

Soil and Water Management Sub Plan

Camden Gas Project
August 2020





Document Status

Document status	Date	Prepared by	Checked by	Approved by	Comments
Rev 1	October 2011	EMGA Mitchell McLennan	A. Clifton	D. Kelly	
Rev 2	July 2012	EMGA Mitchell McLennan	A. Clifton	M. Roy	
Rev 3	April 2014	URS Australia Pty Ltd	A. Clifton	D. Chia	
Rev 4	May 2015	AGL Upstream Investments Pty Ltd	A. Clifton	K. Franke	
Rev 5	May 2016	AGL Upstream Investments Pty Ltd	A. Clifton	K. Franke	
Rev 6	May 2017	AGL Upstream Investments Pty Ltd	A. Clifton	K. Franke	
Rev 7	June 2018	WSP	A. Clifton	A. Clifton	
Rev 8	June 2019	AGL Upstream Investments Pty Ltd	A. Clifton	S. Bottin	
Rev 9	August 2020	AGL Upstream Investments Pty Ltd	D. Mudd	S. Bottin	Minor changes only



Table of Contents

1. Introduction	1
1.1 Objectives	1
1.2 Targets	1
1.3 Responsibilities	2
1.4 Table of acronyms / abbreviations	3
2. Requirements	4
2.1 Legal and Regulatory Framework.....	10
3. Description of activities	12
3.1 Potential soil and water impacts	12
3.2 Contaminated land.....	13
4. Management and mitigation measures	14
4.1 General operating principles.....	14
4.2 Control measures.....	14
5. Monitoring and reporting	31
5.1 Monitoring requirements	31
5.2 Maintenance requirements	33
5.3 Reporting requirements	33
5.4 Records.....	36
6. Administrative	37
6.1 Training and competence	37
6.2 Site specific plans	37
6.3 AGL references.....	37
6.4 References.....	37



Tables

Table 1.1: Roles and responsibilities	2
Table 1.2: Acronyms/abbreviations	3
Table 2.1: Key licence and development consent conditions	4
Table 2.2: Key regulatory requirements	10
Table 3.1: Summary of potential impacts on local soil and water resources	12
Table 4.1: Control measures	14
Table 5.1: Summary of approvals, SoC and licence requirements for soil and surface water	31
Table 5.2: Key environmental reporting requirements specified in Conditions of Consent and other approvals and internal practices	33

Appendices

Appendix A	Control measures
Appendix B	Approval, licence, permit and lease requirements



1. Introduction

An Environmental Management Plan (**EMP**) has been prepared for the Camden Gas Project ('the project' or '**CGP**'). This Soil and Water Management Plan (**SWMP**) forms a sub-plan to supplement the EMP.

This SWMP has been updated based upon the previously approved SWMP prepared for the Menangle Park 25 well (MP25) prepared in response to Condition 16A (Sch 2) of Development Consent 183-8-2004-i. It has now been revised and updated to become the SWMP for CGP activities as described under the following Development Approvals (**DA**) and their associated Statement of Commitments (**SoC**):

- DA 246-8-2002 – Field: Kay Park
- DA 15-01-2002 – Fields: RPTP, Apap, Joe Stanley, Johndilo, Loganbrae, Lipscombe, Mahon
- DA 282-6-2003i – Fields: RGP, Rosalind Park, Wandinong, EMAI (EM01-20, 38-40), Glenlee (GL05, 07-10, 14-17)
- DA 183-8-2004 – Fields: Fields – Mount Taurus and Menangle Park (MP13-17, MP25 and MP30)
- DA 75-4-2005 – Field: Sugarloaf
- DA 9-1-2005 – Field: Glenlee
- PA 06_0137 – Field: Razorback
- PA 06_0138 – Field: EMAI (EM23-37)
- PA 06_0291 – Field: Spring Farm and Menangle Park.

This SWMP describes AGL's management of soil and surface water for CGP activities, but excludes management of groundwater for these activities which is subject to a separate management plan (refer to the Groundwater Management Plan for the CGP).

The construction phases for the existing development consents listed have been completed, and the CGP is a mature operating field. **Note: All historical references to construction activities have been retained in this plan for completeness and to document compliance with Licence and Development Consent requirements.**

1.1 Objectives

The Objectives and Targets of the EMP are described in Section 1.3 of the EMP. Detailed Objectives, Targets and Key Performance Indicators are detailed in Section 4.2 of the EMP. Objectives relating to the SWMP are described below:

- To minimise soil disturbance, prevent contamination and associated impacts on riparian corridors and native vegetation and promote and maintain soil stability throughout the life of the project; and
- To minimise negative impacts from construction and operational activities on surface water resources.

1.2 Targets

Targets relating to this SWMP are outlined below:

- Zero complaints received from landowners or government agencies concerning land disturbance, contamination or soil stability;
- Zero water contamination incidents from construction, operational and rehabilitation activities; and
- Zero incidents concerning water levels or water quality during operations.



1.3 Responsibilities

The roles and responsibilities for implementing this SWMP are summarised in **Table 1.1**. Further responsibilities are assigned in **Table 4.1**.

Table 1.1: Roles and responsibilities

Role	Responsibility
Environment Business Partner	<p>Review and update this SWMP following modifications to Project Development Approvals or new Development Approvals. Responsible for overseeing implementation of this SWMP.</p> <p>Informing site personnel and contractors of the required procedures for the protection of soil to prevent erosion, and water quality via an induction program.</p> <p>Responsible for ensuring sediment and erosion control measures are incorporated into site design and construction.</p>
Operations Superintendent	<p>Directly responsible for the implementation of this SWMP.</p>
Field and Rehabilitation Operator	<p>Checking adherence to operating procedures and delegation of maintenance works on control measures.</p> <p>Ensuring erosion and sediment controls are installed and maintained during construction, operational and rehabilitation activities.</p> <p>Inspecting sediment control structures and monitor water quality following rainfall events of 20 mm or more in a 24 hour period (within 48 hours of the event). The sediment control structures shall be inspected for capacity (i.e. sediment build-up), structural integrity (i.e. stability) and effectiveness (i.e. sediment containment) and maintained accordingly.</p>
All leaders	<p>Responsible for ensuring that all works under their control are undertaken in accordance with the SWMP. Responsible for ensuring that all employees and contractors under their control are familiar with and adhere to the requirements of the SWMP.</p>
Contractors	<p>Responsible for following the AGL induction requirements that arise from their work activities onsite, so as to minimise the environmental impact.</p>
All employees	<p>Protection of soil and water from their work activities and working in a manner so as to minimise soil erosion and surface water impacts.</p>

1.4 Table of acronyms / abbreviations

Table 1.2: Acronyms/abbreviations

Acronym	Definition
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CGP	Camden Gas Project
DTI-DRE	Department of Trade and Investment – Resources and Energy
DPI&E	Department of Planning, Industry and Environment
DPI&E	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPL	Environmental Protection Licence
MNES	A matter of national environmental significance
mm/s	millimetres per second
NOW	NSW Office of Water
RPGP	Rosalind Park Gas Plant
Sch	Schedule
SoC	Statement of Commitments
SWMP	Soil and Water Management Plan

2. Requirements

The project activities can be summarised as the construction, operation, maintenance and rehabilitation of well sites, access roads/ tracks and gas gathering system, and the operation and maintenance of the Rosalind Park Gas Plant (RPGP) and the sales gas pipeline.

The requirement for a SWMP for the CGP is stipulated in a number of development consents and project approvals pertaining to the Project. **Table 2.1** below lists the development consents, project approvals and licences that require the preparation of an SWMP.

Table 2.1: Key licence and development consent conditions

Consent	Condition No.	Requirement	Addressed in SWMP
DA -15-1-2002	20 (Sch 3)	Prepare and implement a Soil and Water Management Plan for the Camden Gas Project.	Whole SWMP
DA -15-1-2002 DA-282-6-2003-i	20(a) (Sch 3) 84(b) (Sch 4)	The measures to be implemented to minimise the potential for soil erosion and the discharge of sediment and other pollutants to lands and/or waters during drilling and construction activities.	Insert 5 of Table 4.1
DA -15-1-2002 DA-282-6-2003-i	20(b) (Sch 3) 84(c) (Sch 4)	The measures to be implemented to mitigate the impacts of stormwater run-off from and within the site following the completion of drilling and construction activities.	Insert 1 of Table 4.1
DA -15-1-2002 DA-282-6-2003-i	20(c) (Sch 3) 84(d) (Sch 4)	Demonstrate that erosion and sedimentation control measures will conform with, or exceed, the relevant requirements and guidelines contained in the Department of Housing's Managing Urban Stormwater: Soils and Construction.	Insert 5 of Table 4.1 / Appendix A
DA -15-1-2002 DA-282-6-2003-i	20(d) (Sch 3) 84(c) (Sch 4)	Consistency with the stormwater management plan for the catchment, should one exist, or with the EPA's Managing Urban Stormwater: Council Handbook should a stormwater management plan for the catchment not exist.	Insert 5 of Table 4.1 / Appendix A
DA -15-1-2002 DA-282-6-2003-i	20(c) (Sch 3) 84(g) (Sch 4)	Measures to rehabilitate erosion-affected areas and areas the subject of excavation, including tree, shrub and/or cover crop species and implementation.	Insert 5 and insert 11 of Table 4.1 / Appendix A

