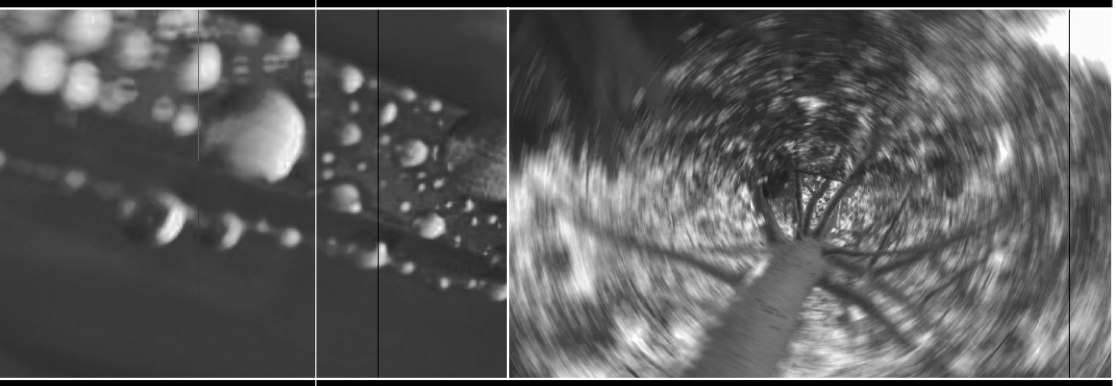
SUBMISSIONS REPORT

STAGE 2 CONCEPT AREA

SPRINGFARM PROJECT AREA

MENANGLE PARK PROJECT AREA



STAGE 2 CONCEPT AREA

camden gas project

Expansion of Stage 2 of the Camden Gas Project
Stage 2 Concept Area
Spring Farm Project Area
Menangle Park Project Area
Submissions Report

December 2007

Prepared for:
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Distribution

Expansion of Stage 2 of Camden Gas Project
Stage 2 Concept Area
Spring Farm Project Area
Menangle Park Project Area

6 December 2007

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1.0 Introduction

1.1 Overview of Proposal

The Camden Gas Project (CGP) is located approximately 65 kilometres (km) south west of Sydney, and is being developed to continue and grow New South Wales' (NSW) gas production.

The project is situated within land extending from Newcastle to Wollongong over which Petroleum Exploration Licence 2 (PEL 2) has been issued by the Minister for Mineral Resources under the *NSW Petroleum (Onshore) Act 1991*.

Within PEL 2, four areas have been granted as Petroleum Production Leases (PPLs) under the NSW Petroleum (Onshore) Act 1991. These areas are known as Petroleum Production Lease 1 (PPL 1), Petroleum Production Lease 2 (PPL 2), Petroleum Production Lease 4 (PPL 4) and Petroleum Production Lease 5 (PPL 5) and enable the production, gathering and sale of petroleum gas.

Stage 1 of the CGP was approved in 2002, and initially comprised 22 wells, the Ray Beddoe Treatment Plant (RBTP) and an in-field compression gas gathering system in the Cawdor area. Stage 1 entered into gas production pursuant to PPL 1 and PPL2.

Stage 2 of the CGP was originally approved in 2004, and initially comprised 43 wells, the Rosalind Park Gas Plant (RPGP) and gas gathering system in the Menangle and Menangle Park areas. Stage 2 entered into production pursuant to PPL 4 issued by the Minister for Mineral Resources in October 2004.

The two main areas remaining for development within the CGP Stage 2 area are Spring Farm and Menangle Park, however additional wells could be developed in other existing parts of the Stage 2 area.

An overview of the development history of the CGP is provided in Table 1 below.

Table 1: Summary of Camden Gas Project

Relevant CGP Area	Brief Activity Description	Year
Stage 1	22 wells and the Ray Beddoe Treatment Plant (RBTP) and in-field gas gathering system in the Cawdor area	2002
Stage 2	43 wells, Rosalind Park Gas Plant (RPGP) and gas gathering system in Menangle and Menangle Park	2004
Stage 2	Additional 15 wells at Mt Taurus and Harness Racing at Menangle Park	2004
Stage 2	Additional six wells at Glenlee and Elizabeth Macarthur Agricultural Institute (EMAI) Stage 1	2004
Stage 2	Additional 7 wells at Sugarloaf	2005
Stage 2	Extension of 10 wells on the El Bethel property	2006
Stage 1*	Extension of one well	2005
Stage 2*	Extension of five wells	2005
Stage 2	Glenlee modification	2006
Stage 2	Additional 14 wells on EMAI property	2006
Stage 2	Additional 10 wells in Razorback area	2006

Relevant CGP Area	Brief Activity Description	Year
Stages 1 & 2*	Additional nine wells across the existing field	2007

* these well extensions were part of a combined section 96 modification

1.2 Location

The proposed project which is the subject of the application for Concept Approval (further development within Stage 2), involves the construction of wells, gas gathering lines, other supporting infrastructure and post development activities to enable gas production within Stage 2 of the CGP. The Stage 2 area is situated within the Camden, Campbelltown and Wollondilly Local Government Areas (LGAs), south west of Sydney.

The Nepean River runs through the project area, from the south to the north western corner of the Stage 2 area. The area extends from the suburbs of Narellan and Currans Hill in the north to the south of Menangle, extending across to Glen Alpine and Ambervale in the east, and Camden in the west, and incorporates the areas of Spring Farm and Menangle Park.

Concurrent Project Approval is being sought for the construction of wells and access roads, the installation of gas gathering and water pipelines within Spring Farm and Menangle Park.

The area known as Spring Farm is located within the Camden LGA. The Spring Farm area is located east of Camden and is situated south of the Camden bypass. The Nepean River adjoins the south west boundary of the area, while the suburbs of Spring Farm border the north/north eastern boundary of the area. Land in the area is allocated to support future urban (residential, commercial and industrial) development.

The Spring Farm area is located between the existing well fields of Glenlee (to the south east) and EMAI (to the south).

The Menangle Park area falls within the Campbelltown LGA. The land is situated south east of the proposed Spring Farm well field. The Menangle Park area is bounded by the Hume Highway to the east, with the exception of a small portion of the site which is situated east of the Hume Highway and north of Menangle Road. The Nepean River adjoins the western and southern boundaries of the area.

1.3 Overview of Environmental Impact Assessment Process

The proposed project requires consent under Part 3A of the EP&A Act and, as such, the Minister for Planning is the approval authority. The proposal is deemed a 'major project' under the Act. Section 75(F) of the Act requires that, for a major project, a Project Application must be accompanied by an EA prepared by or on behalf of the applicant.

An EA is part of a larger assessment process in which the proponent of a project:

- Identifies a need;
- Considers alternatives and identifies a preferred option;
- Assesses the likely environmental impacts and identifies mitigation measures; and
- Presents the EA to the Department of Planning (DoP) for public exhibition.

The DoP:

- Exhibits the EA and notifies stakeholders in accordance with statutory requirements;
- Seeks comments from other government agencies;

- Considers public comments on the EA and prepares an assessment report recommending one of the following:
  - Support for the proposal in the EA;
  - Rejection of the proposal in the EA; and
  - Support for the proposal, with modifications.

Under the EP&A Act, the EA is required to be exhibited for a minimum of 30 days for review by the public.

1.4 Structure of Submissions Report

The Submissions Report has been structured in a manner which clearly sets out the issues raised in the submissions on the EA and addresses each issue.

Section 2 provides information on the Environmental Envelope Assessment approach and the project's land use compatibility with the future urban (residential, commercial and industrial) development in the area, notably Spring Farm and Menangle Park.

Section 3 of the Submissions Report provides a summary of the issues raised during the public exhibition of the EA and identifies the relevant section in the report where the issues have been addressed.

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2.0 Environmental Envelope Approach

As outlined in **Section 1.8** of the EA, the environmental envelope approach adopted involves describing the types of development and/or activities which may occur within the area and identifying the potential impacts associated with such development/activities.

