

---

# Subsidence Management Plan Approval

---

I, Matthew Gagan, Senior Advisory Officer, Division of Resources and Geoscience, under delegation from the Secretary, NSW Department of Planning & Environment dated 20 April 2017, having considered the likely environmental impacts of the mining operations identified in the Project Description specified in Schedule 1 and having had regard to the principles of ecologically sustainable development as defined in the *Protection of the Environment Administration Act 1991*, approve, for the purposes of the Extraction Plan Condition that became effective on 1 July 2014 in Consolidated Coal Lease no.716, Mining Lease No. 1376 & Mining Lease No. 1539, the Subsidence Management Plan identified in Schedule 1, subject to the conditions set out in Schedule 2.

This Approval only authorises the underground mining operations identified in the Project Description for the Period and Area identified in Schedule 1. Obligations under this Approval regarding rehabilitation, monitoring and impact management continue to apply after the expiry of this period unless otherwise notified in writing by the Secretary.

These conditions are required to:

- ensure optimal mineral resource recovery;
- prevent, minimise, manage and/or offset adverse impacts;
- provide for the ongoing environmental management of the project;
- ensure the area disturbed by mining is appropriately rehabilitated.

The rights and duties of a Leaseholder are those prescribed by the *Mining Act 1992*, subject to the terms and conditions of the Lease which include a requirement to carry out operations in accordance with the Subsidence Management Plan conditionally approved by this Approval. This Subsidence Management Plan Approval does not override any obligation on the Leaseholder to comply with the requirements of other legislation and regulatory instruments unless specifically provided in the Mining Act or other legislation or regulatory instruments.

**SIGNED**



**Matthew Gagan,  
Senior Advisory Officer  
Division of Resources and Geoscience  
Under delegation for the Secretary dated  
3 May 2017**

**Date of Approval**

**File No: 15/24#9 Reference: INT17/57494**

## SCHEDULE 1 Description of Approved Activity

<b>Project Description:</b>	Tahmoor Colliery Longwall 31
<b>Subsidence Management Plan:</b>	Tahmoor Colliery SMP Application, Longwalls 31 to 37 dated December 2014, Letter dated 22 December 2016 seeking approval for Longwall 31 only, and any supplementary supporting information provided to the Department.
<b>Seam:</b>	Bulli Seam.
<b>Approved Period of Mining:</b>	Date of Approval to 30 September 2019 or the expiry or cancellation of CCL716, ML1376 or ML1539 whichever occurs first.

## SCHEDULE 2

### Definitions

Activity	The proposed mining described in the Developments Consents, EIS and SMP
AEMR	Annual Environmental Management Report
Application Area	The area identified within the SMP
Bore	Any bore or well connected or proposed to be connected with sources of sub-surface water, and used or proposed to be used or capable of being used to obtain supplies of such water
Cliffs	Continuous rock face, including overhangs, having a minimum height of 10 metres and a minimum slope of 2 to 1, i.e. having a minimum angle to the horizontal of 63°
Council	Wollondilly Shire Council
Department	NSW Department of Environment and Planning
Director, ESU	Director, Environmental Sustainability Unit of the Division of Resources and Geoscience of the Department
Director, Mine Safety Operations	Director, Mine Safety Operations of the Resource Regulator
Development Consents	The development consents and approvals issued by Wollondilly Shire Council, the NSW Planning and Environment Commission, the NSW Department of Environment and Planning, the Land and Environment Court, NSW Government Urban Affairs and Planning, Department of Planning and NSW planning and Infrastructure listed on the website <a href="http://www.tahmoorcoal.com.au/EN/approvals/Pages/ConsentsandLicences.aspx">www.tahmoorcoal.com.au/EN/approvals/Pages/ConsentsandLicences.aspx</a> on 24 April 2017 that relate to the extraction of coal from Longwall 31.
EIS	DP&E Department of Planning and Environment Any Environmental Impact Statements/Reports endorsed by the Development Consents
Environment	includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
Environmental consequences	The environmental consequences of subsidence impacts, including but not limited to: damage to infrastructure, buildings and residential dwellings; loss of surface flows to the subsurface; loss of standing pools; adverse water quality impacts; development of iron bacterial mats; cliff falls; rock falls; damage to Aboriginal heritage sites; impacts on aquatic ecology; ponding
Leaseholder	The leaseholder of CCL716, ML1376 & ML1539.