Consent	Condition No.	Requirement	Addressed in SWMP
DA -15-1-2002 DA-282-6-2003-i	20(f) (Sch 3) 84(k) (Sch 4)	Management procedures for all surface and groundwater collection and storage structures on the site, including a maintenance program for associated infrastructure (e.g. pipes, pumps, dam walls, etc.) and a program for de-silting of those structures, where relevant.	Table 5.1 and Table 5.2
DA -15-1-2002	21 (Sch 3)	The Applicant shall prepare and implement a Water Quality Management Plan for the whole site. This plan shall include but not be limited to: (refer to Conditions 21 (a) and 21 (b) below)	Whole SWMP
DA -15-1-2002 DA-282-6-2003-i	21(a) (Sch 3) 84(j) (Sch 4)	Provide details of an appropriate soil sampling and monitoring program to ensure that areas used for waste water application do not lead to an unacceptable build-up of salts within the soil profile. Note: These conditions are not applicable under current operations.	Table 5.1
DA -15-1-2002	21(b) (Sch 3)	Implement a program of regular testing of waste water quality for compounds, nutrients and metals, as outlined in Table 7.8 of the EIS. Note: This condition is not applicable under current operations.	Insert 1 of Table 4.1 Table 5.1
DA-246-8-2002	11 (Sch 3)	The Applicant shall amend the Environmental Management Plan required under Condition 15 of the consent for DA No. 15-1-2002 dated 23 July 2002, to include the operation of KP01, KP02 and KP03 and the associated gas gathering system.	Section 1
DA-282-6-2003	84 (Sch 4)	Prepare and implement a Soil and Water Management Plan for The Camden Gas Project Stage 2. The plan shall include but not be limited to: (refer to sub conditions below)	Section 1
DA-282-6-2003-i	84(a) (Sch 4)	All works on protected land and in protected waters, and staging and maintenance requirements.	Sections, 3, 4, 5 & 6
DA-282-6-2003-i	84(f) (Sch 4)	Any EPL licence requirements	Table 4.1, Appendix B

Consent	Condition No.	Requirement	Addressed in SWMP
DA-282-6-2003-i	84(h) (Sch 4)	Measures to maintain the soil quality, soil integrity and soil structure of land on the EMAI during the construction and operation of the proposal.	Insert 5 of Table 4.1
DA-282-6-2003-i	84(i) (Sch 4)	Implement a program of regular testing of waste water quality for compounds, nutrients and metals, as outlined in the EIS.	Insert 1 of Table 4.1
DA-282-6-2003-i	84(m) (Sch 4)	Ensure that saline groundwater which would exceed the ANZECC guidelines for the protection of aquatic ecosystems and irrigation application purposes is contained in lined holding ponds and dilutes with fresh water prior to any application of the water to the land surface.	Insert 2 of Table 4.1
DA-282-6-2003	84A (Sch4)	Prepare and implement a Soil and Water Management Plan. The plan must include the items identified below.	Whole SWMP
PA 06_0137	8 (Sch 3) 15 (SoC)		
PA 06_138 -	8 (Sch 3) 18 (SoC)		
PA 06_291	9 (Sch 3) 16 (SoC)		
DA-282-6-2003 PA 06_0137 PA 06_138 PA 06_291	84A(a) (Sch4) 8 (a) (Sch 3) 8 (a) (Sch 3) 9 (a) (Sch 3)	Be consistent with the requirements in Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, 2004 (Landcom);	Insert 5 of Table 4.1 Appendix A
DA-282-6-2003 PA 06_0137 PA 06_138 PA 06_291	84A(b) (Sch4) 8 (b) (Sch 3) 8 (b) (Sch 3) 9 (b) (Sch 3)	Identify activities that could cause soil erosion and generate sediment;	Table 3.1
DA-282-6-2003 PA 06_0137 PA 06_138 PA 06_291	84A(c) (Sch4) 8 (c) (Sch 3) 8 (c) (Sch 3)9 9 (c) (Sch 3)	Describe measures to minimise soil erosion and the potential for the transport of sediment to downstream waters;	Insert 5 of Table 4.1, Appendix A



Consent	Condition No.	Requirement	Addressed in SWMP
DA-282-6-2003 PA 06_0137 PA 06_138 PA 06_291	84A(d) (Sch4) 8 (d) (Sch 3) 8 (d) (Sch 3) 9 (d) (Sch 3)	Describe the location, function, and capacity of erosion and sediment control structures;	Appendix A
DA-282-6-2003 PA 06_0137 PA 06_138 \ PA 06_291	84A(c) (Sch4) 8 (c) (Sch 3) 8 (c) (Sch 3) 9 (c) (Sch 3)	Describe what measures would be implemented to maintain (and if necessary, decommission) the structures over time.	Insert 5 of Table 4.1 Section 5.2
PA 06_0137 PA 06_138 PA 06_291	8 (f) (Sch 3) 9 (f) (Sch 3) 8 (f) (Sch 3)	Describe the procedures that would be followed for planned and unplanned water discharges from the site.	Insert 1 and Insert 2 of Table 4.1 Section 5.4
DA-183-8-2004	14 (Sch 2)	The Applicant is required to prepare and implement a Water Management Plan for the sites and the Dam at MT01 for the life of the development. The Water Management Plan will include (and not be limited to) sediment and erosion control measures to be implemented prior to the construction of the earth Dam at gas well site MT01. The Applicant shall submit the Water Management Plan for the Director-General's approval within one month of the date of this consent.	This dam has been filled in and rehabilitated.
DA-183-8-2004	16 (Sch 2)	Prepare and implement a Soil and Water Management Plan in relation to the connection of 15 existing coal seam methane wells to the Stage 2 Camden Gas Project – RPGP and construction of a dam at the MT01 gas well site.	Section 1
DA-183-8-2004	16A (Sch 2)	Prior to the commencement of construction of the gas well at MP25, the management plans submitted under conditions 15 and 16 must: a) Be updated by a suitably qualified expert;	Section 1

Consent	Condition No.	Requirement	Addressed in SWMP
		b) Be re-submitted to the Director-General for approval prior to the commencement of construction activities at the MP25 gas well site. Note: Response to the Director-General provided in July 2012. Construction at MP25 has been completed.	Completed
		c) Include measures to minimise impacts on surface water and groundwater quality at the MP25 gas well site, including but not limited to:	Section 4 Groundwater Management Plan
		i) Using above-ground baffle tanks to contain all drilling fluids during drilling operations; ii) Disposing of all drilling fluids and groundwater collected in the baffle tanks at an authorised wastewater treatment facility; iii) Ensuring that adequate spill control equipment and materials will be available at drill sites; iv) 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 (otherwise than in accordance with an environment protection licence); and v) Ensuring that no hydraulic fracturing occurs and that no fracking fluids containing Benzene, Toluene, Ethylbenzene and Xylene (BTEX) chemicals are used.	Insert 19 of Table 4.1 Appendix A Section 19 of Table 4.1 Table 5.1 Insert 19 of Table 4.1

Consent	Condition No.	Requirement	Addressed in SWMP
DA 75-4-2005	25 (Sch 2)	<p>At least one week prior to the commencement of construction, the Applicant shall submit for the approval of the DG, an Erosion and Sediment Control Plan. The Plan must be implemented and used for the duration of all construction activities.</p> <p>The plan must describe the measures that will be employed to minimise soil erosion and the discharge of sediment and other pollutants to land and/or waters during construction activities. The Plan should be prepared in accordance with the requirements for such plans outlined in the Department of Housing's (now Landcom, within the Department of Planning, Industry and Environment (DP&I))'s Managing Urban Stormwater: Soils and Construction.</p>	Whole SWMP Table 4.1 Appendix A
DA 183-8-2004 MOD	5 & 6 (SoC)	<p>Prepare and update the Soil and Water Management Plan. Submit to the DG prior to construction commencing.</p> <p>The updated Soil and Water Management Plan will include the following measures for the minimisation of potential soil and water impacts from the twinning of the GGL between MP16 and MP30:</p> <ul style="list-style-type: none"> a) Spoil from the trench will be temporarily stockpiled on the upslope of the trench; b) If the trench is not back-filled on the day of the excavation, cut-off drains or silt fencing will be installed upslope of the spoil to divert surface water. c) Stormwater contained within the trench will not be released into any existing waterways. 	Section 1 Insert 15 of Table 4.1

2.1 Legal and Regulatory Framework

Activities carried out for the CGP shall comply with relevant legislation, regulations and guidelines. These include but are not limited to the legislation described in **Table 2.2**.

Table 2.2: Key regulatory requirements

Legislation/ Policy	Relevance
Protection of the Environment Operations Act 1997	<ul style="list-style-type: none"> The project holds an Environmental Protection Licence (EPL No. 12003) for premises including all the wells, the gas gathering lines and the RPGP which is licensed for petroleum exploration, assessment and production. It is an offence to wilfully or negligently cause any substance to leak, spill or otherwise escape in a manner that harms or is likely to harm the environment. It is an offence to pollute waters under Section 120 of the Act. Pollution incidents causing or threatening material harm are to be reported to the Environment Protection Authority (EPA). Make publicly available on the AGL website all EPL listed monitoring data within 14 days of obtaining it.
Environmental Planning and Assessment Act 1979	<ul style="list-style-type: none"> Regulated by NSW DPI&E. There are development consent conditions and project approvals related to the CGP that contain the requirement to prepare and implement a SWMP (see Table 2-1 above).
Water Management Act 2000	<ul style="list-style-type: none"> Controlled activity approval is required under Part 4 development consents for controlled activities when working on 'waterfront land' (within 40 m of a watercourse) (equivalent to former Part 3A permits under the former Rivers and Foreshore Improvement Act 1948). Water Access Licences and various other approvals are required for the extraction and use of water.
Environment Protection and Biodiversity Conservation (EPBC) Act 1999	<ul style="list-style-type: none"> On the 19 June 2013 an amendment to the EPBC Act, to provide that water resources are a matter of national environmental significance (MNES), in relation to coal seam gas and large coal mining developments. The water trigger allows the impacts of proposed coal seam gas developments on water resources to be comprehensively assessed at a national level. The amendment will not apply to actions already approved under the EPBC Act. However, if an approved project has a substantial change to how it is conducted or an extension, the new MNES may apply if there is likely to be significant impact on a water resource.



Legislation/ Policy	Relevance
Contaminated Land Management Act 1997 (CLM Act)	<ul style="list-style-type: none"> Under the <i>Contaminated Land Management Act 1997</i> (CLM Act), 'contamination of land' means the presence in, on or under the land of a substance at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment. Part 3 of the <i>Contaminated Land Management Act 1997</i> specifies the regulation of significantly contaminated land and the processes that are to be undertaken if the land is declared to be contaminated by the EPA. <p>Land contamination must be reported to the EPA under Section 60 of the CLM Act.</p>

The soil and water management standards, performance measures and statutory requirements for the Project are outlined in the conditions of the consents, leases and licences listed in Table B-1 **Appendix B**.