Both Menangle Park and Spring Farm have been identified as future urban (residential, commercial and industrial) land release areas and are at varying stages of progress in preparation for the future urban development. As such, and in order to best ensure land use compatibility with the future proposals within these areas, the EA has used an 'envelope' approach to the impact assessment. This means that the highest impact activities are assessed even when these activities are not always most likely. The envelope approach allows for flexibility and compatibility with future land use both in the absence of firm proposals for urban (residential, commercial and industrial) development and where information is available, the proposed well surface locations and routes of access roads and gas gathering lines have been designed to coexist with the urban layout.

The assessment was undertaken on a wider area to allow the final well surface locations to be within an approximate 50 metre radius of the nominated location (in the case of Spring Farm) and an approximate 100 metre radius of the nominated location (in the case of Menangle Park) and 25 metres either side of proposed gas gathering lines and access roads. This approach allows AGL to move infrastructure within the assessed envelope to enable flexibility with landowners and to accommodate future land uses as more information on final urban development plans become available.

The content of the submissions received following the public exhibition of the EA has confirmed the validity of the environmental envelope approach to the assessment of the project. Detailed comments for well surface locations have been provided within some submissions and these are primarily recommending location in more precise or specific areas within the environmental envelope. **Table 2** details the proponent's response to these relocation recommendations.

As discussed in **Section 3.2.3** of the EA, options for the siting of the wells, the location of the gas gathering system, and supporting infrastructure in Spring Farm and Menangle Park have been chosen carefully, taking into consideration existing land uses and development, future urban use of these areas, as well as technical, environmental and site-specific constraints including:

- Technical criteria including geology;
- The consideration of environmentally sensitive areas;
- Proximity to existing residences and future urban development/bushland corridors;
- Sediment and erosion hazards;
- Visual and acoustic amenity;
- Flora and fauna constraints;
- Archaeology and heritage constraints; and
- Operational requirements including access and proximity to the plant.

Consultation with landowners during the early project design phase ensured that wells and other infrastructure were sited to accommodate the primary land use. This has resulted in the relocation, removal or redesign of wells before the proposal was submitted for approval.

The environmental envelope assessment approach allows the well surface locations to move within a 50 metre radius in Spring Farm and a 100 metre radius in Menangle Park (to recognise the differences in the level of information about future urban land releases) and 25 metres either side of gas gathering

lines and access roads, meaning that there is flexibility and an ability to deal with future issues as they arise.

2.1 Future Land Use Compatibility

As discussed in Sections 8.1.3 and 8.1.4 of the EA, the proposed project has been designed and planned with a degree of flexibility in order to accommodate future development in the surrounding areas, including both residential and other forms of development. Well surface locations have been chosen in consultation with landowners and negotiations with landowners are ongoing. Well design and construction methods also allow for a single change in levels as may be required in relation to future development of roads and possible sand extraction in the Spring Farm and Menangle Park areas. The routes of access and gas gathering lines can be moved 25 metres either side of the proposed route and the gas gathering lines can be moved once only to ensure they fit with the future layout. Overall, the flexibility built into the proposal should ensure that there is no significant detrimental impact or constraint imposed upon land uses or future development on surrounding land as a result of the proposed Project.

The impact of works proposed under the Concept and Project Applications for Stage 2 of the Camden Gas Project on land use is not considered significant, given the relatively short duration and temporary nature of construction and post development activities, and the relatively low impacts associated with the production and closure phases of the development.

As stated in Section 8.1.6 of the EA, the proposal is a transient use of land to facilitate the extraction of a State significant resource. Land surrounding well surface locations would not be sterilised as a result of the proposed development following rehabilitation. The measures proposed within the EA to manage the environmental impacts (as stated in Section 9.3 of the EA) of the proposed development will assist in managing potential land use impacts.

2.2 Justification

The proposal has been subject to environmental assessment in accordance with Part 3A of the EP&A Act and requirements issued by the Director General. The EA undertaken concludes that whilst the Project would have some residual impacts, the mitigation measures identified would effectively reduce these to an acceptable level of environmental risk and enable the Project to operate without detriment to the existing or future land uses. The proposal stands to provide significant public benefit in terms of the provision of a vital source of energy to meet projected future demand as well as allowing for the future urban (residential, commercial and industrial) development of the area. These benefits are considered to outweigh any residual environmental impacts identified in the EA.

3.0 Summary of Submissions

A total of 17 submissions were received comprising private submissions from government and non-government organisations/businesses.

All issues raised during the public exhibition of the EA have been summarised and set out in two tables. **Table 2** of this report outlines the issues relating to the application for Concept Approval and **Table 3** outlines the issues relating to the application for Project Approval for Spring Farm and Menangle Park. Each table identifies the party to the submission, provides a summary of the issues raised and identifies the section in this report where the issue has been addressed.

In a number of instances, comments received were replicated in a number of submissions. The authors have therefore, in some instances, recorded the comment which sets out the general concern rather than repeat the issue several times. It is noted, however, that this approach is adopted only on a few occasions.

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Table 2: List of Issues Raised in Submissions for Spring Farm Project Area and Menangle Park Project Area

Submission	Ref	Issue	Submission	Response
1 - Camden Council	1-A	Rehabilitation and Final Landform Plan	Request for a Rehabilitation and Final Landform Plan is to be prepared in accordance with the 'Australian Natural Heritage Charter' and prior to any work commencing	Sections 8.15, 9.3 and 9.4 of the EA outline the management measures required for Rehabilitation and Final Landform. Prior to construction of a well surface location, a site layout would be provided to the Director General. The site layout would include: • Initial rehabilitation of surplus construction footprint following completion of the construction phase; and • Rehabilitation and Landscape Concept Plan of well surface locations for the post-commissioning phase as well as following closure of the wells. The rehabilitation of the well surface locations and associated infrastructure will be in accordance with the relevant principles of the Australian Natural Heritage Charter. The Rehabilitation and Landscape Concept Plan will ensure that all appropriate rehabilitation and screening measures are implemented.
	1-B	Bushfire Assessment	No bushfire assessment undertaken with respect to Asset Protection Zones	The existing Quantitative Risk Assessment for the ongoing Camden Gas Project (CGP) considers bushfire risk. The detailed design of each well surface location will be in accordance with the relevant requirements and will incorporate measures that shut the wells in automatically in a number of scenarios including bushfire.
	1-C	Noise	Council requires guarantees that noise mitigation is undertaken and that residences, in the vicinity where noise impact is to be undertaken, will be notified at a time appropriate prior to such work being undertaken	Sections 8.5.6 and 9.4 of the EA outline the mitigation required as part of the proposed development, which includes notification of the community in accordance with a noise management plan. Noise mitigation measures are shown in the Statement of Commitments and will be implemented in accordance with DECC Guidelines.

Submission	Ref	Issue	Submission	Response
	1-D	Landscaping	The Landscape Management Plan to be ratified by Council	Please refer to Response 1-A for site layout and rehabilitation. During the preparation of the site layouts Council would be consulted with respect to the preparation of the Rehabilitation and Landscape Concept Plan.
	1-E	Plans of Management	The Gundungurra Plan of Management (PoM) is to be amended and AGL to pay for those amendments	Noted. If required, AGL will pay Council's reasonable costs.
	1-F	Access	There is potential for access roads to change due to future urban development. Council is to be consulted if access roads to well surface locations alter	Noted and agreed.
Campbelltown City Council	2-A	Future Urban Release	Council cut-and-fill options may be restricted by the presence of gas wells and associated gas delivery lines which may lead to a reduction in residential development yield. It is considered that the impact of any additional change to landform levels, as a result of the gas wells and pipelines being constructed in areas of proposed cut and fill, has not been fully assessed by AGL	As Council's specific plans are not known, the exact impact cannot be fully assessed at this stage, however, overall, the flexibility built into the proposal should ensure that there is no significant detrimental impact or constraint imposed upon land uses or future development on Council's land as a result of the proposed Project. As discussed in Sections 8.1.3 and 8.1.4 of the EA, the proposed project has been designed and planned with a degree of flexibility in order to accommodate future development in the surrounding areas to the extent possible. Well surface locations have been chosen in consultation with landowners and negotiations with landowners are ongoing. Well design and construction methods also allow for a single change in levels as may be required in relation to future development of roads and possible sand extraction. The gas gathering lines and access roads can move 25 metres either side of their proposed locations and the gathering lines can be moved once when installed to accommodate future layout. The final well surface locations within the assessment envelope would be determined in consultation with landowners.