Longwall Mining	The extraction of the longwall panels covered by the SMP
Minor	Relatively small in quantity, size and degree given the relative context
Negligible	Small and unimportant, such as to be not worth considering
NSWoW	Department of Primary Industries – NSW Office of Water
OEH	Department of Planning & Environment, Office of Environment & Heritage
Principal Subsidence Engineer	Principal Subsidence Engineer of the Resource Regulator.
Proposed Mining PSMP	The extraction of coal from the proposed panels specified in Schedule 1. Property Subsidence Management Plan
Secretary SMP	Secretary of the Department, or delegate Tahmoor Colliery Subsidence Management Plan Application, Longwalls 31 to 37 dated December 2014, Letter dated 22 December 2016 seeking approval for Longwall 31 only, and any supplementary supporting information provided to the Department.
SMP Approved Plan	SMP Approved Plan (Dwg No. TCC-1742 Revision 2) signed by the Manager of Mining Engineering on 21 December 2016 and approved by the Secretary.
Subsidence Impacts	Direct or indirect impacts resulting from subsidence from the proposed mining
Subsidence	Movement and/or deformation of the ground surface or subsurface strata as a direct and/or indirect result of the Longwall Mining / Pillar Extraction
SA	Subsidence Advisory
WNSW	WaterNSW
WHS Law	According to the NSW code of practice “Safety management systems in mines”, the WHS laws, as defined under section 5 of the Work Health and Safety (Mines & Petroleum Sites) Act 2013, means: -WHS Act; -WHS (Mines & Petroleum Sites) Act; -WHS Regulations, and -WHS (mines & Petroleum sites) Regulations.

### Conditions

#### Limits on Approval

1. The Leaseholder must carry out the activity strictly in accordance with the SMP Approved Plan.
2. The Leaseholder must carry out the activity generally in accordance with the:
  - a) SMP;
  - b) The Development Consents, and
  - c) EIS,
 subject to the conditions of this Approval.  
 In the event of any inconsistency between the conditions of this Approval and the SMP, Development Consents or EIS, the conditions of this Approval prevail to the extent of any inconsistency.
3. Where this Approval requires actions to be undertaken by the Leaseholder, including remediation of subsidence impacts, the obligation continues until the Secretary notifies the Leaseholder that the action has been completed to his or her satisfaction.
4. The Division of Resources and Geosciences may vary the conditions of this Approval by notice in writing.
5. The Secretary may, at his or her discretion, suspend or revoke this Approval if:
  - a) the Leaseholder fails to adhere to any condition of the Approval; or

- b) the head of any other government authority requests suspension or revocation on the basis of the Leaseholder's non-compliance, or potential non-compliance, with legislation administered by that agency in relation to this Approval.

### General Obligation to Minimise Harm to the Environment

6. The Leaseholder must implement the SMP (as amended by the conditions of this Approval) and carry out any additional practicable measures (including those identified in the EIS) necessary to prevent any harm to the environment that may result from the construction, operation, or rehabilitation of the activity. Where prevention cannot be achieved the leaseholder is to demonstrate minimisation of harm to the environment that may result from the construction, operation, or rehabilitation of the activity.

### Notification of Approval

7. The Proponent must give notice of this SMP approval within 30 days to the WNSW, NSWOW, OEH, Council, SA, the local Aboriginal Land Council/s, the owners/operators of any infrastructure, and landowners in the application area and any other relevant government agencies or stakeholders that the Secretary's approval of the SMP has been granted.

### Implementation of Approval

8. Any plans, programmes, reports or strategies required as a condition of this Approval must be developed having regard to any guidelines adopted by the Secretary for the purpose of subsidence management and mine rehabilitation.
9. The Leaseholder must implement any plan, programme or strategy required and approved pursuant to this Approval.

**Note:** *The Leaseholder may, at any time, submit an amended plan, programme or strategy for approval. Once approved, the amended plan, programme or strategy must be implemented, however, up until the date of approval, the Leaseholder must continue to implement the previously approved plan, programme or strategy.*

10. Any modifications to plans, programmes or strategies already approved for the purposes of the conditions of this Approval must have regard to the matters set out in condition 8. Amended plans, programmes or strategies submitted for approval must be accompanied by all relevant supporting documentation to assist in the assessment of the amendment or modification.

