



ASHTON COAL UNDERGROUND
SUBSIDENCE MANAGEMENT PLAN VARIATION
LONGWALL/MINIWALL 9

ASHTON COAL SUBSIDENCE MANAGEMENT PLAN
VARIATION
LONGWALL/MINIWALL 9
QUALITY CONTROL SHEET

Version	Version Date	Details	Authorised/Approved	
			Name/Position	Date
A	5 May 2009	SMP Variation LW/MW 9	D Munro	A
B	12 May 2010	Review	P Fletcher	B
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D	17 May 2010	Final Review	M Moore/ P Fletcher	D

EXECUTIVE SUMMARY

Ashton Coal Operations Limited (ACOL) seeks to vary its approved Subsidence Management Plan (SMP) for Longwalls 5-6 and Miniwalls 7-8 (LW 5-6 and MW 7-8) to include Longwall/Miniwall 9 (LW/MW 9). LW/MW 9 was the subject of an application to modify ACOL's existing development consent DA 309-11-2001-i, approved on 26 March 2010 as DA 309-11-2001-i MOD 4.

LW/MW 9 was included in the original application for an SMP submitted as the document Longwall & Miniwalls Panels 5 to 9 (LW/MW 5-9). However, because LW/MW 9 was outside the consented mine plan, only LW 5-6 and MW 7-8 were approved in the SMP. Now that development consent for LW/MW 9 (DA 309-11-2001-i MOD 4) has been granted ACOL is seeking to vary the approved SMP to include LW/MW 9.

This SMP variation is based primarily on the documentation submitted for the LW/MW 5-9 SMP and addresses only those sections of the original SMP application that are amended as a result of the approved LW/MW 9 modification (DA 309-11-2001-i MOD 4). The SMP variation requires only minor amendment to the mine plan as originally described in the LW/MW 5-9 SMP application. This SMP variation only considers those impacts which may differ to the impacts described in the approved SMP for LW 5-6 and MW 7-8. Specifically, these impacts relate to subsidence and groundwater.

This SMP variation has been prepared with reference to Condition 3.18 and 3.18A of DA 309-11-2001-i MOD 4, which prescribe the requirements to be addressed in the SMP, and Section 8 of the *"Guideline for Applications for Subsidence Management Approvals"* (DMR, 2003).

The SMP variation application area lies wholly within the Singleton Local Government Area (LGA) and includes the following workings in the Pikes Gully Seam:

- First workings for LW/MW 5-9; and
- Secondary extraction of LW/MW 5-9.

The SMP variation application area is shown in the SMP approved plan (Drawing Reference: A-4032 Approved Plan LW/MW 5-9) and is not amended from the original SMP application for LW/MW 5-9 by this variation. Plans, with the updated mine plan, are included in the variation.

Cumulative subsidence predictions, as provided in the original LW/MW 5-9 SMP application, are not altered by this SMP variation. With respect to groundwater the approved SMP (LW 5-6 and MW 7-8) was only approved for cumulative impacts up to MW8. Therefore for the LW/MW9 variation the groundwater inflow rates are similar to those predicted for the extraction of MW8 and the level of additional drawdown is predicted to be negligible. However, a slight loss in baseflow to Bowmans Creek is predicted as a result of the variation. The groundwater impacts are consistent with the predictions of the original LW/MW 5-9 application. Groundwater impacts have been approved by the Department of Planning (DoP), and accepted by NSW Office of Water (NOW) as noted in the LW/MW9 DoP Assessment Report.

ACOL has consulted with stakeholders potentially affected by the SMP variation.

The SMP variation includes only minor changes to the currently approved mine plan, proposes no change in the application area, and predicted impacts are negligible.

ACOL has provided a Statement of Commitments in relation to the activities specific to this SMP variation in Section 11 – Table of Commitments.

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Plan:	SMP Approved Plan
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Plan 2:	Surface Features
Plan 3A:	Geological Data – Pikes Gully Seam - Seam Thickness
Plan 3B:	Geological Data – Pikes Gully Seam - Depth of Cover
Plan 4A to 4F:	<i>Plans remain the same as the Longwall & Miniwall 5 to 9 SMP application. The plans show Geological Data (Seam Thickness and Depth of Cover) for the Upper Liddell, Upper Lower Liddell and Lower Barrett Seams</i>
Plan 5:	Mine Titles and Land Ownership
Plan 6:	Geological Strata Sections

ABBREVIATIONS

ACOL	Ashton Coal Operations Pty Limited
ACP	Ashton Coal Project
AEMR	Annual Environmental Management Report
ASHTON-1	Approval by I&I to Mine within Narama Dam Notification Area per DSC Recommendations
CCC	Community Consultative Committee
DA	Development Application
DA 309-11-2001-i MOD4	Development Consent Modification granted 26th March 2010 by delegation from the Minister of Planning
DECCW	Department of Environment, Climate Change & Water
DMR	Department of Mineral Resources
DOP	Department of Planning
DPI	Department of Primary Industries (now referred to as I&I)
DSC	Dam Safety Committee
EIS	Environmental Impact Statement
I&I	Industry & Investment NSW
LGA	Local Government Area
LW	Longwall
LW 1-4	Longwall Panels 1 to 4
LW/MW 5-9	Longwall & Miniwall Panels 5 to 9 (SMP Documents)
LW 5-6 and MW 7-8	Longwall 5-6 and Miniwalls 7-8 only (SMP Approval)
LW/MW 9	Longwall and Miniwall Panel 9
L/s	Litres per second
ML	Mining Lease
MLA	Mining Lease Area
ML/d	Mega litres per day
MOD4	Modification 4 of the ACP Development Consent
MSB	Mine Subsidence Board
MW	Miniwall
NOW	NSW Office of Water
NPW Act	National Parks and Wildlife Act 1974
RTA	Roads and Traffic Authority
SC	Singleton Council

SEOC

South East Open Cut

SMP

Subsidence Management Plan

1 INTRODUCTION

Ashton Coal Operations Pty Limited (ACOL) has commissioned AECOM to prepare an application to vary the approved Subsidence Management Plan (SMP) for Longwalls 5-6 and Miniwalls 7-8 (LW 5-6 and MW 7-8). While the original SMP application (made in October 2008) was for Longwall and Miniwall Panels 5 to 9 (LW/MW 5-9), Longwall and Miniwall 9 (LW/MW 9) was excluded from the approved SMP as LW/MW 9 was outside the development consent boundary.

