



NSW GOVERNMENT
Department of Planning

***MAJOR PROJECT ASSESSMENT:
Mannering Colliery -
Continuation of Mining***



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

February 2008

Cover Photo: Mannering Colliery surface facilities and conveyor to Vales Point Power Station on the shores of Lake Macquarie

© Crown copyright 2008
Published February 2008
NSW Department of Planning
www.planning.nsw.gov.au

Disclaimer:
While every reasonable effort has been made to ensure that this document is correct at the time of publication, the State of New South Wales, its agents and employees, disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance upon the whole or any part of this document

EXECUTIVE SUMMARY

Mannering Colliery (formerly Wyee State Mine) has been operating since 1960. The mine is located close to the southern shores of Lake Macquarie on the Central Coast of NSW. Due to changes in legislation, its owner (Centennial Coal Company Limited) is required to seek approval for its ongoing mining activities and the continued operation of surface facilities.

The Mannering Continuation of Mining proposal involves continuing to operate the Mannering underground coal mine, including:

- extracting up to 1.1 million tonnes of run of mine coal each year for up to 10 years;
- using bord and pillar underground mining techniques;
- continuing to use existing surface facilities;
- dispatching coal for transport by conveyor to the Vales Point Power Station; and
- constructing and using additional minor infrastructure that may be required to service the proposed underground mine workings.

The key issues raised through the public exhibition of the project were noise greenhouse gas emissions, surface water and groundwater management, and potential subsidence impacts.

As an existing operation, the Department's consideration of Mannering's noise impacts focused on whether Centennial has implemented all feasible and reasonable noise mitigation measures to reduce noise emissions to the lowest economically achievable levels. Whilst comprehensive noise mitigation measures were implemented at the mine in 1996, the Department believes it is appropriate that Centennial be required to investigate, and implement, any further feasible and reasonable noise mitigation measures that may be available. The Department is confident that, when combined with a comprehensive noise monitoring program and the benefits flowing from investigation of newly-available noise mitigation measures, the existing noise impacts from Mannering would decrease.

Centennial intends to continue the use of bord and pillar mining methods at Mannering, which do not produce subsidence that is noticeable at the surface. Accordingly, it is anticipated that there will be no subsidence impacts on sensitive surface features such as wetlands and the shoreline of Lake Macquarie.

In respect of surface and groundwater management, it is recommended that Mannering develop a site water balance, and a groundwater and surface water monitoring program. Further, that it investigate ways that it could improve site water management, with the aims of reducing potable water consumption drawn from Wyong's town water supply and mitigating any impacts that may have arisen from minewater discharges into a local creek and wetland.

The Department also recommends that Centennial develops and implements a comprehensive Energy Action Saving Plan for Mannering to ensure that the project is operated in an energy efficient manner and mitigates greenhouse gas emissions.

The project has important socio-economic benefits, providing direct and indirect employment for 182 workers of the Central Coast of NSW and injecting \$13 million a year into regional household income. Importantly, the project would continue to provide a reliable source of coal to the State's power industry, which would in turn, facilitate the continuation of a reliable, low cost electricity supply for NSW consumers.

The environmental impacts of the project can be successfully managed through conditions of approval and the company's Statement of Commitments. The Department believes that the project would lead to significant socio-economic benefits for the local and regional communities and the State. The Department has proposed conditions of approval which would lead to the implementation of best practice environmental management for the site. Consequently, the Department recommends that the Mannering Continuation of Mining Project be approved, subject to conditions of approval.

1. PROPOSED PROJECT

1.1 Project Background

Manning Colliery (Manning) is an existing underground coal mine located approximately 40 kilometres (km) south of Newcastle (see Figure 1). Centennial Coal Company Limited (Centennial) has owned and operated the mine since 2002, but the mine (previously known as Wyee State Mine) has been operating for over 45 years. The mine was established in the 1960s to supply Vales Point Power Station with low sulphur coal (see cover photograph). Centennial has lodged a project application (06_0311) with the Department to continue to operate the Manning Colliery surface facilities and conduct underground coal extraction by bord and pillar mining methods.

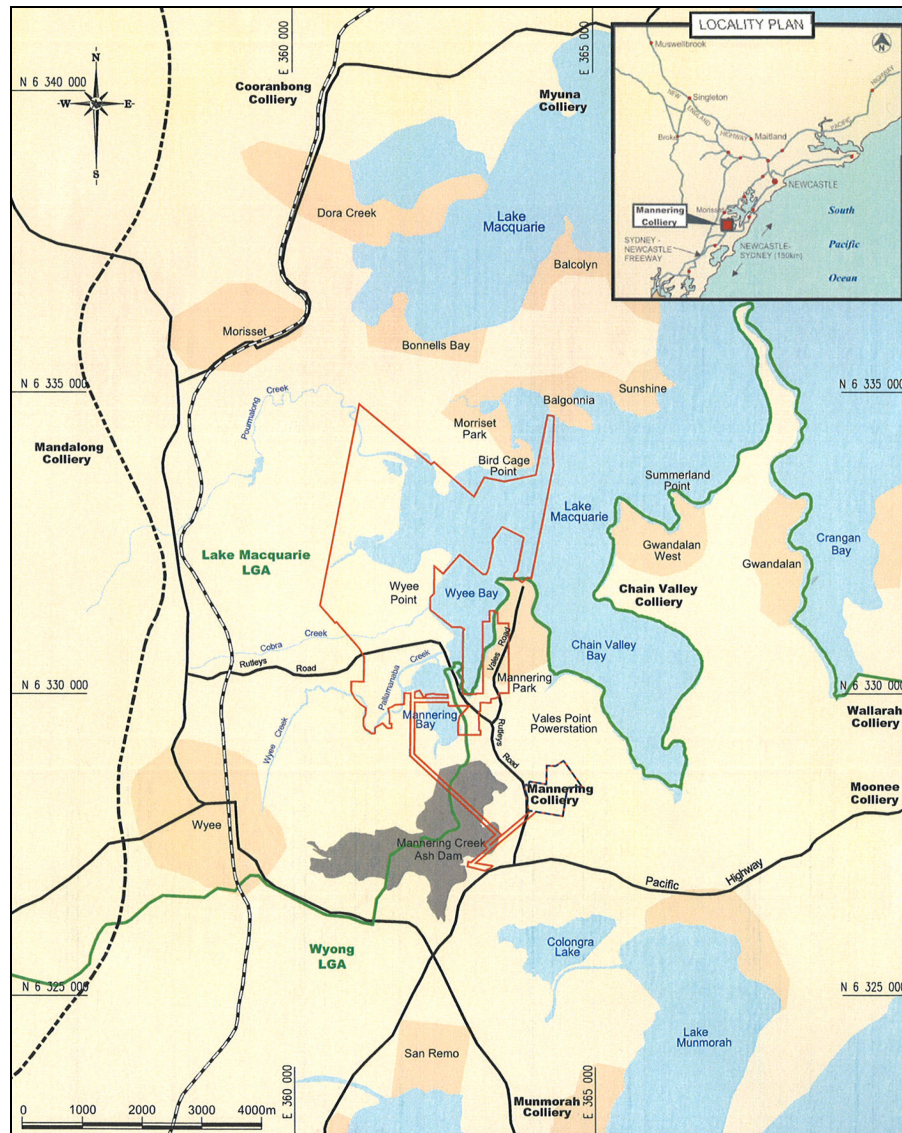


Figure 1: Regional setting

Manning is a conventional bord and pillar mine, involving first workings in the Fassifern Seam. No secondary extraction is proposed in the project area and the conceptual mine plan has been designed to avoid surface impacts, including avoiding mining below existing workings in the Great Northern Seam.

There is no current development consent under the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the operation of the existing mine. Approval under Part 4 of the *Environmental Planning & Assessment Act 1979* was not required due to provisions in the *Lake Macquarie Local Environmental Plan 2004* and the *Wyong Local Environmental Plan 1991* (and their predecessors)

which reflected the *Environmental Planning & Assessment Model Provisions 1980* and had the effect that development consent was not required for development carried out on a mine for the purposes of a mine, and also due to similar provisions then in place under the *Mining Act 1992*.