**Note:** *This condition relates to plans, programmes and strategies required by the conditions of this Approval – it does not apply to variations to the SMP or the SMP Approved Plan which must be done in accordance with the requirements of the Mining Act, the conditions of title and the variation procedures identified in the SMP guidelines.*

### Directions

11. The Leaseholder must comply with any written direction given by the Secretary, Director ESU, Director Mine Safety Operations or Principal Subsidence Engineer relating to:
  - a) the implementation of any aspect of the SMP or an approved plan, programme or strategy;
  - b) assessing or reviewing the adequacy, effectiveness, or coverage of any approved plan, programme or strategy or any aspect of the SMP;
  - c) the type, timing and/or location of monitoring of baseline conditions, subsidence or subsidence impacts;
  - d) any reporting requirement under this Approval;
  - e) the carrying out of works to address subsidence impacts; and/or
  - f) the carrying out of any studies or investigations related to subsidence or subsidence impacts and the reporting of any findings or conclusions.

The obligations under this condition prevail over any other obligation under this Approval.

**Note:** *Compliance with a written direction will not operate as a defence to a breach of any obligation under this Approval that occurred prior to the Direction being given.*

### Environmental Management Plan

12. The Leaseholder must submit to the Director ESU for approval an Environmental Management Plan (EMP) for the panels which are the subject of this Approval.

This plan must address subsidence impacts on:

- a) surface and groundwater (quality and quantity);
- b) flora and fauna
- c) archaeological sites; and
- d) any other significant environmental features that may be effected by subsidence resulting from the proposed longwall extraction

The leaseholder must not operate other than in accordance with an Environmental Management Plan (EMP) approved by the Director Environmental Sustainability. This plan must address subsidence impacts above and must include:

- a) a detailed monitoring programme;
- b) trigger levels for subsidence impacts that require actions and responses;
- c) the procedures that would be followed in the event that the monitoring indicates an exceedance of trigger levels;
- d) measures to mitigate, remediate and/or compensate any identified impacts;
- e) a protocol for the notification of identified exceedances of the trigger levels; and
- f) a contingency plan.
- g) annual reporting procedures

This plan must be prepared in consultation with relevant landholders and government agencies.

The Leaseholder must not cause subsidence impacts prior to the Environmental Management Plan being approved.

**Note:** *The plan should be submitted to the Director ESU at least 30 days prior to the expected commencement of operations to enable sufficient time for the assessment of the plan. The Director Environmental Sustainability may require the provision of further information to assist in the assessment of the plan or a resubmission of the plan if it is considered inadequate. Complex issues or the need for additional information or a resubmission of the plan may require a longer assessment period.*

### Shallow groundwater hydrological investigation and monitoring plan

13.

- a) Prior to undermining of Redbank Creek by LW31 the titleholder shall seek the approval of Director ESU, and execute to the satisfaction of the Department, a shallow groundwater hydrological investigation and monitoring plan within the LW 31 impact zone.
- b) The shallow groundwater hydrological investigation and monitoring plan should include, but not be limited to:
  - i. Characterise pre-mining lithology and fracture networks in the shallow aquifers down to 50m below creek level.
  - ii. Provide multi-level groundwater monitoring within close proximity to the Redbank creek line within the LW31 impact zone.

Piezometer	Screen depths
1	5 m below initial water

	strike
2	20 m below initial water strike,
3	50m below initial water strike,

- iii. Monitoring boreholes should be designed and located to reduce the risk of damage from subsidence (e.g. steel cased). If damaged during mining, a new bore is to be drilled to reinstate groundwater monitoring piezometers following mining.
- iv. Groundwater levels should be monitored (for pressure/depth plus electrical conductivity) at hourly intervals.
- v. Based on results of the water level monitoring, model groundwater behaviour through the cross section of Redbank Creek in both pre-mining and post-mining conditions.
- vi. Use pre-mining and post-mining shallow groundwater data to inform rehabilitation plans, objectives and completion criteria.
- c.) Submit pre-mining and post-mining monitoring data and modelling results of the shallow groundwater hydrological investigation and monitoring plan in the End of Panel Report.
- d.) Provide raw groundwater, surface water and ecological data if requested by Department or OEH in the format as reasonably required

