

ASSESSMENT REPORT

Camden Gas Project Stage 2: Mt Taurus – Harness Racing Club Section 75W Modification (DA 183-8-2004-i Mod 2)

1 BACKGROUND

The Camden Gas Project (CGP) is a major coal seam gas project located south of Campbelltown and Camden in the Southern Coalfield, involving the extraction of coal seam gas from the Illawarra Coal Measures. The CGP is operated by AGL Energy Limited (AGL).

The CGP currently comprises over 130 gas wells, low pressure gas gathering lines, access tracks, the Rosalind Park Gas Plant and a high pressure gas sales pipeline.

Stage 1 of the CGP was approved in 2002 and initially comprised 25 gas wells, a gas treatment plant and gas gathering system in the Cawdor area. Since 2002, Stage 1 has been expanded by an additional 8 gas wells and associated gas gathering systems. The Stage 1 wells are still in production, however the gas treatment plant was decommissioned in 2007.

Stage 2 was approved in June 2004 and initially comprised 43 gas wells, a second gas treatment plant at Rosalind Park and additional gas gathering systems in the Razorback, Menangle and Menangle Park areas. Since 2004, Stage 2 has been expanded with additional gas wells and associated gas gathering systems. It is now regulated through five development consents and two major project approvals.

Stage 2 includes consent no. 183-8-2004-I, which was granted in December 2004 by the then Minister Assisting the Minister for Infrastructure and Planning. It involved the development and operation of 15 gas wells on the Mt Taurus and the Harness Racing Club Properties (referred to as the Paceway). In July 2007 it was modified under s96(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act), to allow for the development and operation of an additional (16th) gas well (MP30) (see **Figure 1** below).

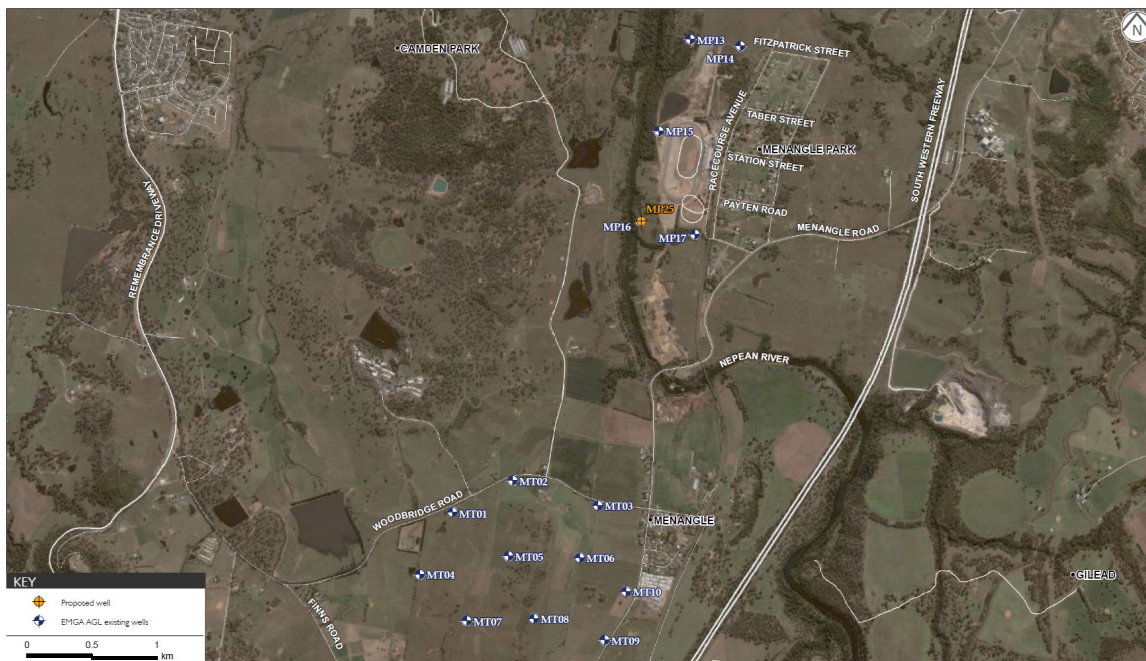


Figure 1: Existing wells and proposed well within DA 183-8-2004-i

2 PROPOSED MODIFICATION

On 18 October 2011, AGL lodged an application under section 75W of the EP&A Act to modify the existing consent (DA 183-8-2004-i) for an additional (17th) gas well (MP25) at the Paceway adjacent to an existing gas well (MP16).