Due to the introduction of Part 3A of the EP&A Act on 1 August 2005 and the related passage of the *State Environmental Planning Policy (Major Projects) 2005*, and amendments to the *Environmental Planning & Assessment Regulation 2000*, the mine now requires a project approval under Part 3A from the Minister for Planning prior to 2010 in order to continue operations at the existing mine site.

1.2 Project Description

The major components of the project are summarised in Table 1 and depicted in Figure 2.

Table 1: Major components of the Mannering Colliery Continuation of Mining Project

Aspect	Description
Project Summary	Proposed continuation of mining of coal from the Fassifern Seam by bord and pillar underground mining methods generally in accordance with the conceptual mine plan shown in Figure 2 below, and the operation of associated existing surface facilities at Mannering Colliery.
<i>Production</i>	Extraction and processing of up to 1.1 million tonnes of run of mine (ROM) coal per annum.
<i>Project Life</i>	The proposed remaining production life of the mine is 10 years.
<i>Construction Activities</i>	No construction activities are proposed.
<i>Coal Preparation</i>	Coal would continue to be crushed on site at the Mannering coal crushing facility.
<i>Coal Storage</i>	Stockpiling of up to 25,000 tonnes of ROM coal on site.
<i>Surface Facilities</i>	Continued operation and use of existing surface facilities associated with the underground coal mine including administration/workshop facilities, ventilation shafts, water management infrastructure and coal crushing and handling facilities.
<i>Rehabilitation</i>	Rehabilitation of the mine's surface facilities site would be undertaken at the cessation of mining. Any future land use would need to be compatible with the site's location within the buffer lands for the Vales Point Power Station.
<i>Product Coal Transport</i>	All coal produced would be transported by dedicated conveyor to Vales Point Power Station. (The conveyor is part of Vales Point Power Station's infrastructure and is not part of Mannering Colliery).
<i>Infrastructure</i>	Existing surface and underground infrastructure would continue to be used. Additional minor infrastructure such as dewatering and gas drainage bores may be installed.
<i>Employment</i>	Continued workforce of about 74 directly employed persons.
<i>Capital Investment</i>	No new capital investment is proposed.
<i>Hours of Operation</i>	Operations would take place 24 hours a day, 7 days a week.

1.3 Project Setting

The project's surface facilities are close to Vales Point Power Station and 3 km south of the suburb of Mannering Park (see Figure 1). The mine area is situated within the Lake Macquarie (87%) and Wyong (13%) local government areas, and within the West Lake Macquarie and Swansea-North Entrance Mine Subsidence Districts.

There are previous and ongoing underground mining operations surrounding Mannering Colliery, including Mandalong and Cooranbong Collieries to the north, Myuna Colliery to the northeast, Chain Valley Colliery to the east and Munmorah Colliery to the south.

Land uses at the surface above and adjacent to the mine include power generation, recreation and residential use. The project area underlies sensitive surface features including Lake Macquarie, the Lake Macquarie State Recreation Area and Morisset Hospital.

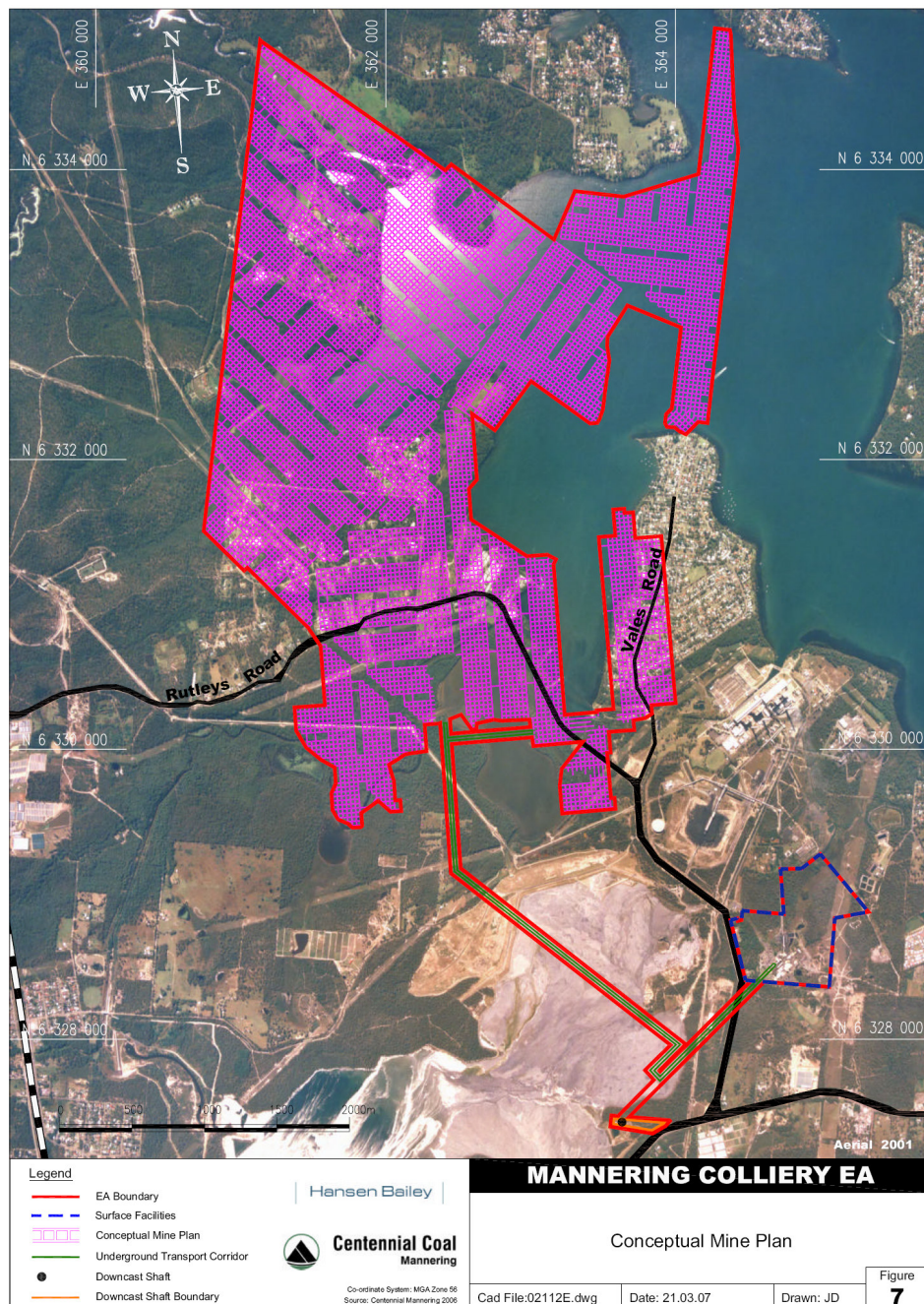


Figure 2: Conceptual mine plan

The nearest residential areas are:

- 3 rural residences about 1 km to the south of Mannering's surface facilities;
- Macquarie Shores Home Village about 0.8 km to the east of Mannering's surface facilities;
- rural residences on Tall Timbers Road and the adjacent Chain Valley Bay suburban area, about 1.5 km to the northeast of Mannering's surface facilities; and
- residences over 2 km to the north and west of Mannering's surface facilities.

No community complaints or environmental incidents have been recorded by Mannering in the 5 years since Centennial took ownership of the operation.

1.4 Project Need and Justification

Mannering represents significant investment already made in the establishment of the mine. Mannering provides low sulphur coal, a preferred product, to Vales Point Power Station via a dedicated overland conveyor. Any cessation of mining activities would result in the loss of approximately 182 direct and indirect jobs and the sterilisation of the mine's remaining coal resources.