3. Description of activities

3.1 Potential soil and water impacts

Project activities are described in detail in the EMP. The following activities have been assessed as having the potential to impact on local soil and surface water resources.

Table 3.1: Summary of potential impacts on local soil and water resources

Activity	Potential Impact
Construction	
Installation/upgrade of access roads	Erosion of stockpiled topsoil
	Discharge sediment laden runoff
Construction of drill pad	Erosion of stockpiled spoil
	Discharge sediment laden runoff
Vehicle access	Erosion from track
	Damage undisturbed areas
Drilling / Fracture stimulation	Discharge sediment laden return water
	Erosion of drill pad
	Surface water becomes sediment laden
	Discharge sediment laden runoff
Construction of Gas Gathering Lines	Erosion of stockpiled spoil
	Damage undisturbed areas, including riparian corridors and native vegetation
	Structural damage to Sydney Catchment Authority's Upper Canal metropolitan water supply infrastructure
	Discharge sediment laden runoff
Production and Operation	
Well Production, Operation, Inspection and Maintenance	Erosion of surface due to disturbance around access and equipment
	Discharge of produced water
Inspection and Maintenance of the Gas Gathering System	Erosion of surface due to disturbance around access and equipment
Inspection and Maintenance of the Sales Gas Pipeline	Erosion of surface due to disturbance around access and equipment
Initial Rehabilitation	
Initial well rehabilitation	Erosion of backfilled and rehabilitated excavation
	Compaction of soil



Activity	Potential Impact
	Discharge sediment laden runoff
	Damage undisturbed areas
Final Rehabilitation	
Backfilling and rehabilitation of gas gathering line.	Erosion of backfilled and rehabilitated excavation
Decommissioning of wells	Erosion of backfilled and rehabilitated excavation
RPGP Plant Operations	
Operation of gas treatment plant	Discharge of oily water from compressors at RPGP
	Discharge of water from flare pond
	Grey water and septic tank water discharge
	Spills of minor quantities of fuels, oils and other chemicals stored within the site.
Operation of the oily water treatment plant	Discharge of contaminated water
	Discharge of contaminated sludge.

3.2 Contaminated land

At the time of writing, there is no land that is identified as potentially contaminated within the CGP.

4. Management and mitigation measures

A range of soil and water control measures are undertaken as part of the Project. This section describes the management and mitigation measures which will be put into place during various activities across the project.

4.1 General operating principles

AGL endeavours to minimise the environmental footprint of its activities. The following general operating principles are implemented in order to reduce the potential for soil erosion and impacts on surface waters:

- Wells and gas gathering lines are sited on the periphery of land and along existing track and road verges (where possible) to fit in with the primary land use and minimise land disturbance.
- Operations, maintenance and construction employees including contractors are required to attend an induction prior to commencing work at each site to ensure that all personnel are aware of their HSE responsibilities and have the necessary knowledge and skills to fulfil them.

4.2 Control measures

Table 4.1: Control measures

Activity	Action	Area		Responsibility
		RPGP	Field	
1. General Control Measures				
Construction, Operation, Rehabilitation	Undertake all works in accordance with the requirements set out in Section 120 of the <i>Protection of the Environment Operations Act 1997</i> , except as may be expressly provided for by a licence under the <i>Protection of the Environment Operations Act 1997</i> in relation to the development.	✓	✓	Environment Business Partner
Construction, Operation, Rehabilitation	Prevent siltation of any stream or watercourse or catchment area.	✓	✓	Environment Business Partner
Construction, Operation	Use diversion drains, silt fences and check dams where practicable to divert surface water around disturbed areas and control runoff velocity.	✓	✓	Environment Business Partner
Construction	Ensure the route of gas gathering and water transport systems and access roads follow previously or currently disturbed areas wherever possible.		✓	Operations Superintendent
Construction, Operation	Only undertake works within 20 metres of watercourses during dry weather conditions.		✓	Environment Business Partner

Activity	Action	Area		Responsibility
		RPGP	Field	
Construction	Ensure the pipeline crossings of Remembrance Drive and Finns Road are located at a depth of at least 1.2 metres below the road surface. (Note: this work is complete)		✓	Operations Superintendent
Construction, Operation	Store and manage the use and disposal of water in accordance with EPA's Waste Classification Guidelines (DECC, 2009).	✓	✓	Environment Business Partner
Construction, Operation, Rehabilitation	Undertake the works in a way that minimises the potential surface water impacts of the development.	✓	✓	Environment Business Partner
Construction, Operation, Rehabilitation	Ensure that the disturbance to the bed and banks of all watercourses are kept at an absolute minimum during the construction procedure and reinstatement of the site.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Prevent or otherwise minimise the amount of dirty water leaving site.	✓	✓	Environment Business Partner
Construction, Operation, Rehabilitation	Undertake regular testing of waste water quality for compounds, nutrients and metals, as outlined in Table 7.8 of the EIS where waste water is applied to land.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Undertake monitoring of land and receiving waters to determine the impact of waste water application, if applicable. (Note: Waste water is not applied to land or released to waters)	✓	✓	Environment Business Partner

Activity	Action	Area		Responsibility
		RPGP	Field	
Construction, Operation	<p>Ensure that waste water from the construction, installation and operation of wells and associated infrastructure is only applied to the following areas:</p> <ul style="list-style-type: none"> • Dust suppression on any unsealed roads within PAL 1; • Irrigated onto pastures within PAL 1; • Evaporation dam (now backfilled and remediated); and • ReInjection into gas wells. <p>(Note: Waste water is not applied to land or reInjected to gas wells)</p>		✓	Environment Business Partner
Pre-Activity	<p>Prepare a detailed feasibility study of reInjection of waste water into a gas well if this method of disposal of waste water is proposed, and obtain the approval of the Director-General for reInjection of waste water into a gas well.</p> <p>(Note: Waste water is not reInjected to gas wells)</p>		✓	Operations Superintendent
Construction, Operation, Rehabilitation	<p>Do not allow spray from waste water application to drift beyond the boundary of the waste water utilisation area to which it is applied.</p> <p>(Note: Waste water is not applied to land)</p>		✓	Environment Business Partner
Construction, Operation, Rehabilitation	<p>Ensure all waste water that is used for dust suppression and / or irrigation has a salinity of less than 800 $\mu\text{S}/\text{cm}$.</p> <p>(Note: Waste water is not applied to land)</p>		✓	Environment Business Partner
Construction, Operation	<p>Ensure there are no adverse effects to the structural integrity of the Upper Canal and associated structures nor impact the quality of water in the Upper Canal under the construction and operation of the development, and ensure all persons involved in the works are informed of this requirement.</p>		✓	Operations Superintendent

Activity	Action	Area		Responsibility
		RPGP	Field	
Construction	Ensure compliance with all requirements in Sydney Water's Guidelines on Precautions when Building Over or Adjacent to Sydney Water Assets.		✓	Operations Superintendent
2. Water Quality				
Operation, Rehabilitation	All saline groundwater which would exceed the ANZECC guidelines for the protection of aquatic ecosystems and irrigation application purposes is contained in lined holding ponds and is diluted with fresh water prior to any application of the water to the land surface. (Note: Waste water is not applied to land)		✓	Environment Business Partner
3. Contaminated land				
Construction, operation, rehabilitation	The CGP Risk Register is to be regularly updated to include any areas identified as potentially contaminated. If land contamination is identified within the CGP, additional control measures would be developed and implemented to manage land remediation works, and to ensure the health and safety of personnel involved in work on contaminated land.	✓	✓	Environment Business Partner
Construction, operation, rehabilitation	Prior to any soil disturbance, the land contamination and remediation status of the area is to be confirmed.	✓	✓	Environment Business Partner
Construction, operation, rehabilitation	If any contaminated land areas are identified on the CGP Risk Register or from site investigations, the need for remediation will be considered. Contaminated areas would be remediated as soon as practical.	✓	✓	Environment Business Partner

Activity	Action	Area		Responsibility
		RPGP	Field	
Construction, operation, rehabilitation	<p>If required, a preferred remediation strategy will be selected in accordance with the National Environment Protection (Assessment of Site Contamination) Measure, which states that the preferred hierarchy of options is (NEPM, 2013):NEPM:</p> <ol style="list-style-type: none"> 1 On-site treatment of the soil, so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level. 2 Off-site treatment of excavated soil, so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which it is returned to the site. <p>If the two above options are not possible to be implemented, then other options may be considered, including removal of contaminated soil to an approved site or facility, followed by (where necessary) replacement with clean fill.</p> <p>Selection of the remediation option would consider the environmental, social and economic aspects of each option.</p> <p>A remediation action plan, and validation report would be prepared for any remediation works, discussed in the part below.</p>	✓	✓	Environment Business Partner
Construction, operation, rehabilitation	<p>If contamination is identified within the CGP, a Compliance Checklist would be developed to monitor and review the effectiveness of the controls, and ensure remediation works are carried out in accordance with the Remediation Action Plan.</p>	✓	✓	Environment Business Partner

Activity	Action	Area		Responsibility
		RPGP	Field	
4. Contaminated water				
Operation	No contaminated stormwater is discharged off site. Only clean stormwater leaves site through the RPGP sediment pond.	✓		Environment Business Partner
Operation	Any contaminated stormwater at the RPGP is captured within equipment bunds and treated through the oily water treatment plant prior to transport off site by licensed liquid waste contractors for treatment and disposal or recycling. Filter sludge from the water treatment is separately stored and disposed to landfill.	✓		Environment Business Partner
5. General Erosion				
Construction, Operation, Rehabilitation	Document the decommissioning of all sediment and erosion control works to the satisfaction of the Director-General and in accordance with the NSW Department of Housing's (now Landcom)'s publication 'Managing Urban Stormwater: Soils and Construction'	✓	✓	Field and Rehabilitation Operator
Construction, Operation, Rehabilitation	Implement all erosion and sediment control measures consistent with the requirements of Managing Urban Stormwater: Soils and Construction manual (Landcom, 2004, or its latest version).	✓	✓	Environment Business Partner
Construction, Operation, Rehabilitation	Take all practicable measures to minimise soil erosion and the discharge of sediments and water pollutants, and to maintain soil quality, integrity and structure.	✓	✓	Environment Business Partner
Construction, Operation, Rehabilitation	Implement site drainage and sediment and erosion control works and measures and any other pollution controls as required by the relevant conditions, prior to the commencement of any other works at the site.	✓	✓	Environment Business Partner



