next three years, including intersecting, dewatering and re-mining the former underground workings of the Werris Creek Colliery;
- constructing up to four water storage dams to store water pumped from the underground workings;
- increasing the area and height of the out-of-pit overburden emplacement area (OEA) and changing its overall shape; and
- constructing an additional train loading bin and conveyor at the rail load-out facility.

The currently approved limit of mining (see Figure 3) does not maximise the recovery of coal from the mine. WCC is proposing to expand the open cut area in a northerly direction to follow the alignment of the G Seam (where it sub-crops). This would enable full recovery of the high-quality G Seam at a low stripping ratio.

The proposed modification to the open cut area would require intersection and mining of sections of the underground workings of the former Werris Creek Colliery, which are currently inundated. Prior to the open cut progressing to within 50 m of these workings, approximately 330 ML of brackish and near-neutral pH water would need to be removed. It is proposed to dewater these workings and store the water in up to four dams that would be constructed progressively and have a combined capacity of approximately 370 ML.

As a consequence of the modification to the open cut area, an increased volume of overburden and interburden would need to be removed. WCC is proposing to increase the total footprint and height of the OEA by approximately 11 hectares (ha) and up to 35 m, respectively. The majority of the final landform would be revegetated with native woodland species and designated as a native vegetation conservation area and would be linked to other areas of the mine site which form the biodiversity offset strategy for the Werris Creek Coal Mine.

WCC is also proposing to construct an additional coal loading bin and conveyor at the rail load-out facility, adjacent to the existing bin and conveyor. The bin would be of approximately 350 t capacity

and equivalent height to the existing bin. It would be used to load specific coal products onto specially designated trains for the mine's customers. This would ensure that different coal products are not mixed prior to loading onto the trains, but would not require any additional rail movements or loading time.

The modification has been proposed to improve the efficiency of coal recovery for the remaining life of the mine. The proposed expansion of the open cut is intended to operate until April 2012, when the limit of mining will be reached. During this 3 year period, WCC will investigate a further northerly extension of the mine.

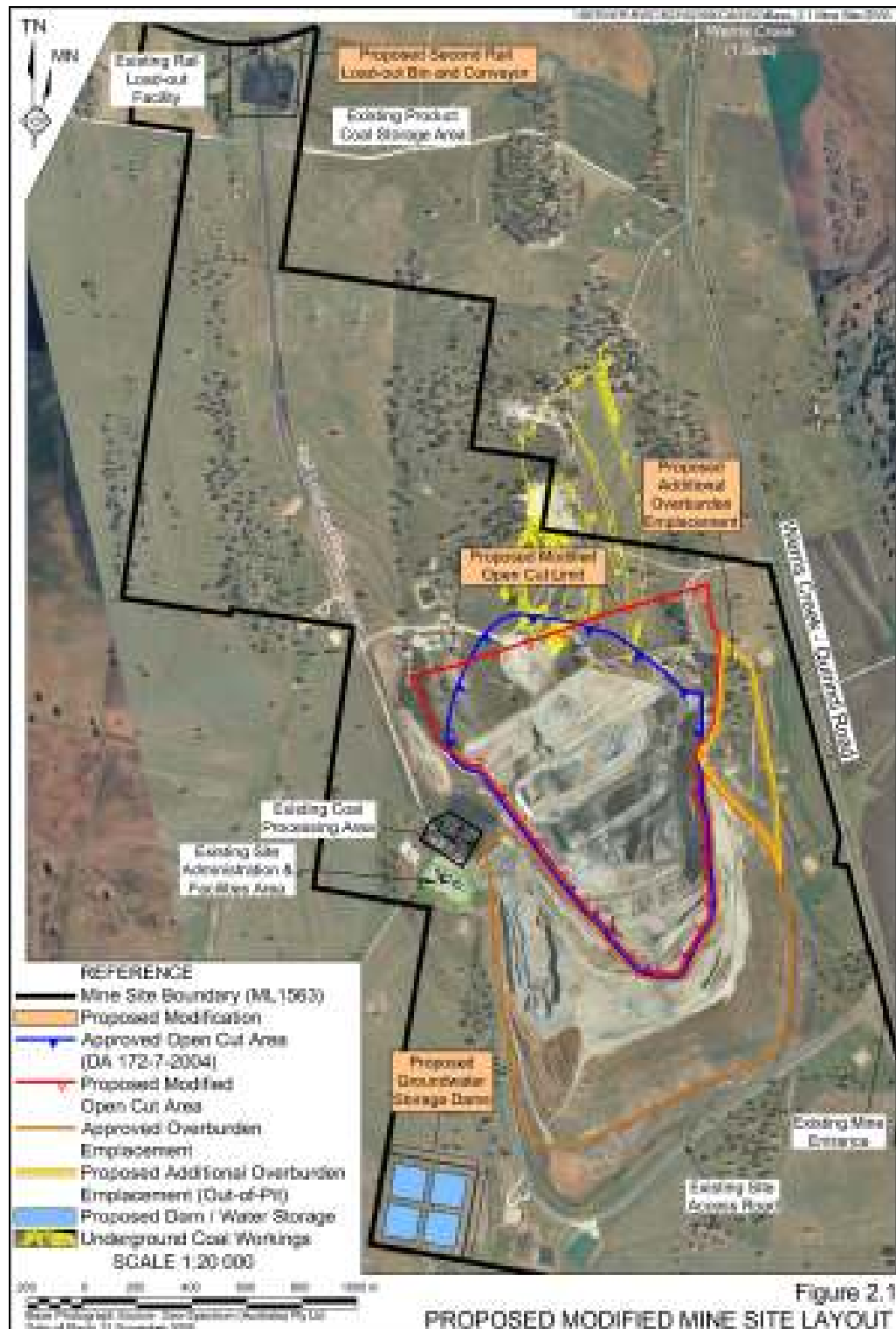


Figure 3: Location of Proposed Modification

3. STATUTORY CONTEXT

3.1 Consent Authority

The Minister was the consent authority for the original development application and is consequently the consent authority for this modification application. On 4 March 2009, the Minister delegated her powers and functions as a consent authority to modify development consents under section 96(2) of the EP&A Act under particular circumstances to the Executive Director, Major DA Assessments. The Executive Director, Major DA Assessments may determine the application under delegated authority.