This SMP application seeks to vary the approved LW 5-6 and MW 7-8 SMP to include LW/MW 9, which has now been granted development consent. The application is based primarily on the documentation submitted for the LW/MW 5-9 SMP (October 2008) and addresses only those sections of that document which are amended by the inclusion of LW/MW 9.

2 APPLICATION FOR SMP VARIATION

On 26 March 2010, approval was granted for a modification to DA 309-11-2001-i (DA 309-11-2001-i MOD 4) to enable development of LW/MW 9.

This SMP variation is based primarily on the documentation submitted for the LW/MW 5-9 SMP and addresses only those sections of the original SMP application that are amended as a result of the approved LW/MW 9 modification (DA 309-11-2001-i MOD 4). As a result, this SMP describes:

- Mine Design:-
 - Relocation (to that previously described in LW/MW 5-9) of LW/MW 9 by a distance of 50m from the boundary of the Bowmans Creek alluvium (Figure 1);
 - Relocation of cut-throughs in first workings for LW/MW 9 consistent with current mining sequencing (i.e. 150m pillars and pillar layouts configured for equipment specifications); and
 - Inclusion of a minimum 2.5m setback from the 20m barrier to the western lease edge.
- Groundwater:-
 - Minor variations that were approved by the DOP, and accepted by NOW, in DA 309-11-2001-i MOD 4. That is, for LW/MW 9, with respect to the LW 5-6 and MW 7-8 SMP, the predicted groundwater inflow rates are marginally greater than previously predicted, there will be negligible additional groundwater level drawdown and only minor reduction in baseflow to Bowmans Creek. The impacts are consistent with the original LW/MW 5-9 application.

This modification does not present a significant change to the environmental impacts associated with underground mining and as such a variation to the approved SMP is appropriate. Section 8 of the “*Guideline for Applications for Subsidence Management Approvals*” (DMR, 2003) provides general instructions for the variation of SMPs as follows:

“(1) An application for an SMP variation will be required under the following circumstances:

- 1) When the leaseholder seeks to vary the approved Subsidence Management Plan;*
- 2) When the leaseholder seeks to vary major mine layout parameters which control subsidence (such as location, dimension or thickness of longwall voids);*
- 3) Any other circumstance where the leaseholder identifies that there are likely significant additional and / or increased subsidence risks or impacts as compared with those documented in Section 6.10 of the original SMP application, due to revised subsidence predictions, results of monitoring and/or any other reason”.*

This application has also been prepared in accordance with Conditions 3.18 and 3.18A to Schedule 2 of DA 309-11-2001-i (as modified), as listed in Table 1.

Table 1 SMP Development Consent Conditions

Condition	Where addressed in this document (LW/MW 9 SMP Variation)	Where addressed in approved SMP (LW 5-6 and MW 7-8SMP)
3.18 <i>Prior to carrying out any underground mining operations that could cause subsidence; the Applicant shall prepare a Subsidence Management Plan (SMP) which must:</i>	See references in table below	See references in table below
a) <i>include a mine plan for the relevant area;</i>	Figure 1 App A	Vol 1 Figure 2
b) <i>include a minimum of 2 years of baseline data, collected at appropriate frequency and scale;</i>	Section 5	Vol 1 Section 3.0 Vol 1 App C
c) <i>integrate ongoing management of previously mined areas;</i>	Not required in this SMP variation (refer to approved SMP Vol 2 Section 10.0)	Vol 2 Section 10.0
d) <i>identify and assess the significance of all natural features located within 600 m of the edge of secondary extraction;</i>	An SMP approved by I&I prior to 28 February 2010 is taken to satisfy the requirements of this condition. Such an SMP may be varied to include Longwall/Miniwall 9 (see Note in table below).	N/A - The SMP was approved prior to the addition of condition 3.18(d).
e) <i>include a clear description of subsidence effects, subsidence impacts and environmental consequences;</i>	Section 5 Section 6 Section 7	Vol 1 Part B Vol 1 Part B App C
f) <i>include management, monitoring and contingency plans for all significant manmade and natural features which may experience subsidence effects, subsidence impacts or environmental consequences, including:</i>	See below	See below
<ul style="list-style-type: none"> • <i>dwelling and buildings;</i> 	N/A	N/A
<ul style="list-style-type: none"> • <i>roads, electrical, communications and other infrastructure;</i> 	Minor amendments - refer to Section 11 - Table of Commitments.	Vol 1 Section 4.3 Vol 2 App B Vol 2 App C Vol 2 App D Vol 2 App E
<ul style="list-style-type: none"> • <i>landscape;</i> 	No amendments - refer to approved SMP	Vol 1 Section 1.5.2

Condition	Where addressed in this document (LW/MW 9 SMP Variation)	Where addressed in approved SMP (LW 5-6 and MW 7-8SMP)
<ul style="list-style-type: none"> groundwater; 	Section 7.1	Vol 2 Section 6.0 Vol 1 Part B App G
<ul style="list-style-type: none"> terrestrial flora and fauna and ecology (including any threatened species and their habitats); and 	No amendments - refer to approved SMP	Vol 1 Part B App D Vol 1 Part B App H
<ul style="list-style-type: none"> Aboriginal and other cultural heritage; 	No amendments - refer to approved SMP	Vol 1 Part B App I
g) propose limits on subsidence impacts and environmental consequences to be applied within the relevant area;	Section 7 App C App D	Vol 2 Section 2.0
h) be prepared in consultation with NoW, I&I, Singleton Council and the Department;	Section 9.1.2	Vol 1 Part A Section 7.2.2
i) be publicly advertised when submitted for approval;	Section 9.1.3	Vol 1 Part A Section 7.2.3
j) be approved by the Director-General of I&I prior to the carrying out of any underground mining operations that could cause subsidence in the relevant area (including related gateroads, but not main headings);	This application	Application dated October 2008 and approved in July 2009
k) be otherwise prepared in accordance with any guidelines for SMPs developed by the Department and/or I&I; and	Prepared in accordance with "Guideline for Applications for Subsidence Management Approvals" (DMR, 2003)	Prepared in accordance with "Guideline for Applications for Subsidence Management Approvals" (DMR, 2003)
l) be implemented, following approval, to the satisfaction of the Director-General of I&I.	N/A	N/A