Activity	Action	Area		Responsibility
		RPGP	Field	
Construction, Operation, Rehabilitation	Conduct operations in such a manner as not to cause or aggravate soil erosion, and observe and perform any written instructions given or which may be given by the Minister with a view to minimising or preventing soil erosion.	✓	✓	Environment Business Partner
Construction, Operation, Rehabilitation	Ensure all material used to control erosion at the gas gathering system and access roads consists of biodegradable materials. No plastic netting is to be used for any purpose unless such netting is of a rapidly biodegradable variety.		✓	Environment Business Partner
6. Diversion Drains				
Construction	Construct diversion drains as necessary to divert surface water drainage away from soil stockpiles, drill pits and other disturbed areas in accordance with this plan. Do not leave any area (requiring diversion drains) overnight without diversion drains unless approved by the Environment Business Partner (or delegate).		✓	Environment Business Partner
7. Silt Fences				
Construction, Operation, Rehabilitation	Install silt fences when required around the downslope perimeter of disturbed areas where potential for significant sediment migration is identified.		✓	Environment Business Partner
8. Watercourse Crossings				
Construction	Ensure construction activities do not interfere with the flow of water in any stream or watercourse, particularly lateral water flows.		✓	Environment Business Partner
Pre-Activity	Where required, obtain a Controlled Activity Approval prior to the commencement of construction of any watercourse crossing.		✓	Manager Asset Property Services

Activity	Action	Area		Responsibility
		RPGP	Field	
Construction, Operation, Rehabilitation	Install a filter fence either side of the area of works when crossing drainage channels/water courses (including gas gathering lines and access tracks), to provide sufficient space between the filter fences for the works to be undertaken.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Do not stockpile soil within 5 metres of the bed of the drainage channel/ water course, unless the drainage channel/ water course is more than 20 metres wide.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Construct temporary waterway crossings where roads traverse natural drainage lines in accordance with the documents list in Appendix A. Where appropriate, install barrier mesh (upslope) and sediment fencing (downslope) or similar materials.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	In relation to temporary waterway crossings, unrestricted vehicular plant access to undisturbed areas is not permitted.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Ensure the design and construction of all watercourse crossings is undertaken by a suitably qualified person in accordance with the Guidelines for Watercourse Crossings (NOW, 2010).		✓	Environment Business Partner
Pre-Activity, Construction, Operation, Rehabilitation	Design and locate temporary waterway crossings in a way to minimise the design and construction footprint and extent of proposed disturbances within the watercourse and riparian corridor, and avoid impacts to the natural hydraulic, hydrologic, geomorphic and ecological functions of the watercourse.		✓	Environment Business Partner
Pre-Activity, Construction, Operation, Rehabilitation	Only undertake trench stream crossings where permitted (refer to DA 282-6-2003i 74 Sch 4).		✓	Environment Business Partner

Activity	Action	Area		Responsibility
		RPGP	Field	
Pre-Activity, Construction, Operation, Rehabilitation	In areas where trench crossing is permitted, ensure a representative trenched crossing design is prepared and implemented by a person(s) with relevant knowledge, qualifications and experience, in consultation with the Director-General. Refer to DA 282-6-2003i 74 Sch 4 (Section 1.5.2) for further detail of what is required in the design.		✓	Environment Business Partner
Pre-Activity, Construction, Operation, Rehabilitation	Advise the Director-General of the proposed stream crossing methods located on EMAI, which are to be assessed and approved by the DWE prior to the issue of the Part 3A Permit. (Note: this work is complete)		✓	Land and Approvals Manager
Pre-Activity, Construction	DA 282-6-2003i: 75 (Sch 4) – Stream crossing I as shown on plan Camden Gas Project Stage 2 – RFI Act 3A Permit Areas by Sydney Gas is strapped to the Menangle Bridge. (Note: this work is complete)		✓	Operations Superintendent
9. Soil Stockpiles				
Pre-Activity, Construction, Operation, Rehabilitation	Construct soil stockpiles in accordance with details in Chapter 4.3 of Managing Urban Stormwater – Soils and Construction (Landcom, 2004).		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Ensure stockpiles have a maximum height of 3 metres and are battered to a maximum slope of 2(H):1(V).		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Minimise stockpile heights and volumes, where practical.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Implement additional containment measures for the stockpile in the event of likely significant movement of material from the stockpile due to rainfall or wind, as directed by the Environment Business Partner.		✓	Environment Business Partner

Activity	Action	Area		Responsibility
		RPGP	Field	
Construction, Operation, Rehabilitation	Vegetate stockpiles that are to remain on-site for a long period of time.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Moisten stockpiles if the material is being transported by wind.		✓	Environment Business Partner
10. Batters				
Construction, Operation, Rehabilitation	Ensure batters of completed embankments are less than 3(H):1(V), and ensure batters are stabilised and disturbed areas are revegetated immediately following completion of earthworks, in accordance with Chapter 7 of Managing Urban Stormwater – Soils and Construction (Landcom, 2004).		✓	Environment Business Partner
11. Rehabilitation				
Rehabilitation	Maintain and monitor all rehabilitated riparian zones for a period of at least two years after final planting or until approved by the landowner. Maintenance must include sediment and erosion control, watering, weed control, replacement of plant losses, disease and insect control, mulching and any other requirements for achieving successful vegetation establishment.		✓	Environment Business Partner
Rehabilitation	Ensure the prompt and effective rehabilitation of all disturbed areas of the site following the completion of construction, operations and associated activities and/or the decommissioning of plant, to minimise the generation of wind erosion dust.	✓	✓	Environment Business Partner
Operation, Rehabilitation	For well sites, drain the gas reservoir (as determined in line with technical and commercial analysis) remove the surface equipment, plug and abandon the well, and rehabilitate the site to its previous state or better in accordance with the DPI&E requirements.		✓	Operations Superintendent

Activity	Action	Area		Responsibility
		RPGP	Field	
Operation, Rehabilitation	Ensure backfilling, compacting, replacement of topsoil, contouring and revegetation along the pipeline route is undertaken to rehabilitate the gas gathering system.		✓	Environment Business Partner
Operation, Rehabilitation	For water crossings, ensure topsoiling, revegetation, mulching, weed control and maintenance are undertaken in order to adequately restore the integrity of the riparian corridor.		✓	Environment Business Partner
Rehabilitation	For all trenched water crossings, ensure the natural bed and bank profiles are restored to their original condition, with smooth and even surfaces following installation of the gas pipe.		✓	Environment Business Partner
Rehabilitation	Ensure trenches/routes of gas gathering and water transport lines are rehabilitated and reseeded with local grass seeds on completion of the work/pipe laying.		✓	Environment Business Partner
12. Construction Pads				
Pre-Activity, Construction	Progressively strip topsoil from areas to be disturbed and stockpile separately from other excavated material.		✓	Environment Business Partner
Pre-Activity, Construction	For permanent construction pads, ensure berms or benches are used on batters with a vertical height greater than 5 m.		✓	Environment Business Partner
Pre-Activity, Construction	Use grass filter strips (of minimum 300 mm width) on small steep embankments to control sheet flow and sediment run-off (for permanent construction pads).		✓	Environment Business Partner
13. Drilling (Note – all drilling works have been completed)				
Construction	Provide a polyethylene membrane lined drill pit to retain drilling debris and associated water for the drilling process, prior to drilling works.		✓	Environment Business Partner

Activity	Action	Area		Responsibility
		RPGP	Field	
Construction, Operation	Ensure the drill pit is bunded on the upslope side, the downslope side, and at least one other side.		✓	Environment Business Partner
Operation	Ensure regular inspections of the levels in pits are undertaken to manage drill cuttings, including coal fines, to ensure each pit does not exceed approximately 80% of its holding capacity.		✓	Drilling Engineer
Operation	Ensure drilling debris and associated water from the drilling process are captured by the drill pit.		✓	Drilling Engineer
Operation	Transport any produced water from the site and reuse on future drill sites if possible or dispose at licensed disposal facilities.		✓	Environment Business Partner
Operation	Dispose of any collected drilling fluids and groundwater (that are not reused) at an authorised wastewater treatment facility.		✓	Environment Business Partner
14. Access Roads / Tracks				
Pre-Activity, Construction, Operation	Keep access tracks to a minimum and position them so that they do not cause any unnecessary damage to the land.		✓	Operations Superintendent
Construction, Operation	Ensure temporary access tracks are ripped, topsoiled and revegetated as soon as possible after they are no longer required.		✓	Environment Business Partner
Operation	Restrict the use of any road or track during wet weather to prevent damage.		✓	Operations Superintendent
Construction, Operation	Restrict access to formed tracks, either via existing tracks where possible, or construct new tracks.		✓	Operations Superintendent
Construction, Operation	Undertake construction of new tracks or upgrades of existing tracks in accordance with the relevant measures outlined in Appendix A.		✓	Operations Superintendent



Activity	Action	Area		Responsibility
		RPGP	Field	
15. Bed Level Crossings				
Construction	Ensure the design and construction of all bed level crossings are undertaken by a suitably qualified person in accordance with the Guidelines for Watercourse Crossings (NOW 2010).		✓	Environment Business Partner
Construction	Ensure the finished surface of the crossing is to be at the same height as the existing bed level of the creek.		✓	Environment Business Partner
Construction	Do not obstruct water flow or fish passage along the creek as a result of the construction of the crossing.		✓	Environment Business Partner
Construction	Ensure the crossing is evenly aligned with the adjoining bank and floodplain profile and that it does not reduce the capacity of protected waters in any way.		✓	Environment Business Partner
16. Trenching (Gathering Lines)				
Pre-Activity, Construction	Design, construct and operate the pipeline in accordance with the Australian Standard for the Installation and Maintenance of Plastic Pipe Systems for Gas AS 4645.3:2008 (or its latest version).		✓	Operations Superintendent
Construction	Install the gas pipe at least 2 metres below the bed of a watercourse where nominated, and ensure the bed and the banks of the watercourse are not disturbed.		✓	Operations Superintendent
Construction, Operation	Ensure spoil from trenching is temporarily stockpiled adjacent to the trench on the upslope side of the trench where possible. Where a chain trencher is used, spoil may be stockpiled on both sides of the trench.		✓	Environment Business Partner
Construction, Operation	Stockpile topsoil separately to the underlying soils. This means that there will be two windrows of material adjacent to the trench.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Backfill the trench as soon as practical using the excavated spoil.		✓	Environment Business Partner