3.2 Section 96(2)

Under Section 96(2) of the EP&A Act, a consent authority may modify a development consent if:

- a) *it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all).*

The Department believes the consent as modified would be substantially the same as the consent originally granted since:

- the proposed new mining area is immediately adjacent to the approved mining area, representing a 23.6% increase in the total mining area, and is wholly contained within an existing mining lease (ML 1563);
- the maximum production rate of 2 Mtpa of ROM coal would not increase and planned production would continue to be approximately 1.5 Mtpa; and
- the proposed modification would only increase the total coal production by an estimated 560,000 t.

Consequently, the Executive Director may modify the consent under Section 96(2) of the EP&A Act.

3.3 Environmental Planning Instruments

The following environmental planning instruments are relevant to the proposal:

- *SEPP No 33 – Hazardous and Offensive Development;*
- *SEPP (Mining, Petroleum Production and Extractive Industries) 2007;*
- *Orana Regional Environmental Plan No 1 – Siding Spring;*
- *Quirindi Local Environment Plan (LEP) 1991; and*
- *Parry LEP 1987.*

The Department has assessed the proposal against the relevant provisions in these instruments and is satisfied that the proposal complies with and is otherwise consistent with their aims, objectives and requirements.

4. CONSULTATION

After accepting the modification application and the accompanying Statement of Environmental Effects (SEE) on 14 April 2009, the Department:

- placed the SEE on public exhibition from 23 April until 21 May 2009:
 - on the Department's website;
 - at the Department's Information Centre,
 - at Liverpool Plains Shire Council;
 - at the Werris Creek Library; and
 - at the Nature Conservation Council;
- notified relevant State government authorities and Liverpool Plains Shire Council by letter;
- notified the objectors to the development application about the proposal by letter; and
- advertised the exhibition of the application in the 'Quirindi Advocate' on 22 April 2009.

This satisfies the requirements for public participation under the EP&A Act and the *Environmental Planning and Assessment Regulation 2000*.

During the exhibition period, the Department received 10 submissions on the proposal:

- 5 from public authorities:
 - Department of Environment and Climate Change, now included within the Department of Environment, Climate Change and Water (DECCW);
 - Department of Primary Industries, now included within the Department of Industry and Investment (DII);
 - Department of Water and Energy, which has now become the NSW Office of Water within DECCW (NOW);
 - Roads & Traffic Authority, now included within the Department of Transport and Infrastructure (DTI); and
 - Liverpool Plains Shire Council (Council).
- 1 from a special interest group: the Construction, Forestry, Mining and Energy Union (Union); and
- 4 from private landholders.

None of the public agencies objected to the proposed modification. However, they provided comment on aspects of the proposal, and in some cases, recommended conditions of consent.

DECCW provided comments in relation to the management of noise emissions, air quality monitoring and the long-term management of biodiversity offsets, the final void and water stored on the site.

NOW provided comments in relation to the management and monitoring of on-site water and the potential remediation and mitigation measures to be employed if either groundwater or private water supply impacts were encountered.

Council raised concerns in relation to coal dust generated by coal-laden trains and possible groundwater contamination as a result of an aquifer being breached by the old underground workings.

DII requested that integrated rehabilitation and environmental reporting be addressed through environmental management reporting, to its satisfaction.

DTI raised concerns in relation to the impact of any additional traffic generation on the existing mine access road and the Werris Creek-Quirindi Road.

The **Union** strongly supported the proposal on all aspects except for the socio-economic consideration. The Union is concerned that limitations on the rail infrastructure to the Port of Newcastle may result in a forced reduction in coal production at the mine and the retrenchment of employees.

There were four submissions from members of the public, three of which objected to the proposed modification. The fourth submission did not object, nor did it raise any concerns. The main concerns expressed in the submissions were:

- impacts on Quipolly Creek including reduced flow, past mine dam failure and contamination;
- increased dust emissions;
- contamination and reduction of groundwater supplies;
- noise from blasting and coal loading and transport on weekends and at night time;
- impacts on flora and fauna and heritage values; and
- sourcing of staff, equipment and supplies from outside Werris Creek and failure to stimulate the local economy.

WCC has prepared a detailed response to the issues raised in these submissions, and the Department has taken these issues into consideration during its assessment of the proposed modification (see Section 5 below).

5. ASSESSMENT OF ENVIRONMENTAL IMPACTS

5.1 Noise

The Werris Creek Coal Mine produces noise emissions which have the potential to impact on residences surrounding the mine site. A noise criterion of 35 dB(A) has been established for all non-project related residences surrounding the mine site for day, evening and night time operations. Compliance with the nominated noise criterion has historically been poor but has improved since 2008 with the implementation of additional noise management measures and the acquisition of most of the more frequently impacted properties (“Escott”, “Old Colliery”, “Hillview”, “Railway View” and “Zeolite”). An agreement also exists with the landowners of the “Cintra” property, allowing exceedances of up to 5 dB(A) above the criterion.

The proposed modification has the potential to generate construction, operational, on-site traffic and rail-related incremental and cumulative noise impacts. A noise assessment for the proposal was undertaken by Spectrum Acoustics Pty Limited (Spectrum) with reference to the *NSW Industrial Noise Policy* (INP), and to relevant sections of the Environmental Noise Control Manual (ENCM) in respect of rail traffic. Since construction activities would be undertaken concurrently with the continued operation of the Werris Creek Coal Mine, a separate construction noise assessment was not undertaken and a construction noise criterion has therefore not been set. The assessment was based on computer model predictions undertaken for three ‘worst-case’ operational scenarios at the closest non-project related residences (refer Figure 4).