Figure 2: Proposed well site local context.

The proposed modifications involve:

- the drilling and operation of a surface to in-seam (SIS) well approximately 15 metres east of an existing gas well (see **Figure 2** above);
- upgrading, extending and widening of existing access tracks from Racecourse Avenue to allow all-weather construction access;
- removal and relocation of a small amount of vegetation for the construction of a gas well site pad (initially 150 by 30-50 metres, to be reduced to 45 by 45 metres post-drilling);
- construction of a gas production compound of 10 by 10 metres surrounding the gas well head;
- stockpiling of topsoil to the north of the gas well in an area of 40 by 25 metres; and
- installation of an additional gas gathering line adjacent to the existing line (known as 'twinning' of lines) between gas well sites MP16 and MP30 (see **Figure 3** below).

3 STATUTORY CONTEXT

Section 75W

Under Clause 8J(8) of the *Environmental Planning & Assessment Regulation 2000*, a development consent which was granted under Part 4 of the EP&A Act before 1 August 2005, is taken to be an approval under Part 3A of the Act for the purposes of modification. Consequently, the now repealed section 75W of the EP&A Act is the appropriate statutory provision under which this modification application can be determined.

The proposal involves the construction and drilling of an additional (17th) gas well adjacent to an existing well, with the majority of supporting infrastructure and access tracks located in areas that have previously been disturbed. It would be a minor extension of an existing gasfield comprising over 130 gas wells and would not change the purpose of the development for which the existing development consent was originally granted, namely gas extraction and gathering. Consequently, the Department is satisfied that the proposal should be characterised as a modification to the existing consent, as opposed to a new development in its own right, and can therefore be determined under section 75W of the EP&A Act.

Approval Authority

The Minister was the consent authority for the original development consent, and is consequently the approval authority for this modification application. The application falls within the terms of the Minister's delegation of 14 September 2011, as the Applicant has made a reportable political donation and Campbelltown City Council has made a submission in the nature of an objection. Consequently, the PAC is required to determine the application.