Activity	Action	Area		Responsibility
		RPGP	Field	
Construction, Operation, Rehabilitation	If the trench is not backfilled on the day of excavation, cut off drains or silt fencing will be installed upslope of the spoil to divert surface water.		✓	Environment Business Partner
Construction	Construct the gas gathering system so as not to impede lateral water flows.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Do not discharge stormwater, including that collected within a trench, to existing waterways.		✓	Environment Business Partner
Construction, Operation, Rehabilitation	Ensure that no crown or camber remains along the gas gathering systems, following construction and rehabilitation.		✓	Environment Business Partner
Construction, Operation	Notify the DP&E on the completion of any trenching works		✓	Operations Superintendent
17. Infrastructure Underboring				
Construction, Operation	Follow the same requirements for underboring sites as well head locations with respect to controls around the perimeter of the work area.		✓	Operations Superintendent
Construction, Operation	Use suitably sized pits to capture underbore drill cuttings and drilling water.		✓	Operations Superintendent
Construction, Operation	Undertake all underboring (and monitoring of underboring) of the Upper Canal to the satisfaction of the Sydney Catchment Authority.		✓	Operations Superintendent
Construction, Operation	Undertake underboring of the Upper Canal at a reduced force or load if vibration levels exceed 2.4 millimetres per second (mm/s)		✓	Operations Superintendent
Construction, Operation	Cease any underboring of Upper Canal if vibration levels exceed 3 mm/s, except with the prior agreement of the Sydney Catchment Authority.		✓	Operations Superintendent



Activity	Action	Area		Responsibility
		RPGP	Field	
18. Site Specific Management Measures				
All sites				
Construction, Operation	Ensure a documented layout of the erosion and sediment controls are prepared for each well surface location prior to construction commencing.		✓	Environment Business Partner
Construction, Operation	Wells are to be constructed and operated in accordance with the Code of Practice for Coal Seam Gas – Fracture Stimulation Activities and Code of Practice for Coal Seam Gas – Well Integrity.		✓	Operations Superintendent
19. MP25				
Construction	Undertake regular on-site monitoring during construction of MP25 to ensure that the updated Soil and Water Management Plan is being implemented to prevent run-off from disturbed areas from entering the Nepean River. (Note: this work is complete)		✓	Environment Business Partner
Construction, Operation	Prepare a contingency plan to address any groundwater brought to the surface that exceeds the capacity of onsite detention structures, and would avoid discharges from the site (otherwise than in accordance with an environment protection licence).		✓	Operations Superintendent
Construction	Ensure that no drilling fluids are discharged to land. (Note: this work is complete)		✓	Drilling Engineer
Operation	Use above ground baffle tanks for the storage of drilling debris and associated water for MP25, in place of, or in parallel with lined drill pits for MP25. (Note: this work is complete)		✓	Drilling Engineer



Activity	Action	Area		Responsibility
		RPGP	Field	
Operation	Ensure all drilling fluids and groundwater collected that are not reused are disposed of at an authorised wastewater treatment facility. (Note: this work is complete)		✓	Environment Business Partner
Operation	Install appropriate control measures at the downslope perimeter of disturbed areas on the MP25 drill site, to be used when water ponding for settling of sediments and energy loss is the objective. (Note: this work is complete)		✓	Environment Business Partner
Construction, Operation	Implement all reasonable and feasible measures to ensure that there will be no discharge of polluted waters to either surface waters or groundwater from the site activities during the construction and operation.		✓	Environment Business Partner
Construction, Operation	Keep the on-site storage of fuel, lubricants and any chemicals used to a minimum, and ensure these items are stored in bunded containment areas.		✓	Environment Business Partner
Construction, Operation	Do not use evaporation ponds in connection with this well.		✓	Environment Business Partner
Construction	Keep spill response equipment (including absorbent materials, shovels, and sand bag sacks) on site during drilling, and replace any work over of MP25 as required. (Note: this work is complete)		✓	Environment Business Partner
Post - Construction	Undertake water quality sampling of completed MP25 well and monitor produced water volumes. If MP25 produces more than 50 KL/year, a flow meter will be installed and water volumes monitored monthly.		✓	Environment Business Partner



Activity	Action	Area		Responsibility
		RPGP	Field	
Construction	Do not impede lateral water flows when undertaking construction activities associated with MP25 and the twinning of the GGL between MP16 and MP30. (Note: this work is complete)		✓	Environment Business Partner

5. Monitoring and reporting

5.1 Monitoring requirements

Table 5.1 summarises the monitoring requirements associated with soil and water management controls for construction and operational activities.

Table 5.1: Summary of approvals, SoC and licence requirements for soil and surface water

Management Practice	Monitoring	Responsibility	Timing
DA -15-1-2002 21(b) (Sch 3) requires AGL implement a program of regular testing of waste water quality for compounds, nutrients and metals, as outlined in Table 7.8 of the EIS where waste water is applied to land. (Note: Waste water is not currently applied to land as part of the CGP))	Sampling as per DA requirement	Environment Business Partner	During operation and rehabilitation where waste water is generated.
EPL 12003 Condition M2.7 requires the following monthly monitoring: Flare Pond - Total suspended solids, Biochemical oxygen demand, Oil & Grease, Total polycyclic aromatic hydrocarbons, Phenols, Total organic carbon, Total petroleum hydrocarbons, Electrical conductivity, Water level in storage.	Sampling as per EPL requirement	Field and Rehabilitation Operator	Monthly sampling
DA-282-6-2003-i (Schedule 4, Clause 70 requires that AGL must install a measurement device in the Flare Pond at the Gas Treatment Plant Site for recording the depth of effluent in the storage for the life of the Flare Pond. (Note: this work is complete)	Water depth	Environment Business Partner	During construction
DA 282-6-2003i 125 (Sch 4) requires AGL maintain and monitor all rehabilitated riparian zones for a period of at least two years after final planting. Maintenance must include sediment and erosion control, watering, weed control, replacement of plant losses, disease and insect control, mulching and any other requirements for achieving successful vegetation establishment.	For at least 2 years after final planting of riparian zones.	Environment Business Partner	Post construction, after final planting of riparian zones.

Management Practice	Monitoring	Responsibility	Timing
DA-282-6-2003 84AI (Sch4); PA 06_0137; PA 06_138 PA 06_291 8 I (Sch 3), 8 I (Sch 3), and 9 I (Sch 3) require AGL to describe what measures would be implemented to maintain (and if necessary, decommission) the erosion and sediment control structures over time. Regular inspections of erosion control structures and bunded areas will be undertaken.	After rain events	Environment Business Partner	During construction and operation
DA-183-8-2004 16A (Sch 2) requires AGL develop 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 (otherwise than in accordance with an environment protection licence). Regularly inspections of water levels in drill pits will be undertaken to ensure no spillage.	After rain events	Environment Business Partner	During construction and operation
DA 246-8-2002i 23 (Sch 3) requires that AGL may be required to undertake monitoring of land and receiving waters to determine the impact of waste water application. (Note: Waste water is not applied to land)	Weekly	Environment Business Partner	During Operation
DA -15-1-2002 21(a) (Sch 3) and DA-282-6-2003-I 84(j) (Sch 4) requires AGL undertake regular soil sampling and monitoring program to ensure that areas used for waste-water application do not lead to an unacceptable build- up of salts within the soil profile. (Note: Waste water is not applied to land)	Monthly	Environment Business Partner	During Operation
DA 183-8-2004i 13 (SoC) requires AGL to sample the water quality of the completed MP25 well and monitor produced water volumes. If MP25 produces more than 50 KL/year, a flow meter will be installed and water volumes monitored monthly.	Monthly	Environment Business Partner	Monthly

5.1.1 Contaminated land monitoring

Environmental monitoring (refer to section 6.1 of the EMP) is to include visual and/or olfactory observations of potential contamination where relevant.

The CGP risk register should be regularly updated and monitored to document and check changes to contaminated land assessments for known and suspected contaminated land areas, including any non-conformities with remediation of land contamination.

If contamination is identified within the CGP, a Compliance Checklist would be developed to monitor and review the effectiveness of the controls, and ensure remediation works are carried out in accordance with the Remediation Action Plan.

5.2 Maintenance requirements

Sediment control devices shall be inspected prior to commencement of earth works, immediately following rainfall events as described below, and thereafter on a regular basis during construction and rehabilitation.

5.3 Reporting requirements

AGL has a number of environmental reporting requirements specified by its Conditions of Consent, Licences and other approvals and internal practices. Compliance with each reporting requirement is tracked through AGLs Compliance Management System. A summary of the on-going reporting requirements for groundwater under the POEO Act and EPL 12003 are addressed in the Groundwater Management Plan. A summary of historic and current reporting requirements for soil and water specified by AGLs Conditions of Consent and Statement of Commitments is provided in **Table 5.2**.