Additionally, Vales Point Power Station would need to source coal from more distant mines, with resultant economic and environmental impacts associated with increased transportation distances.

The key benefits of the project would be the ongoing full-time permanent employment opportunities at the mine, continuing regional economic benefits, royalty and tax income for the Government, and the supply of low sulphur coal to the adjacent Vales Point Power Station at a competitive price, which would in turn, facilitate the continuation of a reliable, low cost electricity supply for NSW consumers.

2. STATUTORY CONTEXT

2.1 Major Project

The proposal is classified as a major project under Part 3A of the EP&A Act, because it is development for the purpose of coal mining and triggers the criteria in clause 5 of schedule 1 of *State Environmental Planning Policy (Major Projects) 2005*. Consequently, the Minister for Planning is the approval authority for the project.

2.2 Permissibility

Mannering is located within both the Lake Macquarie and Wyong local government areas and the proposed project area comprises 16 different land zones under the *Lake Macquarie Local Environment Plan 2004* and 5 land zones under the *Wyong Local Environment Plan 1991*.

Over 90% of the proposed application area is within zones in which mining is permissible (partly due to the operation of clause 19 of the Lake Macquarie LEP, which makes underground mining permissible with consent throughout the LGA) but a small portion of the application area is in zones in Wyong LGA where mining is prohibited. Recent amendments to section 75J(3) of the EP&A Act and associated changes to the *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation) have the effect that the Minister cannot approve the carrying out of a project that would be wholly or partially prohibited under any environmental planning instrument. However, a transitional provision associated with this change (clause 8OA of the EP&A Regulation, gazetted on 16 November 2007) establishes that the Minister is able to approve a project which is partly prohibited, so long as the Director-General's requirements for that project's EA had been issued before the commencement of the other changes to the regulation.

Consequently, the Minister may approve the carrying out of the project.

2.3 Exhibition

After accepting the EA for the project, the Department:

- made the EA publicly available from 30 April 2007 until 30 May 2007:
 - on the Department's website;
 - at the Department's Information Centre and the offices of Lake Macquarie City Council and Wyong Shire Council;
 - at the Nature Conservation Council; and
 - at the Mannering Colliery offices in Mannering Park;
- notified relevant State and local government authorities by letter; and
- advertised the public exhibition in the Newcastle Herald and Central Coast Express Advocate.

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

2.4 Objects of the EP&A Act

The Minister's consideration and determination of the project application must be consistent with the relevant provisions of the EP&A Act, including the objects set out in Section 5 of 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). They are:

"The objects of this Act 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 EP&A Act adopts the definition of Ecologically Sustainable Development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD "requires the effective integration of economic and environmental considerations in decision-making processes" and lists key principles and programs by which ESD may be achieved.

The Department has taken into account the objects of the EP&A Act, including the encouragement of ESD, in its assessment of the project. The assessment integrates all significant economic and environmental considerations and seeks to avoid any potential serious or irreversible damage to the environment. The Department is satisfied that the assessment complies with the objects of the EP&A Act and that the Minister may determine the project accordingly.

2.5 Environmental Planning Instruments

Under Section 75I of the EP&A Act, the Director-General's assessment report is required to include a copy of or reference to the provisions of any State Environmental Planning Policy (SEPP) that substantially governs the carrying out of the project.

The Department is satisfied that no provision of a SEPP substantially governs the carrying out of this project, and has considered the proposal against the relevant provisions of the following environmental planning instruments (see Appendix C):

- SEPP 11 – Traffic Generating Developments;
- SEPP 33 – Hazardous and Offensive Development;
- Draft Central Coast Regional Strategy (CCRS);
- Central Coast Catchment Blueprint (CCCBP);
- Hunter and Central Coast Regional Environmental Management Strategy (HCCREMS);
- Lake Macquarie Local Environmental Plan (2004); and
- Wyong Local Environmental Plan (2001).

2.6 Statement of Compliance

Under Section 75I of the EP&A Act, the Director-General's assessment 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 Director-General's environmental assessment requirements have been complied with.

3. ISSUES RAISED IN SUBMISSIONS

During the exhibition period, the Department received a total of 8 submissions on the proposal (see Appendix E). Six submissions were from public authorities and 2 from the public, including one special interest group (Nature Conservation Council). Three of the agency submissions had no objection to the project, 3 proposed conditions to be met by Centennial, and the 2 public submissions objected to the project. The key issues raised in the submissions are summarised below.

Department of Primary Industries (DPI) did not object to the proposal, but made comments outlining specific requirements related to mining leases and the need to adhere to mine safety procedures under legislation. The DPI submission noted that mining works would be undertaken in zones containing sensitive environmental and other surface features, and noted that, under certain conditions of the mine's mining leases Centennial would need to obtain the Minister for Mineral Resources approval to mine within High Water Level Subsidence Control Zones. DPI commented on rehabilitation, decommissioning and environmental management reporting requirements, and

requested that a Subsidence Management Plan be prepared and submitted to it as a requirement of any project approval.

Department of Environment and Climate Change (DECC) did not object to the proposal, but raised a number of key issues and provided recommended conditions of approval. DECC's key issues were:

- clarification and revision of criteria and methodology used in Centennial's noise assessment; and
- proposed amendments to Mannering's existing environmental protection licence (EPL) requiring Centennial to monitor heavy metals in water discharged from the site, vary the rate of ROM coal production to 1.1 Mtpa and vary the noise conditions in line with the revised noise assessment.

Department of Water and Energy (DWE) did not object to the project, but indicated that:

- the current groundwater monitoring network should be extended to monitor impacts, if any, on alluvial groundwater resources; and
- Mannering would need to obtain a licence under Part 5 of the *Water Act 1912* for incidental groundwater make, dewatering and monitoring piezometers.

Roads and Traffic Authority (RTA) did not object to the proposal and supported the treatment proposed in the EA for the intersection of Rutleys Road and the Mannering Colliery Access Road.

Lake Macquarie City Council (LMCC) did not object to the project. However, the Council raised a number of concerns regarding the lack of detail on potential future additional minor infrastructure and the potential impacts on sensitive environments mapped in the area. The Council also requested conditions of approval relating to the monitoring of surface water flows, groundwater and subsidence to validate the EA's predictions.

Wyang Shire Council (WSC) did not object to the proposal. The Council raised a number of concerns regarding the consideration of greenhouse gas (GHG) emissions and mitigation in the EA. Council requested conditions of approval relating to:

- offsetting of the mine's operational energy use;
- monitoring and preparing an inventory of the mine's GHG emissions;
- monitoring and reporting of subsidence; and
- contributions by Centennial to community infrastructure.

Community and Special Interest Groups

Both submissions from the community and special interest groups opposed the project, with issues raised concentrating on the production of GHG, the contribution to climate change and the costs of global warming which were claimed to be inadequately considered in the EA. In addition to this, the NCC also raised:

- water supply and the use of up to 115 ML a year from Wyong Shire's water supply;
- impact on vulnerable or endangered species and the need for rehabilitation of habitats;
- impact on ecology due to global warming; and
- the economic assessment in the EA not including the costs of indirect GHG emissions, nor the opportunity to develop renewable energy industries.

Centennial provided a response to these submissions (see Appendix D) and the Department has considered these issues and Centennial's response in detail in Section 4 below.

4. ASSESSMENT

The Department considers noise impacts to be the key environmental issue for the Mannering Colliery Continuation of Mining Project.

4.1 Noise

The EA includes a Noise Impact Assessment (NIA) undertaken generally in accordance with the *NSW Industrial Noise Policy (INP)* and the *Environmental Criteria for Road Traffic Noise*.

The key contributors to environmental noise levels from Mannering are the mine's surface facilities which include the rotary breaker, Coal Crushing Facility (CCF), workshop, ventilation equipment, conveyors and associated activities such as vehicle movements. Noise impacts associated with the

overland conveyor to Vales Point have been included in the NIA to ensure that cumulative noise impacts from the operation of the mine are fully assessed, even though the operation of the conveyor is not part of the project. Underground mining operations make no contribution to noise levels for local residents.

