MAJOR PROJECT ASSESSMENT:
Pine Dale Coal Mine
Yarraboldy Extension

Director-General’s
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

February 2011
EXECUTIVE SUMMARY

Enhance Place Pty Ltd (Enhance Place) owns and operates the Pine Dale Coal Mine (the mine) about 17 kilometres north-west of Lithgow.

Since early 2006 the mine has supplied approximately 350,000 tonnes per annum (tpa) of steaming coal to the Mt Piper Power Station via either the Castlereagh Highway or a Private Haul Road. Coal reserves within the currently approved open cut mining operations were exhausted in early December 2010.

Enhance Place proposes to extend its existing coal mining activities at the mine into a 27 hectare (ha) area to the north-west, which incorporates the former un-rehabilitated Yarraboldy Open Cut Mine. The proposal also involves the utilisation of some existing infrastructure at the Pine Dale Mine site and the rehabilitation of the disturbed areas within the mine.

The proposal, which is known as the Yarraboldy Extension Project (Extension project), would allow mining operations to continue for 2½ years while Enhance Place prepares an application for expansion into a larger area to the north. The proposal has a capital investment value of $1.4 million and would secure continued employment for 19 workers.

The Department received 13 submissions on the project, including 7 from public authorities, 3 from special interest groups and 3 from the general public. None of the public authorities objected to the project. All of the submissions from the special interest groups and general public objected to the project. The main grounds for objection were in relation to the potential water, biodiversity, visual, noise, transport, vibration, air quality and cumulative impacts of the project.

The Department has carried out a detailed assessment of the merits of the project, in accordance with the requirements of the EP&A Act.

This assessment has found that, despite the residences within the Blackmans Flat area being close to the Extension project, the project would not result in significant noise, dust or visual amenity impacts. However, the project would require the clearing of 14 hectares of vegetation and a range of habitat for several threatened fauna species and may impact on local surface and groundwater resources.

The Department has recommended a range of conditions to ensure that these impacts are suitably mitigated, managed and/or offset. These conditions include requirements for Enhance Place to:

- offset any loss of any baseflow to the surrounding watercourses;
- implement additional measures to minimise the dust, noise, blasting and visual impacts of the project;
- develop and implement a biodiversity offset to ensure the project maintains and potentially improves the biodiversity values of the region in the medium to long term;
- conserve the proposed offset biodiversity area in perpetuity;
- progressively rehabilitate the site, largely to native woodland;
- pay Lithgow City Council $79,800 to assist with the provision of local infrastructure and services;
- monitor and regularly report on its environmental performance; and
- commission bi-annual independent audits of its operations, to ensure that it is complying with its conditions of approval and implementing best practice on site.

Finally, the Department’s assessment has found that the project would represent a logical extension of the existing Pine Dale Mine, would make efficient use of existing facilities and equipment, and would provide economic and social benefits to both the Lithgow region and NSW, including:

- continued direct employment for up to 19 employees;
- a capital investment of $1.4 million; and
- royalties and payroll taxes for the State Government.

On balance, the Department believes that the project’s benefits sufficiently outweigh its residual costs, and that it is in the public interest and should therefore be approved subject to strict conditions.
1. BACKGROUND

Enhance Place Pty Ltd (Enhance Place) owns and operates the Pine Dale Coal Mine in the Western Coalfields of New South Wales. The mine is located adjacent to two former coal mines (Wallerawang Colliery and Enhance Place Coal Mine), two existing coal mines (Springvale Coal Mine and Angus Place Coal Mine) and between the Mt Piper and Wallerawang Power Stations, about 17 kilometres north-west of Lithgow (see Figure 1).
Current Approval and Operations
The Pine Dale Coal Mine (the mine) has been supplying approximately 350,000 tonnes per annum (tpa) of steaming coal to the Mt Piper Power Station since early 2006. Coal reserves within the currently approved open cut mining operations were exhausted in early December 2010.

Development consent for the current mining operations was granted by Lithgow City Council (under delegated authority from the then Minister of Infrastructure, Planning and Natural Resources) on 14 November 2005 (Development Consent 561-04). The existing consent contains a range of conditions, including requirements for Enhance Place to:

- limit mining activities to day-time hours;
- transport all coal to the Mt Piper and Wallerawang Power Stations by means other than public roads; and
- progressively rehabilitate the site.

Project Setting
The mine is situated in an area known as Blackmans Flat, which has a long history of coal mining (Figure 2).

Extensive underground workings associated with the former Wallerawang Colliery (including a small open cut known as the Yarraboldy Open Cut Mine) are located in the area to the north and north-east of the project, while former open cut operations associated with the Enhance Place Coal Mine are located to the south-east. Existing underground mining operations are being undertaken at the Springvale Coal Mine and the Angus Place Coal Mine, which are located to the south-west and north-east of the project respectively.

The mine has historically operated to supply steaming coal to Delta Electricity’s Mt Piper and Wallerawang Power Stations which are located to the north-west and south-east of the project respectively (Figure 1). Transportation of coal to these stations has been undertaken via a purpose-built Private Haul Road. Coal supplied to other customers is transported in trucks via the Castlereagh Highway, which runs along the southern boundary of the site.

The small township of Blackman’s Flat, which comprises 12 privately-owned residences, is located approximately 500 metres (m) to the south of the project area (Figure 3). Other land uses in the surrounding area include Ben Bullen State Forest, livestock grazing lands and a waste facility.

The project is situated within the Upper Coxs River catchment, which forms part of the greater Warragamba Dam Catchment and falls within the catchment for Sydney’s water supply. The bulk of the land within the project area is Crown Land (20 hectares – ha), principally the Ben Bullen State Forest and remainder of the land (7 ha) is owned by Enhanced Place Pty Ltd (Figure 3).

2. PROPOSED PROJECT

Enhance Place proposes to extend its existing coal mining activities at the mine into an area to the north-west, which incorporates the former un-rehabilitated Yarraboldy Open Cut Mine. The proposal also involves the utilisation of some existing infrastructure at the mine and the rehabilitation of the disturbed areas within the mine site. The proposal would require Enhance Place to surrender its existing 2006 development consent.

The proposal would allow mining operations to continue for the next 2½ years while Enhance Place prepares an application for expansion into a larger area to the north.

The proposal, which is known as the Yarraboldy Extension (the Extension), is depicted in Figure 4 and summarised in Table 1. The proposal is described in detail in the environmental assessment (EA) of the project, which is attached as Appendix A.
Figure 2: Previous and Existing Mining Operations

HISTORICAL MINING OPERATIONS

REFERENCE

- Pine Dale Coal Mine
- Yarraboldy Extension
- Extent of Existing Underground Workings
- Historic Open Cut Mine (and Name)

SCALE 1:30 000

Base Photo Source: Geo-Spectrum (Australia) Pty Ltd - Date: 4 September 2003
Figure 3: Land Ownership
Figure 4: Yarraboldy Extension Project
### Table 1: Key Components of the Yarraboldy Extension Project