Submission	Ref	Issue	Submission	Response
	2-B	Flooding	Council and Landcom are currently undertaking flood studies to determine the impact on residential development and lot yield within the Menangle Park Release Area. As final flood levels have not been finalised, the flood assessment cannot be accurately accounted for	Noted. Flooding risks are considered in Section 8.8 of the EA. AGL currently operates well surface locations within 1 in 100 year flood levels and have management measures implemented as part of the CGP Flood Management Plan. For this project, any wells which are at risk by flooding (including changes to current flood levels due to climate change) by being within the 1 in 100 year flood levels will also be subject to this plan.
	2-C		AGL to provide all weather access to MP24 as it is within 1:100 flood area	Noted. Refer to Section 9.4 of the EA.
	2-D	Access	Council does not guarantee future access from Menangle Road if cut and fill earthworks are undertaken. AGL would be required to identify alternative access	Section 4.4.1 of the EA refers to construction of access roads. It states that access to well surface locations will be along existing public roads and private tracks within the relevant property boundary. Where practicable, existing road and track access will be utilised to minimise construction activity and environmental disturbance. Should Menangle Road not be available when required for activities at the relevant well surface locations, the proponent will identify alternative access.
	2-E	Gas Gathering Infrastructure	AGL will relocate/remove the lines, at its cost, to accommodate an optimum road layout for any future urban development. AGL should be responsible for removal of gas gathering lines on termination of gas extraction.	Sections 4.4 and 8.15.3 of the EA discuss moving gas gathering lines and address this matter. AGL has designed the gas gathering to ensure it remains at the periphery of the developable land and will move gas gathering lines once only if necessary to fit in with future development. Final rehabilitation, and removal of gas gathering lines, if required, is addressed in Section 8.15.3 of the EA.
	2-F	Landowner Approval	Council will not provide landowner agreement until detailed information on land levels, footprints and access to its infrastructure proposals.	Noted. Refer to Response 1-A.

Submission	Ref	Issue	Submission	Response
	2-G	Project Approval	Council request that Project Approval be split with separate approval to be sought for activities within proposed Release Area	AGL requires approval now for resource security and project planning reasons. Therefore, a separate approval is not appropriate. The flexibility of the environmental envelope assessment approach, as outlined in Section 1.8 of the EA, allows for the future development of the urban release areas in conjunction with the proposed gas extraction of the Spring Farm and Menangle Park Project Areas. Following the assessment, appropriate conditions for the project would be administered by the DoP.
	2-H	Landscaping	The Environmental Assessment does not consider Release Area and could visually impact upon future residential properties	Refer to Response 1-A for Site Layout requirements, which includes the preparation of a Rehabilitation and Landscape Concept Plan. Sections 8.10.6, 8.15, 9.3 and 9.4 of the EA discuss visual mitigation measures. A Landscape Management Plan would be prepared (or the existing Plan updated) in respect of the proposed project to identify appropriate landscaping to be implemented at well surface locations along with a program of long-term maintenance for landscape works to minimise visual impacts on future residences in the Release Area. Screening in the form of appropriate fencing and landscaping will be implemented at well surface locations, as necessary.
	2-I	Ecology	Council consider that DECC's Threatened Biodiversity Survey and Assessment guidelines were not adhered to during the ecology study	Section 8.9 of the EA refers to the methodology undertaken for the ecological surveys following review of the existing vegetation in the study area. The Threatened Biodiversity Survey and Assessment guidelines are intended to be adapted to fit the requirements of individual animal and plant surveys by outlining field techniques and considerations, relevant legislation, and the relevant method of impact assessment for threatened biodiversity. The database research undertaken for the project identified that there were limited numbers of threatened species in the area

Submission	Ref	Issue	Submission	Response
				which resulted in a focussed survey. Additionally, the nature of the environmental envelope approach allows the final well surface location to avoid sensitive areas of vegetation. Please refer to Response 3-C for comments regarding ecology from DECC, which is the agency responsible for the administration of the TSC Act and these guidelines.
	2-J	Construction	Council would prefer AGL to import gravel or blue metal rather than shale	Noted.
	2-K		All drill cuttings should be disposed of to landfill or recycled	Options are discussed in Section 4.4.1 of the EA and will be assessed on an individual well surface location basis in consultation with landowners.
Department of Environment and Climate Change	3-A	Air Quality	"Measures must be implemented to ensure that there is no venting of coal seam methane gas during the construction and operational phases"	Sections 8.3, 9.3 and 9.4 address matters relating to air quality management procedures during construction and operational phases of the project. AGL undertakes not to vent gas during routine construction and production operations (where venting is defined as an intentional, sustained and controlled release of uncombusted gas). However, AGL cannot make such an undertaking in non-routine situations for safety reasons, such as during emergency situations, maintenance, process upsets and well commissioning to steady state flow. The above non-routine situations are not considered to be venting as they relate to short term, intermittent and infrequent events.
	3-B	Noise	"The Proponent must develop and implement a construction noise validation program to validate the predictions of the EA and demonstrate that noise from the construction phase does not generate offensive noise. The program must include details on monitoring, reporting and the identification of remedial measures that can be implemented in the event there is a discrepancy between actual and	Noted. Within the Statement of Commitments provided in Section 9.4 of the EA, AGL has already committed to the preparation a Construction Noise and Vibration Management Plan which addresses the issues raised in the submission. Refer to Sections 8.5, 9.3 and 9.4 of the EA regarding noise.

Submission	Ref	Issue	Submission	Response
			predicted performance"	
	3-C	Ecology	"The Proponent must implement mitigation measures outlined in section 8.9.6 and table 8-23 of the Environmental Assessment for the Spring Farm and Menangle Park Project Areas"	Noted
	3-D	Aboriginal Cultural Heritage	DECC do not wish to be consulted with regard to the creation of the Aboriginal Heritage Management Plan	Noted
	3-E	Floodplain Management	"The Proponent should address best floodplain risk management practice in regard to planning and design of the development. This should include clarification of the comments outlined below as well as the preparation of an appropriate Emergency Management and Flood Management Plans"	Sections 8.8, 9.3 and 9.4 of the EA address matters relating to potential flooding impacts and flood management. AGL will ensure that the update of the Flood Management Plan incorporates best floodplain risk management practice. The Flood Management Plan would be linked to the Emergency Response and Safety Plans.
	3-F	Design Flood Event	Has the choice of a 1 in 100 year design flood event been based on an appropriate flood risk assessment by the proponent taking into account the likelihood and consequences of flooding over a range of events	Refer to Response 2-B for locating wells within 1 in 100 year flood level. Sections 8.8, 9.3 and 9.4 of the EA discuss potential impacts from flooding and assign specific flood management measures. Design measures have been incorporated to ensure that in the event of flooding, operational processes would be set in place effectively isolating the meter run from the gas gathering system which is operated remotely from the gas plant control room. Warning of significant flooding events would be issued to enable operations on flood-prone land to be made secure. As stated in Section 9.4, the proponent shall prepare and implement a Flood Management Plan for wells located within the 1 in 100 year flood level to the satisfaction of the Director General. The plan shall be submitted to the Director General prior to commissioning of those wells, and shall include measures to minimise and mitigate flooding impacts associated with the project.