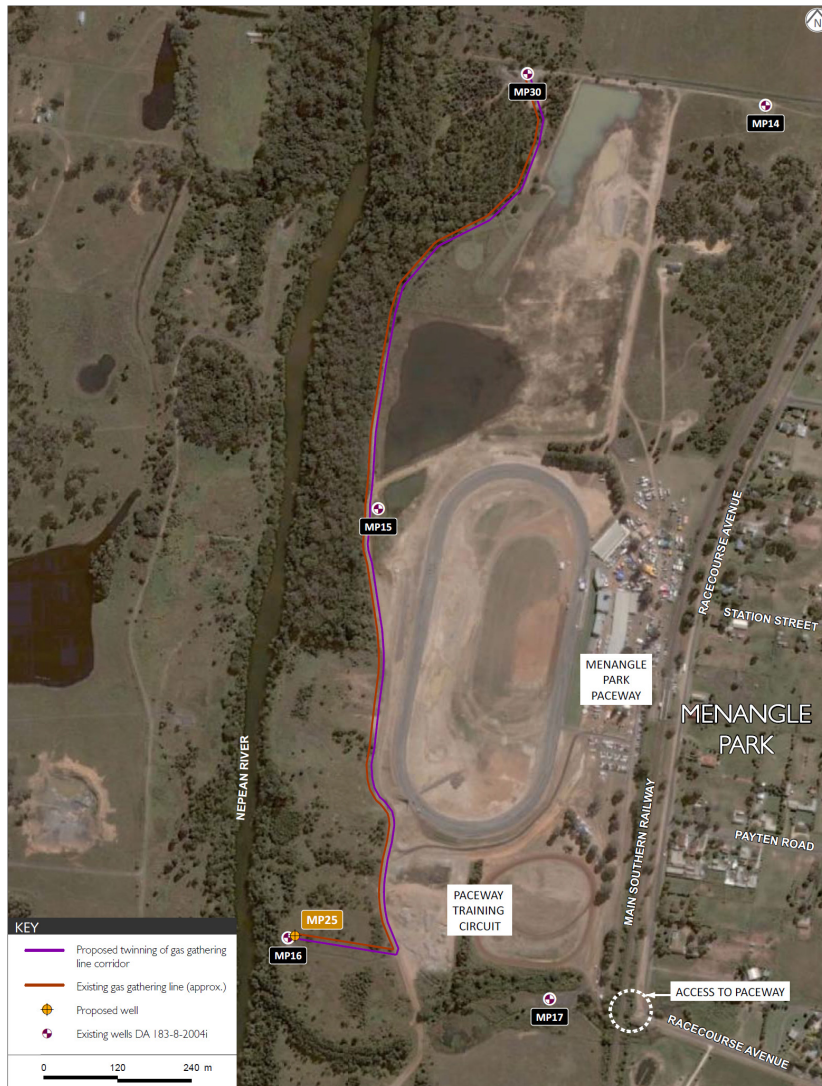


Figure 3: Twinning of gas gathering line

4 CONSULTATION

The Department is not required to notify or exhibit applications under section 75W of the EP&A Act. Given the minor nature of the proposed modifications, the Department decided not to exhibit the proposal. Notwithstanding, the document was made publicly available on the Department's website. In addition, the Department consulted with the following relevant government agencies and key stakeholders:

- Campbelltown City Council (CCC);
- the Office of Environment and Heritage (OEH);
- the Division of Resources and Energy (DRE), within the Department of Trade and Investment, Regional Infrastructure and Services;
- the NSW Office of Water (NOW);
- Sydney Catchment Authority (SCA);
- Roads and Maritime Services (RMS);
- the NSW Heritage Branch; and
- the NSW Harness Racing Club.

The Department received submissions from all of the government agencies (see Appendix D), except for the NSW Heritage Branch, and forwarded them to AGL for response in late December 2011. Only CCC's submission objected to the proposal, however others raised concerns and requested that specific conditions be included in any resulting notice of modification.

On 17 February 2012, AGL provided a formal Response to Submissions (RTS) to the Department (see **Appendix E**). The RTS provided comprehensive responses to the various agencies' comments and also proposed some minor additional works involving the upgrade ('twinning') of the existing gas gathering line

between the MP16/25 site and the MP13/30 site to the north. The Department forwarded the RTS to the agencies.

The Department consulted with CCC, OEH, NOW, DRE and SCA about the recommended draft conditions of consent. The Department also met with CCC on 28 May 2012 regarding the proposal. Notwithstanding, CCC maintains its objection.

A summary of issues raised during consultation is listed in Table 1 below.

Table 1: Summary of submissions

Agency	Comments or issues raised
<i>CCC</i>	<ul style="list-style-type: none"> CCC raised concerns about the lack of baseline data and monitoring in relation to groundwater, including the relationship of the proposal to NOW's Aquifer Interference Policy. NOW's Aquifer Interference Policy is currently only a draft document and is being developed as a component of the NSW Government's Strategic Regional Land Use Plans (SRLUPs). CCC recommended that a moratorium on new wells be implemented on the basis of their concerns relating to groundwater. The RTS provided substantially more information about groundwater and is discussed in section 5.2 below. CCC raised concerns about potential surface water impacts from the use of lined pits and possible flooding events, particularly on downstream users of the Nepean River. CCC also raised a range of other concerns including flora and fauna impacts, and the level of community consultation undertaken by AGL. The Department has taken all of these concerns into consideration in its assessment of the proposal.
<i>OEH</i>	<ul style="list-style-type: none"> OEH requested further information and description about groundwater in terms of both potential impacts and proposed mitigation measures. The RTS provided substantially more information about groundwater and is discussed in section 5.2 below. OEH also suggested that the complex set of consents and approvals for the CGP should be consolidated into a single approval. The Department agrees and notes that AGL has committed to discussions with both the Department and OEH about the consolidation of planning approvals. OEH was consulted on the recommended conditions of consent and has no residual concerns about the impacts of the proposal.
<i>NOW</i>	<ul style="list-style-type: none"> NOW made recommendations about water licensing, borehole construction and groundwater monitoring. The Department has taken these recommendations into account and incorporated them into the recommended conditions of consent. NOW was consulted on these conditions and has no residual concerns.
<i>DRE</i>	<ul style="list-style-type: none"> DRE requested that further information be provided in relation to final rehabilitation and the conceptual final landform. In the RTS, AGL provided this information and outlined the steps involved in plugging and abandoning the proposed gas well at MP25, which would occur in accordance with the relevant code of practice adopted by the <i>Petroleum (Onshore) Regulation 2007</i>. DRE was consulted on the recommended conditions of consent, including borehole construction and maintenance conditions, and has no residual concerns.
<i>RMS</i>	<ul style="list-style-type: none"> RMS has no objection to the proposal as it would not have any significant impact on the classified road network.
<i>SCA</i>	<ul style="list-style-type: none"> SCA has no objection to the proposal as it is not near any SCA assets or infrastructure.
<i>NSW Harness Racing Club</i>	<ul style="list-style-type: none"> As the relevant landowner, the NSW Harness Racing Club has been in consultation with AGL and has no objection to the proposed modifications.

