

**Table 7  
Incremental Costs and Benefits of the Preferred Project**

Component	Incremental Difference to Original Project	
	Sterilise Area A1 Only	Preferred Project (Sterilise Areas A1 and A2)
Incremental Net Production Benefit/Cost	-\$63M	-\$105M
Incremental Estimated Environmental Benefit (Due to Reduced Potential Environmental Impacts)	\$50M	\$56M
Incremental Estimated Social Costs (Due to Reduced Mine Life)	-\$64M	-\$101M
<b>Incremental Net Community Benefit/Cost</b>	<b>-\$78M</b>	<b>-\$150M</b>

The estimated net production costs relate to additional longwall machine moves (e.g. relocation around blocks of sterilised coal), changes in revenues and mining costs associated with sterilised coal, changes in timing of decommissioning of plant and realisation of residual value of capital and land.

The environmental benefits of these scenarios with respect to reduced environmental impacts have also been estimated.

For Waratah Rivulet approximately 1 km of the stream would no longer be subjected to valley closure effects above 200 mm with the Preferred Project (Figure 13). This environmental benefit would be similar if Area A2 was mined, as Area A2 is located to the west of the Rivulet.

Comparison of the area of coal sterilised by the Preferred Project with the mapped locations of the known Aboriginal heritage sites shown on Figure 4-18 of the EA indicates that of the 188 known sites mapped within the vicinity of the Project Underground Mining Area, approximately 26 sites would be located above sterilised coal in Areas A1 and A2. Sites located above sterilised coal would be generally expected to experience some reduction in subsidence effects. The observed rate of subsidence effects to date is that up to 10% of sites experience an effect such as cracking, accelerated weathering or blockfall. Based on this, it is estimated that up to 3 sites may avoid potential impacts such as cracking, accelerated weathering or blockfall by sterilising areas A1 and A2.

There would also be some reduction in greenhouse gas emissions associated with the sterilised coal that would not be mined.

The community value of these environmental benefits has been estimated for the Preferred Project to be approximately \$56M, using the results of the Choice Modelling Study and the assumed cost of carbon emissions. By comparison, if Area A2 was mined, the environmental benefits have been estimated at approximately \$50M (i.e. sterilising Area A2 would provide an additional \$6M benefit in addition to sterilising Area A1).

These estimates of environmental benefits in comparison to the original Project (i.e. full extraction) are conservative, given that they assume that no stream restoration is implemented for the original Project.

The social costs relate to reduced mine life for the Preferred Project is estimated at approximately \$101M (approximately \$64M if Area A2 was mined).

The relative net community cost of implementing the Preferred Project is approximately \$150M, with the loss of approximately 6.9 Mt of product coal and a reduction in the mine life of approximately 2.8 years.

For comparison, if Area A2 was mined, the relative net community cost would be approximately \$78M, with the loss of approximately 4.2 Mt of product coal and a reduction in the mine life of approximately 1.8 years.

The above analysis indicates that from a community economic efficiency perspective, mining of Area A2 would be the preferred outcome, as it would minimise net community costs. Notwithstanding, Area A2 contains some large swamps that would experience less subsidence effects if Area A2 is not mined and this may also be a consideration for the PAC, however, the environmental assessments conducted for the EA indicate that the swamps above the Project underground mining area would experience negligible environmental impact when compared to natural variations.

As stated in Section 5.3, the Preferred Project mine plan does not include longwall mining in Areas A1 or A2.

## 7 REFERENCES

- Australian and New Zealand Environment and Conservation Council (2000) *Australian and New Zealand Water Quality Guidelines for Fresh and Marine Water Quality*.
- BIO-ANALYSIS Pty Ltd (2008) *Metropolitan Coal Project Aquatic Ecology Assessment*. Report prepared for Helensburgh Coal Pty Ltd.
- Dams Safety Committee (1998) *Mining in Notification Areas of Prescribed Dams*.
- Department of Planning (2008) *Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield: Strategic Review*. NSW Department of Planning.
- Gilbert and Associates (2008) *Metropolitan Coal Project Surface Water Assessment*. Report prepared for Helensburgh Coal Pty Ltd.
- Heritage Computing (2008) *Metropolitan Coal Project Groundwater Assessment*. Report prepared for Helensburgh Coal Pty Ltd.
- Kayandel Archaeological Services (2008) *Aboriginal Cultural Heritage Assessment Metropolitan Coal Project*. Report prepared for Helensburgh Coal Pty Ltd.
- Mine Subsidence Engineering Consultants (MSEC) (2008) *Metropolitan Colliery Longwalls 20-44 Subsidence Assessment*.