Submission	Ref	Issue	Submission	Response
	3-G	Flood Warning	Can adequate warning times be achieved, having regard to the time needed to mobilise and implement emergency response measures? Has the Bureau of Meteorology been consulted in regard to likely warning times related to flood predictions for mainstream Nepean River flooding?	Sections 9.3 and 9.4 of the EA address flood management measures during the construction and operational phases of the project. AGL will consult with the Bureau of Meteorology (BOM) during the preparation of the Flood Management Plan and Emergency Response Plan (ERP). The Rosalind Park Gas Plant (RPGP) control room is staffed 24 hours a day, 7 days a week and personnel are ready to implement the ERP with the assistance of other on-call staff.
	3-H	Flood Evacuation	Have adequate effective and safe rising grade flood evacuation egress routes been identified from any potentially occupied areas of the site to high ground above the Probable Maximum Flood Level	Sections 9.3 and 9.4 of the EA address flood management measures during the construction and operational phases of the project. AGL will ensure these issues are considered in preparation of the Flood Management Plan for the Camden Gas Project.
	3-I	Flood Impacts	Floodway areas where high flows occur can be particularly hazardous. What measures, including those for anchorage and/or anti-scour, are proposed to adequately deal with these impacts?	Refer to Response 3-H
Department of Primary Industries	4-A	Petroleum Production Lease (PPL)	All surface impacting activities linked to production of petroleum should be confined to PPL4 until such time as a new title is granted to cover the area of the Menangle Park extension that lies outside PPL4. A new title will be required for any production activities outside the boundaries of the existing PPL	Section 5.1 of the EA states that AGL proposes to construct and operate the works within Stage 2 of the CGP, including Spring Farm and Menangle Park in accordance with its obligations under the terms and conditions of Petroleum Production Leases (PPL) issued to AGL pursuant to the *NSW Petroleum (Onshore) Act 1991*. The works associated with the Project Application for the Menangle Park proposal that are located outside PPL4 are located within PPL5.
	4-B	Design	The design, construction and installation of all wellhead devices to link the wells to the existing infrastructure must meet all appropriate standards	Section 4.4 of the EA outlines the construction and operation of the project. AGL would design, construct and operate in accordance with the requirements of appropriate Australian Standards including *AS 3723-1989 Installation and Maintenance of Plastic Pipe Systems for Gas*.

Submission	Ref	Issue	Submission	Response
	4-C	Safety	A Safety Management Plan is in place for current operations. This plan will have to be varied to allow for the proposed expansion of the project	Noted
	4-D	PPOP	Activities cannot commence until a PPOP has been produced and accepted by DPI (including management of stockpiled topsoils)	Noted
	4-E	In-field compressions facilities	AGL to notify DPI prior to construction of any in field compression facilities	Noted
NSW Heritage Council	5-A	Siting	The pipeline alignment should be modified to avoid any adverse impacts on archaeological sites in proximity of pipelines and access roads between well locations SF17-10, MP02-03 and MP19-11	As discussed in Sections 8.12.5 of the EA, the proposed project has been designed and planned with a degree of flexibility in order to deal with future issues as they arise. With respect to Menangle Park, there are options for linking well surface locations that do not require the underbore of the Upper Canal System and the impacts will be considered as part of the assessment of the design and feasibility of all options for gas gathering lines to connect MP02, MP03 and MP04. In summary, and as stated in Section 8.12.6 of the EA, to prevent disturbance to the heritage items, the location of wells and infrastructure would be selected in order to avoid the identified heritage items and significant curtilage wherever possible.
	5-B	Siting	The alignment of the proposed well location MP11 must be modified to avoid any adverse visual impact upon the Menangle Park SHR item (Glenlee Estate) with respect to the important visual connection to Glenlee, the Nepean River and the main Camden Park ridgeline	Refer to Response 1-A regarding site layout and the development of a Rehabilitation and Landscape Concept Plan. As stated in Section 8.12.5 of the EA, Glenlee is located approximately 500m from the proposed location of well surface location MP11 and may have potential views from the southwestern side of the building of works at MP11. For later stages of the development following construction, visual impacts will be minimised from mitigation measures such as the use of appropriate fencing for the enclosure and vegetation planting around the enclosure in order to provide screening of the

Submission	Ref	Issue	Submission	Response
				well development. With regard to construction activities to the gas gathering system, the activities will be temporary and will move at a rate of approximately 300 to 400m per day depending on terrain. In addition, following completion of construction, the land would be returned to its original state or better and therefore, impacts will be temporary and short term.
	5-C	Siting	The alignment of the proposed well location MP06 must be modified so it does not interrupt panoramic view from western façade of Glenlee homestead and well MP11	Refer to Response 1-A for site layout and regarding the development of a Rehabilitation and Landscape Concept Plan. As stated in Section 8.10.5 of the EA, it was considered that Glenlee House would have limited views due to the significant distance from the site and olive grove that surrounds Glenlee House. Additionally, the implementation of site specific mitigation measures would ensure the minimisation of potential visual impacts to Glenlee House.
	5-D	Landscape	Landscape Management Plan must include a visibility impact assessment and site specific management measures for MP06 and MP11	Noted. This has been addressed within the EA.
	5-E	Heritage values	Environmental assessments must be carried out on the heritage values of proposed SHR nominations where there is likely to be visual and other impacts from well construction and infrastructure	Section 8.12 of the EA has considered items on the Register of National Estate, the State Heritage Inventory, Campbelltown LEP 2002, Camden LEP No.121 (Spring Farm), Camden LEP No. 46, Camden LEP No.47 and Wollondilly LEP 1991. Future proposals for nominations are unknown. The assessment concluded for the Spring Farm and Menangle Park Project Areas that provided the recommended mitigation measures are implemented, significant adverse environmental impacts on non-indigenous heritage items resulting from the proposed development are not anticipated.

Submission	Ref	Issue	Submission	Response
Integral Energy	6-A	Hazard and Risk	Potentially hazardous voltages from the siting of MP04 as it will affect Integral's outgoing circuits from proposed substation.	Sections 8.2, 9.3 and 9.4 of the EA discuss the management measures associated with hazard and risk. During the determination of the final location within the environmental envelope of MP04, the potential operational hazard and risk impacts will be assessed. This assessment would incorporate information on the Earth Potential Rise (EPR) resulting from the design of the Integral Energy and TransGrid earthing systems when that design is available.
Department of Planning	7-A	Major Hazards Unit	Demonstrate that DIPNR Locational Guidelines have been adopted	Noted. The report will be updated.
	7-B		Provide the maximum distance between two wells in a compound	Noted. The report will be updated.
	7-C		Confirm that a well footprint will be in accordance with Figure 4.5 even if less than 6 wells are established	Noted. The report will be updated.
	7-D		Confirm that all wells will be automatic control	Noted. The report will be updated.
	7-E		Confirm that well equipment configuration will be as provided in the QRA	Noted. The report will be updated.
	7-F		Confirm separate distance from fenced area	Noted. The report will be updated.
	7-G		Clarify reference to Figure 4.10	Noted. The report will be updated.
	7-H		During drilling, safeguards should be developed to protect already drilled wells from activities relating to drilling of a new well at same surface location	Noted. The report will be updated.
Mine Subsidence Board	8-A	General	Support the proposal	Noted

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BHP Billiton	9-A	Sterilisation of coal	Concerned regarding potential damage to the seam and adjacent roof and floor associated with stimulation techniques	This is not considered to be a planning issue. AGL will consult separately with the DPI and BHP Billiton on these technical issues. The responses to this submission that follow indicate that the matters raised can be managed in accordance with current requirements. The CGP currently operates in accordance with DPI requirements and the conditions of existing titles. The stimulation techniques proposed in EA are expected to have minimal impact on future mining activities. These findings are supported within Australian Coal Association Research Program (ACARP) Project C14011 Hydraulic Fracturing for Gas Recovery and its Impact on Subsequent Coal Mining by CSIRO Petroleum and SCT Operations Pty Ltd.
	9-B		Concerned with plugging and abandonment. BHP request that AGL remove all steel casing to facilitate future coal extraction	This is not considered to be a planning issue. AGL will consult separately with the DPI and BHP Billiton on these technical issues. The CGP currently operates in accordance with DPI requirements and the conditions of existing titles. The requested removal of steel casing is already a condition of all existing PPLs held by the proponent.
	9-C	Drilling	AGL to provide information on the accurate location of the inseam portion of the well	This is not considered to be a planning issue. AGL will consult separately with the DPI and BHP Billiton on these technical issues. As part of the existing CGP well completion reporting requirements, the proponent provides surface and down hole survey information to the DPI.
	9-D		AGL to provide methods for sealing of the inseam section of the well	This is not considered to be a planning issue. AGL will consult separately with the DPI and BHP Billiton on these technical issues. As part of the existing plug and abandonment (P&A) safety requirements of the DPI, the proponent provides information relating to the sealing of the inseam section of the well.