5 ASSESSMENT

5.1 Groundwater

The EA contained an assessment of the soil and water impacts of the proposal however it mainly focussed on the surface water impacts and proposed mitigation measures at the surface. Due to the concerns about groundwater raised in some of the agencies' submissions, AGL undertook a detailed groundwater assessment for its RTS which provided substantially more information about existing groundwater resources, historical records of previous gas extraction and the potential for future impacts.

The key risk during the drilling and operation of coal seam gas at the MP25 gas well is potential cross-contamination of groundwater resources through interconnectivity of geological layers. CCC, OEH and NOW raised concerns about the protection of groundwater resources and CCC in fact recommended that a moratorium be placed on any new gas wells due to the potential impacts on groundwater.

The Department notes that although groundwater contamination has been reported from coal seam gas extraction in other areas outside of NSW and overseas, there is no evidence of such impacts from the CGP, which has been operational for over 10 years. However, the Department is aware that the

groundwater monitoring in the CGP could be improved, and is supportive of NOW's move towards a comprehensive Groundwater Management Plan (GMP) for the whole CGP.

AGL is currently developing an extensive groundwater monitoring program in consultation with NOW in order to gather further baseline data about groundwater across the CGP, as part of the new GMP. NOW has informed the Department that the development of this GMP is progressing well and will be finalised later in 2012, while AGL has stated that certain aspects of the monitoring and data gathering involved in the GMP are already being implemented. The RTS draws on this work and provides a large amount of additional background information regarding groundwater at the proposed MP25 gas well site and across the CGP, which the Department considers addresses many of the questions raised by the agencies.

One of the key findings of the work done by AGL so far is that the only beneficial aquifer (within the Hawkesbury Sandstone) is naturally hydraulically separated from the deeper coal seams. AGL has a record of the volume of produced water at each of its existing wells within the CGP, and this database shows a decreasing trend in the volume of produced water over the life of each well. This would indicate that there is no significant drawdown from shallower zones or aquifers (such as the Hawkesbury Sandstone) in the vicinity of the coal seams. The Department considers this to be strong evidence that gas extraction from the coal seams across the CGP has had no direct impacts on the only underground beneficial aquifer.

The Department also notes that the proposed gas well at MP25 would not involve hydraulic fracturing ('fracking'), which has often been associated with groundwater contamination in other areas outside of NSW and overseas. Notwithstanding, to ensure certainty in this respect, the Department has included recommended conditions of consent specifically prohibiting fracking and ensuring that no drilling fluids containing BTEX (benzene, toluene, ethylbenzene or xylene) are used.

Both DRE and the Department consider the key to minimising the potential for groundwater impacts is through appropriate borehole design, construction and maintenance. For example, if the borehole is made less permeable, there is less likelihood of groundwater infiltration and cross-contamination. Accordingly, the Department has recommended stringent conditions of consent aimed at protecting the integrity of any underground aquifers, preventing gas escape and maintaining groundwater quality. The recommended conditions require the MP25 gas well to:

- be designed in consultation with, and in accordance with the specifications required by DRE;
- be cased with steel across the uppermost beneficial-use aquifer layer;
- have casing fully cemented from casing shoe to surface, leaving no open annuluses; and
- have a blow-out prevention device on the wellhead secured to the steel casing.

The Department notes that the technical and environmental challenges of drilling SIS wells are well understood and are subject to standard industry and regulatory practice. The Department is satisfied with the additional groundwater information provided by AGL in the RTS, and upon review of all the documentation and submissions, the Department also does not consider that the moratorium suggested by CCC is warranted or justified. The Department is satisfied that the risks to groundwater are low and that the recommended conditions of consent provide adequate protection of groundwater resources. DRE, NOW and OEH have all been consulted on the recommended conditions of consent and have no residual concerns regarding impacts to groundwater.