Condition	Where addressed in this document (LW/MW 9 SMP Variation)	Where addressed in approved SMP (LW 5-6 and MW 7-8SMP)
<p>Notes:</p> <ul style="list-style-type: none"> <i>In reviewing an SMP, the Director-General of I&I may require changes in respect of subsidence impact limits, subsidence management mechanisms or other matters.</i> <i>An SMP approved by I&I prior to 28 February 2010 is taken to satisfy the requirements of this condition. Such an SMP may be varied to include Longwall/Miniwall 9. In respect of an SMP prepared under this condition prior to 31 December 2010, the Director-General of I&I may accept less than 2 years baseline data.</i> 	<p>As the currently approved SMP was approved prior to 28 February 2010, it is considered that a SMP Variation to include LW/MW9 is appropriate.</p>	<p>N/A</p>
<ul style="list-style-type: none"> <i>3.18A The Applicant shall ensure that the change point from longwall to miniwall mining for Longwall/Miniwall 9 within the Pikes Gully Seam shall be located at a minimum horizontal distance of 50 metres from the boundary of the Bowmans Creek Alluvium.</i> 	<p>Section 2</p>	<p>N/A</p>

3 THE APPLICATION AREA

Described in Section 1.1, Volume 1 of the LW/MW 5-9 SMP Documentation

The Ashton Coal Project (ACP) is located near Camberwell, 14 km northwest of Singleton in the Hunter Valley, New South Wales. The ACP lies adjacent to the open cut mines of Mt Owen to the north, Camberwell to the east, Lemington to the south and Ravensworth to the west. Nearby underground mines include Integra Underground to the north east and Ravensworth Underground to the west.

The SMP application area lies wholly within the Singleton Local Government Area (LGA). The SMP application area includes the following workings in the Pikes Gully Seam:

- First workings for LW/MW 5-9; and
- Secondary extraction of LW/MW 5-9.

The SMP application area is shown on the approved SMP plan (Drawing Reference: A-4032 Approved Plan, which accompanied the SMP application for LW/MW 5-9). However the approved SMP area (LW 5-6 and MW 7-8) does not include the LW/MW 9 footprint.

The current SMP variation will result in a minor change to each of the plans in the approved SMP (LW 5-6 and MW 7-8), which includes relocating the Longwall 9 startline by 50 m outbye. The revised plans are included as **Appendix A**.

3.1 HISTORY OF OPERATIONS

Described in Section 1.3, Volume 1 of the LW/MW 5-9 SMP Documentation

Longwall operations commenced in February 2007.

The current SMP (LW 5-6 and MW 7-8) was approved by Industry and Investment NSW (I&I) (formerly the Department of Primary Industries (DPI)) on 2 July 2009. However, the approval excluded the area of LW/MW 9 as this area was outside of the development consent boundary.

In March 2010, approval was granted for the modification of DA 309-11-2001-i to enable the development and mining of LW/MW 9.

4 MINING SYSTEMS AND RESOURCE RECOVERY

Described in Section 1.4.2, Volume 1 of the LW/MW 5-9 SMP Documentation

4.1 MINING METHODS

ACOL will continue coal mining operations using the retreating longwall method for secondary extraction, as described in the original application.

There will be no change to mining methods as a result of this SMP variation.

4.1.1 Modification to LW/MW 9 Mine Plan

ACOL has made minor amendments to the LW/MW 9 mine plan. This includes:

- Relocation (to that previously described in LW/MW 5-9) of Longwall 9 startline by a distance of 50m from the boundary of the Bowmans Creek alluvium (Figure 1);
- Relocation of cut-throughs in first workings for LW/MW 9 consistent with current mining sequencing (i.e. 150m pillars and pillar layouts configured for equipment specifications); and
- Inclusion of a minimum 2.5m setback from the 20m barrier to the western lease edge.

5 SUBSIDENCE MONITORING

Described in Section 3.3, Volume 1 of the LW/MW 5-9 SMP Documentation

Longwall operations commenced in February 2007 and LW4 was completed in October 2009. Subsidence monitoring for LW1-4 was analysed by SCT and detailed in the 2008 Annual Environmental Monitoring Report (AEMR) (ACOL, 2008), 2009 AEMR (ACOL, 2009) and the Longwall 1 to 4 End of Panel (EoP) reports. LW4 EoP report has submitted to I&I and copies provided to the relevant stakeholders.

ACOL has monitored the subsidence movement on the surface during the extraction of LW 1-4 using longitudinal subsidence lines over the start and finish of each panel and a main crossline (XL5) extending over all four panels. Several other subsidence lines have been used to monitor the slope leading down to Glennies Creek, closure across the New England Highway, subsidence across a dyke (XL5) and in relation to Bowmans Creek (XL10).

Comparison of the maximum predicted and observed subsidence parameters is summarised in **Table 2**. The review by SCT (Dec, 2009) is reproduced in full in **Appendix B** and indicates that subsidence behaviour above LW 1-4 was generally consistent with predicted supercritical subsidence behaviour.