ATTACHMENT 1

DIRECTOR-GENERAL'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

# Director-General's Requirements

## Section 75F of the *Environmental Planning and Assessment Act 1979*

<b>Application Number</b>	08_0149
<b>Project</b>	<p>The Metropolitan Coal Project, which includes:</p> <ul style="list-style-type: none"> <li>• augmenting, upgrading and using the existing infrastructure at the mine;</li> <li>• extracting up to 3 million tonnes of run-of-mine coal a year from the Bulli coal seam for a period of 25 years using longwall mining methods;</li> <li>• processing run-of-mine coal at the mine;</li> <li>• transporting product coal and coal reject from the mine by road and/or rail;</li> <li>• disposing of coal rejects at the mine; and</li> <li>• rehabilitating the site.</li> </ul>
<b>Location</b>	Approximately 30 kilometres northwest of Wollongong
<b>Proponent</b>	Helensburgh Coal Pty Ltd
<b>Date of Issue</b>	30 July 2008
<b>General Requirements</b>	<p>The Environmental Assessment of the project must include:</p> <ul style="list-style-type: none"> <li>• an executive summary;</li> <li>• a detailed description of the following within the Metropolitan Colliery holdings and any associated reject disposal areas: <ul style="list-style-type: none"> <li>- historical mining operations;</li> <li>- existing and approved mining operations/facilities, including any statutory approvals that apply to these operations/facilities; and</li> <li>- the existing environmental management and monitoring regime;</li> </ul> </li> <li>• a detailed description of the project, including the: <ul style="list-style-type: none"> <li>- need for the project;</li> <li>- alternatives considered, including a justification for the proposed mine plan/s and coal rejects disposal strategy on economic, social and environmental grounds;</li> <li>- likely staging of the project; and</li> <li>- plans of any proposed building works;</li> </ul> </li> <li>• a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment;</li> <li>• a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which includes: <ul style="list-style-type: none"> <li>- a description of the existing environment, using sufficient baseline data;</li> <li>- an assessment of the potential impacts of all stages of the project, including any cumulative impacts, taking into consideration any relevant guidelines, policies, plans and statutory provisions (see below), and the findings and recommendations of the recent Southern Coalfield inquiry;</li> <li>- a description of the measures that would be implemented to avoid, minimise, mitigate, rehabilitate/remediate, monitor and/or offset the potential impacts of the project, including detailed contingency plans for managing any potentially significant risks to the environment;</li> </ul> </li> <li>• a statement of commitments, outlining all the proposed environmental management and monitoring measures;</li> <li>• a conclusion justifying the project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the <i>Environmental Planning &amp; Assessment Act 1979</i>;</li> <li>• a signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading.</li> </ul>