5.2 Surface Water

Nepean River

The key surface water issue that was raised by CCC relates to potential impacts of runoff from drilling fluids and eroded soil on the Nepean River. The Department believes that drilling fluids are unlikely to impact on the Nepean River due to the standard safety and hazard measures utilised onsite and the fact that the area of the proposed gas well at MP25 is located over 50 metres to the east of the Nepean River. Soil erosion is also likely to be limited as the area of the proposed gas well has already been heavily disturbed by previous land uses, including sand quarrying and more recently gas production at MP16.

Notwithstanding the low likelihood of impacts on the Nepean River, the Department has recognised the importance of the river and recommended appropriate conditions of consent to ensure its protection. AGL already has a Soil and Water Management Plan (SWMP) in place for the existing 16 gas well sites. The Department has included a recommended condition of consent requiring that the SWMP is updated by a suitably qualified expert and submitted to the Director General for approval, prior to construction at the proposed MP25 gas well site.

These conditions would require that measures to minimise impacts on soil and water are included in the SWMP, such as:

- using above-ground baffle tanks to contain all drilling fluids during drilling operations;
- disposing of all drilling fluids and groundwater collected in the baffle tanks at an authorised wastewater treatment facility;
- ensuring that no hydraulic fracturing occurs and that no fracking fluids containing Benzene, Toluene, Ethylbenzene and Xylene (BTEX) chemicals are used;
- ensuring that adequate spill control equipment and materials will be available at drill sites; and
- implementing a contingency plan to address any groundwater brought to the surface that exceeds the capacity of onsite detention structure, and would avoid discharges from the site.

These recommended conditions directly address the key concerns that CCC raised including the use of lined pits for drilling fluids and the potential impacts of BTEX chemicals. The Department is satisfied that the SWMP conditions would provide appropriate protection of the Nepean River, and appropriate surface water management at the MP25 gas well site.

Flooding

There was also some concern raised by CCC about potential impacts of flooding at the proposed MP25 gas well site, as it is classified (by AGL) as a Flood Group 1 (High Risk) well and the area has experienced minor flooding in the past.

The Department notes that AGL already has a Flood Management Plan (FMP) in place for the whole CGP that outlines the procedures and processes to manage and mitigate flooding events at gas well sites. These procedures include preventative measures such as locating stockpiles on higher ground and dispensing of any contaminated soil immediately. The FMP also outlines mitigation measures such as nominating Field Production Operators to regularly monitor river levels and report back to a Flood Response Coordinator on an hourly basis during potential flood events. The Department is satisfied with the flood management procedures that have already been established by AGL across the CGP and has included a recommended condition of consent requiring the FMP to be updated to include the MP25 gas well prior to construction.

Gas Gathering Line

The proposed construction and 'twinning' of a gas gathering line involves trenching to depths of between 750 mm and 1,200 mm, installation of pipe adjacent to the existing pipe, backfilling of topsoil and rehabilitation of the ground. The Department considers the proposed twinning of the gas gathering line between gas well sites MP16 and MP30 is unlikely to cause any impacts on surface water due to the short duration of the construction and the minor nature of the works. Nevertheless, the Department has developed a set of model conditions for gas gathering lines and has included them in the recommended conditions of consent. These include ensuring that:

- the route of the gas gathering and water transport systems and access tracks follow previously or currently disturbed areas wherever practicable;
- open trenching works within 20 metres of watercourses are only undertaken during dry weather conditions; and
- construction activities do not impede lateral water flows.

Conclusion

The Department has also required AGL to prepare a detailed Statement of Commitments which would form part of the consent conditions and includes additional mitigation and management measures to prevent surface water impacts. On the basis of the comprehensive set of recommended conditions relating to the SWMP, FMP and gas gathering line, in conjunction with AGL's Statement of Commitments, the Department is satisfied that there are unlikely to be any significant surface water impacts from the proposed MP25 gas well.