Table 2 Longwall 1-4 Maximum Predicted vs Observed Subsidence Parameters

North End of LW1	Maximum Predicted (LW/MW 5-9 SMP)	Maximum Observed			
		CL2		XL8	
Subsidence (mm)	1800	1528		1500	
Tilt (mm/m)	244	100		103	
Horizontal Movement (mm)	500+	476		500	
Tensile Strain (mm/m)	73	40		15	
Compressive Strain (mm/m)	98	28		27	
Remainder of LW1	Maximum Predicted	Maximum Observed			
		CL1		XL5	
Subsidence (mm)	1700	1318		1436	
Tilt (mm/m)	141	60		75	
Horizontal Movement (mm)	300 – 500	480		503	
Tensile Strain (mm/m)	42	49		17	
Compressive Strain (mm/m)	56	23		24	
LW2	Maximum Predicted	Maximum Observed			
		CL1	CL2	XL5	
Subsidence (mm)	1600	1296	1513	1266	
Tilt (mm/m)	102	40	82	78	
Horizontal Movement (mm)	300 - 500	440	298	390	
Tensile Strain (mm/m)	30	17	16	11	
Compressive Strain (mm/m)	41	16	32	28	
LW3	Maximum Predicted	Maximum Observed			
		CL1	CL2	XL5	
Subsidence (mm)	1600	1420	1354	1429	
Tilt (mm/m)	78	41	48	97	
Horizontal Movement (mm)	300-500	463	345	394	
Tensile Strain (mm/m)	23	10	17	22	
Compressive Strain (mm/m)	31	7	18	24	
LW4	Maximum Predicted	Maximum Observed			
		CL1	CL2	XL5	XL10
Subsidence (mm)	1600	1397	1194	1546	1263
Tilt (mm/m)	78	36	40	53	33
Horizontal Movement (mm)	300 - 500	230	560	360	258
Tensile Strain (mm/m)	23	10	18	9	6
Compressive Strain (mm/m)	31	9	67	9	10

Source: SCT, Dec 2009

6 SUBSIDENCE PREDICTIONS

Described in Section 3.5, Volume 1 of the LW/MW 5-9 SMP Documentation

This SMP variation does not result in any changes to the subsidence predictions documented in the original SMP (LW/MW 5-9) as summarised in **Table 3**. Copies of the LW/MW 9 subsidence prediction report is contained in **Appendix C**.

Table 3 Subsidence Predictions

Panel	Maximum Subsidence (mm)	Maximum Tensile Strain (mm/m)	Max. Compressive Strain (mm/m)	Maximum Tilt (mm/m)
LW5	1600	20	27	67
MW5	200	3.2	4.2	11
LW6	1600	17	23	57
MW6	350	3.2	4.2	11
MW7	350	3.2	4.2	11
MW8	350	3.2	4.2	11
MW9	200	3.2	4.2	11
LW9	1200	15	20	50

Source: SCT 2008a and SCT 2008b.

7 SUBSIDENCE IMPACTS

Described in Section 4.0, Volume 1 of the LW/MW 5-9 SMP Documentation

This SMP variation requires a minor amendment to the mine plan proposed in the original SMP application for LW/MW 5-9. These amendments (see section 4.1.1) will result in only minor subsidence impacts. However, groundwater has been identified as potentially being affected by the inclusion of LW/MW 9 into the mine plan.

7.1 GROUNDWATER RESOURCES

Described in Section 4.2.4, Volume 1 of the LW/MW 5-9 SMP Documentation

Aquaterra Pty Limited (Aquaterra) was engaged to undertake an assessment of the impacts of the LW/MW 9 on groundwater. A copy of this assessment is contained in **Appendix D**.

The impacts predicted from this assessment can be summarised as follows:

- Predicted cumulative groundwater inflow rates after the completion of LW/MW 9 (1.45-1.55 ML/d) are marginally greater than the predicted groundwater inflow rates to the completion of MW 8 (1.43-1.53 ML/d) in the SMP approved mining area. (i.e. LW/MW 9 has an incremental impact of 0.02 ML/d). Further, the predicted inflow rates from the current modelling are lower than those predicted in the *Ashton Coal Project Environmental Impact Statement* (EIS) (HLA-Envirosciences, 2001) for the final stage of mining of the Pikes Gully Seam, in the currently approved mining area and the inflow rate is consistent with the original LW/MW 5-9 SMP application;
- Current modelling predicts a cumulative reduction in baseflow to Bowmans Creek of about 1.1-1.2 L/s (0.23 ML/d) after the completion of mining of LW/MW 9. This compares with the predicted cumulative reduction of 0.7-1.1 L/s predicted up to the completion of mining of MW 8. (i.e. LW/MW 9 has an incremental impact of 0.1-0.4 L/s). However, both baseflow predictions are substantially less than that predicted in the EIS (HLA-Envirosciences, 2001) for the same stage of underground mining (i.e. 4.3 L/s (0.37 ML/d)) and the baseflow predictions are consistent with the original LW/MW 5-9 SMP application; and
- Negligible additional groundwater level drawdown is predicted during mining of LW/MW 9 compared with the mining of MW 8. The Pikes Gully Seam is predicted to have already been substantially dewatered across the mine area prior to commencement of mining in LW/MW 9.

The impacts have been approved by the DoP, and accepted by NOW as noted in the LW/MW9 DoP Assessment Report. The impacts to groundwater are discussed in the LW/MW9 DoP Assessment Report, which states:-

- The predicted impacts on alluvial groundwater associated with extraction of LW/MW9 are very small and only marginally greater than that approved for LW 5-6 and MW7-8; and
- Risks have been further ameliorated by the 50 m pullback in the change-out (outbye) location for the miniwall

Groundwater monitoring will continue as per the ACOL Groundwater Management Plan

8 STATUTORY REQUIREMENTS

Described in Section 5.0, Volume 1 of the LW/MW 5-9 SMP Documentation

A summary of all current approvals relevant to the SMP variation is summarised in **Table 4**.