The nearest significant residential areas considered by the noise assessment are (see Figure 3):

- 3 rural residences to the south of Manning's CCF (residences 4, 5 & 6);
- Macquarie Shores Home Village, containing at least 150 separate, relocatable dwellings, about 800 metres (m) to the east of the CCF (residence 8 and adjacent residence 9); and
- 4 residences on Tall Timbers Road and the adjacent Chain Valley Bay suburban area, to the northeast of the CCF (residences 9, 11, 18 & 20-76).

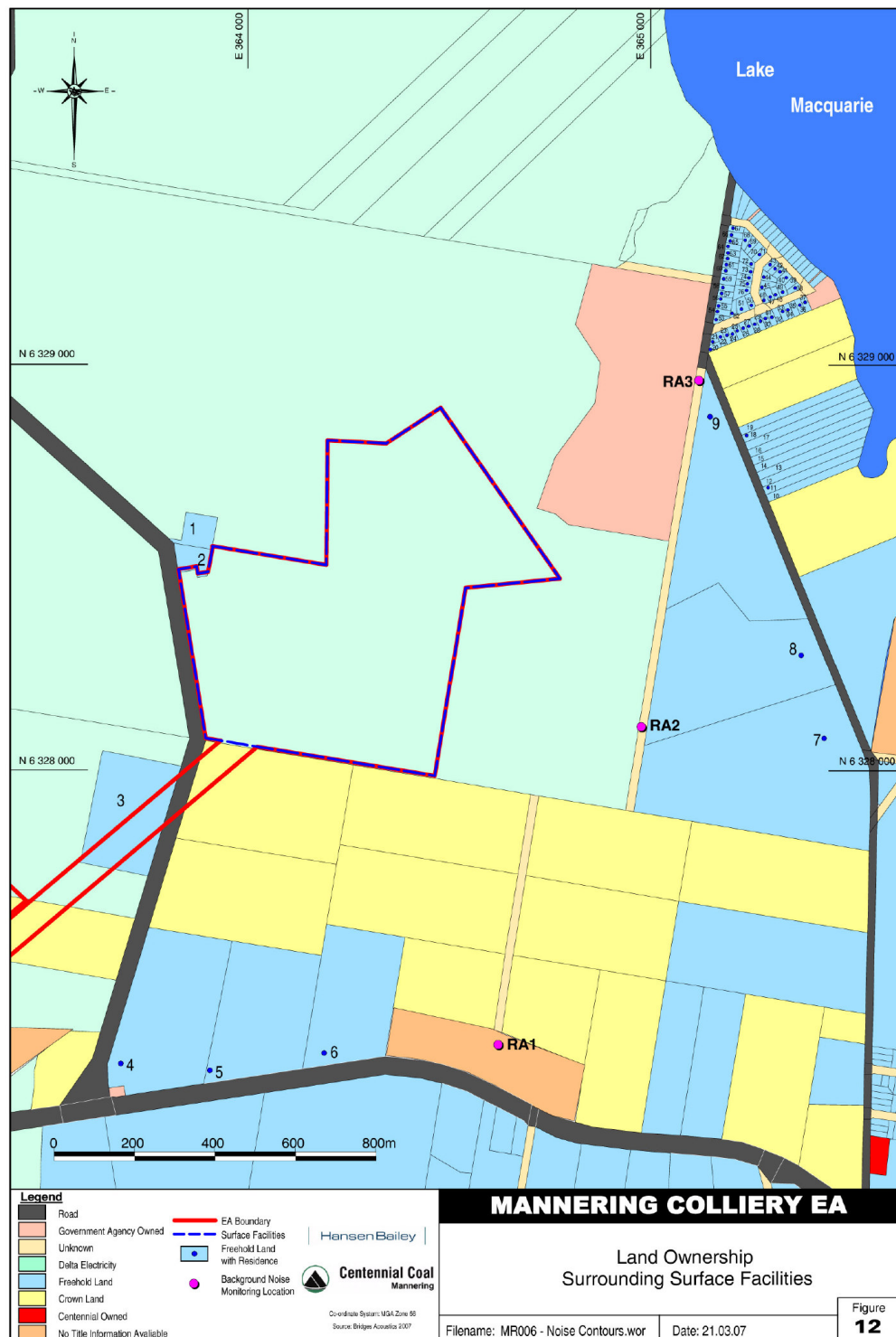


Figure 3: Residential receiver locations

The NIA included a comparison of predicted and measured noise levels under conditions of a light westerly wind. Under these specific circumstances, the noise model predicted noise levels from 0.5 to 2 dB(A) greater than measured noise levels. That is, the noise model as applied to Mannering's facilities, would appear to be slightly conservative and overpredict noise impacts.

Operational Noise

Mannering is but one contributing noise source in the area, with Vales Point Power station to the north and the Pacific Highway to the south also being significant noise sources. Due to these influences, background noise levels are relatively high, which means that the application of the procedures in the INP results in relatively high intrusive noise criteria (see Table 2).

Residential Receivers	Day ($L_{Aeq,15\text{minute}}$)	Evening ($L_{Aeq,15\text{minute}}$)	Night ($L_{Aeq,15\text{minute}}$)
Pacific Highway (residences 4, 5 & 6)	52	48	39
Macquarie Shores Home Village (residences 8 & 7))	43	44	40
Tall Timbers Road and Chain Valley Bay (residences 9, 11, 18, 20-76)	42	43	42

Table 2: Intrusive noise criteria dB(A)

The NIA predicts that the project's noise emissions would exceed these intrusive criteria at:

- 69 dwellings by up to 3 dB(A);
- 50 dwellings by up to 5 dB(A); and
- 33 dwellings by up to 6 dB(A).

The colliery's surface facilities have been operating for nearly 45 years, and have been upgraded from time to time, with the last major upgrade occurring about 10 years ago.

The operation of these facilities appears to be uncontroversial as the colliery has not received any complaints about its operations for several years now.

However, the detailed noise assessment of the proposal suggests the ongoing operations of the colliery could have a significant impact on 33 residences (>5 dB(A) above the recommended criteria), and moderate impact on a further 119 residences (between 3 and 5 dB(A) above the recommended criteria) with almost all of these residences being located in the Macquarie Shores Home Village.

On the face of it, this appears to be unacceptable.

However, if the noise impacts of the colliery's operations were unacceptable the Department would expect people to be complaining about the impact of these operations; but this is not happening, and the Department did not receive a single submission from the general public complaining about the noise of the colliery's existing or proposed operations.

Consequently, the actual noise impacts of the colliery do not appear to be as significant as the predicted impacts of the colliery may imply.

At this stage, the Department is not sure why this is the case. It could be due to an error in the predictions; it could be that the noise in the area is masked by the noise from other sources, such as the Vales Point Power Station or the Pacific Highway; or it could be that residents in the area are used to the noise impacts of the colliery.

Whatever the precise reason is, the Department does not believe that the imposition of its standard conditions for voluntary acquisition and additional noise mitigation are warranted on this occasion.

In accordance with the procedures in the NSW INP for existing operations, the Department believes the focus in this instance should be on ensuring that Centennial is implementing all reasonable and feasible noise mitigation measures at the colliery.

Although Centennial claims it has already implemented all reasonable and feasible measures to reduce the noise impacts of the colliery, the Department notes that the last of these measures – the enclosure of the rock breaker and decommissioning of the coal crushing facility's exhaust fan – were implemented in 1996.

Consequently, the Department believes the matter should be re-examined by an independent noise expert, and that Centennial should be required to implement any reasonable and feasible noise mitigation measures that are identified by this expert.

The Department also believes Centennial should be required to comply with strict noise limits at all the surrounding properties, and carry out regular monitoring of the colliery's noise impacts against these limits.

Notwithstanding the noise predictions in the Environmental Assessment, the Department believes these measures are sufficient to ensure that, at worst, the noise impacts of the continued operation of the colliery are much the same as the current impacts; but with the potential to be reduced over the next few years.