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	9-E		AGL to provide information on whether the well will fill with water or gas if sealing is not possible	This is not considered to be a planning issue. AGL will consult separately with the DPI and BHP Billiton on these technical issues. AGL propose to fill all SIS wells with produced water prior to cementing and all sealing of wells is completed in accordance with DPI requirements.
	9-F		AGL to provide information on residual conditions for mining at the end of the operational life of the wells (such as the potential need for re-injection of water to assist in dust suppression and geotechnical stability of the roof and floor strata)	This is not considered to be a planning issue. AGL will consult separately with the DPI and BHP Billiton on these technical issues. AGL operates in accordance with DPI requirements and the conditions of existing titles. Pre-mining gas drainage was found to be an advantage by ACARP Project C14011 (see response to item 9A for full report details).
	9-G		AGL to provide information on methods for determining the effectiveness of concrete annulus between the casing and the borehole wall.	This is not considered to be a planning issue. AGL will consult separately with the DPI and BHP Billiton on these technical issues. All technical parameters are logged including density, pressure and volume as part of the proponent's P&A reporting requirements.
	9-H		AGL to provide information on the effectiveness and extent of gas drainage at the end of the operational life of the wells	This is not considered to be a planning issue. AGL will consult separately with the DPI and BHP Billiton on these technical issues. AGL currently provides information to the DPI regarding volumes of gas extracted on a commercial in confidence basis.
Roads and Traffic Authority	10-A	Alignment under a State Road or Freeway	Requirement for a section 138 permit for installation of a utility under a State Road or a Freeway including the road reserve	Noted.
	10-B	Design measures for installation of a utility	The utility shall be installed a minimum of 1.2 metres below the lowest point of the road formation, 300mm below the invert of the table drains and 900mm below the natural surface elsewhere in the road	Noted. As stated in Section 4.4.3 of the EA, the proposed works will incorporate project design measures to avoid impacts on other infrastructure in the area. AGL will consult with the RTA and relevant Councils during the

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			reserve. All work under the road carriageway and median shall be constructed in such a manner as to be maintenance free. The excavation of thrust pits for underboring must be outside the freeway reserve with no access to the freeway reserve permitted for construction or maintenance. The development will also need an easement for these crossings.	detailed design phase. The detailed design will incorporate the relevant design standards.
	10-C	Indemnification	The RTA shall be indemnified by the Utility Owner against any such suit, action, claim etc which may arise from the presence of the utility within the RTA's road or median or generally within the road boundaries	Noted.
	10-D	Indemnification	The RTA shall be indemnified by the Utility Owner from and against all actions, suits, proceedings, losses, costs, damages, charges, claims and demands in any way arising from the proposed work	Noted.
	10-E	Construction Access	No direct access to the F5 or Camden Bypass for any construction facilities or future maintenance of pipeline or wells	Noted.
Sydney Catchment Authority	11-A	Access to MP04	No objection but would prefer access via Transgrid land. The Upper Canal option would not be an all weather access without some road upgrade works that may need to be done by AGL	Noted.
	11-B	Underbore for MP02, MP03 and MP04	SCA requests more information relating to the design and feasibility of all options for gas gathering lines to connect gas wells MP02, MP03 and MP04 once Concept Approval is granted. SCA's	Noted. As discussed in Sections 8.12.5 of the EA, the proposed project has been designed and planned with a degree of flexibility in order to deal with future issues as they arise. With respect to Menangle

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			preference is the consideration of options that do not require the underbore of the Upper Canal	Park, there are options for linking well surface locations that do not require the underbore of the Upper Canal System and the impacts will be considered as part of the assessment of the design and feasibility of all options for gas gathering lines to connect MP02, MP03 and MP04. AGL will consult with SCA regarding installation of gas gathering lines.
	11-C	Detailed Design	Consultation with SCA with regard to details on access, well surface location siting, further studies regarding vibration impacts to Upper Canal as well as preparation of any environmental management plans that relates to the Upper Canal or otherwise addresses matters that could impact on the Upper Canal	Noted.
Transgrid	12-A	Land Use	Transgrid consider the proposal of MP04 as incompatible with the nearby substation as electricity distribution is core business of the site (MP04)	As stated in Section 8.1 of the EA, the proposal is a transient use of land to facilitate the extraction of a State significant resource. Land surrounding well surface locations would not be sterilised as a result of the proposed development. The measures proposed within the EA to manage the environmental impacts of the proposed development will assist in managing land use impacts. The placement of MP04 within a portion of the substation site not planned for use for electricity purposes is not considered an incompatible land use. The works will be designed within the envelope in conjunction with relevant safety controls and therefore, should not interfere in any material way with the economic use of the land. Additionally, the proposal stands to provide significant benefit in terms of the provision of a vital source of energy to meet projected future demand as well as allowing for the future urban (residential, commercial and industrial) development of the area.

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	12-B	Electricity Safety	During the construction of the substation, Transgrid may need to extend the substation earth grid outside the fenced area and may impact upon safe operation of AGL well.	Sections 8.2, 9.3 and 9.4 of the EA discuss the management measures associated with hazard and risk. During the determination of the final location within the environmental envelope of MP04, the potential operational hazard and risk impacts will be assessed. This assessment would incorporate information on the Earth Potential Rise (EPR) resulting from the design of the TransGrid earthing systems. Refer to Response 12-A.
	12-C	Economic Diminution	It is considered that the siting of MP04 will affect Integral's design and distribution of electricity which may impact TransGrid's business of transmission and sale of electricity to Integral.	Please refer to Response 12-A relating to land use compatibility and the siting of MP04
	12-D	Cumberland Plain Woodland	It is noted that the siting of MP04 is on land allocated by Transgrid for Cumberland Plain Woodland regeneration	AGL has agreed to undertake the Cumberland Plain Woodland regeneration directly affected by the siting of MP04.
	12-E	Aboriginal Heritage	Transgrid has identified a number of sites that could potentially affect the siting of MP4	As stated in Section 8.11 of the EA, potential impacts would minimised through the implementation of environmental safeguards and management options for Aboriginal heritage sites and artefacts. Upon implementation of safeguards and management measures identified, the impacts associated with Aboriginal heritage are not expected to represent a significant environmental impact.
Private Submission	13-A	Hazard and Risk	Safety issues to their property	The pipeline route is one option currently considered and would require the approval of the landowner prior to works being undertaken. Sections 8.2, 9.3 and 9.4 of the EA discuss the potential issues related to hazard and risk as a result of the proposed project. An updated quantitative risk assessment was undertaken for the project and concluded that with the implementation of identified mitigation measures, the potential impacts of the proposed wells in terms of hazard and risk to both human health and the

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				environment are well known and are expected to be minimal and manageable.
	13-B	Devaluation of property	Presence of infrastructure would devalue property	This is not considered to be a planning issue.
Landcom	14-A	Surface and groundwater	The assessment discusses the potential to have centrally located water collection points presumably with associated tank storage infrastructure but does not identify the locations or the potential impact on the size and configuration of the well compound.	Noted. This is to be determined at a later date during the detailed design phase and would fit within assessed areas.
	14-B		The assessment does not consider the potential for the drilling program to create perforations through the aquibar strata and result in the migration and drainage of upper water table levels over time.	Disagree. As stated in Section 8.8 of EA, the use of a pressure-related steel casing would provide assurance that communication between aquifers is unlikely as a result of operations. All wells are cased-off and cemented in accordance with the requirements of the DPI. The steel casing ensures that aquifers within the other geological formations would thus remain isolated and groundwater cross-contamination would not be likely to occur, which is in accordance with the NSW Government requirements. The existing CGP operations have design and management measures in place to ensure the integrity of aquifers and aquibar strata.
	14-C	Noise	The EA appears to address construction noise impacts in some detail while being dismissive of maintenance related noise impacts, in particular work over impacts.	Disagree. Please refer to Response 1-C and 3-B from Campbelltown City Council and DECC respectively. Additionally, each of the worst-case scenarios assessed in the Operational Noise Impact Assessment included noise generated from work-over activities.