Table 4 Current Approvals and Licences for ACOL Underground Operations

Type	Issuing Authority	Date of Issue	Expiry	Comments
Mining Lease 1533	Industry and Investment (I&I) (formerly Department of Primary Industries (DPI) (Minerals, Fisheries, and Agriculture)	26/2/2003	26/02/2024	Application Area extends marginally (up to 43m) outside lease extent as the predicted 20mm subsidence line extends marginally outside the lease.
Mining Lease 1623	Industry and Investment (I&I) (formerly Department of Primary Industries (DPI) (Minerals, Fisheries, and Agriculture)	30/10/2008	30/10/2029	A small additional lease (26.17ha) approved to enable extension of Mains headings to provide access to LW/MW9 (see SMP Plan No.5 – Mining Titles and Land Ownership)
Development Consent 309-11-2001-i (as modified)	Department of Planning (DoP)	11/10/2002	11/10/2023	Development consent modification (MOD 4) for inclusion of MW9 and LW9 was approved by the DoP 26/03/2010. Two further modifications have been lodged with the DoP (MOD5 and MOD6) and are currently being assessed.
Environmental Protection Licence (EPL) 11879	Department for the Environment, Climate Change and Water (DECCW)	02/09/03 (archived 27/12/2007)	06/11/2011 (Review Date)	
Bore Licences 20BL136766 20BL168848 20BL168849 20BL169508 20BL169937 20BL171364 20BL170596	NSW Office of Water (NOW) - Stock Domestic - Test Bore - Test Bore - Mining 10 ML - Mining 100 ML - Joint with 20BL169937 - Monitoring	12/01/1988 27/08/2003 27/08/2003 15/03/05 01/07/09 17/05/07 16/10/06	Perpetuity Perpetuity Perpetuity 14/03/10 01/07/12 16/05/12 Perpetuity	- - - - - - -
Subsidence Management Plan (LW 1 – 4) Approval	I&I DoP	08/03/2007 13/03/2007	01/03/2014	Amended approval 06/07/2007

Type	Issuing Authority	Date of Issue	Expiry	Comments
Subsidence Management Plan (LW5-6 & MW7-8) Approval	I&I	02/07/2009	01/07/2016	Submitted Documentation per "Longwall & Miniwall 5 to 9" and approved as "Longwall 5-6 and Miniwall 7-8 only"
Subsidence Management Plan First workings extension NWM 32-34ct	I&I	1/02/2010	1/02/2011 (with conditions)	Extension of First workings under the approved "Longwall 5-6 & Miniwall 7-8 only" SMP
Clause 88(1) "Extraction of Longwall Panels 5 and 6 (inclusive) Pikes Gully Seam"	I&I	28/02/07	1/06/11	Current approval for safe operations and stability of workings and resource recovery longwall mining
Narama Dam Notification Area (ASHTON-1)	I&I (per DSC recommendations)	17/02/2010	31/1/2015	Approval to Mine within Designated Dam Notification Area
Heritage:- AHIMS Permit No 1591 to collect Aboriginal artefacts north of the New England Highway under S90 of NPW Act	DECCW	21/07/03	21/07/08	Complete
Heritage:- AHIMS Permit No 2783 to collect Aboriginal artefacts EWA86 under S90 of NPW Act	DECCW	28/09/07		Current

9 COMMUNITY CONSULTATION

Described in Section 7, Volume 1 of the LW/MW 5-9 SMP Documentation

9.1 CONSULATATION METHODOLOGY

9.1.1 Landowners

Consultation in relation to this SMP variation was undertaken with the following landowners, identified as being directly affected by subsidence or subsidence impacts:

- Macquarie Generation – direct subsidence impacts to landholdings, infrastructure and access roads; and
- Xstrata Coal NSW (Ravensworth Operations Pty Ltd and Ravensworth Underground Mine) – subsidence impacts to Narama Dam and Brunkers Lane (not a public road) which is being used for private access to portions of Property No.153 and to a private electricity transmission line.

A summary of consultation undertaken is provided in **Table 5**.

Table 5 Summary of Landowner Consultation

Stakeholder	Date Consulted	Description
Macquarie Generation	August 2009	Section 75W referral from the DoP
Xstrata Coal NSW	August 2009	Section 75W referral from the DoP

In addition, the following stakeholders were notified of the approval of DA 309-11-2001-i MOD 4 and ACOL's intentions to apply for a variation to its approved SMP (LW 5-6 and MW 7-8):

- Government authorities – Department of Planning, Department of Environment Climate Change and Water, New South Wales Office of Water, Industry & Investment (Agriculture), Industry & Investment (Fisheries), Roads and Traffic Authority, Dams Safety Committee and Mine Subsidence Board;
- Corporate and private stakeholders – AAPT (PowerTel Limited), Bayswater Power Station, Energy Australia, Mt Owen Mine, Ravensworth Operations, Ravensworth Underground Mine, Singleton Shire Council, Telstra Corporation Ltd, and Mr Alastair Bowman; and
- Aboriginal stakeholders – Aboriginal Native Title Consultants, Tocomwall, Yarawalk, Wanaruah Custodians, Junburra Consulting, Lower Wonnarua Tribal Council Registrar of Aboriginal Owners, Ungoороо Aboriginal Corporation Wattaka Wonnarua C.C. Service, Wonnarua Aboriginal Custodians Corporation, Wonnarua Local Aboriginal Land Council, Wanaruah Custodians and Yarrawalk Enterprises.

9.1.2 Government Authorities

A summary of the consultation undertaken with government authorities is provided in **Table 6**.

Table 6 Summary of SMP Consultation with government authorities

Stakeholder	Date Consulted	Description
DoP	19 August 2009	Request to modify a major project (Section 75W Modification DA 309-11-2001 (MOD 4))
DPI (Minerals)	26 August 2009	Notification Letter – SMP Variation
DECCW	August 2009	Section 75W referral from the DoP
I&I	August 2009	Section 75W referral from the DoP
NOW	August 2009	Section 75W referral from the DoP
RTA	August 2009	Section 75W referral from the DoP
DSC	August 2009	Section 75W referral from the DoP
Singleton Council	August 2009	Section 75W referral from the DoP
MSB	August 2009	Section 75W referral from the DoP

9.1.3 Other Stakeholders

Consultation in relation to this SMP variation was undertaken via a range of methods (**Table 7**) in order to ensure local residents, interested stakeholders and the broader community were provided an opportunity to comment. Consultation with these stakeholders was generally grouped as follows:

- ACOL Community Consultative Committee (CCC);
- Local Indigenous community;
- Camberwell residents and residents of nearby rural properties; and
- General public.