Sleep Disturbance

The start siren on the overland conveyor has the potential to disturb sleep, however, as the siren is to the western side of the rotary breaker it will be partially screened and is not expected to cause sleep disturbance impacts.

The Department has recommended a condition of approval that sets sleep disturbance noise limits determined in accordance with the INP, and the DECC has indicated that it would revise the mine's EPL to include these sleep disturbance noise limits.

Road Traffic Noise

The assessment of road traffic noise generated by mine worker's vehicles and deliveries to the mine are predicted to comply with relevant DECC road traffic noise criteria. The Department believes that no specific traffic noise criteria are warranted for the project.

4.2 Subsidence

The project would extract coal from the Fassifern Seam by bord and pillar methods at depths between 150 and 205 m. The project has the potential to cause some subsidence, however, bord and pillar mining involves first workings only. First workings roadways are driven to form pillars which are not extracted and hence provide support for the roof system, which substantially lessens any expected subsidence impacts.

The proposed working section of the Fassifern Seam is around 2.9 m with a maximum thickness of 3.75 m. This seam is between conglomerate/coarse grained sandstone (above) and high strength sandstone (below). The Great Northern and Wallarah Seams and associated conglomerates and tuffs also overlie the Fassifern Seam. The Great Northern Seam has been extracted in the vicinity, however the proposed conceptual mine plan is designed to avoid extracting coal from the Fassifern Seam below the extracted areas of the Great Northern Seam.

Centennial has undertaken quantitative predictions of the likely subsidence impacts of the project based on the 10 year conceptual mine plan (Figure 2) and considers that any subsidence resulting from bord and pillar mining would not be noticeable at the surface. The maximum level of subsidence is predicted to be less than 20 mm. The modeling indicates that at these levels of subsidence, maximum tilt and strains are in the order of 1 mm/m and 0.3 mm/m respectively. In addition, the likelihood of floor heave, or floor subsidence, plug collapse or pillar failure is considered to be extremely low. The gradual flooding of the mine at the end of mine life is also expected to make the pillars and floor of the abandoned mine more stable over time.

Surface features potentially sensitive to subsidence include (see Figure 4):

- Lake Macquarie;
- Pourmalong, Pallamanaba, Wyee and Cobra Creeks and their associated wetland areas;
- residential areas;
- Morisset Hospital;

- 330kv power lines;
- roads; and
- the Vales Point Power Station coal conveyor.

Centennial considers that these features are unlikely to be adversely impacted by the levels of subsidence predicted. The reliability of these predictions has been tested by its extensive monitoring of subsidence impacts, for over 45 years, including monitoring of extensive mine workings under sensitive areas such as the waters of Lake Macquarie.



Figure 4: Surface features potentially sensitive to subsidence

Both LMCC and WSC requested that subsidence be monitored and reported by Mannering, and in particular, WSC requested monitoring of the “potentially sensitive features” identified in the EA (see Figure 4). DPI notes that the preparation of a Subsidence Management Plan (SMP) would be required as condition of Mannering’s Consolidated Coal Leases (CCL) 719 and 721. In addition, conditions of

these mining leases require Centennial to seek the approval of the Minister for Mineral Resources prior to mining beneath High Water Level Subsidence Zones which include the foreshores of Lake Macquarie.

The Department accepts that the project would continue to use the same mining methods as those used for many years in the existing operation, and that these to date have resulted in minimal subsidence impacts. It also accepts the Subsidence Impact Assessment and considers that the project is unlikely to result in noticeable subsidence, and that any impacts will be able to be adequately mitigated and managed. The Department has recommended conditions that require the Centennial to:

- prepare and maintain a SMP to the satisfaction of DPI for the project;
- monitor potential subsidence related impacts, in particular on the identified sensitive surface features, and to notify, mitigate and manage any identified impacts.

4.3 Water

4.3.1 Surface Water

Potential impacts on surface water features may result from underground mining and the off-site discharge of minewater and captured rainfall runoff from the site.

An assessment of the potential impacts on surface water features was undertaken as part of the EA, along with preparation of a water balance for the mine. Mannering currently purchases potable water for use on site from the WSC water supply, with 70 ML/year of potable water required at maximum planned production rates. Centennial also manages rainfall runoff captured on the site and minewater pumped to the surface from the mine. Minewater is composed of groundwater inflow to mine workings and water used underground for purposes such as dust suppression during the mining process. Centennial considers minewater to be unsuitable for reuse as process water at the mine and potable water from the WSC water supply is used for this purpose.

Mannering has an existing water management system which consists of a series of settlement ponds and two licensed discharge points (see Figure 5). This system handles all water pumped from underground workings and run-off from the existing surface facilities.

Around 40 ML/year of process water remains underground after dust suppression and processing use. The groundwater inflow rate is calculated as 1.41 ML/day. Minewater is managed by the water management system at a volume of around 660 ML/year (an average of 1.7 ML/day).

The existing mine water management system would continue to be used and monthly monitoring of discharge points (for oil and grease, total suspended solids and pH) would continue. Maximum external water demand is 70 ML/annum; however, Centennial states that it committed to targeted initiatives to minimise water usage, "wherever reasonable and feasible".

Centennial considers that there will be no noticeable impacts on surface facilities or water features as a result of this project.

Significant surface water features within the EA boundary include Pourmalong, Pallamanaba, Wyee and Cobra Creeks, their associated wetland areas and Lake Macquarie. The creeks above the conceptual mine plan are tidal and "contain highly brackish to saline water, with alluvial groundwater levels maintained by the level of Lake Macquarie".

As noted in the previous section, Mannering intend to operate the project so as to ensure there would be no noticeable subsidence effects on surface water features. In addition, it has an existing EPL which regulates water discharges from the site. DECC's submission indicated its intention to add conditions to this EPL requiring heavy metal concentrations in water discharges to be monitored.

The Department notes that Mannering discharges water from the site into an unnamed creek at a point about 1.5 km from Lake Macquarie and that the mine has most likely discharged water in a similar manner for many decades. The ecology of this section of the creek would therefore probably have adjusted to the relatively constant flow of minewater, and wetlands are in evidence along sections of the creek. The Department believes that Centennial should investigate the effects of minewater discharge on the local ecology and, just as importantly, also investigate the effects of

cessation of minewater discharges, as is planned to occur with the eventual closure of the mine (anticipated to be in 10 years). This investigation will provide a sound scientific basis for understanding minewater discharge impacts and how best to mitigate any previous or future impacts on nearby wetlands.