<p><b>Key Issues</b></p>	<ul style="list-style-type: none"> <li>• <b>Subsidence</b> – including: <ul style="list-style-type: none"> <li>- accurate predictions of the potential subsidence effects of the proposed mine plan/s, and a sensitivity analysis of these predictions; and</li> <li>- a detailed assessment of the potential impacts of these subsidence effects on both the natural and built environment, paying particular attention to significant features of this environment;</li> </ul> </li> <li>• <b>Soil &amp; Water</b> – including: <ul style="list-style-type: none"> <li>- a detailed assessment of the potential impacts of the project on the quantity, quality and long-term integrity of the surface and ground water resources in the project area, paying particular attention to the Waratah Rivulet and Lake Woronora;</li> <li>- site water balance, a detailed description of the measures that would be implemented on site to minimise the water use of the project;</li> </ul> </li> <li>• <b>Biodiversity</b> – including: <ul style="list-style-type: none"> <li>- accurate estimates of any vegetation clearing associated with the project;</li> <li>- a detailed assessment of the potential impacts of the project on any terrestrial and aquatic threatened species, populations, ecological communities or their habitats; and</li> <li>- a detailed description of the measures that would be implemented to maintain or improve the biodiversity values of the surrounding region in the medium to long term;</li> </ul> </li> <li>• <b>Heritage</b> – including the potential Aboriginal and non-Aboriginal heritage impacts of the project;</li> <li>• <b>Noise</b> – including the potential construction, operational and on-site and off-site road and rail noise and vibration impacts;</li> <li>• <b>Air Quality</b>;</li> <li>• <b>Greenhouse Gas</b> – including: <ul style="list-style-type: none"> <li>- a quantitative assessment of the potential scope 1, 2 and 3 greenhouse gas emissions of the project, and qualitative assessment of the potential impacts of these emissions on the environment; and</li> <li>- a detailed description of the measures that would be implemented on site to ensure that the project is energy efficient;</li> </ul> </li> <li>• <b>Transport</b> - including a detailed assessment of the potential impacts of the project on the safety and performance of the road and rail network;</li> <li>• <b>Waste</b> – including: <ul style="list-style-type: none"> <li>- robust estimates of the quantity and nature of the potential waste streams of the project;</li> <li>- a detailed description of the measures that would be implemented to minimise, reuse, recycle and dispose of any waste produced on site, including the proposed coal reject disposal strategy;</li> </ul> </li> <li>• <b>Hazards</b> – paying particular attention to public safety;</li> <li>• <b>Rehabilitation</b> – including a detailed description of the proposed rehabilitation strategy for the mine, taking into consideration any relevant strategic land use planning or resource management plans or policies;</li> <li>• <b>Social &amp; Economic.</b></li> </ul>
<p><b>References</b></p>	<p>While not exhaustive, the following attachment contains a list of the guidelines, policies, and plans that may be relevant to the environmental assessment of the project.</p>
<p><b>Consultation</b></p>	<p>During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups or affected landowners.</p> <p>In particular you must consult with the:</p> <ul style="list-style-type: none"> <li>• Department of Environment and Climate Change;</li> <li>• Department of Primary Industries;</li> <li>• Department of Water and Energy;</li> <li>• Sydney Catchment Authority;</li> <li>• Dam Safety Committee;</li> <li>• Mine Subsidence Board;</li> <li>• Roads and Traffic Authority;</li> </ul>

	<ul style="list-style-type: none"> <li>• Department of Lands; and</li> <li>• Wollongong, Wollondilly and Campbelltown Council.</li> </ul> <p>The consultation process, and the issues raised during this process, must be described in the Environmental Assessment.</p>
<b>Deemed refusal period</b>	120 days

# Policies, Guidelines & Plans

Aspect	Policy /Methodology
<b>Risk</b>	<p>AS/NZS 4360:2004 Risk Management (Standards Australia)</p> <p>HB 203: 203:2006 Environmental Risk Management – Principles &amp; Process (Standards Australia)</p> <p>Risk Management Handbook for the Mining Industry (DPI)</p> <p>Risk Management Policy Framework for Dam Safety (Dam Safety Committee)</p>
<b>Subsidence</b>	<p>Guideline for Application for Subsidence Management Approvals (DMR)</p>
<b>Soil and Water</b>	
<i>Soil</i>	<p>Rural Land Capability Mapping (DLWC)</p> <p>Agricultural Land Classification (DPI)</p> <p>Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC &amp; NHMRC)</p> <p>National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC)</p> <p>Draft Guidelines for the Assessment &amp; Management if Groundwater Contamination (DECC)</p> <p>State Environmental Planning Policy No. 55 – Remediation of Land Managing Land Contamination – Planning Guidelines SEPP 55 – Remediation of Land (DOP)</p>
<i>Surface Water</i>	<p>National Water Quality Management Strategy: Water quality management - an outline of the policies (ANZECC/ARMCANZ)</p> <p>National Water Quality Management Strategy: Policies and principles - a reference document (ANZECC/ARMCANZ)</p> <p>National Water Quality Management Strategy: Implementation guidelines (ANZECC/ARMCANZ)</p> <p>National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)</p> <p>National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)</p> <p>Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)</p> <p>State Water Management Outcomes Plan</p> <p>NSW Government Water Quality and River Flow Environmental Objectives (DECC)</p> <p>Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)</p> <p>Drinking Water Catchments Regional Environmental Plan No. 1</p> <p>Managing Urban Stormwater: Soils &amp; Construction (Landcom)</p> <p>Managing Urban Stormwater: Treatment Techniques (DECC)</p> <p>Managing Urban Stormwater: Source Control (DECC)</p> <p>Floodplain Management Manual (DNR)</p> <p>Floodplain Risk Management Guideline (DECC)</p> <p>A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)</p> <p>Technical Guidelines: Bunding &amp; Spill Management (DECC)</p> <p>National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)</p> <p>National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC)</p> <p>Environmental Guidelines: Use of Effluent by Irrigation</p>