Table 7 Community Consultation

Date	Description
7 December 2008	<p>ACOL CCC ACOL CCC advised that Subsidence Management Plan for Longwall Panels 5 to 9 had been submitted to DPI and that a variation to the original development would be sought for Longwall Panel 9.</p>
Friday 11 September 2009	<p>Public Notice - Newspaper Advertisements placed within the Public Notices section of the Sydney Morning Herald and Singleton Argus inviting expressions of interest from Aboriginal stakeholders.</p>
October 2009	<p>ACOL Community Newsletter Posted on ACOL's website and mailed to regular distribution list. Article advising that ACOL has submitted a Section 75W modification to DA 309-11-2001 to allow the mining in LW9.</p>
May 2010 – Post the SMP application	<p>Public Notice – Newspaper Advertisements placed within the Public Notices section of the Sydney Morning Herald and Singleton Argus advertising ACOL's intent to apply for an SMP variation.</p>
May 2010 – Planned for circulation before the end-May 2010	<p>ACOL Community Newsletter Posted on ACOL's website and mailed to regular distribution list. Article advising that ACOL has received development consent modification and will be applying for SMP variation.</p>

9.1.4 Summary of Consultation Outcomes

Described in Section 7.3, Volume 1 of the LW/MW 5-9 SMP Documentation

Responses and feedback received by ACOL from representatives of the stakeholders consulted are summarised in **Table 8**.

Table 8 Summary of Landowner and Stakeholder Consultation

Respondent	Key Issues	Comment
Macquarie Generation	Potential subsidence impacts to Brunkers Lane (not a public road) and other infrastructure.	ACOL commit to the maintenance of Brunkers Lane (not a public road), from the effects of ACOL induced subsidence, in its current form and status (as a private access road) in a manner which is safe, serviceable and repairable.
Xstrata Coal NSW	Potential subsidence impacts to Brunkers Lane (not a public road) and other infrastructure.	ACOL commit to the maintenance of Brunkers Lane (not a public road), from the effects of ACOL induced subsidence, in its current form and status (as a private access road) in a manner which is safe, serviceable and repairable.
DECCW	Aboriginal heritage sites and salvage.	ACOL has proposed the following remedial actions that will be managed in accordance with the approved Archaeology and Heritage Management Plan: <ul style="list-style-type: none"> Regular monitoring of the two artefact scatter sites by the Aboriginal community. Regular monitoring of subsidence impacts on the floodplain and terraces of Bowmans Creek by an archaeologist. Obtaining approval from DECCW under Part 6 of the <i>National Parks and Wildlife Act 1974</i> (NPW Act) prior to undertaking rehabilitation of any surface cracks in the area between Bowmans Creek and Brunkers Lane.
	Protection of River Red Gums	Groundwater assessment predicts only minimal water table drawdown and will not effect the River Red Gums on Bowmans Creek to the south of LW/MW 9.
NOW	Connective cracking between Bowmans Creek alluvium and the underground mine workings. Charge point from the longwall to miniwall mining too close to Bowmans Creek.	The predicted impacts on alluvial groundwater associated with extraction of LW/MW9 are very small and only marginally greater than that approved for LW 5-6 and MW 7-8. The predicted impacts are consistent with the original LW/MW 5-9 SMP application. Risks have been further ameliorated by the 50m pullback in the change-out (outbye) location for the miniwall. The impacts have been approved by the DoP, and accepted by NOW as noted in the LW/MW9 DoP Assessment Report.
I&I	Southern end of LW/MW9 located outside ACOL existing mining lease.	The approved mine plan (DA 309-11-2001-i, as modified) is totally within ML1533 and 1623.
RTA	No issues.	-
DSC	No issues.	-
MSB	Subsidence issues related to Brunkers Lane.	Raised issues relating to proposals to use Brunkers Lane for a proposed relocation of Lemington Road..
Yarrawalk Aboriginal Corporation	The area has high cultural significance.	ACOL has proposed the following remedial actions that will be managed in accordance with the approved Archaeology and Heritage Management Plan: <ul style="list-style-type: none"> Regular monitoring of the two artefact scatter sites by the Aboriginal community. Regular monitoring of subsidence impacts on the floodplain and terraces of Bowmans Creek by an archaeologist.

Respondent	Key Issues	Comment
(continued)		Obtaining approval from DECCW under Part 6 of the NPW Act prior to undertaking rehabilitation of any surface cracks in the area between Bowmans Creek and Brunkers Lane.
Wanaruah Custodians	The area has high cultural significance.	<p>ACOL has proposed the following remedial actions that will be managed in accordance with the approved Archaeology and Heritage Management Plan:</p> <p>Regular monitoring of the two artefact scatter sites by the Aboriginal community.</p> <p>Regular monitoring of subsidence impacts on the floodplain and terraces of Bowmans Creek by an archaeologist.</p> <p>Obtaining approval from DECCW under Part 6 of the National Parks and Wildlife Act 1974 prior to undertaking rehabilitation of any surface cracks in the area between Bowmans Creek and Brunkers Lane.</p>

10 SPECIFIC MANAGEMENT PLANS

The original SMP includes the following sub-plans (Specific Management Plans):

- Roads Subsidence Management Plan;
- Ashton Coal and Roads & Traffic Authority Subsidence Management Plan New England Highway Longwalls 1 – 4 and Longwalls/Miniwalls 5 to 9;
- Electricity Transmissions Lines Subsidence Management Plan;
- Telecommunications Subsidence Management Plan;
- Fences and Gates Subsidence Management Plan;
- Surface Water Storages Subsidence Management Plan; and
- Public Safety Subsidence Management Plan.

In compliance with LW 5-6 and MW 7-8 SMP Condition 13 (as modified) an additional Specific Management Plan will be submitted post-Longwall 6 to manage mining infrastructure not owned by ACOL, specifically:

- Pipelines Subsidence Management Plan;

ACOL will make modifications, primarily minor, to Specific Management Plans to reflect updated mine plans, commitments and SMP approval conditions as a result of this SMP variation, including:

- Macquarie Generation private road (access to Void 4/5 area);
- Macquarie Generation sedimentation ponds;
- Buried polyethylene pipes;
- Narama dam;
- Void 5 dam; and
- Bowmans Creek flow gauging station.

11 SMP COMMITMENTS

ACOL has made a number of commitments throughout this SMP variation application, which are specific to LW/MW 9 and differ from those of the approved LW 5-6 and MW7-8 SMP. A summary of these commitments is included in **Table 9**.