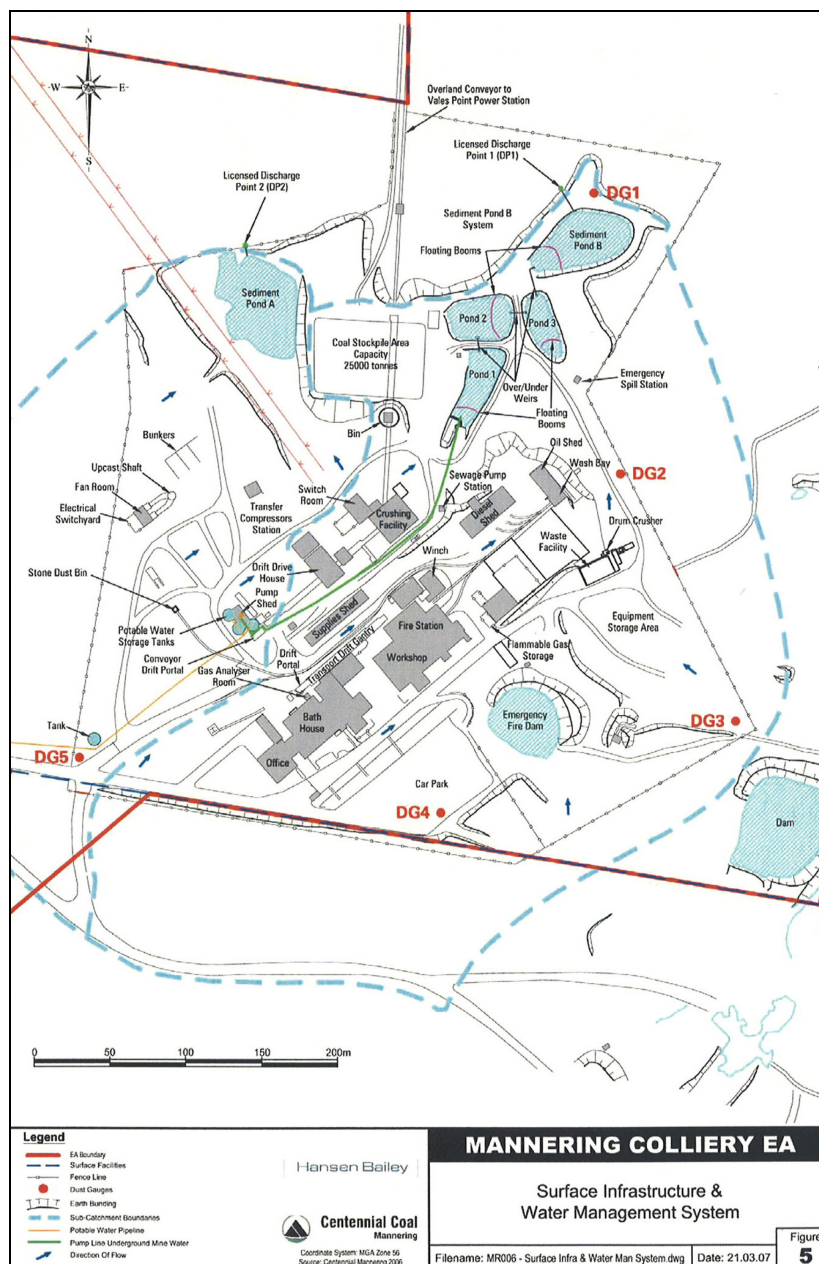


Figure 5: Surface infrastructure and water management system

The Department has recommended a condition of approval that requires Centennial to engage a suitably qualified expert/s to investigate the effects of Mannering's minewater discharges and report to the Director-General within 12 months with any recommendations for improved water management at the mine. The Department has also recommended conditions of approval that require Centennial to prepare a site water management plan. A component of this plan requires a site water balance to be prepared, including a description of ways to minimise water use by the project. The Department believes that, in the context of ongoing water shortages in WSC, Centennial should use its best endeavours to use potable water efficiently and seek to minimise its use of potable water for mine process purposes.

The Department is satisfied that the project is unlikely to result in any significant impact on surface water features above the mining area. The Department has recommended conditions of approval to

ensure the continued operation of the mine's water management system and to provide for monitoring and reporting of water use, discharges and initiatives to minimise water use.

4.3.3 Groundwater

Centennial has carried out a groundwater impact assessment which assesses the potential impacts to groundwater resources associated with the proposed mining activities, and considers the cumulative impacts of surrounding mines. The groundwater regime in the area has been significantly altered by extensive dewatering and depressurisation of coal seams as a result of past mining by Mannering and other collieries, leading to a regional cone of depression within these seams.

The project is expected to result in further dewatering of the Fassifern Seam and the extension of the cone of depression further north-west. However, this impact is considered to be minor as the existing Cooranbong and Mandalong Mines have already depressurised the overlying Great Northern Seam to the north-west of the conceptual mine plan. In addition, Centennial considers that this groundwater has no environmental value due to its depth (150 – 200 m) and poor quality (high salinity).

The nearest licensed bores are located more than 3 km from the conceptual mine plan area. These bores are for stock and domestic use, are no more than 85 m deep and extract water from the upper weathered part of the Munmorah Conglomerate. The project is predicted to have minimal impact on alluvial and regolith/shallow bedrock aquifers and Centennial indicates that this has been the case throughout the history of the mine. The assessment predicts no adverse effect on local groundwater users or groundwater dependant ecosystems.

The DWE submission expressed concern over potential impacts to alluvial groundwater and requested an extension of the groundwater monitoring program to ensure that alluvial groundwater is not impacted by the operation. Centennial considers that the mine has been designed to avoid surface impacts or connection with alluvial aquifers and that the intermediate and upper strata form a barrier to vertical drainage. There is no current groundwater quality monitoring program, and none was proposed as part of the project.

Total groundwater inflow into the mine is presently estimated as approximately 1.14 ML/day (0.76 ML/day from the Fassifern Seam workings and 0.38 ML/day from the Great Northern Seam). The average amount of groundwater pumped from the mine is 0.80-0.85 ML/day.

The project is predicted to increase inflows from the Fassifern Seam to 1.03 ML/day, giving a revised total of around 1.41 ML/day (around 515 ML/year). The mine's EPL permits a discharge of up to 4 ML/day. Therefore, the project would not cause the discharge limits of the EPL to be exceeded.

The Department considers that the proposal would have no effect on groundwater users or groundwater dependent ecosystems. However, the effects of continuing or ceasing minewater discharges on the ecology of the unnamed creek receiving these discharges needs to be better understood. The Department has recommended a condition of approval that requires Centennial to engage a suitably qualified expert/s to investigate and report on these matters within 12 months of the project's approval. The Department also believes that best practice for the mine should include a groundwater monitoring program and has recommended a condition of approval to provide for appropriate groundwater monitoring.

4.4 Greenhouse Gas Emissions

Centennial adopted the Australian Greenhouse Office's (AGO) Workbook to predict greenhouse gas (GHG) emissions for the project. The main sources of GHG production at Mannering are identified as:

- ventilation air;
- on-site electricity use;
- diesel usage; and
- the end use of the coal produced (i.e. burned at Vales Point Power Station).

The project would generate GHG emissions, both directly through extraction, processing and transport of the coal resource, and indirectly through electricity use and downstream burning of the product coal. The indirect downstream burning of the coal is by far the biggest contributor, generating some 80% of the GHG emissions associated with the project.

Centennial concluded that the levels of GHG produced would be insignificant (approximately 0.007% of global emissions) and that the estimated increase in global temperature would be in the order of 0.0000025°C. On a comparative basis, the total GHG emissions from the project represent a very small proportion of the current State (less than 2%) and global (less than 0.01%) annual GHG emissions, and when considered in isolation, the project would have an insignificant contribution to global warming/climate change.

The Department acknowledges concerns raised in submissions over GHG emissions and the impacts posed by global warming/climate change, but does not believe that the threat posed by global warming/climate change should preclude approval of the project.

The need for the project is discussed in Section 1.4. The Department is satisfied that there is a clear need for the continued supply of coal to the Vales Point Power Station to meet NSW's energy needs. It must be noted that if the project was not allowed to proceed, the resultant gap in the coal supply would be almost certainly filled by another local coal mine able to supply coal to Vales Point Power Station, but from a greater distance and not involving conveyor transport of coal. In other words, removing the GHG emissions from the project would not result in any decrease in global CO₂ emissions, but rather an increase. This increase would arise from the road transport of coal to Vales Point. Other local environmental impacts (traffic, traffic noise and air quality impacts) would also arise from road transport of coal.

The Department is satisfied that the project's contribution to global GHG emissions, even when assessed on a full life cycle basis (ie. including downstream GHG emissions), would be very small. Further, it should be noted that energy production, which in turn is consumed by manufacturing and other economic and social use, leads to indirect socio-economic benefits from the project (and which are analogous in nature to its downstream GHG emissions). The manufacturing and other economic and social use benefits future generations as well as our own.

With regard to GHG impact mitigation measures, the Department acknowledges Centennial's commitment to research clean coal technologies, improve energy efficiency of its mining operations and limit GHG emissions. However, the Department believes that Centennial should be required to prepare and implement a comprehensive Energy Savings Action Plan for the project, and seek to continually improve its energy efficiency.