5.3 Biodiversity

The key concern regarding biodiversity is the proposed gas well's relative proximity to the Nepean River and the potential impacts on the riparian vegetation associated with the river. OEH is the key authority responsible for consideration of biodiversity and has no concerns regarding the ecological impacts of the proposal. Notwithstanding, CCC requested that AGL provide more detail on the overall ecological health of the Nepean River catchment and provide further ecological assessment including targeted surveys. The RTS provided this further detailed information including further site inspection data and reference to OEH's threatened species assessment guidelines.

The areas of proposed disturbance include the gas well site pad (up to 3.5 hectares), a topsoil stockpile area (approximately 1 hectare), the twinning of the gas gathering line between the MP16 and MP30 gas wells (approximately 1 hectare) and the widening and extension of existing access tracks. The majority of this area has previously been heavily disturbed by sand mining and the existing MP16 gas well, and predominantly consists of introduced species like couch grass and kangaroo grass.

Endangered Ecological Communities (EECs) and Threatened Species

There is one listed EEC (the Riverflat Eucalypt Forest on Coastal Floodplains) located in the riparian corridor along the Nepean River, which at its nearest point is 10 metres from the proposed works associated with the twinning of the gas gathering line between the MP16 and MP30 gas wells. The EA states that this EEC is a “no go zone” and no works are proposed within the drip line of the trees. This is reflected in the Statement of Commitments, which forms part of the recommended conditions of consent.

The Department is satisfied that impacts on the EEC are highly unlikely as the proposal is a sufficient distance from the riparian zone and is located within an already disturbed area. The Department has also included recommended conditions of consent specifically relating to the gas gathering line, which requires various mitigation measures to be undertaken including the minimisation of impacts to riparian vegetation and EECs. The Department is satisfied that these conditions, along with the conditions relating to surface water management and borehole construction, would prevent any potential impacts to the EEC.

The proposed construction area for the MP25 gas well site compound was also identified as foraging habitat for two threatened species under the *Threatened Species Act 1995*, including the Black-necked Stork and Spotted Heron, and four migratory species including the Great Egret, the Cattle Egret, the Rainbow Bee-eater and Latham’s Snipe. However, as the area is identified as ‘sub-optimal’ foraging habitat, rather than a breeding area, and this is habitat that is generally abundant in the surrounding area, the Department is satisfied that the impacts to these species would be minimal.

Other Vegetation

There are scattered River She-oaks located within the proposed gas well site compound. The EA states that AGL would mark these trees and avoid them during construction and operation. In addition, AGL has committed to the planting of five River She-oaks in tubestock form in its Statement of Commitments, which forms part of the recommended conditions of consent.

The construction of the gas well site compound and upgrading of access tracks would involve the removal of five wattles and one narrow-leafed privet, while four other wattles would be relocated approximately 30 metres to the east. The Department is satisfied that the impacts of this clearing would be minimal and has recommended a condition of consent requiring AGL to update the existing Weed Management Plan to include the proposed MP25 gas well site prior to construction.

5.4 Other Issues

Other issues relating to the proposal are outlined in **Table 2** below.

Table 2: Assessment of Other Issues

Issue	Consideration and Assessment	Recommendation
<i>Noise</i>	<ul style="list-style-type: none"> The EA includes a Noise Impact Assessment (NIA) undertaken by EMGA Mitchell McLennan, which identifies two key sensitive noise receivers at 22 Racecourse Avenue and 190 Menangle Road, Menangle Park. The predicted construction noise levels are expected to satisfy the project-specific daytime, evening and night criteria at the sensitive noise receivers. The construction noise criteria are based on the <i>Interim Construction Noise Guidelines</i> (OEH, 2009) and background noise data gathered in the NIA, and the Department has included these criteria in the recommended conditions of consent. The predicted operational noise levels also comply with the relevant criteria for intrusiveness and amenity in the <i>Industrial Noise Policy</i> (OEH, 2000), except for a marginal exceedance (1dB) of the sleep disturbance criterion at 22 Racecourse Avenue. OEH raised no concerns about this or any other potential noise impacts. The Department is satisfied that this exceedance would be non-perceptible and would be adequately managed by the noise mitigation measures outlined in the EA, including the use of physical barriers and appropriate orientation of the drill rig and ancillary equipment. 	<p>Construction noise limits included in recommended conditions of consent.</p> <p>Noise mitigation measures are included in AGL’s Statement of Commitments, which form part of the recommended conditions of consent.</p>