Table 9 Summary of Commitments Additional to LW/MW 5-9 SMP

Issue	Description	Action / Timing	Reference (page)
1. Mine Plan	Relocation of Longwall 9 within the Pikes Gully Seam by a distance of 50m from the boundary of the Bowmans Creek alluvium (in accordance with Condition 3.18A of Schedule 2 of DA 309-11-2001-i).	LW 9 is pulled back 50m and the updated Mine design is included for approval in the SMP Variation for LW/MW 9.	2
	Cut-through locations adjusted to reflect current mining sequences (i.e. 150m pillars and pillars layouts configured for equipment specifications).	The updated Mine design is included for approval in the SMP Variation for LW/MW 9.	2
	Ensure a 20m Barrier between workings and Lease Boundary	The Mine design incorporates a minimum 2.5m setback from the 20m barrier to ensure compliance. The updated Mine design is included for approval in the SMP Variation for LW/MW 9.	2
2. Brunkers Lane (private access road)	ACOL commit to the maintenance of Brunkers Lane (not a public road), from the effects of ACOL induced subsidence, in its current form and status (as a private access road) in a manner which is safe, serviceable and repairable. (This is consistent with the note to Condition 11.14 of Schedule 2 of DA 309-11-2001-i: <i>The Applicant is not responsible under this condition for costs of impact management measures associated with impacts of the development on built features which are constructed or upgraded following approval of a Subsidence Management Plan which manages subsidence impacts at the affected location</i>)	Prior to impacts on Brunkers Lane (not a public road), update Road SMP in consultation with Macquarie Generation as the landowner and Ravensworth Operations as an existing user of this private access road.	16
3. Other built features	General ACOL will take responsibility to maintain existing surface infrastructure in a manner which is safe, serviceable and repairable. As such ACOL will mitigate or remediate damage, from the effects of ACOL induced subsidence, to existing infrastructure that is not owned by the proponent	Managed through SMP approved Management Plans for Infrastructure, Property Management and Safety.	19

Issue	Description	Action / Timing	Reference (page)
	Specific:- - Macquarie Generation Private Road (access to Void 4/5 area)	Grade and filling of cracks as per Roads SMP	19
	- Macquarie Generation Sedimentation Ponds	Develop an agreement with Macquarie Generation to empty the ponds during the period of undermining (as per Dams SMP) Resealing of cracks in clay liners of the sedimentation ponds and sedimentation dams	19
	- Buried Polyethylene Pipes	see Management Plans below	19
	- Narama Dam	Continue monitoring as per I&I approval (issued and titled ASHTON-1). The existing ASHTON-1 approval includes LW/MW 9.	19
	- Void 5 Dam	Install a subsidence monitoring line towards void 5, after void 5 dam is constructed. - Maintain the safety of the dam in accordance with requirements of the DSC.	19
	- Bowmans Creek flow gauging station	As per LW/MW 5-9 SMP (in accordance with the Telecommunication Lines SMP)	-
4. Groundwater	Monitoring as per the Groundwater Management Plan	Ongoing	11
5. Heritage	Manage in accordance with the approved Archaeology And Heritage Management Plan	Ongoing	16
6. Management Plans	Minor modifications to Specific Management Plans to reflect updated mine plan and SMP approval conditions	Prior to commencement of mining of LW/MW 9.	19
	In compliance with LW 5-6 and MW 7-8 SMP Condition 13 (as modified) an additional Management Plan (Pipelines Subsidence Management Plan) will be submitted to manage Mining Infrastructure not owned by ACOL.	Post LW 6	19

12 SMP PLANS

Table 10 lists the SMP Plans that have been updated to reflect the updated Mine Plan. A copy of each updated plans is included in **Appendix A**.

Table 10 Updated SMP Plans

SMP PLANS	DESCRIPTION	NOTES
Plan	SMP Approved Plan	
Plan 1A	Proposed SMP Boundary	
Plan 1B	Aerial Photograph with Proposed SMP Boundary	
Plan 2	Surface Features	
Plan 3A	Geological Data – Pikes Gully Seam – Seam Thickness Contours	
Plan 3B	Geological Data – Pikes Gully Seam – Depth of Cover Contours	
<i>Plan 4A</i>	<i>Upper Liddell Seam – Seam Thickness Contours</i>	Not Modified as Lower Seam Indicative Mine plan has not changed
<i>Plan 4B</i>	<i>Upper Liddell Seam – Depth of Cover Contours</i>	
<i>Plan 4C</i>	<i>Upper Lower Liddell Seam – Seam Thickness Contours</i>	
<i>Plan 4D</i>	<i>Upper Lower Liddell Seam – Depth of Cover Contours</i>	
<i>Plan 4E</i>	<i>Barrett Seam – Seam Thickness Contours</i>	
<i>Plan 4F</i>	<i>Barrett Seam – Depth of Cover Contours</i>	
Plan 5	Mining Titles and Land Ownership	
Plan 6	Geological Strata Sections	

13 REFERENCES

- ACOL (2008) *Annual Environmental Management Report 2006/2007*. Ashton Coal Operations Pty Ltd, Camberwell NSW Australia.
- ACOL (2009) *Annual Environmental Management Report 2007/2008*. Ashton Coal Operations Pty Ltd, Camberwell NSW Australia.
- Aquaterra (2009) *Ashton Underground Mine Extension of Development Consent Area - Groundwater Impact Assessment Report*, prepared for Ashton Coal Operations Limited, Aquaterra (Reference S55B/600/032b) Pymble NSW.
- HLA-Envirosciences (2001) *Ashton Coal Project Environmental Impact Statement*. Prepared for White Mining Limited, HLA-Envirosciences Pty Ltd, Newcastle, NSW Australia.
- Maunsell Australia. (2008) *Ashton Coal Underground Subsidence Management Plan Longwall and Miniwall Panels 5 to 9*. Prepared for Ashton Coal Operations Limited, Maunsell Australia Pty Ltd, Maitland, NSW Australia.
- SCT Operations Pty Ltd (2008a) *Subsidence Assessment for Ashton Coal Mine Longwalls 5 to 9 (Reference ASH3391A)*. Prepared for Ashton Coal Operations Limited. SCT Operations Pty Ltd, Wollongong NSW Australia.
- SCT Operations Pty Ltd (2008b) *Subsidence Assessment for the Extension of Development Consent Area at Ashton Coal Mine Longwalls 5 to 9 (Reference ASH3476)*. Prepared for Ashton Coal Operations Limited. SCT Operations Pty Ltd, Wollongong NSW Australia.
- SCT Operations Pty Ltd (2009) *Review of Subsidence Monitoring and Comparison with Predictions of Longwall 2 and Longwall 3 at the Completion of Longwall 3 (Reference: ASH3485) Letter report, to Ashton Underground Mine*. SCT Operations Pty Ltd, Wollongong NSW Australia.
- SCT Operations Pty Ltd (2009) *Ashton Longwall 4 – End of Panel Summary Report*.
- WES (2009) *Development Consent Modification DA 309-11-2001-i (MOD 4)* Prepared for Ashton Coal Operations Pty Limited, Wells Environmental Services, East Maitland NSW Australia., and
- Department of Planning (2010) *Assessment Report (Ashton Coal Mine – Longwall/Miniwall NO9 – DA 309-11-2001-i (MOD 4))*.