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	14-D		The EA ignores the potentially largest impact residential amenity being the cumulative impact of the work over operations during the operational phase of the project and post residential land development.	Disagree. Please refer to Response 14-C. Additionally, as stated in Section 8.5.5 of the EA, the design of the project has included a two stage process whereby design measures will be incorporated into the well heads before the wells become operational in order to achieve compliance with anticipated noise criteria, as set out in the worst case scenarios assessed within the Noise Impact Assessment. The ongoing community consultation through the Camden Gas Project Community Consultative Committee will assist in identifying concerns that arise during production and a 24 hour telephone hotline is also provided for reporting complaints or emergencies, which informs project management, the continuous improvement program and provides ongoing monitoring of operational issues. Complaints are recorded and immediately addressed.
	14-E	Air quality	Dust and odour impacts during maintenance activities and measures to mitigate are not adequately addressed.	Disagree. As stated in Section 8.3.2 of the EA, dust and odour generation has been assessed. Emissions have the potential to occur through maintenance and work over activities. However, these impacts are infrequent, minor and occur only for short periods of time. Refer to Response 14-D in relation to community consultation.
	14-F	Flooding	The assessment fails to consider the impact of, and risks associated with, locating well sites within potentially high hazard flood zones (such as MP11).	Disagree. Please refer to Responses 3-E, 3-F, 3-G, 3-H and 3-I.
	14-G	Hazards	The risk assessment considers generic risks associated with the infrastructure but does not address site specific risks. This includes potential flood impact/damage, cumulative noise impacts, random vandalism risk associated with the change in	Disagree. Please refer to Responses 7-A, 7-B, 7-C, 7-D, 7-E, 7-F, 7-G and 7-H.

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			environment from semi-rural to urban and consequence of rupturing a gas gathering line during residential development construction activities.	
	14-H	Flora and Fauna	The EA is dismissive of any potential impact based upon the generic statement that final well site locations will be chosen so as to avoid existing vegetation. Given the defined assessment areas it is considered that the proponent could undertake localised mapping and nominate potential well site envelopes as part of the approval process. This would provide greater confidence for the landholder with respect to possible clearing of land required to accommodate the infrastructure.	Disagree. As stated in Section 8.9.5 of the EA, potential impacts in the proposed well surface locations are likely to be minimal as the final well locations will be chosen to avoid significant areas of vegetation and would be located in areas that are already cleared and degraded wherever possible. Please refer to Response 1-A regarding site layout requirements which include a Rehabilitation and Landscape Concept Plan.
	14-I		The EA appears to ignore the revegetation strategy established as part of the Spring Farm rezoning process and recorded with DECC as deemed Threatened Species Act concurrence for the development	Disagree. Please refer to Response 1-A regarding site layout including a Rehabilitation and Landscape Concept Plan.
	14-J	Rehabilitation and Final Landform	The EA proposes minimal revegetation and rehabilitation commitments and provides no indication of the measures being offered to secure the resources required to affect the rehabilitation upon closure of the well head sites.	Disagree. Please refer to Response 1-A regarding site layout including a Rehabilitation and Landscape Concept Plan.
	14-K		Rehabilitation should be consistent with the adopted open space management plan and landscape proposals of the developed site as this is the condition the land will generally be in at the time of closure. Rehabilitation should be consistent with adjoining land use standards at the time of closure not at the time of commencement.	Noted. Please refer to Response 1-A regarding site layout including a Rehabilitation and Landscape Concept Plan.

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	14-L		The EA does not address the potential for contamination of the land due to the activities over the life of the well and does not provide any commitments as to the remediation of the land upon the closure of the well site(s).	Disagree. Sections 8.4 and 8.15 assess contamination and rehabilitation. Please refer to Response 1-A regarding site layout including a Rehabilitation and Landscape Concept Plan.
	14-M	Waste	The waste strategy refers to the removal of domestic type of waste from site. The strategy needs to ensure the removal of all construction and industrial type waste off site and disposal to appropriate licensed waste recycling and or landfill facilities as appropriate.	Noted.
	14-N		There would be a benefit in the proponent committing to a target for waste recycling / reuse as an outcome of the proposal.	Noted.
	14-O	Visual	The EA considers visual impacts in a general context and discounts the severity of impact generally on the basis of the size of the proposed facilities.	Disagree. Section 8.10 of the EA addresses the visual impact resulting from the various stages of the project including the size of the proposed facilities.
	14-P		Many of the wells are located within proposed regeneration areas and at least one (SF17) is located on one of the most elevated positions within the development area. The well sites occupy an area of 400m2 and require an area of 2000m2 to be generally clear of vegetation (other than grasses) to allow for periodic maintenance access. This localised clear zone within an urban bushland park with hard infrastructure located within it can hardly be considered visually non-prominent.	Disagree. As stated in Section 8.9.5 of the EA, within the construction footprint mature trees would not be felled. The proposed SF17 surface location has been designed to be situated along the verge of the proposed arterial road. Based on the Gundungurra Reserve Concept Masterplan, Council intend to construct a car park in the immediate vicinity of SF17 which could be built from the construction compound of the well surface location. It is considered that this potential outcome would ensure land use compatibility between the car park and the well surface location.

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	14-Q	Consultation	Landcom has had limited contact by HLA in the preparation of the EA. The extent of consultation has been one letter with limited detail or information attached. The level of consultation given the potential impact on the development proposals for the land has been less than satisfactory and raises considerable concern within Landcom as to the intention of the proponent given this proposal is unwanted and being imposed upon the land.	Landcom was consulted on the proposal extensively during the design of the Project and prior to that consultation was ongoing back as far as five years. During the preparation of the EA Landcom was consulted in accordance with the requirements of the NSW Government.
	14-R	SF04	Reject location of SF04 on grounds of reasonable and unnecessary conflicts with the future use of the land and impacts on the orderly and economic use of the land. Specifically, risk from proximity to regional high voltage electricity lines, location of gas gathering lines below future residential lots, construction of access road across future residential lots, impact on ability to recreate Elderslie Banksia Scrub (EBS) and impact on orderly and economic use of the land.	As stated in **Section 2.1** of this report, the environmental envelope approach undertaken for SF04 allows flexibility for the siting of the well surface location whilst ensuring compatibility with future land uses. The works will be designed within the envelope in conjunction with any LEP or layout for the area and therefore, should not interfere in any material way with the economic use of the land. To recognise the constraints of existing and future power lines the Proponent has proposed two alternatives, SF04 and SF04A, for a single well surface location. Therefore there is sufficient flexibility to allow both the proposed well surface location and the urban development to coexist. Refer to Response 12-A regarding proximity to high voltage electricity. Section 4.4.1 of the EA refers to construction of access roads. It states that access to well surface locations will be along existing public roads and private tracks within the relevant property boundary. Where practicable, existing road and track access will be utilised to minimise construction activity and environmental disturbance.
				As stated in Section 8.13 of the EA, the proponent has sought to locate the proposed wells close to proposed arterial roads in order

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				to minimise future potential impacts to future development in the area. However, as the urban development proceeds within the locality and other new roads are provided, requirements for, and location of access roads may vary. The proponent will work with this to adapt to the evolving nature of road development and access provision in the locality. As stated in Section 4.4.1, ecological investigations identified that SF04 was in proximity to replanted EBS, therefore SF04A was developed as an alternative well surface location.
	14-S	SF04A	Landcom rejects the location of the gas well site on their land. An alternative location is shown in Figure 4 for SF04A. Landcom highlights similar issues as per SF04. Landcom recommends that the proponent is to provide Landcom with plans of the proposed location for SF04A at a reasonable scale and to work with Landcom to determine the location of least potential impact prior to the granting of the Project Approval for the well head site.	Refer to Response 1-A regarding site layout and submission to Director General and access road requirements. Refer to Response 14-R regarding environmental envelope approach which addresses concern regarding the location of the water main. Landcom's suggested alternative location for SF04A (see Figure 4 of their submission) is within the environmental envelope utilised for the EA and forms part of the Project Application. Landcom's suggested alternative location for SF04A (see Figure 4 of their submission) is within the environmental envelope utilised for the EA and therefore forms part of the Project Application. The Proponent has been advised that the urban layout for this area may be redesigned, so the access may need to change. The environmental envelope and the two alternatives for a single well surface location (Refer to Response 14-R) allow the flexibility required in this area.
	14-T	SF17	Landcom raises concerns with potential conflict with the construction of the trunk water main that is to service Spring Farm Release Area, potential conflict with earthworks associated with Spring Farm arterial and incompatibility with the proposed open space use and regeneration of the land for urban bushland	Refer to Response 14-R regarding environmental envelope approach which ensures that there is flexibility to deal with the proposed water main. The proposed SF17 surface location has been designed to be situated along the verge of the proposed arterial road. Based on the Gundungurra Reserve Concept Masterplan, Council intend to

