

Appendix F – Rehabilitation Management Plan - Summary

Overview

This Rehabilitation Summary lists the activities in this EP that relate to the direct rehabilitation of subsidence effects and their environmental consequences associated with longwall extraction within LW6B in the Pikes Gully Seam at Ashton Coal.

Context

Under condition 3.12 to DA (309-11-2001-i), ACOL is required to prepare an Extraction Plan which includes (to the satisfaction of DP&I and DRE):

“Appropriate revisions to the Rehabilitation Management Plan required under condition 3.51”

The following documents currently guide the way ACOL undertake rehabilitation activities across the LW6B extraction area:

- Mining Operations Plan (MOP) 2013-2017 (March 2013);
- Construction MOP – Bowmans Creek Diversion (February 2011);
- Bowmans Creek Diversion Management Plan; and
- Bowmans Creek Diversion Rehabilitation Strategy (May, 2010).

In particular, the MOP document forms part of the current Environmental Management System and was prepared and approved under relevant provisions of the Development Consent and Mining Lease(s). The MOP details the objectives and activities associated with rehabilitation, landscape management, and mine closure across the entire ACP. The MOP also includes information on the rehabilitation of subsidence effects resulting from secondary extraction of LW6B and LWs 1-8 in the ULD Seam.

Additionally, due to the synergies between the MOP requirements and the requirements of some plans defined within the ACP DA (309-11-2001-i), the MOP has also been developed to satisfy DA (309-11-2001-i) Schedule 2, Conditions 3.51, 3.55, 3.56 and 3.58 which relate to the development of a Rehabilitation Management Plan (RMP), Landscape and Revegetation Management Plan (LRMP), Final Void Management Plan (FVMP) and Land Management Plan (LMP). The MOP was reviewed against the requirements of these conditions and approved by DP&I on the 21st of March 2013. The MOP was subsequently endorsed by DRE on the 28th March 2013.

Subsidence Effects and Environmental Consequences

A primary impact of longwall mining is surface subsidence. There are several key recognised potential subsidence effects to the surface overlying longwall mining, including: surface cracking, subsurface cracking, slope instability and erosion, valley closure and uplift, and ponding. These may then trigger environmental consequences related to land use and long term ecosystem function of the site.

Objectives and Commitments

Whilst it is noted that the scope of the EP does not encompass longer-term rehabilitation objectives and strategies, many of the EP sub-plans document the direct remediation, repair or rehabilitation of subsidence and its consequences. Under condition 3.12(f) to Schedule 2 of the DA the EP is required to: *“describe measures that would be implemented to ... remediate any impacts and/or environmental consequences”*.

The development consent contains a number of provisions relevant to rehabilitation of subsidence (refer to **Table F.1**) and these are documented in the EP and relevant sub-plans.

Table F.1 Rehabilitation Consent Conditions and Commitments

CONDITION NUMBER	CONDITION REQUIREMENT (RELEVANT TO SUBSIDENCE REHABILITATION)	COMMENT	
Schedule 2			
3.49	The Applicant shall rehabilitate the DA area to the satisfaction of the Director-General of DRE. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EA and comply with the objectives in Table 3.		
	Table 3 Rehabilitation Objectives		
	Feature	Objective	
	DA Area	Safe, stable and non-polluting.	Measures to monitor landscape morphology, identify surface erosion and repair persistent subsidence cracks will ensure a safe, stable and non-polluting environment during extraction – refer to Extraction Land Management Plan . Measures to ensure safety include visual monitoring, survey monitoring of affected infrastructure, erecting signage or fencing and repairing subsidence affected infrastructure in a timely manner – refer to Public Safety Management Plan and Lemington Road AMP .
	Surface infrastructure	To be decommissioned and removed, unless the Director-General of DRE agrees otherwise.	Not applicable under the scope of the Extraction Plan.
Sections of Bowmans Creek within the underground mining area (except those sections of creek made redundant by the diversion).	Restore pre-mining surface flow and pool holding capacity as soon as reasonably practicable. Hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than existed prior to mining.	Mine Design complies with Condition 1.18 of DA 309-11-2001 “ <i>LW... voids ...not...closer than 40 metres from any point vertically beneath the high bank...</i> ” Detailed management of the diversions and retained creek sections via the Water Management Plan , inclusive of the Bowmans Creek Diversion Management Plan which includes survey monitoring, visual inspections, surface water quality monitoring, and monitoring program for aquatic ecology condition.	
Bowmans Creek – Eastern and Western diversions.	Hydraulically and geomorphologically stable with riparian vegetation that is the same or better than existing in the adjacent channel prior to mining.	Species selection, rehabilitation scheduling, completion and performance criteria are described in the Bowmans Creek Diversion Rehabilitation Strategy. Detailed survey methods for	