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Description</th>
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| Project Summary               | • Extract 350,000 tpa of run-of-mine (ROM) coal from a 27 ha extended open cut mining area for a period of 2½ years.  
• Construct an amenity bund along the southern boundary of the site.  
• Relocate the existing crushing, stockpiling and maintenance areas and utilise the existing lay down, administration and ablutions areas.  
• Upgrade the existing access to the Private Coal Haul Road between Angus Place and Mt Piper Power Station.  
• Continue delivery of up to 100,000 tpa of product coal via public road and 250,000 tpa of coal product via the Private Haul Road.  
• Dewater old underground workings, if required.  
• Create final landform and rehabilitate the site, including the existing disturbed mine areas. |
| Mining and Reserves           | Extract a total resource of 800,000 tonnes (t) of coal from 3 coal seams using open cut mining (rip, push and blasting) methods.                                                                                                                                                                                                               |
| Coal processing               | Operate crushing plant at a rate of 400 t per hour for 13 days per month producing an average of approximately 30,000 t of product coal per month (limited to 350,000 tpa).                                                                                                                                                                                                  |
| Water Demand and Supply       | Mining activities during a:  
• average or wet rainfall year would result in a water surplus [maximum of 58 megalitres (ML)/year], which would require discharge via an existing licensed discharge point;  
• dry or average rainfall year would result in a water deficit (approximately 6ML per year) which would be sourced by extracting groundwater from the old Wallerawang Colliery underground workings.                                                                                     |
| Overburden / Interburden      | During the initial 6 month establishment period, approximately 175,000 m³ of overburden / interburden material would be used to construct the amenity bund. For the remainder of the project the overburden / interburden material would be transported via a haul truck to previously mined areas. |
| Management                    | Mining would commence north of the Private Coal Haul Road in the western section of the Extension area, progress to the east for the initial 6 month establishment period and then progress to the north for the next 2 years.                                                                                                                                                    |
| Mining Sequence               | 3 years (including 6 months site establishment, 2 years mining and 6 months landform creation and rehabilitation).                                                                                                                                                                                                                                                                  |
| Project Life                  | Continued employment of 12 site personnel and 7 truck drivers.                                                                                                                                                                                                                                                                                                                                                 |
| Employment                    | Relocation of existing crushing, stockpiling and maintenance area from the mine site to the Extension area. Utilisation of existing lay down, administration and ablutions areas.                                                                                                                                                                                                 |
| Hours of Operation            | Land preparation, overburden/interburden removal, construction activities:  
7am – 6pm Monday to Friday  
7am – 3pm Saturday  
Site and equipment maintenance:  
7am – 10pm Monday to Saturday  
9am – 4pm Sunday  
Transportation of coal product:  
7am – 8pm Monday to Saturday  
All other mining activities:  
7am – 6pm Monday to Saturday  
Blasting:  
10am – 3pm Monday to Friday |
| Product Coal Transportation   | 100 000 tpa – transported on the Castlereagh Highway (with a maximum of 30 000 tpa to be transport to the east).  
250 000 tpa – transported to Power Stations via the Private Coal Haul Road.                                                                                                                                                                                                                                                                  |
| Mine Access                   | Internal access between the project and the existing mine would be via the existing Private Coal Haul Road. This section of the haul road would be upgraded as part of the project.  
The existing public road and heavy vehicle intersection with the Castlereagh Highway would be utilised for external transport requirements.                                                                                                                                                                                      |
| Rehabilitation and Offsets    | The project would result in the removal of 14.2 ha of native vegetation. A rehabilitation and biodiversity offset strategy would be developed and implemented to compensate for this loss.  
The rehabilitation strategy would involve the rehabilitation of the extension area and the majority of disturbed areas within the existing mine, to Class VII land capability which would support development of native woodlands and forests vegetation. The remaining areas would be rehabilitated to pasture suitable for agricultural purposes (Class IV land capability).  
The biodiversity offset would include the in-perpetuity conservation of a minimum area of 30 ha of native vegetation. The offset would be established by the end of February 2012.                                                                 |
| Capital Value                 | $1.4 million                                                                                                                                                                                                                                                                                                                                                                                                 |
3. STATUTORY CONTEXT

3.1 Major Project
The project is classified as a major project under Part 3A of the Environmental Planning & Assessment Act, 1979 (EP&A Act) because it constitutes development for the purposes of coal mining, and therefore meets the criteria in Clause 5 of Schedule 1 of State Environmental Planning Policy (Major Development) 2005.

Consequently, the Minister for Planning is the approval authority for the project application. However, as the Department received fewer than 10 public submissions in the nature of objections in respect of the development application, the Deputy Director-General, Development Assessment & Systems Performance, may determine the application under the Minister’s delegation of 25 January 2010.

3.2 Permissibility
The project is permissible with consent under the Lithgow City Local Environmental Plan 1994 and State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

Consequently, the Minister or his delegate may approve the carrying out of the project.

3.3 Other Approvals
Under Section 75U of the EP&A Act, a number of other approvals have been integrated into the Part 3A approval process, and are not required to be separately obtained for the project. These include:

- heritage-related approvals under the Heritage Act 1977 and National Parks and Wildlife Act 1974; and
- some water-related approvals under the Rivers and Foreshores Improvement Act 1948 and Water Management Act 2000.

Under Section 75V of the EP&A Act, a number of further approvals are required to be obtained, but must be approved in a manner that is consistent with any Part 3A approval for the project. These include:

- a mining lease under the Mining Act 1992,
- an environment protection licence under the Protection of the Environment Operations Act 1997; and

The Department has consulted with the relevant public authorities responsible for these other approvals (Section 4.1), and considered the relevant issues relating to these approvals in its assessment of the project (see Section 5). None of the relevant authorities object to the project on grounds related to these other approvals.

3.4 Exhibition and Notification
Under Section 75H(3) of the EP&A Act, the Director-General is required to make the EA of a project publicly available for at least 30 days.

After accepting the EA for the project the Department:

- made the EA publicly available from 19 August until 17 September 2010:
  - on the Department’s website; and
  - at the Department’s Information Centre, Council Offices in Lithgow and at the office of the Nature Conservation Council of NSW;
- notified relevant State Government authorities and Council by letter; and
- advertised the exhibition in The Lithgow Mercury.

This satisfies the requirements in Section 75H(3) of the EP&A Act.

During the assessment process, the Department also made a number of documents available on its website, including the:

- project application;
- Director-General’s environmental assessment requirements;
- EA; and
- Enhance Place’s response to submissions.
3.5 Environmental Planning Instruments

Under Section 75I of the EP&A Act, the Director-General’s report is required to include a copy of, or reference to, the provisions of any environmental planning instruments that substantially govern the carrying out of the project.

The Department has considered the project against the relevant provisions of several State Environmental Planning Policies (SEPPs) and other environmental planning instruments (see Appendix B), and is satisfied that none of these instruments substantially govern the carrying out of this project.

3.6 Objectives of the EP&A Act

The Minister is required to consider the objects of the EP&A Act when he makes decisions under the Act. The objects of most relevance to the Minister’s decision on whether or not to approve the project are found in Section 5(a)(i),(ii),(vi)&(vii) of the Act. They are:

(a) to encourage:
   (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,
   (ii) the promotion and co-ordination of the orderly and economic use and development of land,
   (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and
   (vii) ecologically sustainable development

The Department is satisfied that the project encourages the proper use of resources (Object 5(a)(i)) and the promotion of orderly and economic use of land (Object 5(a)(ii)), particularly as the project is a permissible land use within two existing mining lease areas; the subject coal resource is located adjacent to existing mining activities; and the project would make efficient use of existing mining facilities and infrastructure.

The encouragement of environmental protection (Object 5(a)(vi)) is considered in Section 5 of this report. Following this consideration, the Department is satisfied that the potential impacts of the project can be suitably mitigated, managed and/or offset to ensure an acceptable level of environmental performance.

The Department has considered the encouragement of ecologically sustainable development (ESD) (Object 5(a)(vii)) in its assessment of the project application. This assessment has sought to integrate all significant economic and environmental considerations, and avoid any serious or irreversible damage to the environment, based on an assessment of risk-weighted consequences.