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			conservation purposes.	construct a car park in the immediate vicinity of SF17 which could be built from the construction compound of the well surface location. It is considered that this potential outcome would ensure land use compatibility between the car park and the well surface location.
	14-U	Access Road across Spring Farm	Landcom reject proposed road across landholding, vehicles to use existing access roads and public road network between sites. Landcom objects to the creation of a private access road network across its land purely for the convenience of the proponent.	Disagree. Refer to Response 1-A regarding site layout and submission to Director General and access road requirements. No private access road network has been proposed.
	14-V	Gas gathering lines in Spring Farm	Landcom is preparing to undertake bulk earthworks for a proposed arterial road and to develop land for residential purposes well within the expected lifespan of the proposed activity. Locating the gas gathering line in this location will impact on the ability to economically undertake those earthworks.	As referenced in **Section 2** of this report, the environmental envelope assessment approach allows gas gathering lines to move 25 metres either side of the proposed route and the routes have been designed in accordance with the LEP layout where possible based on available information. Well design and construction methods also allow for a single change in levels as may be required in relation to future development of roads and possible sand extraction in the Spring Farm and Menangle Park areas. This means that there is flexibility and an ability to deal with future issues as they arise. As stated in Section 4.4.2 of the EA, the gas gathering system will be buried to a minimum depth of 750mm and up to 1,200mm in some areas, including unsealed and sealed crossings, and creek and drainage line crossings. The gas gathering lines would be subject to the future land use provisions. The environmental envelope allows these elements to be considered and the gas gathering line would be constructed accordingly. Should removal of the gas gathering system be required at the closure and final rehabilitation stage, the excavated trench would be backfilled and rehabilitated, including contouring and revegetating.

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	14-W		The proponent to relocate the gas gathering line from SF04 to a location that does not cross future residential land and or commit to relocate the gas gathering line at their cost should its location be found to be incompatible with proposed land use.	Please refer to Response 14-V regarding envelope assessment approach for gas gathering lines. Note that SF04 and SF04A are two alternatives for a single well surface location to recognise advice to the Proponent that the existing LEP and layout in this area may change. Therefore based on the envelope assessment and the alternatives for the SF04 surface location, there is sufficient flexibility to ensure that the gathering would not cross future residential land.
	14-X	MP02	MP02 is proposed to be sited in the path of the regional cycleway, a local access way and a water quality pond on the perimeter of the residential subdivision. Two alternative locations for MP02 are indicated on Figure 9. The preferred alternative is to the south of the Landcom holding on the adjoining Department of Planning land (Lot 9 DP 253700). This will ensure the infrastructure is clear of future development and associated urban infrastructure and does not impact on the orderly delivery of the development and associated open space land uses.	Refer to Response 1-A regarding site layout and submission to Director General. Final site layout would consider Regional Cycleway Plans and Development Plans. Refer to Response 14-R regarding environmental envelope approach. Landcom's suggested alternative location for MP02 (see Figure 9 of their submission) is within the environmental envelope utilised for the EA and forms part of the Project Application.
	14-Y	MP03	Landcom rejects the location of MP03 on the basis that it impacts on the orderly and economic use of the land. An alternative location is shown on Figure 11 and would locate the well as close as practical to lower corner of the allotment. This would ensure the well infrastructure minimise its impact on the proposed use of land for residential purposes.	Refer to Response 1-A regarding site layout and submission to Director General. Final site layout would consider Regional Cycleway Plans and Development Plans. Refer to Response 14-R regarding environmental envelope approach. Landcom's suggested alternative location for MP03 (see Figure 11 of their submission) is within the environmental envelope utilised for the EA and forms part of the Project Application.
	14-Z	Gas gathering line linking MP02 and MP03	The proposed gas gathering line linking MP02 and MP03 passes through the water quality pond, interferes with the regional cycleway route and passes through residential allotments.	Please refer to Response 14-V regarding envelope assessment approach for gas gathering lines. Location of gas gathering lines would consider Regional Cycleway plans and development plans and be subject to consultation with

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				the landowner.
	14-AA	MP06	This well site is located on land that is proposed to be rezoned for employment land uses. Landcom object to the location of the well site due to its impact on the orderly and economic use of the land. An alternative location for the gas well site is indicated in Figure 13. The alternative is to the west of the proposed location within an area anticipated to be utilised as open space corridor.	Refer to Response 1-A regarding site layout and submission to Director General. Refer to Response 14-R regarding environmental envelope approach. Landcom's suggested alternative location for MP06 (see Figure 13 of their submission) is within the environmental envelope utilised for the EA and forms part of the Project Application. Note that the Proponent has not been provided with the Structure Plan referred to by Landcom.
	14-BB	MP11	Landcom rejects the location of MP11 on the basis that it is located in a riparian corridor and will impact upon the rehabilitation of the creek line as part of the development and that it is located within a high hazard zone within the floodway. Landcom believes that the gas resource in the vicinity of MP11 should be accessed from an alternative location using SIS technology.	Refer to Response 1-A regarding site layout and submission to Director General. Refer to Response 14-R regarding environmental envelope approach. Please refer to Responses 3-E, 3-F, 3-G, 3-H and 3-I regarding flooding issues. The proposed well surface location is sited 40 metres away from the Creek, to avoid the riparian zone in line with DWE recommendations. Section 8.9.4 Table 8-22 details the results of the ecological surveys which indicate the majority of the envelope has been cleared and is highly degraded and no mitigation measures were recommended in Section 8.9.6. Note that the Proponent has not been provided with the Structure Plan referred to by Landcom.
	14-CC	MP19	Landcom objects to the location of this well site on the land on the basis that it impacts on the proposed development road layout and proposed residential lot layout. There is no viable alternative location within the vicinity of the identified site that will not	Refer to Response 1-A regarding site layout and submission to Director General. Refer to Response 14-R regarding environmental envelope approach. Note that the Proponent has not been provided with the Structure

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			impact on the proposed residential lot layout and the construction of MP19 will prevent the orderly and economic development of the land. Landcom believes that the gas resource in the vicinity of MP19 should be accessed from an alternative location using SIS technology.	Plan referred to by Landcom.
	14-DD	MP21	Landcom notes that MP21 could be relocated to sit wholly within the proposed open space reserve opposite the residential land as indicated in Figure 16. Whilst the alternative location will enable the construction of the local road, it will result in a direct visual impact on the residential allotments and impact on the enjoyment and usability of the future open space area, and is not considered a good outcome for the future urban development at Menangle Park.	Refer to Response 1-A regarding site layout and submission to Director General. Refer to Response 14-R regarding environmental envelope approach. Landcom's suggested alternative location for MP21 (see Figure 16 of their submission) is within the environmental envelope utilised for the EA and forms part of the Project Application. Note that the Proponent has not been provided with the Structure Plan referred to by Landcom.
	14-EE		Landcom is currently preparing environmental assessment documentation to support an application to gain approval for sand extraction in the vicinity of the proposed MP21. The sand extraction project will access an important local resource and does not compromise the future urban expansion of the land. However, the siting of MP21 is likely to restrict the ability to access the sand resource.	Refer to Response 1-A regarding site layout and submission to Director General. Refer to Response 14-R regarding environmental envelope approach. Sections 8.1.3 and 8.16.2 of the EA discuss the cumulative impacts with other projects and specifically references possible sand extraction within the Stage 2 Concept Area. The proposed MP21 is located 40 metres from Howes Creek to consider the sand resources and the riparian zone of the Creek, near the periphery of the developable land. The envelope approach allows proposed well surface locations to be moved as part of the assessment to a more suitable location with the envelope area. Well design and construction methods also allow for a single change in levels as may be required in relation to future development of roads and possible sand extraction. The