<i>Groundwater</i>	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	NSW State Groundwater Policy Framework Document (DLWC)
	NSW State Groundwater Quality Protection Policy (DLWC)
	NSW State Groundwater Quantity Management Policy (DLWC) Draft
	Murray-Darling Basin Groundwater Quality. Sampling Guidelines. Technical Report No 3 (MDBC)
	Murray-Darling Basin Commission. Groundwater Flow Modelling Guideline (Aquaterra Consulting Pty Ltd)
<b>Flora and Fauna</b>	
	Draft Guidelines for Threatened Species Assessment under Part 3A of the <i>Environmental Planning and Assessment Act 1979</i> (DEC)
	NSW Groundwater Dependent Ecosystem Policy (DLWC)
	Policy & Guidelines - Aquatic Habitat Management and Fish Conservation (NSW Fisheries)
	Policy & Guidelines - Fish Friendly Waterway Crossings (NSW Fisheries)
State Environmental Planning Policy No. 44 – Koala Habitat Protection	
<b>Heritage</b>	
<i>Aboriginal</i>	Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC)
<i>Non- Aboriginal</i>	NSW Heritage Manual (NSW Heritage Office & DUAP)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
<b>Noise</b>	
	NSW Industrial Noise Policy (DECC)
	Environmental Criteria for Road Traffic Noise (NSW EPA)
	Environmental Noise Control Manual (DECC)
<b>Air Quality</b>	
	Protection of the Environment Operations (Clean Air) Regulation 2002
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC)
<b>Greenhouse Gas</b>	
	AGO Factors and Methods Workbook (AGO)
	Guidelines for Energy Savings Action Plans (DEUS, 2005)
<b>Transport</b>	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)
<b>Waste</b>	
	Waste Avoidance and Resource Recovery Strategy 2007 (DECC)
	Environmental Guidelines: Solid Waste Landfills (EPA)
	Environmental Guidelines: Assessment, Classification, and Management of Non-Liquid and Liquid Waste (EPA)
<b>Hazards</b>	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines (DUAP)
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis



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**Rehabilitation**

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Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia)

Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia)

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**Social & Economic**

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Draft Economic Evaluation in Environmental Impact Assessment (DOP)

Techniques for Effective Social Impact Assessment: A Practical Guide (Office of Social Policy, NSW Government Social Policy Directorate)

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**Strategic Plans**

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Illawarra Regional Strategy (DOP)

Illawarra Regional Environmental Plan No. 1

Special Areas Strategic Plan of Management 2007 (SCA & DEC)

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ATTACHMENT 2

DIRECTION TO THE PLANNING ASSESSMENT COMMISSION

# Direction to the Planning Assessment Commission

## Metropolitan Coal Project

Section 23D(1)(b)(ii) & Schedule 3 of the *Environmental Planning and Assessment Act 1979*; & Part 16B of the *Environmental Planning and Assessment Regulation 2000*

I, the Minister for Planning:

1. Request the Planning Assessment Commission (the Commission) to:
  - (a) carry out a review of the potential subsidence related impacts of the Metropolitan Coal Project on the values of Sydney's drinking water catchment, and in particular its potential impact on the Waratah Rivulet and Woronora Reservoir, taking into consideration the recommendations of the Southern Coalfield Inquiry;
  - (b) advise on the significance and acceptability of these potential impacts, and to recommend appropriate measures to avoid, minimise, or offset these impacts; and
  - (c) identify and comment on any other significant issues raised in submissions regarding the Metropolitan Coal Project or during the public hearings;
2. Direct that for the purposes of carrying out the review, the Commission is to be constituted of 5 members, being those members specified in Schedule 1; and
3. Direct the Commission to conduct public hearings as part of the review, in the Helensburgh area, commencing after 16 February 2009, and to provide its final report (under clause 268V of the *Environmental Planning and Assessment Regulation 2000*) by 16 March 2009.



The Hon Kristina Keneally MP  
**Minister for Planning**

Sydney ~~14~~ November 2008

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### SCHEDULE 1

1. A member of the Commission, appointed under clause 2 of Schedule 3 of the *Environmental Planning and Assessment Act 1979*, as determined by the Chairperson of the Commission;
  2. Professor Jeffrey Bennett;
  3. Associate Professor Jim Galvin;
  4. Mr Col Mackie; and
  5. Mr John Tilleard.
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APPENDIX A  
METROPOLITAN COAL PROJECT RESPONSES TO SUBMISSIONS