The assessment indicates that under most conditions, the 35 dB(A) noise criterion could be achieved and would not exceed 40 dB(A) at the “Cintra” residence. A minor exceedance of 1 dB(A) is predicted at the “Tonsley Park” residence during inversion conditions, if soil stripping activities are undertaken concurrently with surface drilling and other mining activities. Exceedances of 1 and 3 dB(A) are also predicted at the “Hazeldene” and “Fletcher” residences respectively under northwest wind conditions when the OEA is at its maximum proposed height. The assessment also predicted that maximum noise levels would not exceed the sleep disturbance criteria of 45 dB(A)_{L_{max}} for the mining scenarios modelled.

In order to mitigate the modelled operational noise exceedances, WCC has committed to the following:

- construction of the second rail load-out bin, conveyor and water storage dams would only be undertaken during the day time, excluding those periods when inversion conditions occur;
- construction of a 15 m high acoustic bund (during the day time when inversion conditions or winds from the northwest do not prevail) around the outside of the OEA lift, with all subsequent overburden placement for that lift undertaken behind this 15 m high bund (as per current operations);
- overburden emplacement during the evening and night time, or when inversion conditions or winds from the north west prevail, would only be undertaken within the mine void or behind the 15 m acoustic bund;
- surface clearing and soil stripping operations would cease when inversion or southeast wind conditions prevail;
- scheduling of mining operations so that, as far as practicable, land preparation or overburden removal activities occur at or within 10 m of the surface;
- planting of trees along the northern boundary to provide a visual and acoustic barrier for residences located to the north of the mine site; and
- moving the monitoring locations which are now located on mine-owned land to “Tonsley Park”, “Marengo”, “Woodlands” and “Park Hill” (subject to agreement by land owners).

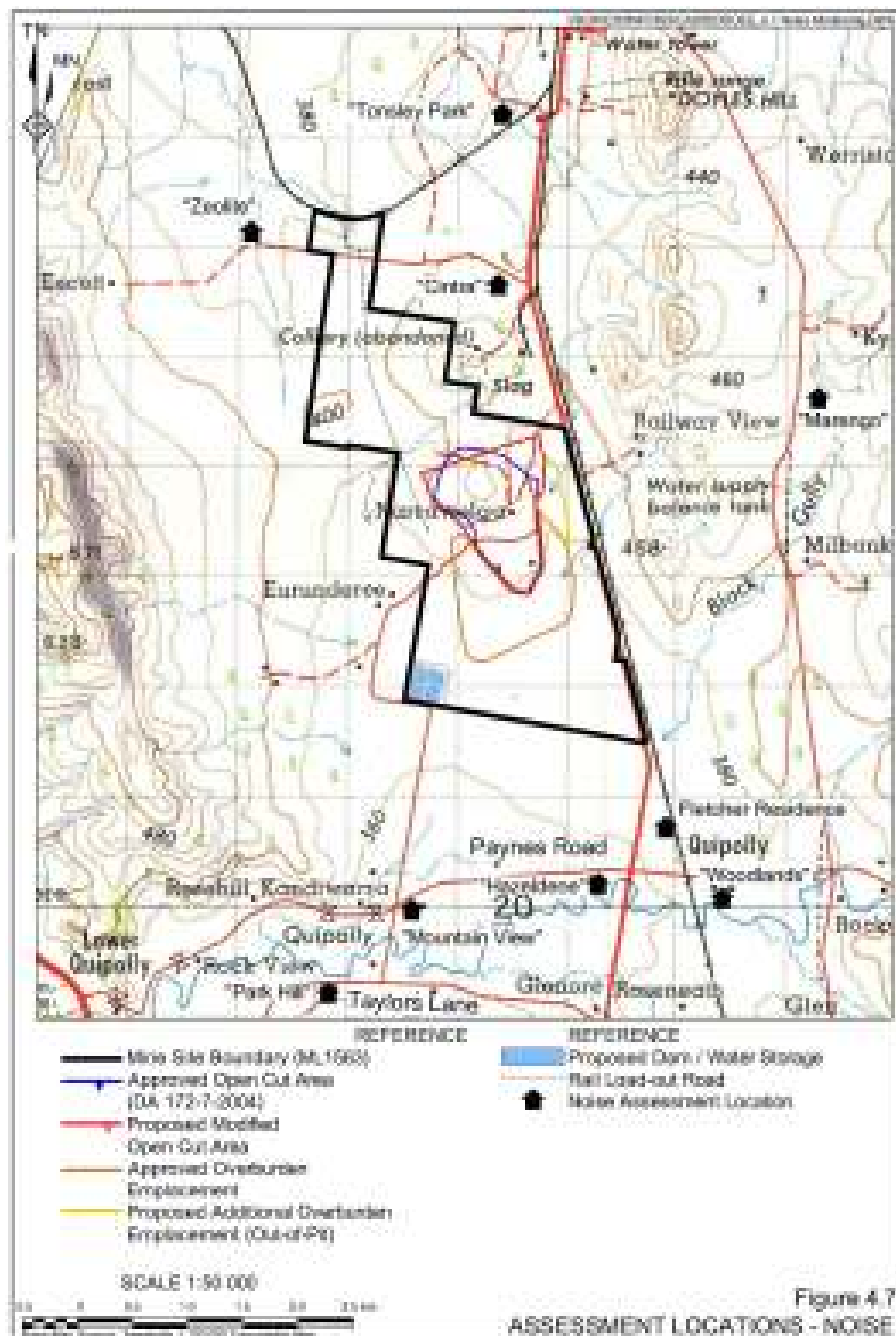
Because of the increased elevation at which mining activities would occur relative to nearby residences, the Department believes that WCC should prepare an updated noise management plan to incorporate the measures outlined above. Additionally, since the noise predictions are close to, and in some cases exceed the operational noise criterion, the Department believes that residents should also be provided with some protection in the event that noise generated by the proposed modification exceeds predicted noise levels.