Issue	Consideration and Assessment	Recommendation
<i>Heritage</i>	<ul style="list-style-type: none"> • There are no identified Aboriginal or non-Aboriginal heritage sites within the area of the proposed modifications. • The Aboriginal heritage assessment undertaken for the original development consent concluded that there is a low likelihood of the presence of any Aboriginal objects being found on the site in the future due to the highly disturbed nature of the land and the previous sand quarrying that occurred on the site. • The Department is satisfied that if any heritage object is discovered, it would be adequately managed through the measures outlined in the Heritage Management Plan that applies across the CGP and is referenced in the EA and the Statement of Commitments. 	<p>No recommended conditions of consent.</p> <p>Heritage management and mitigation measures are included in AGL's Statement of Commitments, which form part of the recommended conditions of consent.</p>
<i>Traffic and Transport</i>	<ul style="list-style-type: none"> • All access to the site for construction and ongoing operations is via internal roads at the Paceway, which are accessed from Racecourse Avenue. These internal roads are already used for existing CGP operations and the landowner (the NSW Harness Racing Club) has given consent to the proposed modifications. • RMS raised no concerns about the proposal as it would have no significant impact on the classified road network. • The Department is satisfied that any potential traffic and transport impacts would be minimal and would be managed through the existing Traffic Management Plan for the CGP, which is referenced in the Statement of Commitments. 	<p>No recommended conditions of consent.</p> <p>Traffic and transport management measures are included in AGL's Statement of Commitments, which form part of the recommended conditions of consent.</p>

6 RECOMMENDED CONDITIONS

The Department has prepared recommended conditions of consent for the proposed modification. AGL, OEH, DRE, NOW and CCC were consulted over the draft conditions of conditions. The Department has carefully considered the responses by agencies and made appropriate changes to the draft conditions where appropriate. AGL has reviewed and accepted the final draft conditions.

7 CONCLUSION

The Department has assessed the modification application, the EA, the submissions and AGL's Response to Submissions in accordance with the relevant requirements of the EP&A Act, including the objects of the EP&A Act and the principles of ecologically sustainable development.

The key area of concern relates to potential groundwater impacts associated with the proposed modification. The assessment has found that the risks to groundwater are low due to the lack of interconnectivity between the coal seams and the only shallow beneficial aquifer. Notwithstanding, the Department has recommended stringent conditions related to borehole construction and maintenance, and is satisfied that these conditions would provide adequate protection of any groundwater resources. DRE, NOW and OEH have all been consulted on these conditions and have no residual concerns regarding impacts to groundwater.

The other main area of concern relates to potential impacts on the Nepean River and the associated riparian corridor, which contains an EEC. The Department is satisfied that risk of impacts on the river and the EEC are low as the proposal is a sufficient distance from the river and is located within a highly disturbed area. Notwithstanding, the Department has recommended appropriate conditions of consent to ensure protection of the river and the EEC, including a requirement to use above-ground baffle tanks for drilling fluids and prohibiting the use of BTEX chemicals. NOW and OEH have no residual concerns regarding impacts to surface water or the EEC.

Given the low likelihood of impacts, the Department is satisfied that the proposed modification is in the public interest and should be approved.


8 RECOMMENDATION

It is RECOMMENDED that the Planning Assessment Commission:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification falls within the scope of section 75W of the EP&A Act;
- **approve** the application under section 75W, subject to conditions; and
- **sign** the notice of modification in **Appendix A**.


15/6/12

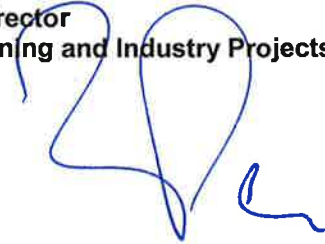
Clay Preshaw
Senior Planner
Mining Projects


15/6/12

David Kitto
Director
Mining and Industry Projects


15.6.12

Chris Wilson
Executive Director
Major Projects Assessment


18/6/12

Richard Pearson
Deputy Director-General
Development Assessment and Systems Performance

APPENDIX A – NOTICE OF MODIFICATION

APPENDIX B – CONSENT AS MODIFIED (PROPOSED)

APPENDIX C – ENVIRONMENTAL ASSESSMENT

APPENDIX D - SUBMISSIONS

APPENDIX E – RESPONSE TO SUBMISSIONS