CONDITION NUMBER	CONDITION REQUIREMENT (RELEVANT TO SUBSIDENCE REHABILITATION)		COMMENT
			monitoring of the Bowmans Creek high bank and block banks is provided in the Subsidence Monitoring Program .
	Land to be restored or maintained for agricultural purposes.	Restored and maintained to the same or higher land capability and agricultural suitability than prior to mining.	Measures to repair subsidence effects and consequences that will support agricultural suitability include repairing of cracking to prevent erosion and soil degradation and modification of the post-subsidence landform to allow it to free drain – refer to Extraction Land Management Plan .
	Other land affected by the development.	Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of: <ul style="list-style-type: none"> ▪ Local native plant species (unless the Director-General or DRE agrees otherwise); and ▪ A landform consistent with the surrounding environment. 	ACOL is committed to developing a stable landform that is capable of supporting sustainable ecosystems and enables sustainable landuse after the completion of mining operations at the ACP. The final landscape will be returned to, as close as possible, the pre-mining landuse configuration. A conceptual final rehabilitation plan detailing the proposed final land use is shown on Map 4 (refer Attachment A). Concepts and process for final landform development are detailed in the Mining Operations Plan and are beyond the scope of this EP.
	Built Features affected by subsidence.	Repair to pre-mining condition or equivalent unless: <ul style="list-style-type: none"> ▪ The owner agrees otherwise; or ▪ The damage is fully restored, repaired or compensated under the <i>Mine Subsidence Compensation Act 1961</i>. 	Prevention and repair of all affected built features as a result of subsidence documented in the BFMP .
	Community	Ensure public safety Minimise the adverse socio-economic effects associated with mine closure.	Extraction Plan area is not currently accessible by the general public with the exception of Lemington Road. Potential safety issues as a result of subsidence are documented and managed under the Public Safety Management Plan and Lemington Road AMP . Socio-economic effects associated with mine closure are outside the scope of this Extraction Plan.

CONDITION NUMBER	CONDITION REQUIREMENT (RELEVANT TO SUBSIDENCE REHABILITATION)	COMMENT
3.51	The applicant shall carry out the rehabilitation of the DA area progressively, that is, as soon as reasonably practicable following disturbance.	Measures are contained within all Extraction Plan sub-plans to rehabilitate subsidence and its consequences as soon as practicable post-mining in the PG LW6B Seam. It is noted that ACOL is a multi-seam underground mine and rehabilitation of subsidence effects will be ongoing/repeated as mining progresses in lower seams.
Schedule C Statement of Commitments		
2. General		
2.1	Subsidence troughs will be reshaped and fill will be used where practicable to create a free-draining landform. This approach is expected to reduce the potential for surface pooling and inflow into the mine.	Measures to maintain a free-draining landform are documented in the Extraction Land Management Plan .
9. Rehabilitation and Land Management		
9.1	Subsidence troughs will be rehabilitated to provide a free draining surface.	Measures to maintain a free-draining landform are documented in the Extraction Land Management Plan .