3.7 Statement of Compliance

Under Section 75I of the EP&A Act, the Director-General’s report is required to include a statement relating to compliance with the environmental assessment requirements with respect to the project.

The Department is satisfied that the environmental assessment requirements of the project have been complied with.

4. CONSULTATION

The Department exhibited the EA from 18 August to 17 September 2010. During the exhibition period, the Department received a total of 13 submissions on the project, including:

• 7 from public authorities;
• 3 from special interest groups (Blue Mountains Conservation Society Inc., Lithgow Environment Group Inc. and the Colong Foundation for Wilderness); and
• 3 from the general public.
A copy of these submissions is attached as Appendix C. Enhance Place has subsequently provided a formal response to the issues raised in these submissions (see Appendix D).

Since receiving Enhance Place’s response to submissions, the Department has carried out further consultation with the relevant public authorities, and incorporated their comments into the recommended conditions of approval.

A summary of the issues raised during the consultation process is provided below.

4.1 Public Authorities
All of the public authorities either support or do not object to the project.

The Department of Environment, Climate Change & Water (DECCW) supports the project subject to the imposition of suitable conditions in relation to the biodiversity offset, noise, traffic and surface water.

The NSW Office of Water’s (NOW’s) initial submission raised concerns in relation to surface water/groundwater connectivity, groundwater licensing, baseline surface water data and inconsistencies between the groundwater and surface water reports. NOW’s subsequent submission recommended conditions in relation to surface water/groundwater connectivity and surface water monitoring and management.

Industry & Investment NSW (I&I NSW) supports the project and Enhance Place’s commitment to progressively rehabilitate the project site. However, I&I NSW raised concern about the importation of boiler ash and its potential impact on rehabilitating vegetation.

I&I NSW is satisfied that the project would not result in any loss of aquatic habitat or fisheries resources. I&I NSW reminded the proponent of its obligation to obtain an occupation permit before the commencement of any operations.

The Roads & Traffic Authority (RTA) does not object to the project subject to conditions in relation to volumes of heavy vehicles accessing the Castlereagh Highway, the implementation of a traffic management plan and the removal of vegetation to improve sight distance.

The Hawkesbury-Nepean Catchment Management Authority (CMA) recommended that the offset strategy be devised through the Biobanking Assessment Methodology.

The Sydney Catchment Authority (SCA) endorses the proposed water management measures and considers that the project is likely to achieve a neutral or beneficial effect on water quality. However, the SCA identified some deficiencies in the EA in relation to insufficient surface and groundwater monitoring data, rainfall data assumptions, existing rehabilitation and water quality monitoring parameters. These deficiencies have been addressed by the provision of additional information and the imposition of suitable conditions.

The Lithgow City Council (Council) does not object to the project, but requested that the Department restrict transport on the public road network and require all transportation of coal to be undertaken on the existing Private Coal Haul Road. Council also recommended that specific conditions of consent be imposed in relation to property inspections prior to blasting, hours of operation, the establishment of a Community Consultative Committee, landscaping and rehabilitation.

4.2 Special Interest Groups & General Public
All of the submissions from the special interest groups and general public objected to the project. The key issues raised in these submissions were in relation to:

- impacts on surface and groundwater;
- loss of biodiversity and the adequacy of the flora assessment;
- visual impacts from local residences and users of the Ben Bullen State Forest;
- cumulative noise, air quality, traffic, blasting and vibration impacts;
- hours of operation of the mine;
- future extension of the mine; and
- potential impacts from importation of boiler ash.
5. ASSESSMENT

5.1 Water

Issue
The majority of the submissions objecting to the project raised concerns about impacts of the project on water resources, including:

• the quality of water to be discharged to Neubecks Creek, the Coxs River and ultimately the Warragamba Dam;
• reduction in surface and groundwater water flows to Neubecks Creek; and
• impacts on downstream water users and the environment.

Consideration
The EA includes specialist surface and groundwater impact assessments, undertaken by GSS Environmental and Aquaterra Consulting Pty Ltd (Aquaterra) respectively (refer to Parts 1 and 2 of the Compendium to the EA).

The assessments included analysis of baseline information on surface and groundwater resources in the surrounding area, including information on water flows/levels and quality, and an assessment of the potential impacts of the project on these resources.

Water Balance
A predictive water balance model was undertaken for 2 years of mining under variable climatic conditions. The model was revised during the course of the assessment in response to issues raised in relation to the validity of the input data.

The revised model shows that the main water sources for the project are catchment runoff from disturbed areas (88%) and groundwater seepage into the active mining area (12%). The main losses are water used for dust suppression and water loss to evaporation. The predicted water balance for the Extension area is shown in Table 2.

Table 2: Predicted Yarraboldy Extension Mine Water Balance

<table>
<thead>
<tr>
<th>Item</th>
<th>Water Balance (ML)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Dry Year</td>
</tr>
<tr>
<td>Gross water source (mining Year 1 or 2)</td>
<td>82</td>
</tr>
<tr>
<td>Gross Water losses</td>
<td>88</td>
</tr>
<tr>
<td>Gross water balance</td>
<td>-6</td>
</tr>
</tbody>
</table>

The water balance indicates that during average and wet years the mine would have excess water, and would therefore need to discharge water offsite. The peak water surplus would be approximately 58 ML. The vast majority of this excess water (approximately 88%) would be sourced from stormwater runoff. During dry years the mine would operate as a water deficit site and would be required to source approximately 6 ML a year from the old Wallerawang Colliery underground workings.

The Department notes that the revised water balance model was based on conservative assumptions and data, and is satisfied that it provides robust predictions.

Surface Water
The project is located within the Neubecks Creek catchment, which is a sub-catchment of the Upper Coxs River catchment. The Upper Coxs River catchment is part of the greater Warragamba Dam Catchment, which falls within the catchment for Sydney’s drinking water supply.

Neubecks Creek, and all of its tributaries within the project area, are ephemeral (i.e. flow intermittently). Neubecks Creek is located along the southern boundary of the mine and drains in an eastern direction into the Blue Lake, which is a former open cut void (see Figure 5).
Figure 5: Local Hydrology and Catchment Areas
The total catchment area of Neubecks Creek upstream of the Blue Lake is approximately 30 km². The project area that would be disturbed during the project is 0.27 km². The project would therefore result in a very small reduction of catchment area (less than 1%). It is important to note that all of this land would be progressively rehabilitated, and ultimately returned to the catchment upon the completion of mining operations.

Given the ephemeral nature of the affected creeks and the small and temporary reduction in catchment area caused by the project, the Department considers any loss of flow to be negligible, and therefore acceptable.

Several public submitters expressed concerns about the discharge of excess mine water into Neubecks Creek and its impact on flows and the downstream environmental health of flora and fauna. However, the surface water assessment indicates that the project is unlikely to significantly affect the water quality of Neubecks Creek or other downstream watercourses, principally because the:

- volume of excess mine water is very small (ie. 58 ML during a wet year);
- vast majority of excess mine water (ie. 88%) would be surface water runoff, which would be stored and treated in existing and proposed dams and sedimentation basins prior to discharge (Figure 6); and
- groundwater seepage into the active mining area would be contained within the mine sump and preferentially used for dust suppression purposes and/or pumped back into the old Wallerawang Colliery underground void.

The EA details comprehensive clean and dirty water management systems, which would be implemented during the life of the project. The Department is satisfied that, subject to the implementation of these measures, the project can be managed in a manner that would not adversely affect local and regional water flows or quality.

However, numerous public submitters expressed concerns about the lack of baseline data presented in the EA in relation to water quality. The NOW and the SCA also raised this issue and indicated that the baseline data was not adequate to establish baseline trends or trigger criteria.