FIGURES

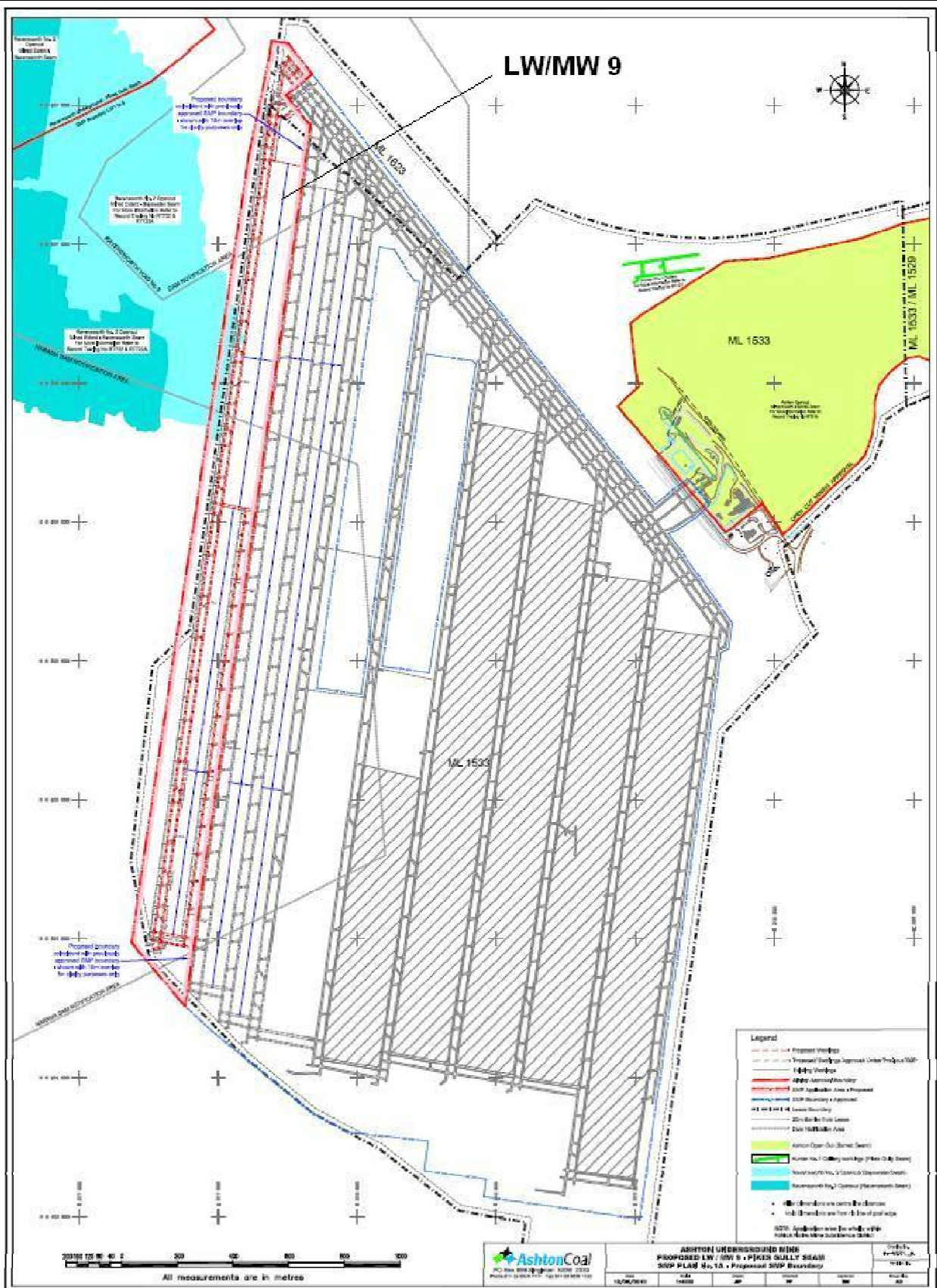


Figure 1 Proposed Pikes Gully LW/MW 9 Variation - Copy of Plan 1A (A-4071)

APPENDIX A UPDATED SMP PLANS

APPENDIX B REVIEW OF THE SUBSIDENCE MONITORING

- SCT Operations Pty Ltd (2009) *Ashton Longwall 4 – End of Panel Summary Report*.

APPENDIX C SUBSIDENCE PREDICTION REPORT

- SCT Operations Pty Ltd (2008b) Subsidence Assessment for the Extension of Development Consent Area at Ashton Coal Mine Longwalls 5 to 9 (Reference ASH3476). Prepared for Ashton Coal Operations Limited. SCT Operations Pty Ltd, Wollongong NSW Australia.

APPENDIX D GROUNDWATER IMPACT ASSESSMENT

- Aquaterra (2009) *Ashton Underground Mine Extension of Development Consent Area - Groundwater Impact Assessment Report*, prepared for Ashton Coal Operations Limited, Aquaterra (Reference S55B/600/032b) Pymble NSW.

APPENDIX E I&I NSW LETTER OF APPLICATION AND
OTHER AGENCY CONSULTATION