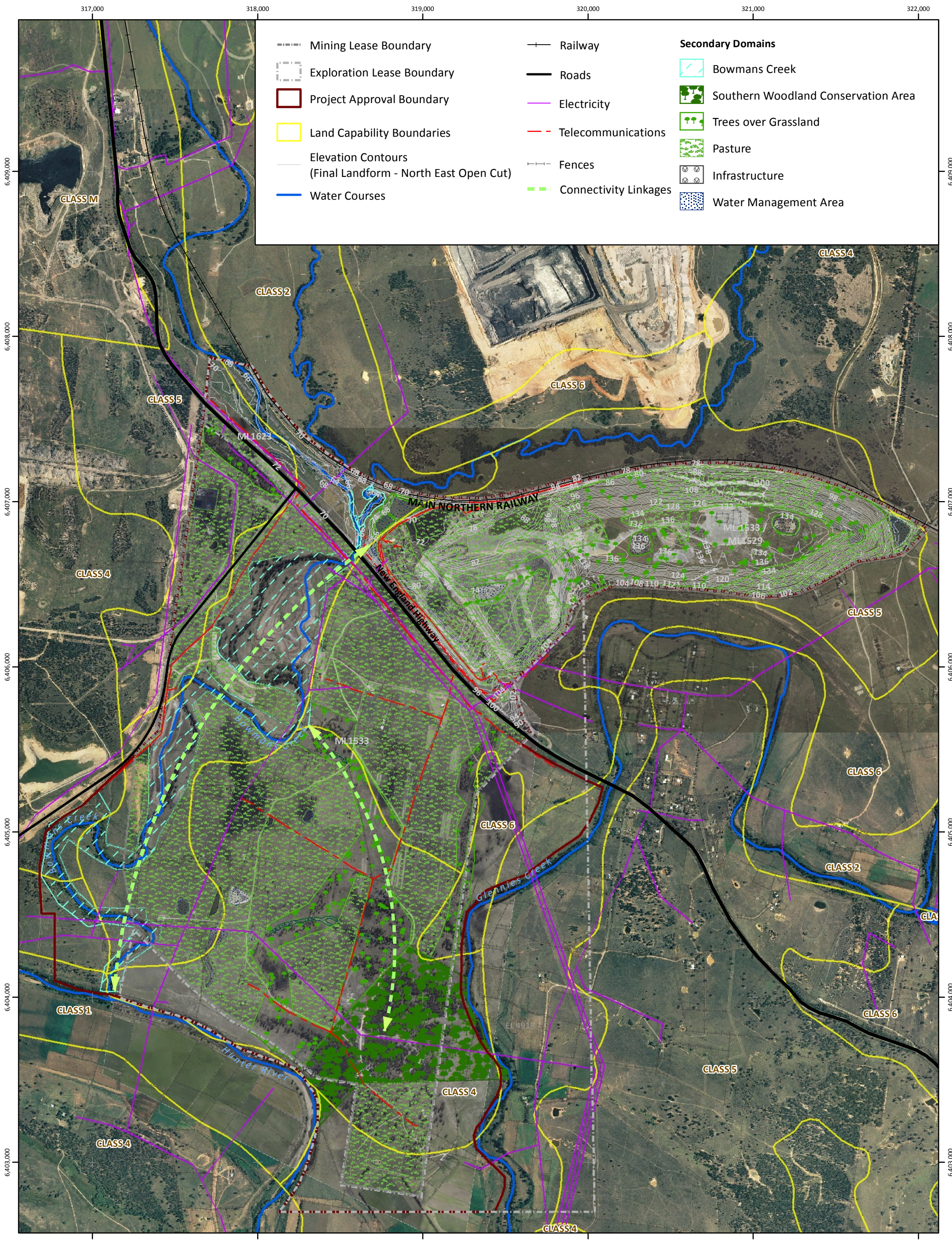
Proposed Rehabilitation

Identification of subsidence and the associated environmental consequences has been undertaken as part of a series of assessments and technical reports (provided in electronic copy).

Rehabilitation of subsidence / environmental consequences will be undertaken progressively as longwall mining progresses. It is noted that the underground mine at the ACP is approved as a descending, multi-seam operation and it is anticipated that rehabilitation activities related to subsidence impacts / consequences will need to be repeated, as required, across the site as mining descends into lower seams. However prior to each seam commencing, an assessment of impacts and review of management and associated rehabilitation activities will be conducted as part of the EP preparation and approval process. Activities associated with the longer-term rehabilitation and final land use of the site will be implemented in parallel with this mining progression (as conceptually outlined in **Attachment A**).

**ATTACHMENT A - FINAL REHABILITATION AND POST MINING LAND USE -
2023 – MAP 4 (ACOL 2013)**

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<ul style="list-style-type: none"> Mining Lease Boundary Exploration Lease Boundary Project Approval Boundary Land Capability Boundaries Elevation Contours (Final Landform - North East Open Cut) Water Courses 	<ul style="list-style-type: none"> Railway Roads Electricity Telecommunications Fences Connectivity Linkages 	Secondary Domains <ul style="list-style-type: none"> Bowmans Creek Southern Woodland Conservation Area Trees over Grassland Pasture Infrastructure Water Management Area
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I, Brian Wesley, Holder of Mine Managers Certificate of Competency, certify that the information on this plan is a true indication of the proposed development.

I, Jeff Peck, Registered Mine Surveyor, certify that to the best of my knowledge and belief this plan conforms to the accuracy & standards required by NSW Trade & Investment - Division of Resources and Energy.

0 150 300 600
Metres
MGA Zone 56
1:20,000

General Manager Date
Registered Mining Surveyor Date