The current consent requires that, upon written request from the landowner, WCC must acquire a property if monitoring demonstrates that project-related noise levels exceed 40 dB(A) in a substantial

fashion. However, the Department considers that WCC should also be required to offer architectural treatment to residences where noise monitoring shows that project-related noise is equal to or exceeds 38 dB(A). The Department has recommended a condition of consent to achieve this outcome.

Under the current consent, WCC is required to prepare revisions of any strategies, plans or programs, if directed to do so by the Director-General of the Department. Should the modification be approved, the Department would require WCC to revise its Noise Monitoring Program to address the modified mine and to further monitor and assess compliance with noise criteria. The consent also requires that, if monitoring demonstrates non-compliance with the criteria, then WCC must negotiate with affected residents to reach agreement over managing project-related noise impacts. WCC can also implement (but is not required to) real-time noise monitoring at affected residences to enable the alteration or cessation of mining activities to prevent exceedances of the noise criteria.

With these measures in place, the Department is satisfied that the noise impacts of the proposal can be appropriately managed and/or mitigated to prevent significant impacts on surrounding residents.



5.2 Air Quality

Dust generation is the main air quality issue resulting from operations at the mine. Depending on the size and concentration of particles in the air and their composition, airborne dust has the potential to affect human health as well as contribute to the general degradation of the environment.

An air quality assessment was prepared by Heggies Pty Ltd for the proposed modification. Computer modelling was used to predict the likely concentrations of particulate matter and deposited dust at nearby residences. Table 1 identifies the residences included in the air quality modelling and their proximity to the mining operations.

Receptor ID	Distance (km) / Direction From			Elevation (m, AHD)
	Open Cut	Coal Processing Area	Rail Load-out Facility	
"Cintra"	1.7	2.3 / NNE	1.2 / ESE	420
"Tonsley Park"	2.9	3.9 / NNE	1.6 / NE	385
"Marengo"	2.7	3.4 / E	5.1 / SE	410
"Woodlands"	3.3	4.1 / SE	6.9 / SSE	370
"Hazeldene"	2.7	3.5 / SSE	6.3 / SSE	360
"Glenara"	2.6	3.1 / SSE	6.1 / SSE	360

Source: Modified after Heggies (2009) – Table 1

Table 1: Residential Receivers (Air Quality)

Note: "Fletcher" and "Mountain View" locations are shown in Figure 4

The computer model for dust deposition was based on an operational scenario which combined the worst-case location of coal mining (at the northern-most point of the open cut area) with the maximum rate of annual overburden removal (10,042,000 bank cubic meters/year). The model also assumed that the background level of dust deposition would be 1.6 g/m²/month and that standard operational dust emission controls would be employed. The results of the computer modelling predictions for dust deposition are displayed in Table 2.

Residence	Dust - Annual Average (g/m ² /month)			
	Background	Increment attributable to the Mine	Background + Increment	Project Goal
"Cintra"	1.6	3.3	4.9	3.6
"Tonsley Park"	1.6	0.4	2.0	3.6
"Marengo"	1.6	0.3	1.9	3.6
"Woodlands"	1.6	0.1	1.7	3.6
"Hazeldene"	1.6	0.2	1.8	3.6
"Glenara"	1.6	0.2	1.8	3.6

Source: Heggies (2009) – Table 12

Table 2: Predicted Dust Deposition at Nearby Residences

With the exception of the "Cintra" property, the results presented in Table 2 indicate that the annual average monthly dust deposition (background plus increment) would comply with the nominated dust deposition criterion. However, the model predictions are likely to overestimate dust deposition levels given the conservative nature of the modelling.

The Department is satisfied that the proposed modification would not result in a significant change to the historical dust deposition levels for residential receivers.

Background 24 hour average PM₁₀ levels in the vicinity of the mine can at times be quite high. This is in part due to large scale regional or State-wide events that can affect air quality in the locality. For instance, State-wide dust storms have been known to entrain so much fine dust in the air that all monitoring locations in the vicinity of Werris Creek experienced 24 hour average PM₁₀ levels well above the maximum 24 hour average PM₁₀ concentration criterion. Regional (and local) events such as bushfires or drought conditions can also lead to elevated PM₁₀ levels in the Werris Creek area, that would not in any way be attributable to mining activities, but may nevertheless exceed the PM₁₀ criterion of 50 µg/m³.

Regionally, DECCW monitors PM₁₀ levels on a daily basis at Tamworth Airport, about 70 km to the north of the mine. A review of daily data for all of 2007 indicates that on two occasions, PM₁₀ levels exceeded the 50 µg/m³ criterion, and on other occasions, daily PM₁₀ levels were just below this criterion. Of particular relevance to this assessment is that on 3 October 2007, the PM₁₀ level was recorded at 48.8 µg/m³ (see discussion after Table 3). Overall, the mean of all the daily PM₁₀ levels for the year was 15.1 µg/m³.

Operations at the mine will increase PM₁₀ levels for nearby residences, but the increase experienced at any particular residence will depend upon the wind direction, the existing background levels and the amount and nature of mining activities being undertaken at the mine on any particular day.

In order to predict whether the proposed modified operations of the mine would be likely to cause additional exceedances of the maximum 24 hour average PM₁₀ criterion of 50 µg/m³, the air quality impact assessment identified the maximum values obtained for each residential receiver. These values were produced by combining background (measured at Tamworth) and incremental (predicted) PM₁₀ levels. These maximum 24 hour average PM₁₀ levels are shown in Table 3.