The Department does not believe that the lack of background data is a determinative issue as the risks of adverse water quality impacts are considered low.

However, NOW recommended that Enhance Place be required to implement an intensive baseline monitoring program for a period of 6 months during site establishment and prior to groundwater inception. The Department supports this approach and has recommended a condition requiring Enhance Place prepare and implement a Baseline Water Monitoring Program in consultation with DECCW and NOW and to the satisfaction of the Director-General.

**Groundwater**

Groundwater occurs across the project area both as naturally occurring aquifers within the coal seams and within abandoned underground mine workings associated with the Wallerawang Colliery. The EA indicates that the quality of the groundwater in the vicinity of the project area is variable, however generally exhibits relatively high electrical conductivity and slightly low pH levels.

The results of the groundwater modelling indicate that the extraction of groundwater by dewatering would lower the water levels of the Lithgow Seam aquifer by approximately 0.7m at the northern boundary of the project area. There is predicted to be negligible drawdown in the Lithgow Seam further to the north of the project area as the seam dips away and the water table is increasingly lower than the proposed open cut floor elevation.

The groundwater assessment indicates that only those bores that are either directly to the north or to the east of the project boundary would be impacted by mine dewatering. As shown in Figure 7, there are no privately owned bores within a 15 kilometre (km) radius of the project boundary. The groundwater drawdown is therefore not predicted to impact on any privately owned bores.

The groundwater model predicts that groundwater seepage into the open cut pit would be in the order of 21 ML over the life of the project. As discussed above, groundwater extracted from the pit would be stored in the mine sump and preferentially utilised for dust suppression purposes. The Department notes that the volume of groundwater to be extracted is small and is satisfied that its use for dust suppression purposes is appropriate.
Figure 6: Proposed Dirty Water Management System

REFERENCE
- Pine Dale Coal Mine
- Yarraboldy Extension
- Contour (Interval = 1m)(m AHD)
- Creek / Drainage Line
- Indicative Dirty Water Flow Direction
- Sediment Trap
- Proposed Retention Dam A
- In-pit Sump
- Pump to Existing LDP

Potential Overburden Storage Area
Power Line
Existing Amenity Bund
Proposed Amenity Bund

Figure 9
PROPOSED DIRTY WATER MANAGEMENT MEASURES
Figure 7: Location of Bores with respect to water table drawdown
In its submission, NOW indicated that a water licence is required in order to extract this groundwater. NOW has subsequently confirmed that Enhanced Place has been issued with a licence to extract 200ML/year from its existing operations and that this licence can be transferred to the extended operations.

Modelling results presented in the EA indicate that the project would have no impact on the baseflows to Neubecks Creek. However, numerous public submitters and NOW expressed concerns about the lack of evidence supporting this conclusion and questioned the degree of connectivity of Neubecks Creek and the groundwater in the project area.

In its response, Enhance Place provided cross sections (see Figure 8) based on drill hole data which indicates that the water levels in the creek are above the groundwater elevations in the Lithgow Seam, but the presence of low permeability fill limits connectivity between the creek and the project workings. As the old Wallerawang Colliery is located down-gradient of Neubecks Creek, Enhance Place indicates that there is potential for leakage from the creek, however it was noted that this is occurring under current equilibrium conditions and will not increase due to the mine dewatering associated with the Extension. It was concluded that there is no evidence that the project would result in increased baseflow losses from Neubecks Creek.

In subsequent correspondence (refer to Appendix B) NOW did not reject this conclusion, but recommended conditions that require Enhance Place to determine baseline water levels within Neubecks Creek during the initial 6 month establishment period and monitor water levels during mining operations.

The Department is satisfied that any baseflow losses are likely to be small, and licensable within the existing market. However, in order to verify this position, the Department has recommended conditions requiring Enhance Place to monitor surface levels within Neubecks Creek and to offset any loss of baseflow via the retirement of adequate water entitlements.

**Conclusion**

While the Department is satisfied that the project can be suitably managed to ensure there are no significant impacts on the region’s surface or groundwater resources, it believes that Enhance Place should be required to:

- keep an accurate water balance for the project;
- prepare and implement a Baseline Water Monitoring Program;
- offset any loss to the baseflow of Neubecks Creek caused by the project;
- provide suitable compensation or compensatory measures to the owners of any privately-owned land whose supply is adversely affected by the project; and
- develop a comprehensive Water Management Plan for the mine in consultation with DECCW and NOW, including a:
  - site water balance;
  - surface water management plan, including detailed erosion and sediment controls; and
  - groundwater management plan.

**5.4 Flora and Fauna**

**Issues**

The project would result in the clearing of 11.2 ha of native forest, 3 ha of grassland/shrubland and 1 ha of artificial wetland, which includes known habitat for 3 threatened fauna species and potential habitat for a number of additional threatened and migratory species.

**Consideration**

**Flora**

Enhance Place engaged Geoff Cunningham Natural Resource Consultants Pty Ltd (GCNRC) to undertake a flora assessment for the project (see Part 4 of the Compendium to the EA). The assessment included data base searches, literature reviews and field surveys.
Figure 8: Geological Cross Section
As illustrated in Figure 9, GCNRC identified 3 vegetation communities within the project area, including:

- Community 1 – Stringybark (*Eucalyptus sparsifolia*, *Eucalyptus macrorhyncha*) – Scribbly Gum (Eucalyptus rossii) Forest (9.9 ha);
- Community 2 – Mountain Gum (*Eucalyptus dalrympleana*) Forest (1.3 ha); and
- Community 3 – Open Cleared Lowlands (3.0 ha).

The remaining 12.5 ha of the project area has been cleared by previous mining activities associated with the Yarraboldy Open Cut Mine (area on Figure 9 referred to as Community 4 - Disturbed Lands).

No threatened plant species listed under the Threatened Species Conservation Act, 1995 (TSC Act) or the Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act) were identified within the project area. Similarly, no endangered ecological communities (EECs) or critically endangered ecologically communities (CEECs) as defined by the NSW TSC Act and the Commonwealth EPBC Act, respectively, were recorded.

The 3 special interest groups’ submissions raised concerns about the adequacy of the flora assessment undertaken for the project, specifically in relation to the flora species lists (including noxious weeds) and key threatening processes. In its response, Enhance Place indicated that the expanded species list provided by the Lithgow Environment Group was applicable to the 220 ha area to the north of the existing project area. This area is proposed to be subject to a future separate project application.

The Department accepts this response and notes that neither the DECCW, the CMA nor I&I Forests raised any concerns about the adequacy of the flora assessment.

The project would effectively remove all of the existing vegetation communities identified, including 11.2 ha of forest and 3 ha of grassland/shrubland. In addition, the flora assessment indicated that the project would have an impact on 4 key threatening processes as defined by the TSC Act, including:

- clearing of native vegetation;
- removal of dead wood and dead trees;
- loss of hollow-bearing trees; and
- removal of bushrock.

In order to minimise adverse impacts on these key threatening processes, Enhance Place has committed to implementing two key operational safeguards, including:

- saving fallen logs, tree trunks and bushrock and replacing them in rehabilitated areas; and
- including native species and shrub species representative of those that would be cleared in the rehabilitated landscape.

The Department supports these measures and has recommended that they are included in a Biodiversity Management Plan.

**Fauna**

Enhanced Place engaged Ecotone Ecological Consultants (Ecotone) to undertake a fauna assessment for the project (see Part 5 of the Compendium to the EA). The assessment included database searches, literature reviews of previous studies and comprehensive field surveys undertaken over a period of 8 days.