Table 5.2: Key environmental reporting requirements specified in Conditions of Consent and other approvals and internal practices

Key Reporting Requirement	To Who	Condition / Licence No.	Reporting Period	Responsibility
<p>Prior to the completion of construction of the Gas Treatment Plant, submit to the DECC (now EPA), a written report containing a program for monitoring assessable pollutants contained within the following waste streams:</p> <p>a) oily water wastes proposed to be transported to the waste management facilities at Unanderra or Camellia or any other facility which can legally receive such wastes; and</p> <p>b) sewage waste proposed to be transported to the Bargo Ponds or any other facility which can legally receive such wastes.</p>	EPA	DA 282-6-2003-i: 71 (Sch 4)	Prior to the completion of construction of the Gas Treatment Plant (Completed in 2004)	Environment Business Partner
<p>Submit a written report containing a program for future evaluation of the integrity testing of the liner in the evaporation pond. The report must contain details of an initial evaluation of the liner prior to use and then an on-going program for review of the integrity of the liner.</p>	EPA	DA 282-6-2003-I 85 (Sch 4)	1 month prior to completion of the construction of the Treatment Plant (Completed in 2004)	Environment Business Partner



Key Reporting Requirement	To Who	Condition / Licence No.	Reporting Period	Responsibility
Submit a copy of each written report containing the results of an evaluation of the integrity testing of the liner in the evaporation pond as specified in the report submitted to the DECC (now EPA) as required by Condition 85.	EPA	DA 282-6-2003-186 (Sch 4)	Within 1 month of the initial evaporation report described above. (Completed in 2004)	Environment Business Partner
Prepare a detailed feasibility study of reinjection of waste water into a gas well if this method of disposal of waste water is proposed. Obtain approval of the Director-General for reinjection of waste water into a gas well.	Director-General	DA 15-1-2002i 54 (Sch 3) DA 246-8-2002i 21 (Sch 3)	No scheduled reporting period as reinjection is not proposed at present.	Operations Superintendent
RPGP Flare Pit Water Quality Monitoring Report	AGL Website	EPL 12003 Condition M2.7	Monthly within 14 business days of receiving the laboratory results	Environment Business Partner
AGL shall prepare and implement a representative trenched crossing design. The design shall be prepared and implemented by a person(s) with relevant knowledge, qualifications and experience, in consultation with the Director-General. The Applicant shall submit the plan for approval by the Department prior to the issue of the Part 3A Permit. The final crossing design is to be presented in plan view and cross section. The cross section is to be at right angles to the direction of flow, is to extend for a minimum distance of 10 metres from the top of both banks and is to include the location of all structures associated with the proposed crossing.	DP&E	DA 282-6-2003i: 74 (Sch 4)	Prior to the issue of a Part 3A permit (Completed in 2004)	Operations Superintendent

Key Reporting Requirement	To Who	Condition / Licence No.	Reporting Period	Responsibility
Should a pipe bridge be proposed, AGL shall prepare and implement a design of the crossing which shall be prepared and implemented by a person(s) with relevant knowledge, qualifications and experience, in consultation with the DWE. AGL shall submit the plan for approval by the Director-General prior to the issue of the Part 3A Permit. The final crossing design is to be presented in plain view and cross section. The cross section is to be at right angles to the direction of flow, is to extend for a minimum distance of 20 metres from the top of both banks and is to include the location of all structures associated with the proposed crossing	DP&E	DA 282-6-2003i: 76 (Sch 4)	Prior to the issue of a Part 3A permit (Completed in 2004)	Operations Superintendent

5.3.1 Contaminated land and remediation reporting

Notification of contaminated land

Under section 60 of the CLM Act, AGL is required to notify the EPA as soon as practical after they become aware of contamination, which:

- Is equal to or above a level of contamination set out in Schedule B1 of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC 2013) or other approved guideline value with respect to a current or approved use of the land, and people have been, or foreseeably will be, exposed to the contaminant.
- The contamination meets a criterion prescribed by the Contaminated Land Management Regulation 2013.
- The contaminant or a by-product has entered, or will foreseeably enter, neighbouring land, the atmosphere, groundwater or surface water, and is above, or will foreseeably be above, a level of contamination set out in National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC 2013) or other approved guidelines and will foreseeably continue to remain equal to or above that level.

Remediation

Prior to carrying out any remediation, a remediation action plan will be prepared that would include:

- Identification of the contaminated land areas requiring remediation
- Remediation goals to ensure that, on completion of the remediation and validation, the land is suitable for its proposed use and poses no unacceptable risk to human health and the environment
- Remediation options to adequately deal with the nature and extent of land contamination



- Processes and procedures to reduce any risks to acceptable levels
- Environmental safeguards to complete the remediation works in an environmentally acceptable manner
- A compliance checklist to monitor and verify that remediation works are carried out in accordance with the remediation action plan.

A validation report must be prepared by a suitably qualified and experienced professional to verify any remediation works. The validation report must include details on the following:

- Remediation works (including contaminated soil transport and disposal)
- Assessment of post-remediation against the remediation goals, as set in the Remediation Action Plan
- How regulatory authority(ies) approval, licence or permit conditions have been met (e.g. may require documentary evidence).

5.4 Records

The following records relating to monitoring and maintenance are to be maintained:

- Environmental Management Sub Plan Compliance Audit – Soil and Water (AEL 8610860);
- Daily workover report by workover Rig Manager (records any spills or other incidents);
- Dam Inspection Report (AEL 8609777); and
- Non-conformances and incidents shall be recorded through MyHSE (AGL's Incident Reporting and Information System) with corrective and preventative actions to be determined and managed in accordance with existing Incident or Non-Conformance reporting procedures.
- CGP risk register

All records required to be kept by the EPL will be in a legible form, kept for at least 4 years and produced to any authorised officer of the EPA upon request.

6. Administrative

6.1 Training and competence

Section 5.2 of the CGP EMP details the Training and Competence requirements.

6.1.1 Contaminated land assessment and remediation

If assessment or remediation of contaminated land is required, it will be carried out by a suitably qualified and experienced external consultant, in accordance with the requirements in Schedule B(9) of the National Environment Protection (Assessment of Site Contamination) Measure 1999.

A National Association of Testing Authorities (NATA) or equivalent accredited laboratory will be used for the chemical analysis of any samples.

6.2 Site specific plans

A documented layout of the erosion and sediment controls are prepared for each well surface location and kept on file at site.

6.3 AGL references

- AGL Environment Policy
- AGL-HSE-STD-009.1 Land Standard
- AGL-HSE-SDM-009.1 Land Standard Methodology
- AGL-HSE-STD-009.3 Surface Water Standard
- AGL-HSE-SDM-009.3 Surface Water Standard Methodology

6.4 References

- Landcom (2004), Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition,
- New South Wales Environmental Protection Authority (2014), Waste Classification Guidelines Part 1: Classifying Waste
- New South Wales Environmental Protection Authority (2014), Waste Classification Guidelines Part 2: Immobilisation of Waste.
- NSW Office of Water (2010), Guidelines for Watercourse Crossings.
- Department of Trade and Investment, Regional Infrastructure and Services (2012), Code of Practice for Coal Seam Gas – Fracture Stimulation Activities,
- Department of Trade and Investment, Regional Infrastructure and Services (2012), Code of Practice for Coal Seam Gas – Well Integrity,
- National Environment Protection Council (NEPC) 2013, National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1) (NEPM).

Appendix A

Control measures



Control measures

Diversion drains

Diversion drains and other constructed waterways shall consider the design guidelines provided in Section 5.4.4 of Managing Urban Stormwater – Soils and Construction (2004).

Silt fences and hay bale filters

Silt fences shall be installed in accordance with Chapter 6.3.7 of Managing Urban Stormwater – Soils and Construction (2008).

The following shall be used as determined by the **Environment and Business Partner**: Silt fences for low energy flows when filtering is the main aim; or Hay bale filters where a degree of ponding or energy loss is required. Silt fences shall:

- Be of Siltfence2000 or equivalent;
- Be no more than 0.6 metres high;
- Be securely attached (for example by staples or plastic or wire ties) to support stakes (for example wooden stakes or star pickets) placed no more than 3 metres apart, driven into the ground or until firmly embedded;
- Extend 0.15 metres below ground surface via excavation of a narrow trench which is backfilled after placement of the filter fabric;
- Comprise a continuous roll where practicable. When joints are necessary, the filter fabric shall be spliced, or connected with plastic or wire ties or clips, with a minimum 0.15 metre overlap and securely fastened at both ends to posts; and
- Be removed when no longer required.

Watercourse crossings

Where the drainage channel/ water course is more than 20 metres wide, stockpiles shall be placed at the direction of the **Environment Business Partner**.

Temporary waterway crossings – Temporary waterway crossings shall be constructed where roads traverse natural drainage lines in accordance with Chapter 5.3.4 of Managing Urban Stormwater – Soils and Construction (2004). Where appropriate, barrier mesh (upslope) and sediment fencing (downslope) or similar materials shall be installed in accordance with details in Chapter 5.4.4 of Managing Urban Stormwater – Soils and Construction (2004).

To achieve these outcomes, the following NOW principles will be considered during design and construction of watercourse crossings:

- Natural watercourse functions and site hydrological conditions will be accommodated;
- The natural bed and bank profile will be maintained;
- The movement of sediment and woody debris will not be inhibited;
- Scour and erosion of the bed or banks in storm events will not be increased;
- Structures will not be located on bends in channels, where possible;
- Where bed degradation has occurred, this will be addressed to protect the structure and restore channel and bed stability;
- Natural bank full and floodplain flows will not be altered and water levels upstream will not be increased;

- The gradient of the bed will not be changed except where necessary to address existing bed and bank degradation;
- Flows will not be constricted such that velocities are increased, e.g. embankments on approaches will not be filled;
- Scour protection, eg rock rip-rap and vegetation, will be installed as necessary, e.g. on approaches where the crossing is cut into banks; and
- Scour protection will be installed in the creek bed downstream of crossings for a distance of either twice the channel width or 20 m, whichever is the lesser.

In addition to these NOW principles:

- Road widths will be as narrow as possible;
- Crossings will be at right angles to the flow, rather than at oblique angles; and
- Passage for migrating flora and fauna will be provided where necessary.

Rehabilitation

Well sites –The rehabilitation work is subject to the terms of the planning consent and consultation with the landowner.

For further information on Rehabilitation, refer to the Rehabilitation and Landscape Management Sub Plan.

Construction pads

Access roads / tracks

Where new tracks are required to be constructed, or where existing tracks are required to be upgraded, the following controls shall be applied.

Any sections of track should be constructed, wherever possible by stripping the surface vegetation and topsoil. To limit erosion, track grades should be generally less than 10°. However, short lengths of steeper grades may occur on existing tracks or may be needed to negotiate difficult sections. Such sections would need to be shaled to allow free surface drainage and to avoid excessive ponding in wheel tracks.