The Department believes that key responses to the issue of global warming/climate change needs to be made at a policy or strategic planning level, outside and above the NSW project assessment process. It is not reasonable or equitable to apply onerous requirements on Mannering through the NSW planning system to significantly reduce GHG emissions, including Scope 3 emissions associated with the downstream burning of the product coal. Any such impost – for example a CO₂ levy on product coal – would unfairly penalise Centennial and its ability to compete in the State's energy supply industry. The Department believes that such an *ad hoc* approach to the issue of global warming/climate change is not in the public interest. The Department is satisfied that much more effective measures have been, and are continuing to be, planned and implemented at the State, national and international levels to combat global warming/climate change.

The Department has weighed the GHG impacts of the project against a range of matters, including its contribution to global GHG emissions, the need for the project and its benefits, its consistency with the objects of the EP&A Act, and the GHG impact mitigation measures available. On balance, the Department is satisfied that the project's potential GHG impacts are acceptable. However, the Department believes that Centennial should be required to mitigate, manage or offset Mannering's direct and indirect GHG emissions by:

- developing and implementing a comprehensive Energy Savings Action Plan, which includes quantified energy efficiency targets and actions; and
- monitoring and continually improving energy efficiency.

4.5 Air Quality

An air quality impact assessment for the project based on the DECC's *Approved Methods and Guidance for the Modeling and Assessment of Air Pollutant's in New South Wales* was undertaken by Holmes Air Sciences.

The review of monitoring data from Mannering's 5 dust deposition gauges (see Figure 5) and a Total Suspended Particulate (TSP) monitor in the Mannering area shows that dust deposition meets DECC's annual average assessment criterion of 4 g/m²/month and the annual average assessment criterion for TSP of 90 µg/ m³. This assessment notes that the mine's operations would not cause the 24 hour PM₁₀ criterion (50 µg/ m³) to be exceeded.

The Department considers that, as the current operation complies with the appropriate air quality assessment criteria, and there is no proposed change to the operation of the surface facilities at the mine, the project would not cause unacceptable air quality impacts.

4.6 Other Issues

Other environmental impacts of the project have been assessed by the Department and are considered minor and readily managed. A summary of these impacts and Centennial's proposed management measures are set out in Table 2.

<i>Issue</i>	<i>Potential Impacts</i>	<i>Mitigating Factors</i>
Flora and Fauna	• Clearing of vegetation. • Operation of facilities with air quality and noise impacts. • Subsidence due to underground mining.	• Potential flora and fauna effects are limited as the mine's surface facilities are already established and no further clearing is proposed as part of the project. • The underground conceptual mine plan has been designed to minimise surface impacts, and the bord and pillar mining method is predicted to have minimal impact on surface features. • Revegetation proposed as part of rehabilitation of site at close of mining.
Traffic and Transport	• Impacts on safety and capacity of road system.	• The project would not be expected to result in any increase in traffic generation or change the current traffic mix. • The conditions of approval require a safety audit to be undertaken for the intersection of Mannering Access Road and Rutleys Road within 12 months of gaining approval.
Cultural Heritage	• Clearing of vegetation. • Subsidence due to underground mining.	• Mannering surface facilities are to remain unchanged and mining is not expected to have noticeable surface impacts. There is unlikely to be any impact on either Aboriginal or non-Aboriginal cultural heritage sites that may exist within the EA boundary.
Waste Management	• Inadequate management of industrial wastes may lead to surface water, groundwater, aesthetic, and bushfire risks.	• Waste management as per the existing Waste Management Strategy which addresses waste oil and grease, scrap metal, paper and cardboard, recyclable plastics, wooden pallets and general waste.
Visual Impact	• Surface facilities and mining operations can cause a visual disturbance to receivers. • 24 hour operation requires significant lighting at night.	• No change to existing surface facilities. • Vegetation and landforms provide screening. • Consideration of neighbours when siting lighting and undertaking modifications of facilities. • Natural colour schemes to be used.
Social and Economic	• Impacts on employment. • Cost of environmental impacts. • Cost of environmental mitigation. • Cost benefit of the project.	• 74 direct and 108 indirect jobs would be maintained by the project. • \$8 million in annual direct wages. • \$13 million in annual regional household income. • \$53 million in annual direct and indirect economic input to the regional economy.
Rehabilitation and Final Land Use	• Final land use may be incompatible with existing land uses.	• Proposed use of endemic native plant species for rehabilitation of the site. • Default option is to return the mine site for use as buffer lands for Vales Point Power Station.

Table 2: Other environmental impacts of the project

4.7 Mannering Surface Disturbance Protocol

One of the components of the project for which approval is sought is the potential future installation and use of additional minor infrastructure, such as mine gas drainage or dewatering bores, that may be required to service the proposed underground mine workings. However, whether or not these facilities will be needed, much less their likely location, are not able to be predicted with certainty and will depend on variables such as the volume of gas contained within the coal being mined, the volume of groundwater encountered and the rate of coal extraction. Accordingly, the location of this infrastructure was unable to be provided by Centennial in the EA.

Centennial has developed a Surface Disturbance Protocol for use where this additional minor infrastructure is determined to be neither exempt or complying development under *SEPP (Mining, Petroleum Production and Extractive Industries) 2007*. This protocol addresses operational safety issues, environmental considerations and regulatory requirements for minor surface works within the EA boundary and is listed in Mannering's Statement of Commitments. The Department considers this Surface Disturbance Protocol to be a useful document. However, it does not (and cannot) replace the need to obtain appropriate regulatory approvals for the construction of any future facilities on site. Except in the case of exempt or complying development, such development would generally be development for "the purpose of coal mining", and therefore would require approval under Part 3A EP&A Act.

5. RECOMMENDED CONDITIONS

The Department has prepared conditions of approval for the project (Appendix B). A summary of the recommended conditions of approval is also provided in Appendix A. The recommended 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 in accordance with current best practice;
- provide for the ongoing environmental management of the project; and
- ensure that rehabilitation and final land use objectives for the mine are satisfactorily achieved.

The recommended conditions address the review, management and mitigation of existing noise impacts, management of mining induced subsidence (including protection of sensitive features), surface water and groundwater impacts, air quality impacts, GHG emissions, landscape and rehabilitation management and environmental management systems, on-going environmental monitoring, community consultation and complaints management and environmental performance audits.

Centennial does not object to the proposed conditions of approval. The Department believes these conditions reflect current best practice for the regulation of coal mines in NSW.

6. CONCLUSION

The Department has assessed the project application, EA, submissions from agencies and the community and Centennial's response to submissions and is satisfied that there is sufficient information available to determine the application. As Mannering has been operating for over 45 years, and at higher rates of coal production than for which approval is now being sought, the issues and impacts associated with the Mannering Continuation of Mining Project are well understood and have been, in most instances, monitored for many years.

The key issue identified in the Department's assessment (or that arose in submissions) concerns noise impacts. The Department is confident that the combination of a comprehensive program to identify and implement any additional reasonable and feasible noise mitigation measures and a noise monitoring program would ensure that noise impacts from Mannering would not increase, and most probably be less than at any time in its 45 years of operation.

Potential subsidence impacts on sensitive natural and built surface features were considered in the EA. However, the project is based on bord and pillar mining which results in very limited surface subsidence and should have no material impact on sensitive surface features. In addition, Centennial is required to further assess subsidence impacts under DPI's SMP process.

The key benefits of the project would be the ongoing full-time permanent employment for 182 workers at the mine and in the surrounding community, \$53 million of regional economic benefits each year for 10 years, and royalty and tax income for the Government.

The project would also provide a reliable source of low sulphur coal to the adjacent Vales Point Power Station at a competitive price, which would in turn, facilitate the continuation of a reliable, low cost electricity supply for NSW consumers.

Centennial proposes to provide \$0.02 for each tonne of coal produced to the affected councils for the purpose of improving water quality in the Lake Macquarie catchment. This measure will help offset any residual impacts of the project, which has its surface facilities located within 1.5 km of the lake.