A total of 73 vertebrate fauna species were recorded during surveys of the project area, including 4 species of frogs, 6 reptiles, 18 mammals and 45 species of birds. Of these species, 3 are listed as vulnerable under the TSC Act (Scarlet Robin, Gang-gang Cockatoo and Grey-headed flying fox) and 1 as vulnerable under the EPBC Act (Grey-headed flying fox). Two species were introduced species (rabbit and pig). No species listed as migratory under the EPBC Act were recorded.

In addition, Ecotone identified 6 species of bats that potentially inhabit the project area. Four of these are listed as vulnerable under the TSC Act (Large-eared pied bat, Eastern bent-wing bat, Eastern cave bat and Yellow-bellied sheath-tail bat) and 1 as vulnerable under the EPBC Act (Large-eared pied bat).
Figure 9: Vegetation Communities within the Project Area
Ecotone noted that the Purple Copper Butterfly, which is listed as endangered under the TSC Act and vulnerable under the EPBC Act, is present immediately adjacent to, but outside the eastern boundary of the project site. A large and important population of this species extends predominantly to the east of the site. Although the project would not impact on this population, it would result in the loss of a number (<20) of small Bursaria plants, which are scattered through the eastern part of the site and may be used for breeding by the butterflies.

Enhance Place has committed to implementing a range of measures to minimise impacts to the Purple copper butterfly. These include the transplanting of the 20 Bursaria plants and monitoring the occurrence and behaviour of larvae, attendant ants and adults of the butterfly to demonstrate that the mining activities are not having a significant effect on the life cycle of this species. Ecotone concluded that, with the implementation of these measures, the project is unlikely to have a significant impact on this species. The Department is satisfied with the proposed management measures.

To minimise the impacts on other fauna, Enhance Place proposes to implement a range of standard management strategies including pre-clearing surveys by a suitably trained person, installation of salvaged tree hollows and nest boxes and the redistribution of salvaged logs and tree trunks in rehabilitated areas. The Department is satisfied with the proposed mitigation measures.

**Biodiversity Offset**
Enhance Place has committed to the establishment of a biodiversity offset to compensate for the clearing of 14.2 ha of land and the removal of a range of habitat for threatened fauna species.

The EA did not provide details about the location, size or nature of the biodiversity offset. The Department has therefore recommended a condition that requires Enhance Place to prepare a Biodiversity Offset Strategy, in consultation with the DECCW, which ensures provision of at least 30 ha of native vegetation to offset the vegetation clearing associated with the project.

Given the project life is only 3 years, the Department believes that it is reasonable to require the Biodiversity Offset Strategy to be developed by the end of February 2012. The Department has also recommended conditions requiring Enhance Place to make suitable arrangements to provide appropriate long-term security for the offset area, and lodge a conservation bond with the Department to cover the full cost of implementing the Biodiversity Offset Strategy.

**Rehabilitation**
Enhance Place has committed to progressively rehabilitating both the existing disturbed areas of the Pine Dale Mine site and the Extension area.

The Extension area would be rehabilitated to native woodland/forest. Both the Department and I&I NSW are satisfied with this approach.

However, Enhance Place proposed to rehabilitate the area within the original mine to pasture suitable for agricultural purposes (Class IV land capability). The Department does not believe that this would achieve a final land use that is compatible with the surrounding environment. The Department has therefore recommended a condition requiring Enhance Place to rehabilitate a large proportion of the disturbed areas within the Pine Dale Mine site to native woodlands and forests vegetation (Class VII), including the permanent amenity bunds. The Department believes this would result in better long-term outcomes by:

- ensuring compatibility with the Ben Bullen State Forest areas to the north as well as the Extension area;
- improving the visual amenity of the corridor adjacent to the Castlereagh Highway;
- ensuring consistency with surrounding mines (eg. Invincible Mine); and
- enhancing the habitat value of the site.

The Department is satisfied that this approach will also address concerns raised by SCA about the poor quality of the existing rehabilitated areas on the Pine Dale Mine site, particularly on the bunds around the crushing area and the areas north of Neubecks Creek.
Furthermore, the Department has recommended conditions requiring Enhance Place to prepare a comprehensive Rehabilitation Management Plan, which covers both the Extension and Pine Dale Mine sites. It is recommended that the Plan be prepared in consultation with the Department, I&I NSW, Council and NOW, and include detailed rehabilitation performance and completion criteria for the progressive revegetation and re-habitation of the sites.

Enhance Place proposed to utilise boiler ash from the Oberon Timberworks to assist in rehabilitation activities in areas that may have acid producing potential. The Lithgow Environment Group and a public submitter raised concerns about the on-site use of highly alkaline boiler ash and the lack of evidence presented in the EA to indicate that the boiler ash is beneficial in rehabilitating of mined areas. NSW I&I also expressed concerns that the metal concentrations within the boiler ash may be at levels that exceed photo-toxicity concentrations in the soil and may adversely impact rehabilitating vegetation.

The Department agrees that there is a lack of justification and evidence supporting the use of the boiler ash during rehabilitation activities and has therefore recommended that this activity be prohibited.

**Conclusion**
The Department is satisfied that Enhance Place has adequately considered the potential flora and fauna impacts of the project.

The Department supports the implementation of a biodiversity offset by the end of February 2012 and is satisfied that the offset, coupled with the proposed rehabilitation would provide a net biodiversity benefit to the area in the medium to long term.

To minimise the flora and fauna impacts of the project, the Department believes Enhanced Place should be required to prepare a detailed Biodiversity Offset Strategy and a Rehabilitation Management Plan for the project.

In addition, to ensure that the offset areas are established to the satisfaction of the Director-General, the Department recommends that Enhance Place be required to lodge a substantial conservation bond with the Department. The size of the bond would be sufficient to cover the full cost of implementing the biodiversity offset strategy, and would be independently verified by a suitably qualified expert.

5.4 **Visual Issue**
The project has the potential to impact on the visual amenity of the locality.

**Consideration**
The Extension area is shielded to the north, east and partly to the west by intervening topography and forest areas. The principal area of visibility is to the southeast, south and southwest, particularly from the residences within Blackman’s Flat and users of the Castlereagh Highway.

To mitigate the project’s visual impacts to sensitive receivers, Enhance Place proposes to:
- construct and revegetate an amenity bund to an elevation of 935 m AHD along the southern boundary of the Extension area;
- progressively rehabilitate the Pine Dale Mine site and the Extension areas; and
- position and direct lighting to minimise excessive night glow.

Council, all of the special interest groups and one public submission raised concerns about the reduction in visual amenity as a result of the project, particularly when viewing the project from Castlereagh Highway, and from users of the Ben Bullen State Forest (including the proposed extension to the Gardens of Stone National Park).

In its response Enhance Place pointed out that the visual character of the area is already dominated by mining, waste and energy-related industries, in particular the Mt Piper Power Station and its associated ash dam. However, Enhance Place accepted that, even after the implementation of the proposed mitigation measures, parts of the project would remain visible from some areas of the Ben Bullen State Forest, sections of the Castlereagh Highway and some residences.
The Department accepts that the project would be visible from some vantage points surrounding the site, however notes that views from the State Forest and Castlereagh Highway would be temporary and not inconsistent with the surrounding area.

The Department is satisfied that the amenity bund would shield the majority of mining activities from more sensitive receivers, including most of the residences within Blackman’s Flat. However, the Department believes that Enhance Place should be required to implement additional visual mitigation measures (such as landscaping treatments or vegetation screens) at the residences which would have direct views of any mining operations.

Consequently, the Department has recommended conditions that would require Enhance Place to:

- minimise visual amenity and lighting impacts of the project;
- construct and vegetate the amenity bund; and
- implement additional visual mitigation measures at residences where significant visual impacts are predicted, at the request of any of the owners of these properties.