Subsurface or recessed tracks collect runoff and can act as concentrated overland flow paths causing accelerated erosion. Where works are proposed to be undertaken to rectify erosion, these tracks should be re-constructed with either crowning, outfall or in-fall cross drainage. Where an existing track is located along a ridge or on gentler slopes and requires upgrading works, crowning (where the centre of the track is higher than the outside edges) should be used. Crowning can ease drainage problems because it allows water to shed to both sides of the track.

Where neither outfall nor crowning is suitable, in-fall drainage should be used. In-fall drainage should be used in conjunction with drop down drains and culverts. In-fall drainage may require culverts to be installed at regular intervals along the table drain to minimise erosion. Outlets of the culverts should be directed away from areas predisposed to erosion (i.e. poorly vegetated or bare areas as well as steep slopes and batters).

Where run-off cannot be controlled by crossfall drainage, cross drains or cross-banks may need to be used.



On new tracks, or those affected by erosion, the OEH has recommended in “Managing Urban Stormwater Soils and Construction Volume 2C Unsealed Roads” (2008) that cross banks should be constructed generally at the spacing indicated in **Table A-1**.

Table A-1: Cross bank spacing

Road Grade	Low Soil Erodibility	Moderate Soil Erodibility	High Soil Erodibility
Up to 8°	70 to 90 m	60 to 70 m	20 to 30 m
8° to 12°	60 to 70 m	50 to 60 m	#
12° to 16°	40 to 60 m	#	#
16° to 18°	30 to 40 m	#	#

Note (1) # AGL should seek additional guidance from OEH for tracks located in these situations

Note (2) Where trails are constructed on slopes exceeding 12°, only light and infrequent traffic should be permitted.

Access roads shall be constructed at an appropriate slope along contours where practicable.

Drainage controls – Spoon drains and diversion drains shall be used to control surface runoff from roads as appropriate.

Sediment filters – Sediment filters (silt fences or hay bale filters, as appropriate) shall be installed downslope of disturbance associated with construction of the internal main access road where the potential for significant sediment migration is identified as determined by the Field Environment and Safety Officer.

Temporary waterway crossings – refer to section on Temporary Waterway Crossings under Table 4-1.

Temporary diversion drains – Temporary diversion drains will be designed and constructed upslope of disturbed areas where the potential for significant runoff from the upslope undisturbed areas to the disturbed area is identified.

Surface finishing – Hardstand areas and access roads no longer required shall be ripped and rehabilitated.

Batters – Access road batters shall be stabilised through revegetation. The techniques to be used shall include the following as determined by the Environment Business Partner: hydroseeding, turfing, use of hay and bitumen, hay and wire netting, or erosion matting fabrics and direct planting. All formed batters should have a grade no steeper than 1(V): 3(H).

Bed level crossings

Refer to **Table 4.1** for general watercourse crossing design and construction considerations and the need for a controlled activity approval.

The following NOW principles will be considered during design and construction of bed level crossings:

- The decks of crossings shall be at the natural bed elevation;
- A vertical cutoff wall will be constructed on the downstream side of crossings to a minimum depth of 1 m and a minimum width of 100 mm; and
- Approaches to crossings are to be sealed and incorporate appropriate drainage where necessary, such as stabilised table drains.



Trenching (gathering lines)

Silt fencing around the trench will only be required in areas within 50 metres of watercourses or other sensitive areas, e.g. upslope of native vegetation or near riparian corridors, as identified by the Environment Business Partner.

Upslope protection of stockpiled spoil may be in the form of cut-off drains to divert surface waters from the stockpiled spoil, or silt fencing. Stormwater caught in the trench may be used for dust suppression on adjacent areas. Stormwater may be discharged across adjacent vegetated areas where grasses are sufficient to act as a natural filter.

Appendix B

Approval, licence, permit and lease requirements

Approval, Licence, Permit and Lease Requirements

Table B-1: Summary of Approval, Licence, Permit and Lease Requirements

Consent / Title	Condition No.	Requirement	Addressed in SWMP
Erosion			
DA 246-8-2002	27 (Sch 3)	All practicable measures to minimise soil erosion and the discharge of sediments and water pollutants shall be implemented.	Whole of Table 4.1
DA 282-6-2003i	80 (Sch 4)		
PA 06_0137	8 (Sch 3) 13 (SoC)		
PA 06_0138	8 (Sch 3) 14 (SoC)		
DA 9-1-2005	16 (Sch 2)		
DA 9-1-2005	17 (Sch 2)	The Applicant shall implement all relevant site drainage and sediment and erosion control works and measures prior to the commencement of any other works at the site.	Whole of Table 4.1 Appendix A
DA 282-6-2003-i	82 (Sch 4)		
PA 06_0138 PA 06_0137	15 (SoC) 14 (SoC)		
PA 06_0291	9A (Sch 3) 9B (Sch 3)	<p>The Proponent shall ensure that, in respect of any underboring of the Upper Canal, the underbore works shall be undertaken and monitored to the satisfaction of the Sydney Catchment Authority, and:</p> <p>Must proceed at a reduced force or load if vibration levels exceed 2.4 millimetres per second (mm/s); and</p> <p>Must halt if vibration levels exceed 3 mm/s, except with the prior agreement of the Sydney Catchment Authority.</p> <p>The Proponent shall ensure that design and construction of any watercourse crossing must be undertaken by a suitably qualified person in accordance with the Guidelines for Watercourse Crossings (NSW Office of Water (NOW) within the Department of Primary Industries within the Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS) 2010).</p>	<p>Insert 16 of Table 4.1</p> <p>Insert 7 of Table 4.1</p>

Consent / Title	Condition No.	Requirement	Addressed in SWMP
DA 171-7-2005	25 (Sch 3)	Gas Gathering System and Access Roads – Gas gathering stream crossings may be trenched. For all trenched crossings, the natural bed and bank profiles are to be restored to their original condition, with smooth and even surfaces following installation of the gas pipe.	Insert 15 of Table 4.1
DA 15-1-2002i DA 171-7-2005	68 (Sch 3) 27 (a-g) (Sch 3)	The Applicant shall comply with the following in the construction of the gas gathering system pipeline: Works within 20 m of watercourses are to be undertaken during dry weather conditions;	Section 3 Insert 1 of Table 4.1 Insert 15 of Table 4.1 Insert 10 of Table 4.1
DA 246-8-2002i	28 (b, c, e, f) (Sch 3)	Signs stating the presence of a buried gas pipeline shall be erected periodically along the length of the trench once the pipeline has been laid;	
DA 282-6-2003-i	127 (a, b, d, e, f, g) (Sch 4)	Trenches are to be restored and reseeded with local grass seeds on completion of the work; Construct the gas gathering system so as not to impede lateral water flows;	
DA 75-4-2005 DA 9-1-2005	38 (a-f) (Sch 2) 10 (a,b,d,e,f,g) (Sch 2)	Ensure that no crown or camber remains along the gas gathering systems, following construction; Design, construct and operate the pipeline in accordance with the Australian Standard for the Installation and Maintenance of Plastic Pipe Systems for Gas AS 3723-1989 (or its latest version); and Notify the Department on the completion of any trenching works.	
DA 171-7-2005	30 (Sch 3)	Gas Gathering System and Access Roads – All erosion control matting used is to consist of biodegradable materials. No plastic netting is to be used for any purpose unless such netting is of a rapidly biodegradable variety.	Insert 4 of Table 4.1

Consent / Title	Condition No.	Requirement	Addressed in SWMP
PA 06_138	17 (a-h) (Sch 3) 4 (SoC)	The Proponent shall, to the satisfaction of the Director-General, ensure that:	Insert 15 of Table 4.1
PA 06_137	15 (a-i) (Sch 3) 4 (SoC)	pipelines are designed, constructed and operated in accordance with the Australian Standard for the Installation and Maintenance of Plastic Pipe Systems for Gas AS 3723-1989 (or its latest version);	
DA 246-8-2002i	28 (a) (Sch 3)	the route of gas gathering and water transport systems and access roads follow previously or currently disturbed areas wherever possible	Insert 1 of Table 4.1
DA 183-8-2004 (MOD 13-10-2011); (MP16 to MP30)	16C (a-g)		Insert 15 of Table 4.1
PA 06_0291	10 (a-g) (Sch 3) & 4 (SoC)	works within 20 metres of watercourses are only undertaken during dry weather conditions; the pipeline crossing of Remembrance Drive is located at a depth of at least 1.2 metres below the road surface; construction activities do not impede lateral water flows; no crown or camber remains along any gas gathering system line, following rehabilitation; and (d) routes of gas gathering and water transport lines are rehabilitated and reseeded with local grasses on completion of pipe laying. (i) the pipeline crossing of Finns Road is located at a depth of at least 1.2 metres below the road surface.	Insert 1 of Table 4.1 Insert 15 of Table 4.1 Insert 10 of Table 4.1
DA 183-8-2004i	15 (SoC)	AGL will implement erosion and sediment control measures consistent with the requirements of <i>Managing Urban Stormwater: Soils and Construction manual</i> (Landcom, 2004, or its latest version).	Insert 4 of Table 4.1 Appendix A
	16 (SoC)	The Proponent will minimise stockpile heights and volumes, where practical. Soil stockpiles will have a maximum height of 3 m and will be battered to a maximum slope of 2 (horizontal) to 1 (vertical).	Insert 8 of Table 4.1