Residence	PM ₁₀ – 24-hour Average (µg/m ³)			
	Background (data) ¹	Increment attributable to the Modified Operations	Background + Increment	Goal
"Cintra"	17.0 (12/05/2005)	41.8	58.8	50
"Tonsley Park"	48.8 (03/10/2007)	0.1	48.9	50
"Marengo"	48.8 (03/10/2007)	4.7	53.5	50
"Woodlands"	48.8 (03/10/2007)	0.1	48.9	50
"Hazeldean"	48.8 (03/10/2007)	0.8	49.6	50
"Glenora"	48.8 (03/10/2007)	1.0	49.8	50
Note 1: The Tamworth DECC Monitoring Station data for the period 1 September 2007 to 31 August 2008 has been used (see Section 4.5.2).				
Source: Modified after Heggles (2004) – Table 10				

Table 3: Maximum 24-hour Average PM₁₀ Concentrations at the Nearby Residences

The results indicate that the maximum 24-hour average PM₁₀ concentration would be exceeded at the "Cintra" and "Marengo" residences. However, the predicted exceedance at "Marengo" for 3 October 2007 simply reflects the elevated background PM₁₀ level of 48.8 µg/m³ which means that an additional PM₁₀ increment as low as 1.2 µg/m³ would be sufficient to cause an exceedance of the criterion. In two cases, elevated concentrations within the background data already exceed the 50 µg/m³ criterion. In contrast, the exceedance at the "Cintra" residence is primarily the contribution of the mining operations (background of 17.0 µg/m³ compared to an increment due to mining operations of 41.8 µg/m³). This criterion is predicted to be exceeded at "Cintra" on a further three occasions during the year.

Except in the case of "Cintra", the Department is satisfied that with current management practices in place, the dust deposition and PM₁₀ levels would remain below the criteria established under the current consent. WCC is required to comprehensively monitor dust levels and to comply with the existing criteria for dust emissions. Should these criteria be exceeded, WCC would be required to incorporate additional emission controls into its operations and/or acquire a property if the acquisition criteria are exceeded.

Based on the above results, it is predicted that the acquisition criteria for "Cintra" would not be met. However, the Department recommends that WCC be required to install a real-time dust monitor at "Cintra" so that exceedances of the criteria can be prevented through alteration or cessation of mining operations when dust levels approach the air quality impact assessment criteria.

Some of the submissions from the public raised concerns in relation to dust created by trains carrying coal from the mine. The proposed modification does not involve an increase in the number of train movements or quantity of coal transported by train. The issue of dust produced by coal trains is currently managed through a pollution reduction program applied as a condition of the Environmental Protection Licence (EPL) held by the Australian Rail Track Corporation (ARTC). The Department considers that this matter is best addressed by the ARTC under the conditions of its EPL.

5.3 Visual Impact

Werris Creek Coal Mine is situated to the south of a small ridge of approximately 445 m AHD which provides some shielding of the mine for residences to the north and for the township of Werris Creek. The coal product stockpile area and rail load-out facility are visible from some vantage points in the

north. From the west, the only residential vantage point is from the “Escott” property which was recently acquired by WCC. From vantage points to the south, the mine and especially the OEA which rises up to 40 m above the natural ground level, have altered the local visual amenity. The view of the overburden emplacement is also highly visible to traffic on the Werris Creek - Quirindi Road and properties to the east of the mine which are mine-owned.

The proposed modification has the potential to affect local visual amenity since it is proposed to increase the final landform to a height of 445 m, approximately 65 m above natural ground level. The approved and proposed final landforms and the corresponding cross-sections are shown in Figure 5.

While the proposed height increase of the OEA is regarded as significant, WCC considers that the final landform would appear as a continuation of the existing north-south oriented ridge located within the mine site (refer to the sections in Figure 5). Further, the proposed progressive rehabilitation of the slopes is anticipated to assist in blending the OEA with the surrounding landscape.

The modification application sought to increase the height of the OEA to 436 m AHD. WCC made a later submission to the Department seeking approval to increase the maximum height of the OEA to 445 m AHD (refer Figure 5). WCC provided the results of revised noise modelling which took the increased maximum height into account. These results were the basis of the Department's noise assessment above.

Overburden from the open cut must be emplaced somewhere on the mine site. The essential question for the assessment is whether the OEA should be higher (i.e. 445 m AHD) or larger in footprint. The increased height would have very limited visual impacts either for residents of the properties located 2.5 - 3.5 km to the south or to travellers on the Werris Creek-Quirindi Road. The Department sought photo montages of the proposed final landform which supported this. The Department therefore accepts the proposed increase in height and is satisfied that the impacts on visual amenity would not be significant.

5.4 Flora and Fauna

Flora

A flora assessment for the modification, undertaken by Geoff Cunningham Natural Resource Consultants Pty Ltd (GCNRC), built upon a previous study completed for the mine site in 2004.

No threatened flora species, populations or critical habitat were identified on the mine site, nor are any expected to occur. Consequently, no further assessment of those species previously identified or predicted to occur within the region was undertaken.

One Endangered Ecological Community (EEC) (*White Box Yellow Box Blakely's Red Gum Woodland*) was identified within the area to be disturbed by the modification. A Seven-part Test was conducted by GCNRC (2009) in accordance with DECCW's Guidelines for Threatened Species Assessment (DEC, 2005) to determine the level of impact of the proposed modification on this EEC.

The proposed modification would disturb an additional 38.4 ha of land. Of this, 8.8 ha is composed of the *White Box Yellow Box Blakely's Red Gum Woodland* EEC. This would increase the total area of this EEC disturbed by the mine to 50.8 ha.

The area surveyed covered approximately 9400 ha, of which, 1800 ha or 19% comprises the *White Box Yellow Box Blakely's Red Gum Woodland* EEC. Thus, the 8.8 ha of the EEC which would be cleared is 0.5 % of the regional distribution of the community. The cumulative area of this community to be cleared within the footprint of the mine represents 2.9% of the regional distribution. GCNRC (2009) maintains that this level of clearing would not impact on the local, regional or national conservation status of the EEC.