The Department is satisfied that, with the implementation of these measures, the visual impacts associated with the project would not be significant.

5.5 Noise

Issue
The project has the potential to generate operational and road traffic noise impacts.

Consideration
Enhance Place engaged specialist acoustic consultants Heggies Pty Ltd (Heggies) to undertake a noise assessment of the project in accordance with applicable guidelines, including the NSW Industrial Noise Policy (INP), Environmental Criteria for Road Traffic Noise and the Environmental Noise Control Manual. A copy of the assessment is provided in Part 7 of the Compendium to the EA.

The assessment included background noise monitoring and predictive modelling of the project’s potential noise impacts as well as the potential cumulative noise associated with the project operating in conjunction with the nearby Wallerawang Power Station, the Mt Piper Power Station, the Angus Place underground coal mine and the associated haul road to Mt Piper Power Station.

The Lithgow Environment Group expressed concerns that the assessment fails to take into account all cumulative impacts, including from the approved 2000 MW Mt Piper air cooled power station or the extension of Mt Piper Fly-ash Repository. In its response Enhance Place indicates that neither of these projects would be undertaken until 2015, well after the completion of the Yarraboldy Extension operations. Cumulative noise impacts associated with these projects are therefore not applicable to the Extension project. The Department accepts this response.

The noise assessment is based on the adoption of a number of design and operational safeguards, including:

- constructing and revegetating an amenity bund to an elevation of 935 m AHD along the southern boundary of the Extension area;
- forming a small acoustic bund (3m in height) along the southern edge of the drill rig operating area to provide temporary shielding during the construction of the main bund;
- ensuring equipment supplying overburden to the amenity bund is predominantly working behind the bund;
- operating the pump behind a noise barrier and restrict its use to day-time only;
- restricting trucks to 20 movements per hour on the mine access route to Castlereagh Highway;
- orientating the crusher so that the open side is facing north; and
- prohibiting the joint operation of the existing crushing plant and the crusher within the Extension area.

The Department and DECCW are satisfied that these measures are reasonable and feasible and that the predictions of the noise assessment are robust, and suitably conservative.

Operational Noise
The noise assessment modelled noise generated during a 6 month site establishment period which would involve:
• construction of the noise amenity bund;
• commencement of mining in the Extension area;
• operation of a crushing plant and transport of coal products on Castlereagh Highway (maximum of 20 movements per hour);
• final landform shaping of Pine Dale Mine; and
• pumping of water for dust suppression.

The activities proposed to be undertaken during site establishment are predicted to exceed the project specific noise criteria by 1 dB(A) at Residences 18, 32 and 33 and by 3 dB(A) at Residences 20-23, 25 and 27-29 (see Figure 3). These exceedances are attributed to the construction of the amenity bund, which is estimated to take a period of 6 months.

The Department considers these exceedances to be minor and necessary for the construction of the bund. The Department has therefore recommended a condition allowing slightly higher noise criteria at these residences during the short period required to construct the bund.

The activities proposed to be undertaken during site establishment are also predicted to result in exceedances of 2 dB(A) at Residence 2 (north) and a 1 dB(A) exceedance at Residence 2 (south). These predicted exceedances are attributed to the shaping of the final landform in the south-eastern areas of the site. In order to limit the impact on these residences, Enhance Place has committed to the following management measures:

• prompt response to any community issues;
• noise monitoring on site and within the community; and
• if noise exceedances are recorded, either install noise mitigation on bulldozers, consider acoustical mitigation at receivers or negotiate agreements with property owners for the short duration exceedances may occur.

The Department is satisfied that these predicted noise level exceedances are minor and that the mitigation and management measures proposed would ensure noise levels during the site establishment period are within acceptable limits.

The noise model predicted that, with the noise amenity bund in place, noise levels emitted from the Project site during mining operations would meet the project specific noise criteria at all residential locations. It is worth noting that, due to a slight decrease in measured background noise levels, the day time noise criteria within Blackmans Flat is less (ie. stricter) than the existing noise criteria.

However, the noise model predicted that the transportation of product coal to the intersection of the Castlereagh Highway during the evening period of 6pm to 8pm may result in noise exceedances of up to 4 dB(A) at 10 residential receivers. The Department considered these predicted exceedances to be unacceptable. Enhance Place subsequently provided additional noise modelling information (Appendix E) indicating that compliance with the relevant noise criterion could be achieved by reducing the number of product truck movements during the evening period to 4 trucks per hour (8 movements). The Department has therefore recommended a condition restricting truck movements to these numbers.

Enhance Place proposed to conduct maintenance activities on a 24-hour, 7 days a week basis on the understanding that night-time maintenance activities would be restricted to that which are either inaudible or non-intrusive at surrounding residences. Council and DECCW expressed concerns about these extended hours. Despite the modelling results predicting that night-time maintenance works can be undertaken with applicable criteria, DECCW does not believe these activities can be consistently performed without interference to one or more residential receivers.

The Department agrees with DECCW and has recommended a condition restricting maintenance activities to the currently approved hours (ie. 7am to 10pm on Monday to Saturday and 9am to 4pm on Sundays).

**Cumulative Noise**

The EA includes a cumulative noise assessment of the project operating in conjunction with the existing Wallerawang Power Station, the Mt Piper Power Station, the Angus Place underground coal mine and the associated coal haul road to Mt Piper Power station and the Springvale Coal Mine.
The assessment indicated that the cumulative noise impacts of the project with existing industrial noise sources are predicted to be within amenity criteria.

**Road Noise**
Traffic noise modelling indicates that, under the worst case transport scenario, the project would comply with the applicable road traffic noise criteria. Furthermore, the EA indicates that the likely increase in road traffic noise levels if the proposed 200 truck movements a day (100 loads) is utilised, is predicted to be less than 1 dB(A), which is considered a negligible increase in road traffic noise levels.

**Conclusion**
The Department and DECCW are satisfied that Enhance Place has assessed the potential noise impacts of the project in accordance with relevant DECCW guidelines, and appropriately considered reasonable and feasible noise mitigation measures.

The Department is satisfied that, with the implementation of mitigation measures, the Project would not result in significant noise impacts.

In order to further minimise noise impacts associated with the Project, the Department believes that Enhance Place should also be required to:
- comply with operational, cumulative and traffic noise criteria;
- prepare and implement a Noise Management Plan for the project detailing noise mitigation measures, a noise monitoring program, a traffic management plan and a continual improvement program for reducing noise generated by the project;
- undertake additional noise mitigation measures where monitoring indicates an exceedance of the noise limits; and
- independently investigate noise complaints.

### 5.6 Blasting and Vibration

**Issue**
The project has the potential to result in blasting impacts to nearby road users and residences.

**Consideration**
Enhance Place engaged Enviro Strata Consulting Pty Ltd (ESC) to undertake a blast and vibration impact assessment for the project. The assessment included analysis of blast monitoring data from the Pine Dale Coal Mine, a single hole blasting trial and predictive modelling of peak overpressure and vibration levels from blasts associated with the proposed open cut mine.

Blasting has the potential to affect residents and private property in three main ways, including:
- structural damage to homes, buildings and property improvements;
- annoyance and discomfort, or ‘amenity impact’; and/or
- safety risks due to fly-rock.

In order to comply with relevant damage and amenity vibration and blast overpressure criteria, Enhance Place has committed to adopt a range of design and operational safeguards including:
- limiting blast Maximum Instantaneous Charge (MIC);
- application of deck charges to minimise the ground vibration impacts for critical blasts;
- application of electronic detonator technology to minimise the impact of vibration (via the elimination of initiation scatter);
- controlling stemming height and material and not allowing stemming ejection;
- not allowing face burst; and
- optimisation of the initial blasting sequence.