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				environmental envelope assessment approach also allows gas gathering lines to move 25 metres either side of proposed gas gathering lines. Note that the Proponent has not been provided the Structure Plan referred to by Landcom.
	14-FF		The location for MP22 identified by the proponent is within the potential earthworks zone for the on ramp (Figure 17). A possible alternate location for the well site indicated on Figure 17 to the north west of the current well site location.	Refer to Response 1-A regarding site layout and submission to Director General Refer to Response 14-R regarding environmental envelope approach. Refer to Response 14-EE relocation of MP21. Landcom's suggested alternative location for MP22 (see Figure 17 of their submission) is within the environmental envelope utilised for the EA and forms part of the Project Application.
	14-GG	MP23	The well site MP23 is located in a potential open space area adjacent to the M5 freeway corridor (Figures 18 and 19). This location is likely to be generally clear of any residential development. The final well site location will need to be sensitive to any proposals for the rehabilitation of the creek line riparian corridor and the visual prominence of the site from the M5 freeway as well as any freeway noise abatement measures that may be required.	Refer to Response 1-A regarding site layout and submission to Director General as well as Rehabilitation and Landscape Concept Plan. Refer to Response 14-R regarding environmental envelope approach.
	14-HH	Menangle Park access roads	The proposed access roads not be approved and the gas infrastructure be access by a combination of a single access route and the public road network.	Refer to Response 14-R regarding environmental envelope approach and access road assessment.
	14-II	Gas Gathering Lines	Landcom objects to the proposed gas gathering line network on the basis that the land will be developed for residential uses within the life span of the gas infrastructure and the presence of gas gathering lines in their current proposed configuration will	Please refer to Response 14-V regarding envelope assessment approach for gas gathering lines.

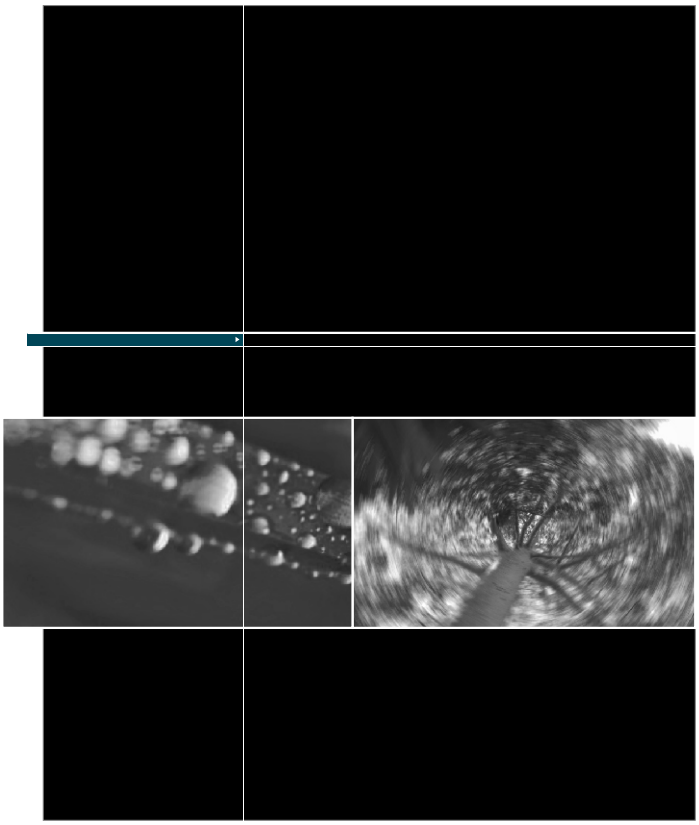
Submission	Ref	Issue	Submission	Response
			prevent the orderly and economic use of the land.	
Department of Water and Energy	15-A	Siting of Well Surface Locations and associated infrastructure	MP11, MP19, MP21 and MP22 are located near the riparian corridor of M3c watercourse while MP23 is proposed to be located in close proximity to M4 watercourse. The M3c and M4 watercourses are categorised as Category 1 and Category 2 watercourses respectively. All works associated with the CGP (with the exception of crossings) should be located outside the Category 1 and Category 2 riparian corridor width requirements.	As stated in Section 8.8.2 of the EA, well surface locations would be situated at a minimum of 40 m from creeks. In any event, the flexibility of the environmental envelope would enable the riparian corridor requirements to be considered in the siting of the final well surface location. Additionally, Section 5.2.2 of the EA states that certain works for the installation of gas gathering lines may be located within 40 m of the Nepean River and/or its tributaries. Notwithstanding the allowance of the flexibility of siting the gas gathering line within the assessment corridor, it is considered that the installation of the gas gathering lines would not inhibit the objectives of the riparian corridor.

Table 3: Summary of Issues for Concept Approval

Submission	Ref	Issue	Details	Response
Katrina Hobhouse (Mt Gillead)	15-A	Historic Heritage	State that no siting of wells or roads should occur on the Mt Gilead property	The Concept Plan represents a strategic overview of future works likely within the Stage 2 area. This approach is intended to give agencies and the community an understanding of where the future works may occur, whilst providing the flexibility for the Proponent to determine precise locations subject to future production data, geology, and gas reservoir engineering and in consultation with landowners. The assessment of environmental effects associated with the Concept Plan is based on a more strategic approach to assessment which includes: • Utilising existing and/or GIS information to identify environmental constraints; • Developing guiding principles for the location of wells; • Undertaking an environmental assessment based on a description of the activities proposed, and, where relevant, assessment of surface disturbance based on a defined footprint; and • Identifying appropriate management measures to be considered in future Environmental Assessments for each activity based on locational scenarios. In the event Concept Approval is granted for Stage 2, a greater level of detail would be submitted with a subsequent Project Application(s) (with the exception of Spring Farm and Menangle Park for which detail is included in this EA as part of the concurrent Project approval application) for areas which may include Mt Gillead.

Submission	Ref	Issue	Details	Response
	15-B	Agriculture	Potential impact to agricultural nature of the property due to noisy industry	Noted. Refer to Response 15-A regarding the nature of the Concept Plan with respect to environmental assessment for future Project Application(s).
	15-C	Future Urban Release	Presence of urban development and wells would detract from quality and quantity of development of Mt Gillead.	Noted. Refer to Response 15-A regarding the nature of the Concept Plan with respect to environmental assessment for future Project Application(s).
	15-D	Salinity	Menangle Creek has developed a salinity problem due to wells sunk on Rosalind Park	AGL disagrees with this comment. In November 2006, a DECC officer inspected Menangle Creek with both AGL and the complainant. Water samples were collected for analysis and a report presented to Macoun Environmental and Department of Planning. The report concluded that the inspections of AGL well sites RP6, RP7 and RP11 adjacent Menangle Creek noted no water discharge and no evidence of any overflows in the immediate vicinity around the well or tank. Therefore DECC proposed no further action on this matter.
Macoun Environmental	16-A	Mt Gilead layout	Any updated layout should contain no bigger in size and the number of wells on Mount Gillead is to be reduced in number	Noted. Refer to Response 15-A regarding the nature of the Concept Plan with respect to environmental assessment for future Project Application(s).
	16-B	Future Urban Release	The potential impacts to Mount Gillead future urban development potential must be identified	Noted. Refer to Response 15-A regarding the nature of the Concept Plan with respect to environmental assessment for future Project Application(s).

Submission	Ref	Issue	Details	Response
	16-C	Heritage	The potential impacts to heritage of Mount Gillead must be identified	Noted. Refer to Response 15-A regarding the nature of the Concept Plan with respect to environmental assessment for future Project Application(s).
	16-D	Construction	Issues relating to well location and drill and frac water management	Noted. Refer to Response 15-A regarding the nature of the Concept Plan with respect to environmental assessment for future Project Application(s).
	16-E	Environmental Issues	More environmental impact information is required for Mount Gillead on air, water, soils and geology, noise and vibration, hazard and risk, biological environment, heritage and visual	Refer to Response 15-A regarding the nature of the Concept Plan with respect to environmental assessment for future Project Application(s).



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