However, in order to compensate for the additional disturbance of up to 38.4 ha, including 8.8 ha of the EEC, a modified biodiversity offset strategy (BOS) has been proposed. The modified BOS would comprise the following:

- agricultural activity would cease on a 124 ha area on the “Eurunderee” property south west of the mine and this area would be connected to the rehabilitated final landform and maintained as a habitat corridor;

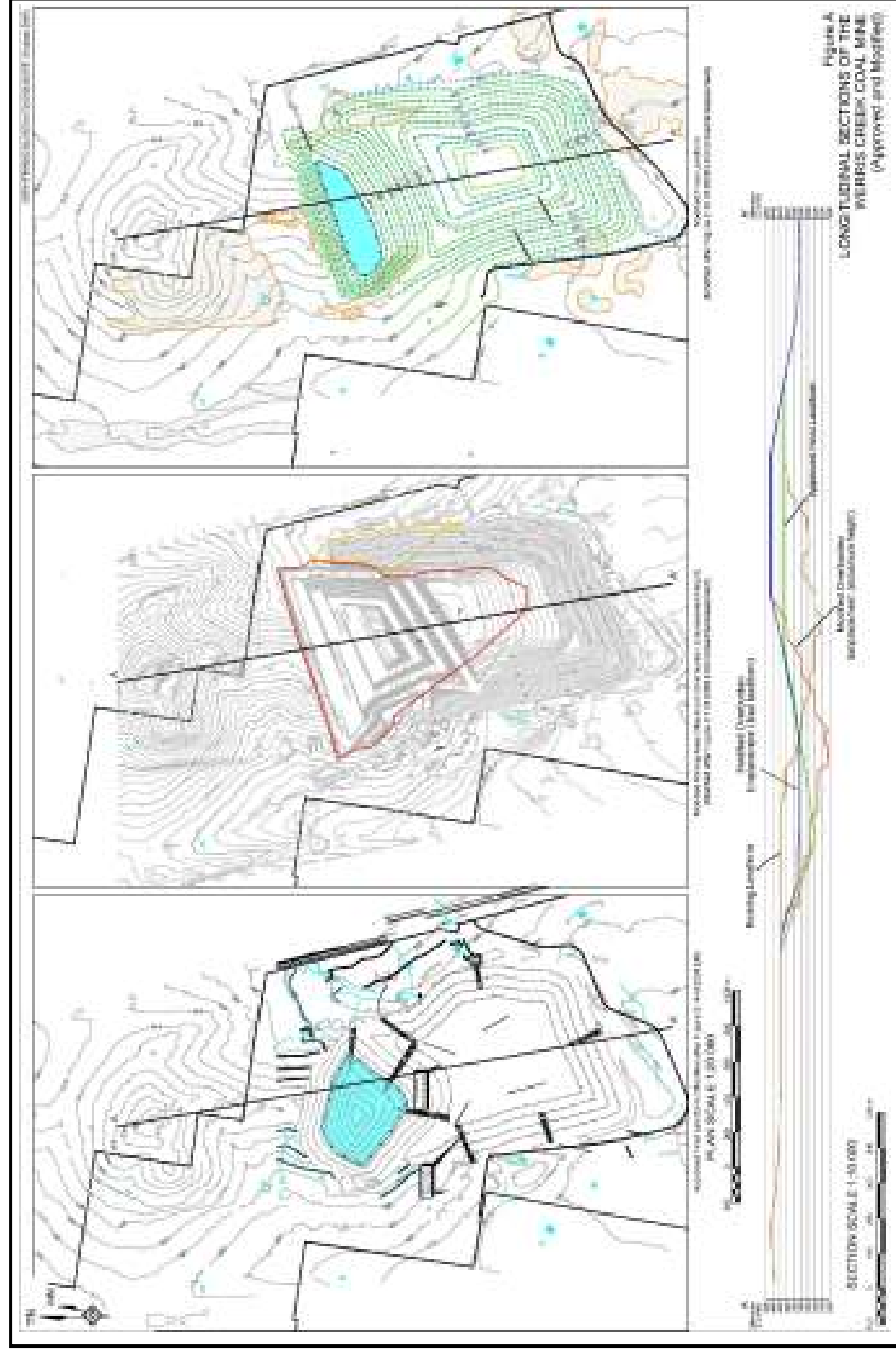


Figure 5: Plan and Sections of Approved and Proposed Final Landform

- a second habitat corridor between the remnant EEC to the south of the OEA and the Werris Creek-Quirindi Road would be maintained;
- stock would be excluded from both corridors through the erection and maintenance of fencing;
- a 32 ha long-term conservation area would be established on the “Railway View” property, adjacent to the second habitat corridor. This area contains approximately 20 ha of the *White Box Yellow Box Blakely’s Red Gum Woodland* EEC, 4.5 ha of a Tumbledown Gum Woodland Community and 7.5 ha of cleared land.

The Department considers that the proposed offset satisfactorily compensates for any loss of biodiversity as a consequence of the modification. It notes that the proposed clearing of 8.8 ha of *White Box Yellow Box Blakely’s Red Gum Woodland* EEC is proposed to be offset by conserving 20 ha of this community on the “Railway View” property, representing an offset ratio greater than 2:1.

Fauna

A fauna assessment was undertaken by Ecotone Ecological Services Pty Ltd (Ecotone) with reference to the fauna assessment completed by Countrywide Ecological Services (CES) in 2004.

The previous work by CES recorded two threatened species, the Hooded Robin and Eastern Bentwing Bat. During Ecotone’s 2009 field survey, no threatened or migratory species were recorded. However, 8 species listed under Schedule 2 of the *Threatened Species Conservation Act 1995* have been assessed as ‘likely to occur’ or ‘may occur’ on the subject site. The 8 species (and likelihood of occurrence) are:

- Eastern Bentwing Bat (likely to occur);
- Hooded Robin (likely to occur);
- Swift Parrot (may occur);
- Turquoise Parrot (may occur);
- Regent Honeyeater (may occur);
- Diamond Firetail (may occur);
- Koala (may occur); and
- Large-eared Pied Bat (may occur).