The blast and vibration impact assessment predicts that with the adoption of the above techniques, compliance with relevant vibration and blast overpressure criteria can be achieved.

However, the Lithgow Environment Group and one public submission raised concerns about the separation distances between Blackmans Flat residents and blasting within the mine. The Department acknowledges that the residences of Blackmans Flat and the users of the Castlereagh Highway are close to the mine (ie. between 400m – 500m) and that safety risks associated with flyrock related impacts exist.
Downer Edi Mining – Blasting Services Pty Ltd has provided specialist advice to suggest that with the implementation of suitable mitigation measures, fly-rock from blasting could be controlled to within 400 metres of the blast. While the Department has noted this advice, it remains concerned about the potential safety risks associated with blasting within 500 metres of privately-owned land or any public roads. Consequently, the Department believes Enhance Place should be required to either manage these risks in consultation with the landowner or prepare a detailed plan setting out the specific mitigation measures that would be implemented to ensure the safety of people, and integrity buildings and/or structures.

**Conclusion**
The Department is satisfied that, subject to strict blast management conditions, blasting and flyrock related impacts can be managed such that the operations would not significantly affect surrounding residents or properties.

The Department has recommended conditions requiring Enhance Place to:
- manage blasting operations to comply with all relevant criteria at private properties;
- restrict blasting to the currently approved hours (ie. between the hours of 10am and 3pm, Monday to Friday, with no blasting on weekends or Public Holidays);
- limit open cut blasting to 1 on each day which blasting is permitted;
- provide for structural property inspections and investigations upon request;
- keep residences notified and up to date regarding blasting operations, and facilitate feedback/complaint management;
- make suitable arrangements, to the satisfaction of the Director-General, to demonstrate that blasting within 500 metres of any privately-owned land or any public road can be carried out without compromising the safety of people, or damaging buildings and/or structures; and
- prepare and implement a detailed Blast Management Plan for the project.

### 5.7 Air Quality

**Issue**
The project would generate dust from mining, processing and transportation activities.

**Consideration**
Enhance Place engaged Heggies to undertake an air quality assessment for the project in accordance with DECCW’s *Approved Methods for the assessment of air pollution sources using dispersion models*.

This assessment modelled the total suspended particulates (TSP), particulate matter (PM$_{10}$) and dust deposition for the site establishment and 2-year mining period. The model used background air quality results obtained during the operation of the Pine Dale Mine. This approach is considered conservative as the particulate levels include impacts associated with the current mining activities, which will be completed prior to the commencement of the Extension project.

Several public submissions raised concerns that the air quality assessment failed to include air quality impacts from the approved 2000 MW Mt Piper Power Station or the extension of Mt Piper Fly-ash Repository. Neither of these projects would be undertaken until 2015, well after the completion of the Yarraboldy Extension operations. Cumulative noise impacts associated with these projects are therefore not applicable to the Extension project.

The results of this modelling are based on the assumption that Enhance Place would implement a range of measures to control dust generation, including:
- minimising the area of disturbance as far as practicable at any one time;
- avoiding dust generating activities (eg. stripping) during dry and windy conditions;
- watering of all disturbed areas;
- enclosing the crusher and fitting all conveyors with cleaning and collection devices;
- covering all trucks loads during transport off-site; and
- progressively rehabilitating disturbed areas.

Both the Department and DECCW accept this approach, and are satisfied that the predicted results of this modelling are suitably conservative and robust.
The air quality modelling predicted that dust emissions generated by the project would comply with all relevant dust criteria at privately owned residences during both the site establishment period and the mining period. A summary of the predicted worst case modelled air quality emissions is provided in Table 3.

Table 3: Predicted Maximum Air Quality Emissions

<table>
<thead>
<tr>
<th></th>
<th>DECCW Criterion</th>
<th>Background</th>
<th>Maximum Predicted Incremental Dust Level</th>
<th>Maximum Predicted Total Dust Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Site Establishment</td>
<td>Mining Operations</td>
</tr>
<tr>
<td>Annual average dust deposition (g/m²/month)</td>
<td>4</td>
<td>2</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Maximum 24-hour average PM$_{10}$ (µg/m$^3$)</td>
<td>50</td>
<td>Daily varying</td>
<td>13.6</td>
<td>8.6</td>
</tr>
<tr>
<td>Maximum annual average PM$_{10}$ (µg/m$^3$)</td>
<td>30</td>
<td>15</td>
<td>1.6</td>
<td>3</td>
</tr>
<tr>
<td>Maximum annual average TSP ((µg/m$^3$))</td>
<td>90</td>
<td>40</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Conclusion
The Department and DECCW are satisfied that Enhance Place has assessed the potential air quality impacts of the project, in accordance with relevant DECCW guidelines, and that the predicted impacts of the project are justified.

Nevertheless, the Department has recommended conditions requiring Enhance Place to:
- comply with contemporary air quality criteria;
- implement best practice dust mitigation on site, including continuation of the existing air quality monitoring network, to minimise the dust impacts of the project; and
- prepare and implement a detailed Air Quality Management Plan for the project.

5.10 Transport

Issue
The project would require the use of the Castlereagh Highway and the Private Coal Haul Road for the transportation of coal product.

Consideration
The EA includes a transport impact assessment for the project, which was undertaken by Barnson Pty Ltd. The assessment considered the potential operational and cumulative traffic impacts of the project on the public road system.

Enhance Place proposes to transport 100,000tpa of product coal via the Castlereagh Highway, including up to 30,000tpa to the east of the site (this represents 250,000 tpa less than is currently being transported via the Castlereagh Highway from the Pine Dale Mine). The remaining 250,000 tpa of product coal would be transported to either Mt Piper or Wallerawang Power Station via an internal Private Haul Road, known as the Coal Link Road (refer to Figure 1).

In order to ensure that the product coal can be transported on a campaign basis on the Castlereagh Highway, Enhance Place proposes that the hourly transport rates for the Extension remain the same as what is currently approved for the Pine Dale Mine (ie. up to 10 coal product trucks per hour to entre/exit the site – 20 movements). As discussed in Section 5.5, in order to ensure compliance with relevant noise criterion, the Department has recommended that these transport rates be reduced during the evening period (ie. 6pm to 8pm).
The Department acknowledges that the total coal tonnage that would be transported on the Castlereagh Highway as a result of the project would be significantly less than is currently transported from the Pine Dale Mine site. The Department and the RTA therefore accept the proposed transport rates. The Department also accepts that, in order for Enhance Place to maintain a competitive position against other coal suppliers, small volumes of coal may need to be transported to the east of the site via the Castlereagh Highway. The Department has therefore recommended a condition allowing up to 30,000 tpa to be transport via this route.

The traffic assessment confirms that the existing heavy vehicle intersection with Castlereagh Highway is adequate for the proposed level of vehicle movements. Enhance Place has committed to constructing an appropriate intersection with the Private Haul Road to provide safe ingress and egress.

**Conclusion**
The Department is satisfied that the traffic volumes on Castlereagh Highway as a result of the project would be less than existing volumes and would not adversely impact on the safety or capacity of the surrounding road network.

To ensure this is the case, the Department has recommended a condition that requires Enhance Place to prepare and implement a Traffic Management Plan.