### Incident and Ongoing Management Reporting

14. The Leaseholder must, within 24 hours of becoming aware of the occurrence, notify:
- a) the Principal Subsidence Engineer;
  - b) Director ESU;
  - c) SA;
  - d) NSWOW;
  - e) other relevant stakeholders and any Government Agency with a regulatory role if they request such notification, of the following:
    - i. Any significant unpredicted and/or higher-than-predicted subsidence and/or abnormalities in the development of subsidence;
    - ii. Any exceedance of predicted impacts on groundwater resources and/or the natural environment that may have been caused (whether partly or wholly) by subsidence;
    - iii. Any observed subsidence impacts adverse to the serviceability and/or safety of infrastructure and other built structures that may be affected by longwall mining;
    - iv. Any significant subsidence-induced cracking and/or ground deformations observed in any surface areas within the SMP application area;
    - v. Any buildings, structure and infrastructure, which have become or likely to become hazardous as a result of subsidence, and
    - vi. Development of instability and/or falls of rocks within any areas with cliff formation and/or steep slopes that may have been affected by subsidence.
  - f) the operators of infrastructure affected by subsidence.

**Note:** Under Condition 11, the Leaseholder can be directed to, among other things, prepare a report on an incident reported under this condition. A report on the details of the incident, including likely or known causes, response action and proposed response measures will generally be required for incidents that involve material property or environmental damage or have the potential to cause such damage.

### Status Report

15. The Leaseholder must prepare and maintain a Subsidence Management Status Report which must include but not be limited to:
- a) the current face position of the panel being extracted;

- b) a summary of any subsidence management actions undertaken by the Leaseholder;
- c) a summary of any comments, advice and feedback from consultation with stakeholders in relation to the implementation of this Approval (including the preparation, implementation and review of plans, programmes, reports or strategies required by this approval) undertaken or received and a summary of the Leaseholder's response to the comments, advice and feedback given by the stakeholders;
- d) a summary of the observed and/or reported subsidence impacts, incidents, service difficulties, community complaints, and any other relevant information reported to the Leaseholder and a summary of the Leaseholder's response to these impacts, incidents, service difficulties and complaints;
- e) a summary of subsidence development based on monitoring information compared with any defined triggers and/or the predicted subsidence to facilitate early detection of potential subsidence impacts;
- f) a summary of the adequacy, quality and effectiveness of the implemented management processes based on the monitoring and consultation information summarised above; and
- g) a statement regarding any additional and/or outstanding management actions to be undertaken or the need for early responses or emergency procedures to ensure adequate management of any potential subsidence impacts due to longwall mining.

The Subsidence Management Status Report must be updated at least every 14 days to reflect any changes in the information required to be included in the Report. The Status Report (as updated from time to time) must be provided, upon request, to SA, the Director of ESU, the Principal Subsidence Engineer, owners/operators of any infrastructure within the application area and any other relevant government agencies.

## Annual Report

16.

- a) The Leaseholder shall prepare an annual report. This report shall be submitted to the Secretary within twelve months of the date of this approval and annually thereafter. The annual report must:
- b) include a summary of the subsidence and environmental monitoring results for the year;
- c) include an analysis of these monitoring results against the relevant;
  - impact assessment criteria;
  - monitoring results from previous panels; and
  - predictions in the SMP;
- d) identify any trends in the monitoring results over the life of the activity; and
- e) describe what actions were taken to ensure adequate management of any potential or actual subsidence impacts due to mining.

**Note:** *The requirement of this condition may be satisfied via an Annual Review prepared under conditions of development consent or project approval.*

## Access to Information

17.

- a) Within 3 months of the submission of an Annual Report (as required by Condition 18) or the approval of a plan, programme or strategy required under this Approval or the SMP (or any subsequent revision of these documents), the Leaseholder must:
- b) provide a copy of these document/s to all relevant agencies;
- c) ensure that a copy of the relevant documents is made publicly available at the Leaseholder's regional office; and
- d) put a copy of the relevant document/s on the Leaseholder's website.

**Note:** *Relevant agencies currently include SA, OEH, NSWoW and DP&E.*

## Survey Marks

18.

At the completion of subsidence, or otherwise as required by the Land and Property Management Authority, the functionality of any survey marks affected by subsidence must be fully restored to the satisfaction of the Land and Property Management Authority.

## **Water Supply**

19.

In the event of interruptions to potable water supplies (water quality and/or quantity) due to subsidence impacts on water supply systems and/or sources caused by longwall mining, the Leaseholder must provide, without delay, water supplies of equivalent quality and quantity to locations convenient to those affected within the SMP Application Area until such time that the affected water supply systems and/or sources are restored.