Consent / Title	Condition No.	Requirement	Addressed in SWMP
	17 (SoC)	The Proponent shall implement all reasonable and feasible measures to ensure that no drilling fluids used during drilling of MP25 are discharged to land. The Proponent will line pits with polyethylene (a geotechnical liner), bunded on the upslope and downslope and one other side. Drill cuttings, including coal fines, will be managed by regular inspection of levels in pits to ensure that each pit does not exceed approximately 80% of its holding capacity.	Insert 12 of Table 4.1
	18 (SoC)	In the event of significant movement from soil stockpiles due to rainfall or wind, the Proponent will ensure that additional containment measures for stockpiles are implemented as directed by the Field Environment and Safety Officer.	Insert 8 of Table 4.1 Table 5.1
	20 (SoC)	AGL will vegetate stockpiles associated with MP25 in the event that material is to remain on site for long period of time.	Insert 8 of Table 4.1 Table 5.1
DA 183-8-2004i	21 (SoC)	Soil stockpiles will be moistened if the material is being transported by wind.	Insert 8 of Table 4.1
	22 (SoC)	AGL will install appropriate control measures at the downslope perimeter of disturbed areas on the MP25 drill site. These will be used when water ponding for settling of sediments and energy loss is the objective.	Insert 18 of Table 4.1
Water / Watercourses			
DA 171-7-2005	12 (Sch 2)	Well EB01 and associated works are to be located at least 40 m, measured horizontally and at right angles from the top of the bank of the Nepean River.	Insert 17 of Table 4.1
	13 (Sch 2)	Well EB02 and associated works are to be located at least 20 m, measured horizontally and at right angles from the top of the bank of the unnamed tributary of the Nepean River.	Insert 1 of Table 4.1
DA 171-7-2005	14 (Sch 2)		Insert 7 of Table 4.1

Consent / Title	Condition No.	Requirement	Addressed in SWMP
DA 75-4-2005	8 (Sch 2)	Construction shall not commence until the Applicant has obtained a Part 3A Permit from the DNR under the Rivers and Foreshores Improvement Act 1948 (This Act has been repealed and in the place of a Part 3A Permit the Applicant must now obtain a controlled activity approval under the <i>Water Management Act 2000</i> from NOW.)	
DA 9-1-2005	14 (Sch 2)	The Applicant shall obtain a Part 3A Permit prior to the commencement of construction of any crossing of a stream by the gas gathering line. Refer to DA 75-4-2005 8 (Sch 2) above.	Insert 7 of Table 4.1
DA 171-7-2005	23 (Sch 3)	Road access crossing may consist of a bed level crossing. The finished surface of the crossing is to be at the same height as the existing bed level of the creek. There is to be no obstruction to water flow or fish passage along the creek as a result of the construction of the crossing. The crossing is to be evenly aligned with the adjoining bank and floodplain profile and must not reduce the capacity of protected waters in any way.	Insert 14 of Table 4.1 Appendix A
DA 282-6-2003i	73 (Sch 4)	Nominated stream crossings are to be under-bored. The gas pipe is to be at least 2 metres below the bed of a watercourse. The bed and the banks of the watercourse are not to be disturbed.	Insert 7 of Table 4.1 Insert 15 of Table 4.1
DA 282-6-2003i	75 (Sch 4)	Stream crossing I as shown on plan Camden Gas Project Stage 2 – RFI Act 3A Permit Areas by Sydney Gas is strapped to the Menangle Bridge.	Insert 7 of Table 4.1
	77 (Sch 4)	The Applicant shall advise the Director- General of the proposed stream crossing methods located on EMAI, which are to be assessed and approved by the DWE prior to the issue of the Part 3A Permit.	Insert 7 of Table 4.1

Consent / Title	Condition No.	Requirement	Addressed in SWMP
DA 183-8-2004i	10	The applicant is required to ensure that the Dam at gas well site MT01 is appropriately lined so that waters stored in the dam do not potentially contaminate the surrounding and underlying soils.	NB. This dam has been filled in and rehabilitated.
DA 183-8-2004i	11	The Applicant is not permitted to spray or discharge water from the earth Dam at gas well site MT01, onto any land or water surface unless it has prior written approval from the Director General.	NB. This dam has been filled in and rehabilitated.
	12	The Applicant is required to store and manage the use and disposal of water in accordance with the current version of the Department of Environment and Conservation's Environmental Guidelines: Assessment, Classification and Management of Liquid and Non- Liquid Wastes (this guideline has been superseded by EPA's Waste Classification Guidelines).	Insert 1 of Table 4.1
DA 183-8-2004i	7 (SoC)	AGL shall undertake regular on-site monitoring during construction of MP25 to ensure that the updated Soil and Water Management Plan is being implemented to prevent run-off from disturbed areas from entering the Nepean River.	Insert 18 of Table 4.1
	8 (SoC)	AGL shall implement all reasonable and feasible measures to ensure that there will be no discharge of polluted waters to either surface waters or groundwater from the site activities during the construction and operation of MP25.	Insert 18 of Table 4.1 Groundwater Management Plan
	9 (SoC)	AGL shall ensure on-site storage of fuel, lubricants and any chemicals used in relation to MP25 will be kept to a minimum and these items will be stored in bunded containment areas.	Insert 18 of Table 4.1
	10 (SoC)	AGL will not use evaporation ponds in connection with MP25. Evaporation ponds are now banned in NSW.	Insert 18 of Table 4.1

Consent / Title	Condition No.	Requirement	Addressed in SWMP
	13 (SoC)	AGL will sample the water quality of the completed MP25 well and monitor produced water volumes. If MP25 produces more than 50 KL/year, a flow meter will be installed and water volumes monitored monthly.	Table 5.1
	14 (SoC)	The Proponent shall implement all reasonable and feasible measures to ensure that MP25 is constructed, operated and decommissioned to avoid and minimise gas migration risks and adverse impacts to beneficial aquifers including associated groundwater users, surface waters and groundwater dependent ecosystems.	Refer to the Groundwater Management Plan
	19 (SoC)	The Proponent shall ensure that construction activities associated with MP25 and the twinning of the GGL between MP16 and MP30 do not impede lateral water flows, where practicable.	Insert 18 of Table 4.1
	23 (SoC)	Spill response equipment will be kept on-site during the drilling of MP25 and any work over of MP25 and will be replaced as required. This equipment will include, but not be limited to, absorbent materials, shovels, and sand bag sacks.	Insert 18 of Table 4.1
DA 282-6-2003i	67 (Sch 4)	Undertake the development in a way that minimises the potential surface water impacts of the development.	Whole SWMP
	78 (Sch 4)	Ensure that works within 20 m of watercourses are to be undertaken during dry weather conditions.	Insert 1 of Table 4.1
	79 (Sch 4)	Ensure that the disturbance to the bed and banks of all watercourses are kept at an absolute minimum during the construction procedure and reinstatement of the site.	Insert 7 of Table 4.1
	81 (Sch 4)	Minimise the amount of dirty water and sediment from sites entering protected waters.	Insert 1 of Table 4.1

Consent / Title	Condition No.	Requirement	Addressed in SWMP
DA 15-1-2002i DA 246-8-2002i	54 (Sch 3) 21 (Sch 3)	<p>Waste water from the construction, installation and operation of wells and associated infrastructure shall only be applied to the following areas:</p> <ul style="list-style-type: none"> a) dust suppression on any unsealed roads within PAL 1; b) irrigated onto pastures within PAL 1; c) evaporation dam (now rehabilitated); and d) reinjection into gas wells. <p>The Applicant shall prepare a detailed feasibility study of reinjection of waste water into a gas well if this method of disposal of waste water is proposed. The approval of the Director-General shall be obtained for reinjection of waste water into a gas well.</p>	Insert 1 of Table 4.1 Table 5.2
DA 15-1-2002i DA 246-8-2002i	55 (Sch 3) 21 (Sch 3)	Spray from waste water application shall not drift beyond the boundary of the waste water utilisation area to which it is applied.	Insert 1 of Table 4.1
DA 15-1-2002i	57 (Sch 3)	All waste water that is used for dust suppression and / or irrigation has a salinity of less than 800 $\mu\text{S}/\text{cm}$	Insert 1 of Table 4.1
DA 246-8-2002i	24 (Sch 3)		
DA 15-1-2002i	56 (Sch 3)	<p>Areas proposed to be used for waste water application can effectively utilise the waste water. This includes the use for pasture or crop production as well as ensuring the soil is able to absorb the nutrients, salts, hydraulic load and organic material in the liquids.</p> <p>The Applicant may be required to undertake monitoring of land and receiving waters to determine the impact of waste water application.</p>	Table 5.1
DA 246-8-2002i	23 (Sch 3)		

Consent / Title	Condition No.	Requirement	Addressed in SWMP
DA 75-4-2005	49 (Sch 2)	The Applicant shall carry out the construction and operation of the development in a manner that will not adversely affect the structural integrity of the Upper Canal and associated structures nor impact the quality of water in the Upper Canal. The Applicant shall be responsible for ensuring that all persons involved in the development are informed of these requirements.	Insert 1 of Table 4.1
	50 (Sch 2)	The Applicant shall comply with the requirements in Sydney Water's Guidelines on Precautions to be taken when Building Over or Adjacent to Sydney Water Assets.	Insert 1 of Table 4.1
EPL 12003	L1	The licensee must comply with section 120 of the Protection of the Environment Operations Act 1997, which stipulates that a person who causes or permits any waters to be polluted is guilty of an offence.	Table 2.2 Insert 1 of Table 4.1
Rehabilitation			
PPL 1, 2, 4, 5, 6	5 (Sch 2)	Land disturbed must be rehabilitated to a stable and permanent form so that there are no adverse effects outside the disturbed area and the land is protected from soil erosion.	Insert 10 of Table 4.1
DA 15-1-2002i	72 (Sch 3)		
DA 282-6-2003i	120 (Sch 4)		
DA 246-8-2002i	29 (Sch 3)	AGL shall ensure the prompt and effective rehabilitation of all disturbed areas of the site following the completion of construction, operations and associated activities and/or the decommissioning of plant, to minimise the generation of wind erosion dust.	Insert 10 of Table 4.1
DA 282-6-2003i	83 (Sch 4)	Document the decommissioning of all sediment and erosion control works to the satisfaction of the Director-General and in accordance with the NSW Department of Housing's (now Landcom)'s publication 'Managing Urban Stormwater: Soils and Construction'	Insert 4 of Table 4.1



Consent / Title	Condition No.	Requirement	Addressed in SWMP
DA 282-6-2003i	125 (Sch 4)	Maintain and monitor all rehabilitated riparian zones for a period of at least two years after final planting. Maintenance must include sediment and erosion control, watering, weed control, replacement of plant losses, disease and insect control, mulching and any other requirements for achieving successful vegetation establishment.	Table 5.1