### 5.11 Other Impacts
The project has the potential to generate a range of other environmental impacts – including Aboriginal and non-indigenous heritage impacts, socio-economic issues, greenhouse gases and bushfire hazards. However, these impacts are not predicted to be significant, and the Department is satisfied that they can be controlled, mitigated or managed through appropriate conditions of approval.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Impacts / Consideration</th>
<th>Conclusion / Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aboriginal and Non-Aboriginal Heritage</td>
<td>The EA contains an Aboriginal &amp; European Heritage Assessment undertaken by Archaeological Survey &amp; Reports Pty Ltd. The assessment identified 2 Aboriginal artifact scatters on spurs upslope of the Extension area. No other artifacts, sites or locations of potential archaeological deposits (PADs) were identified.</td>
<td>The Department is satisfied with the level of assessment undertaken in relation to Aboriginal and European heritage and the avoidance, mitigation and management measures proposed. Nevertheless, the Department has recommended a condition that requires Enhance Place to prepare and implement an Aboriginal Heritage Management Plan in consultation with the Aboriginal Community and the Heritage Branch.</td>
</tr>
<tr>
<td>Socio-economic</td>
<td>The project would result in the continued direct employment of 19 people and inject approximately $1.4 million into the local and regional economy and $2.9 million into the State economy. In addition, Enhance Place has agreed to pay Council $79,800 (GST inclusive) to assist in the provision of community infrastructure and services. The Department has recommended a condition requiring Enhance Place to pay this amount prior to the production of saleable coal. Furthermore, in the event that any coal needs to be transported on Council roads during emergency situations, Enhance Place has committed to paying Council 5 cents per tonne of coal transported per kilometre of Council road traversed. This is in accordance with the Lithgow Rural Roads Section 94 Contributions Plan.</td>
<td>The Department is satisfied that the project would result in socio-economic benefits to the local and regional community and would not compromise the Council road network.</td>
</tr>
</tbody>
</table>
Greenhouse Gases

The EA contains a Greenhouse Gas (GHG) Assessment undertaken by Heggies. The assessment predicts that the project would generate a total of 102,483 tCO$_2$-e per annum, which represents 0.06% of the NSW total GHG emissions and 0.02% of Australia’s total GHG emissions. The vast majority (ie. 80%) of the project-related emissions are attributed to Scope 3 emissions associated with the downstream burning of the product coal at power stations.

On a comparative basis, the total GHG emissions from the project represent a very small proportion of the current and global GHG emissions, and when considered in isolation, the project would have a negligible contribution to global warming/climate change. However, the Department expects that Enhance Place should be required to continue to monitor GHG emissions, investigate ways of reducing these emissions, and regularly report on the results of the monitoring and greenhouse abatement measures. The Department has recommended that these measures be documented in an Air Quality & Greenhouse Gas Management Plan.

Bushfire Hazard

The mine site is located adjacent to the heavily wooded Ben Bullen State Forest. Therefore the threat of bushfire within the project site and on adjacent lands would be high if appropriate management measures are not adopted. Enhance Place has committed to implementing a range of fire controls and safeguards.

The Department is satisfied that the implementation of the proposed safeguards and controls would mitigate bushfire risk to an acceptable level. To ensure these measures are implemented, the Department has recommended a condition requiring Enhance Place to prepare and implement a Bushfire Management Plan.

6. RECOMMENDED CONDITIONS

The Department has drafted recommended conditions of approval for the project, in consultation with the relevant agencies including Lithgow City Council.

These conditions are required to:
- prevent, minimise, and/or offset adverse impacts of the project;
- set standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

Enhance Place has reviewed and accepted the recommended conditions.

7. CONCLUSION

The Department has carried out a detailed assessment of the merits of the project, in accordance with the requirements of the EP&A Act.

This assessment has found that, despite the residences within the Blackmans Flat area being close to the Yarraboldy Extension project, the project would not result in significant noise, dust or visual amenity impacts on the village. However, the project would require the clearing of 14 hectares of vegetation and a range of habitat for several threatened fauna species and may impact on local surface and groundwater resources.

The Department has recommended a range of conditions to ensure that these impacts are suitably mitigated, managed and/or offset. These conditions include requirements for Enhance Place to:
- offset any loss of any baseflow to the surrounding watercourses;
- implement additional measures to minimise the dust, noise, blasting and visual impacts of the project;
- implement a comprehensive biodiversity offset to ensure the project maintains and potentially improves the biodiversity values of the region in the medium to long term;
- conserve the proposed offset biodiversity area in perpetuity;
- progressively rehabilitate the Pine Dale Mine site and the Extension site to meet a range of performance measures;
- formalise its offer to pay Council $79,800 for the provision of local infrastructure and services;
- monitor and regularly report on its environmental performance; and
• commission bi-annual independent audit of its operations, to ensure that it is complying with its conditions of approval and implementing best practice on site.

The Department’s assessment has also found that the project would represent a logical extension of the existing Pine Dale Mine, would make efficient use of existing facilities and equipment, and would provide economic and social benefits to both the Lithgow region and NSW, including:
• continued direct employment for up to 19 employees;
• a capital investment of $1.4 million; and
• royalties and payroll taxes for the State Government.

On balance, the Department believes that the project’s benefits sufficiently outweigh its residual costs, and that it is in the public interest and should therefore be approved subject to strict conditions.

8. RECOMMENDATION

It is RECOMMENDED that the Deputy Director-General:
• consider the findings and recommendations of this report and its accompanying appendices;
• approve the project application, subject to conditions, under Section 75J of the Environmental Planning and Assessment Act 1979; and
• sign the attached project approval (see Appendix F).

David Kitto
Director
Mining & Industry Projects

Chris Wilson
Executive Director
Major Projects Assessment

Richard Pearson
Deputy Director-General
Development Assessment & Systems Performance
APPENDIX A – ENVIRONMENTAL ASSESSMENT
APPENDIX B – CONSIDERATION OF EPI’S

State Environmental Planning Policy (Major Development) 2005
See discussion in Section 3.1.

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP)
Part 3 of the Mining SEPP lists a number of matters that a consent authority must consider before determining an application for consent for development for the purposes of mining, including:

- compatibility with other land uses;
- natural resource management and environmental management;
- resource recovery;
- transport; and
- rehabilitation.

Where appropriate, the Department has considered all of these matters in its assessment report. Based on this assessment, the Department is satisfied that the project can be managed in a manner that is generally consistent with the aims, objectives and provisions of the Mining SEPP.

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP)
In accordance with clause 104 of the Infrastructure SEPP (and equivalent provisions of the now repealed SEPP 11 Traffic Generating Developments), the application was referred to the Department of Transport and Infrastructure (formerly the Roads and Traffic Authority). DTI made a submission but did not object to the project.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)
The Department is satisfied that the project is not potentially hazardous or offensive, and that the proposal is generally consistent with the aims, objectives and provisions of SEPP 33.

SEPP No. 44 – Koala Habitat Protection
The EA states that the study area does not contain potential Koala habitat and that there is no evidence of Koala activity, neither direct observation of koalas or indirect evidence (such as scats or scratches on tree trunks) was recorded in the study area. Further, koalas are not likely to occur in the project area, nor likely to be affected by the proposal. The Department agrees with Enhance Place that the study area does not contain potential or core Koala habitat and is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 44.

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)
SEPP 55 is concerned with the remediation of contaminated land. It sets out matters relating to contaminated land that a consent authority must consider in determining an application for development consent. The Department has considered these matters and is satisfied that the land can be used for mining purposes.

Lithgow City Local Environmental Plan 1994
The land subject to the application lies in an area zoned Rural 1(f)(Forestry). Mining activities are permissible activities within this zone, subject to development consent.
APPENDIX E – ADDITIONAL NOISE INFORMATION