A seven part test was conducted in accordance with the *Draft Threatened Species Assessment Guidelines* (DEC, 2005) for each of the above species to assess whether the proposed modification would be likely to have a significant impact on any of them. The assessment found that the proposed modification is unlikely to significantly impact on any local population of threatened species or their habitats. Furthermore, given the operational controls, mitigation measures and offset strategies proposed by WCC, the assessment concluded that the proposed modification would maintain or improve biodiversity values and would not reduce the long-term viability of any species, population or community.

Based on the findings presented in the SEE, and the mitigation measures proposed by WCC, including the BOS, the Department is satisfied that the proposed modification is unlikely to significantly impact on any threatened flora or fauna species and would not have a significant impact on the long-term biodiversity value of the site.

The Department has recommended a condition of consent requiring the preparation and implementation of a revised BOS Management Plan to ensure the long term management of biodiversity at the mine site and to ensure that the mitigation measures proposed in the SEE are implemented and maintained.

5.5 Surface Water

Surface water on the mine site is currently managed in accordance with a Site Water Management Plan (SWMP 2005). A total of 10 sediment basins and 12 storage dams are used for the purposes of separating, diverting and/or collecting clean, dirty and void water.

The surface water management system for the proposed modification is consistent with the system already in use. Previous water monitoring results indicate that dirty water requires considerable settlement time prior to discharge from the mine site. Sediment basins have been designed and would be constructed to ensure an adequate storage and settlement zone is provided for a 90th percentile 5 day rainfall event. The Department is satisfied that this would provide adequate storage and settlement to minimise the potential impacts of dirty water on the local environment.

The SEE includes a site water balance which indicates that the mine would operate with a surplus of void, dirty and clean water. Four water storage dams are proposed for the storage of water extracted from the underground workings. The dams would be constructed sequentially depending on the estimated volume of water left to be dewatered from the underground workings. The maximum area that would be disturbed by these dams would be approximately 13 ha, located in the south west corner of the mine site (refer Figure 3). The internal wall of each dam would be constructed to achieve a permeability not exceeding 1×10^{-9} m/s and topsoil removed would be stockpiled on the outer wall of the dams for future use in their rehabilitation. Any surplus void water would also be stored in the four proposed dams. The Department is satisfied that the four proposed water storage dams present an effective solution for the storage of water from the void and underground dewatering.

The SEE concludes that the proposed modification would not result in water being discharged from the mine site with pH, TSS or salinity levels exceeding or outside the nominated range of the DECCW water quality criteria, since:

- all void and underground water would be stored within the two void water storage dams and the proposed additional water storage dams, which are all isolated from natural drainage;
- the permeability of these dams would not exceed the permeability standard (1×10^{-9} m/s); and
- these dams would be maintained to ensure no discharge of water which may be slightly to moderately saline.

Should the modification be approved, the Department would require WCC to update its Site Water Management Plan to include long-term water management procedures. The Department is satisfied that the proposed modification would require minor changes to the current surface water management system and the impacts on the catchment would be minimal.

5.6 Groundwater

Monitoring undertaken at the mine to date has demonstrated that open cut mining is having minimal, if any, impact on the availability of groundwater to landholders near to the mine.

A groundwater impact assessment for the proposed modification was undertaken by Robert Carr and Associates Pty Ltd (RCA). The assessment considered the impacts of the modified operations on water table levels, water quality and groundwater bores, the impacts of dewatering the underground workings, the predicted groundwater inflows into the open cut area and the appropriate mitigation measures to compensate for any predicted impacts on groundwater.

A groundwater model was used to predict the effect the proposed modification would have on groundwater levels, borehole saturated thickness, groundwater level re-establishment and availability of water from existing bores. Groundwater in the local area is predominately used for stock or irrigation purposes. Baseline monitoring of groundwater quality taken from all groundwater bores within the mine site was used for groundwater quality comparison purposes. For groundwater quantity assessment purposes, groundwater levels and the saturated thickness within bores on neighbouring properties were monitored and a variation greater than 10% was taken to be significant.

The groundwater modelling predicted a drawdown of up to 0.5 m, up to 2 km from the open cut, and drawdown of approximately 20 m in the vicinity of the underground workings to the northeast of the mine site. A reduction in saturated thickness above the criteria of 10% was predicted for bores located on the “Old Colliery”, “Preston Park” and “Eurunderee” properties (all of which are mine-owned). This impact on groundwater availability is considered acceptable. Saturated thickness reductions in bores on all other properties are predicted to be negligible and within the naturally occurring variation.

Groundwater inflows into the coal mine were predicted to reach a maximum of approximately 212 ML/year, which is below the average evaporative rate for the area and the mine is therefore expected to remain dry. Variations in climatic conditions may result in an excess of water in the open cut on occasion but this would be pumped to either of the two void water storage dams or the proposed additional water storage dams, and then used for dust suppression across the mine site.

The assessment predicts the modified mine would result in a reduction of groundwater flow to Quipolly Creek of an estimated 58 ML/year. Modelling of the approved mine plan predicted a loss in groundwater flow to Quipolly Creek of 36 ML/year. Quipolly Creek is regulated by a Water Sharing Plan, and a licence under the *Water Management Act 2000* would be required for this groundwater interference.

The Department considers that the impacts on groundwater of the proposed modification would be incremental and localised. Under the current consent, WCC is required to implement a Groundwater Contingency Plan and a Groundwater Management Plan. The Department is satisfied that these plans, once updated, would provide adequate means to mitigate against groundwater impacts on landowners and the environment.