The Department is satisfied that the residual environmental and socio-economic impacts of the project can be adequately mitigated, managed, and/or offset and that the project's benefits significantly outweigh its costs. The Department recommends approval of the project, subject to conditions which cover all current and proposed operations.

7. RECOMMENDATION

It is RECOMMENDED that the Minister:

- consider the findings and recommendations of this report;
- approve the project application, subject to conditions, under section 75J of the *Environmental Planning and Assessment Act 1979*; and
- sign the attached project approval (Tagged B).

David Kitto
Director
Major Development Assessment

Chris Wilson
Executive Director
Major Project Assessment

Sam Haddad
Director-General

APPENDIX A. SUMMARY OF THE CONDITIONS OF APPROVAL

Aspect	Condition	Requirement
Schedule 2: Administrative Conditions		
<i>Terms of Approval</i>	5	Approval for mining restricted to 10 years
	6	Restriction on production to 1.1 million tonnes of ROM coal a year
	7	All coal to be transported by conveyor
	10	Requirement to provide \$0.02 per tonne of coal to the affected councils for the purpose of improving water quality in the Lake Macquarie catchment
Schedule 3: Specific Environmental Conditions		
<i>Noise</i>	1	Noise impact assessment criteria
	2	Requirement to investigate, report on and implement noise mitigation measures
	3	Noise Monitoring Program
<i>Subsidence</i>	4-5	Preparation of a Subsidence Management Plan
<i>Surface and Ground Water</i>	6-7	Restriction on, and investigation into the effects of, discharge of water from the site
	8-12	Water management and monitoring
<i>Rehabilitation Management</i>	13	Requirement to rehabilitate the site
	14	Land Management Plan
	15	Mine Closure Plan
<i>Air Quality</i>	16	Air quality impact assessment criteria
	17	Air Quality Monitoring Program
<i>Heritage</i>	18	Protection of Aboriginal cultural heritage
<i>Visual Impact</i>	19-20	Requirement to minimise the project's visual and lighting impacts
<i>Transport</i>	21	Road safety audit of mine access road intersection
<i>Greenhouse Gas</i>	22-23	Energy Savings Action Plan and GHG minimisation
<i>Waste Minimisation</i>	24	Requirement to monitor and minimise waste
Schedule 4: Additional Procedures		
<i>Independent Review</i>	1-5	Procedures for independent review of impacts
Schedule 5: Environmental Management, Monitoring Auditing and Reporting		
<i>Environmental Management Strategy</i>	1	Environmental Management Strategy
<i>Incident Reporting</i>	2-3	Requirement to report incidents
<i>Annual Reporting</i>	4	Annual Environmental Management Report
<i>Auditing</i>	5-7	Requirement to undertake regular independent environmental audits
<i>CCC</i>	8	Requirement for Community Consultative Committee
<i>Access to Information</i>	9-10	Requirement to publicly report environmental management plans/programs/strategies, and monitoring results

APPENDIX B. RECOMMENDED CONDITIONS OF APPROVAL

See Tag B.

APPENDIX C. CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Policy (SEPP) No. 11 – Traffic Generating Development

The proposal is affected by the provisions of SEPP 11, as an 'extractive industry or mining' (Schedule 1 paragraph 'm'). As such, the application was referred to the RTA, which subsequently confirmed that it had no objection to the proposal (see section 4.6).

SEPP No. 33 – Hazardous and Offensive Development

SEPP 33 requires consideration of whether an industrial proposal is a potentially hazardous or offensive industry. This is defined as a development that *'would pose a significant risk in relation the locality: to human health, life or property; or to the biophysical environment, and includes a hazardous industry and a hazardous storage establishment'*.

The EA details management considerations for various aspects such as waste management, fuel storage and emergency response. All hazardous materials would be managed in accordance with existing management procedures and Environment Protection Licence (EPL) that have successfully operated for the Mannering Colliery. As such, the Department is satisfied that the proposal is generally consistent with the aims, objectives, and requirements of SEPP 33.

Draft Central Coast Regional Strategy (CCRS);

The Department's draft CCRS aims to promote careful planning for future population growth within the Central Coast region while maintaining and improving the quality of life for its residents and visitors. Key objectives of the CCRS include making the best use of existing infrastructure, improving employment and providing a variety of employment opportunities. As the Mannering Continuation of Mining project has been a component of the Central Coast region for over 45 years, the Department is satisfied that its continued operation is consistent with the aims and objectives of the CCRS.

Central Coast Catchment Blueprint (CCCBP)

The CCCBP provides a strategic framework for future catchment management works within the Central Coast region. The objectives of the CCCBP include maintaining the health of aquatic ecosystems and land capability by reducing soil degradation and erosion and increasing native vegetation and terrestrial biodiversity. The Department is satisfied that, with the continued implementation of water management practices on the Mannering site and the implementation of appropriate water management and mine closure plans, the objectives of the CCCBP would be met by the project.

Hunter and Central Coast Regional Environmental Management Strategy (HCCREMS)

The key objectives of the HCCREMS are to:

- provide a framework for coordinated action by member councils, state and Commonwealth authorities in relation to environmental management issues impacting on the region;
- address those environmental and natural resource issues best managed at a regional scale; and
- facilitate regional partnerships and resource sharing to address key environmental management issues in a coordinated, proactive and efficient manner.

The Department is satisfied that the relevant objectives of the HCCREMS would be met by the project.

Lake Macquarie Local Environmental Plan (2004) (Lake Macquarie LEP)

The project is located within 16 different planning zones within the Lake Macquarie LGA. These are:

- Zone 1 (1) Rural (Production) Zone;
- Zone 1 (2) Rural Living;
- Zone 2 (1) Residential Zone;
- Zone 3 (1) Urban Centre (Core);
- Zone 4 (1) Industrial (Core);
- Zone 5 Infrastructure;
- Zone 6 (1) Open Space;
- Zone 6 (2) Tourism and Recreation;
- Zone 7 (1) Conservation (Primary);
- Zone 7 (2) Conservation (Secondary);
- Zone 7 (3) Environment (General);
- Zone 7 (5) Environment (Living);
- Zone 8 National Park;
- Zone 9 Natural Resources; and
- Zone 10 Investigation.

Clause 19 of the Lake Macquarie LEP states “*Nothing in this plan prevents a person, with development consent, from carrying out development for the purpose of a mine...on any land to which this plan applies, if the mine is underground*”.

The Department has considered the aims and objectives of the 16 relevant planning zones and the effect of clause 19 of the Lake Macquarie LEP and is satisfied that the project is, by virtue of clause 19, consistent with these aims and objectives.

Wyong Local Environmental Plan (2001) (Wyong LEP)

The project is located within 5 different planning zones within the Wyong LGA. These are:

- Zone 2 (a) Residential;
- Zone 3 (a) Business Centre;
- Zone 5 (a) Special Uses;
- Zone 6 (a) Open Space and Recreation Zone; and
- Zone 7 (g) Wetlands Management Zone.

The Department is satisfied that the project is consistent with the aims and objectives of Zones 5 (a) and 6 (a), which permit development for the purpose of mines with development consent.

Mines (whether underground or not) are prohibited in the other three listed land use zones. This matter has been considered in Section 2.2, which establishes that even though the project is partly prohibited (within the relevant Wyong LEP planning zones), the Minister is able to approve the Mannering Continuation of Mining Project.

APPENDIX D. PROPONENT'S RESPONSE TO THE SUBMISSIONS

See attached CD-ROM containing a file entitled *Mannering Continuation of Mining Part 3A Environmental Assessment, Response to Submissions*, dated 27 July 2007.

APPENDIX E. SUBMISSIONS

See the attached CD-ROM containing a folder entitled *Submissions*.

APPENDIX F. ENVIRONMENTAL ASSESSMENT REPORT

See the attached CD-ROM entitled *Manning Colliery Continuation of Mining Part 3A Environmental Assessment*, dated March 2007.