5.7 Other Environmental Impacts

The project has the potential to generate a range of other impacts - including impacts on soils, cultural heritage, traffic and transport and impacts related to greenhouses gases and blasting. However, these impacts are not predicted to be significant and the Department is satisfied that they can be controlled, mitigated or managed either through commitments made by WCC or conditions of consent.

Issue	Consideration	Impact
Soils	<p>The proposed modification to the OEA would reduce the area of land available for the re-establishment of Class III (agricultural) land from 43 ha to 31 ha. The proposed water storage dams would result in the additional disturbance of approximately 13 ha of Class III land.</p> <p>The Department considers that this loss of agricultural land would be incremental and would have a minimal impact on the availability of agricultural land in the area. Further, the Department is satisfied that the impacts on soil and land capability would be minimal if soil management controls continue to be implemented in accordance with the management procedures set out in the SEE.</p>	Minimal
Greenhouse Gases	<p>Heggies has calculated that the Scope 1, 2 & 3 annual GHG emissions for the modified mine, based on an annual production of 1.5 Mtpa for the remaining 3 years of mine life, would be in the order of 0.4 Mtpa CO₂-equivalent. This represents less than 0.1% of Australia's national net 2006 emissions. It concluded that the effects of the emissions are negligible in the context of global GHG emissions.</p> <p>The Department has recommended a condition requiring the preparation and implementation of an Energy Savings Action Plan which would encourage the investigation and implementation of low emissions technology to reduce emissions associated with mining operations.</p>	Minimal
Blasting	<p>Ground vibrations, air vibrations, fly rock and dust resulting from blasting have the potential to impact on surrounding residents. However, the safety and amenity of the public and mine employees can be protected through the implementation of appropriate safeguards in blast design. There have not been any reported conflicts in the mine's history regarding the personal safety of any neighbouring residents or stock.</p> <p>The closest non-mine-owned residence to the modified location is "Cintra" and the blast overpressure and ground vibration predictions indicate that the largest overburden blasts may equal the overpressure criterion at "Cintra".</p> <p>The Department is satisfied that, with the current blast monitoring program in place, the blasting criteria prescribed under the current consent would be met and the impacts on surrounding residents would be minimal.</p>	Minimal
Aboriginal Heritage	<p>A comprehensive field survey of the mine site was undertaken by Archaeological Surveys and Reports (ASR) in 2004 and did not identify any indigenous sites or artefacts within the areas proposed for additional disturbance.</p> <p>Existing operational safeguards and controls provide adequate protection for any existing items of Aboriginal heritage or items that may</p>	Minimal

	be discovered in the future.	
Non-Aboriginal Heritage	<p>No sites or relics of heritage interest were identified on the surface of the areas to be disturbed as part of the modified project. The abandoned underground workings are currently inundated with water and it is therefore unlikely that anything of heritage significance exists within them.</p> <p>The Department is satisfied that the impacts of the proposed modification on items of non-aboriginal heritage would be insignificant.</p>	Minimal
Traffic and Transport	<p>There would be no change to the scale or method of road transport from the mine or to the current method or scale of haulage operations between the coal processing area and coal product storage area at the rail load-out facility. A second loading bin would be constructed which would increase the efficiency of coal loading but the number of trains loaded and despatched each week would not increase.</p> <p>The proposed modification would have minimal, if any impact on local traffic and transport since there would only be a very temporary increase in the number of vehicles coming to the site during the construction phase. Once construction is complete, the traffic and transport arrangements at the site would remain as currently approved.</p>	Minimal

6. RECOMMENDED CONDITIONS

The Department has prepared a recommended notice of modification for the proposal (see Tag A).

The proposed modification would have relatively minor impacts which are generally managed appropriately within the existing consent framework. However, the Department has recommended specific conditions to address potential impacts resulting from the proposed modification, as follows:

- implementation of revised Noise Monitoring and Management Plans;
- establishment of an additional noise criterion which would require architectural treatment to homes of affected properties if this criterion is exceeded;
- undertaking real-time air quality monitoring at the “Cintra” property;
- implementation of a revised Biodiversity Offset Management Plan to ensure the effective management of the modified biodiversity offset area; and
- implementation of a revised Site Water Management Plan.

These conditions reflect commitments which have been made by WCC and management initiatives that have been developed, in consultation with relevant public authorities, to address potential impacts of the proposed modification. WCC accepts the revised conditions.

7. CONCLUSION

WCC is seeking to modify its current consent to improve the efficiency of coal recovery for the life of the mine (a period of 3 years).

The modification incorporates changes to the open cut area and final landform, dewatering of the old underground workings, construction of an additional train loading bin and conveyor at the rail-load out facility and construction of four water storage dams in the south west corner of the mine site. A revised Biodiversity Offset Strategy has been proposed to compensate for the additional clearing that would be required to accommodate the expansion of the open cut area.

The Department has considered the impacts of the proposed modification and recommended conditions it believes would adequately offset, mitigate or minimise any impacts. The Department is confident that the other impacts of the proposed modification would remain essentially the same as for the mine's existing operations.

In assessing the proposed development, the Department has taken into account the objects of the EP&A Act, in particular the need to encourage ecologically sustainable development, and the matters which are required to be considered under section 79C of the Act. ✓

The Department considers that Werris Creek Coal Mine provides significant direct and indirect socio-economic benefits to the Liverpool Plains region. Consequently, it is satisfied that the proposal is in the public interest, and should be approved subject to conditions. ✓


8. RECOMMENDATION

It is RECOMMENDED that the Executive Director, Major DA Assessments, exercise the powers and functions delegated to him in the Instrument of Delegation from the Minister, dated 4 March 2009, and:

- consider this report;
- determine that the development, as modified is substantially the same as the development for which consent was originally granted;
- approve the proposed modification under section 96(2) of the EP&A Act, subject to conditions; and
- sign the attached instrument (Tag A).

 30/9/09

David Kitto
Director

 5.10.09

Chris Wilson
Executive Director