ULAN
UNDERGROUND

GLENCORE

Appendix H: Rehabilitation Management Plan Longwalls 30 & LWW6-LWW8

Ulan Underground

Document Number:	ULNCX-111515275-3369
Status:	Approved
Version:	3.0
Effective:	29/01/2021
Review:	3 years
Owner:	Environment and Community Manager

Table of Contents

Table of Figures

List of Tables

1 Introduction

1.1 Extraction Plan Application Area

Ulan Coal Mines Pty Limited (UCMPL) has Extraction Plan approval for longwall (LW) panels LW30 & LWW6-LWW8, herewith referred to as the Application Area (**Figure 1**), for the Ulan Underground Mine (UUG).

1.2 Purpose and Scope

This Rehabilitation Management Plan for Longwalls 30 & LWW6-LWW8 (RMP LW30 & LWW6-LWW8) outlines the rehabilitation management strategies to be implemented for the management of subsidence induced impacts on surface features from secondary extraction within the Application Area.

This RMP LW30 & LWW6-LWW8 (this Plan) has been amended to incorporate the approved MOD4[1] mine plan which extend[2] the longwall panel lengths of LW30, LWW7 and LWW8. Amendments to this Plan are identified by red text. A summary of the predicted changes to potential subsidence effects, subsidence impacts and environmental consequences, as a result of the revised mine plan layout at UUG is provided in Section 2.5 of the Extraction Plan. There are no significant changes to the monitoring or management measures previously proposed, as a result of the revised layout of LW30, LWW7 and LWW8.

This scope of this Plan applies to the Application Area (**Figure 1**).

The appointed team of suitably qualified and experienced experts which included representatives from Strata Control Technology (SCT) relevant to this plan, was endorsed by the Secretary of NSW Department of Planning, Industry and Environment (DPIE) on 27 June 2016 (Attachment 2 of the Extraction Plan).

[1] *Ulan Continued Operations Project - Modification 4 Longwall Optimisation Project Environmental Assessment (ELA, 2018)*

[2] As a result of MOD4, length of approximate extensions for LW30, LWW7 and LWW8 are 195m, 220m, 155m respectively.

Figure 1 Extraction Plan LW30 & LWW6-LWW8 Application Area

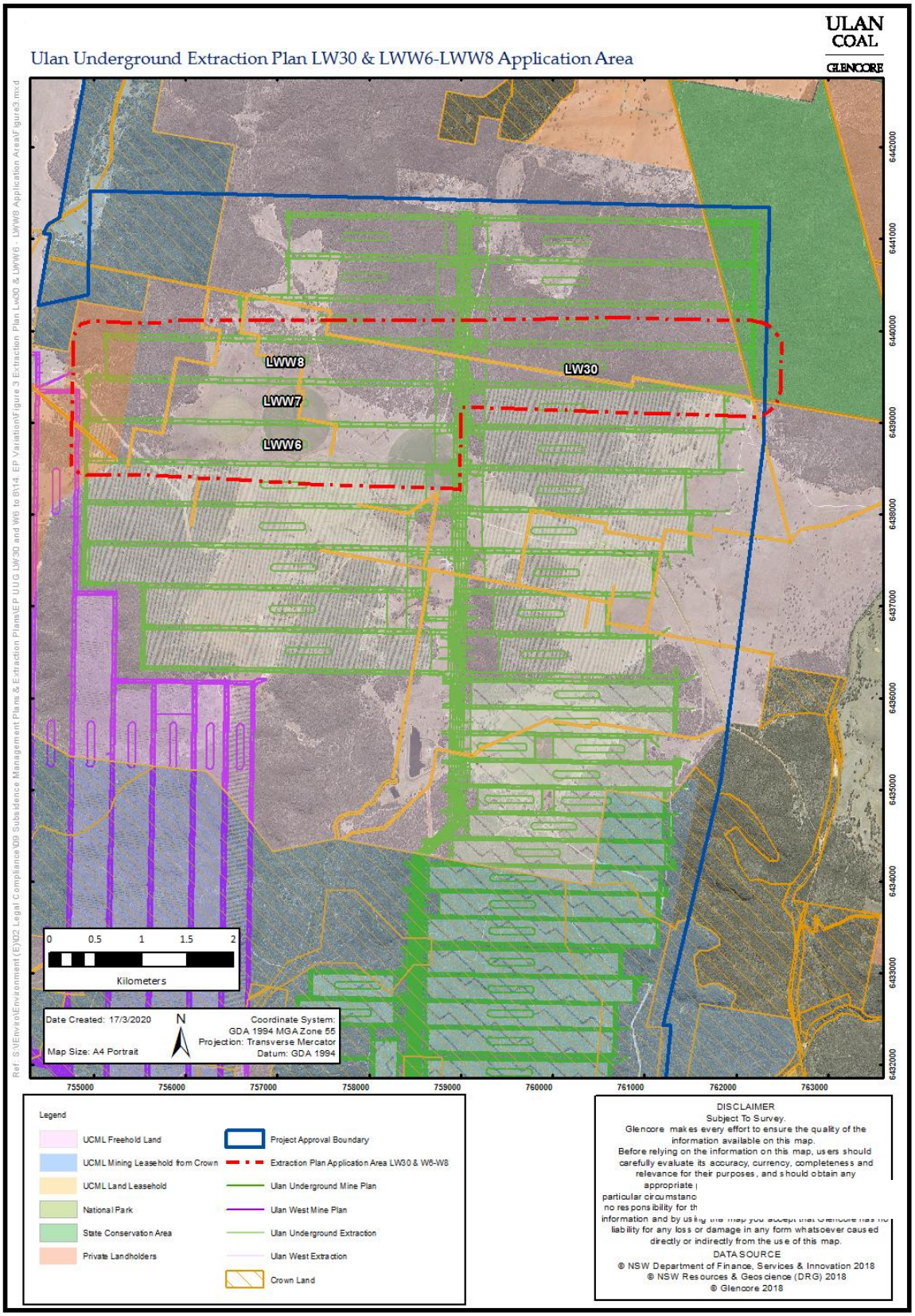


Figure 2 General Surface Features within Application Area

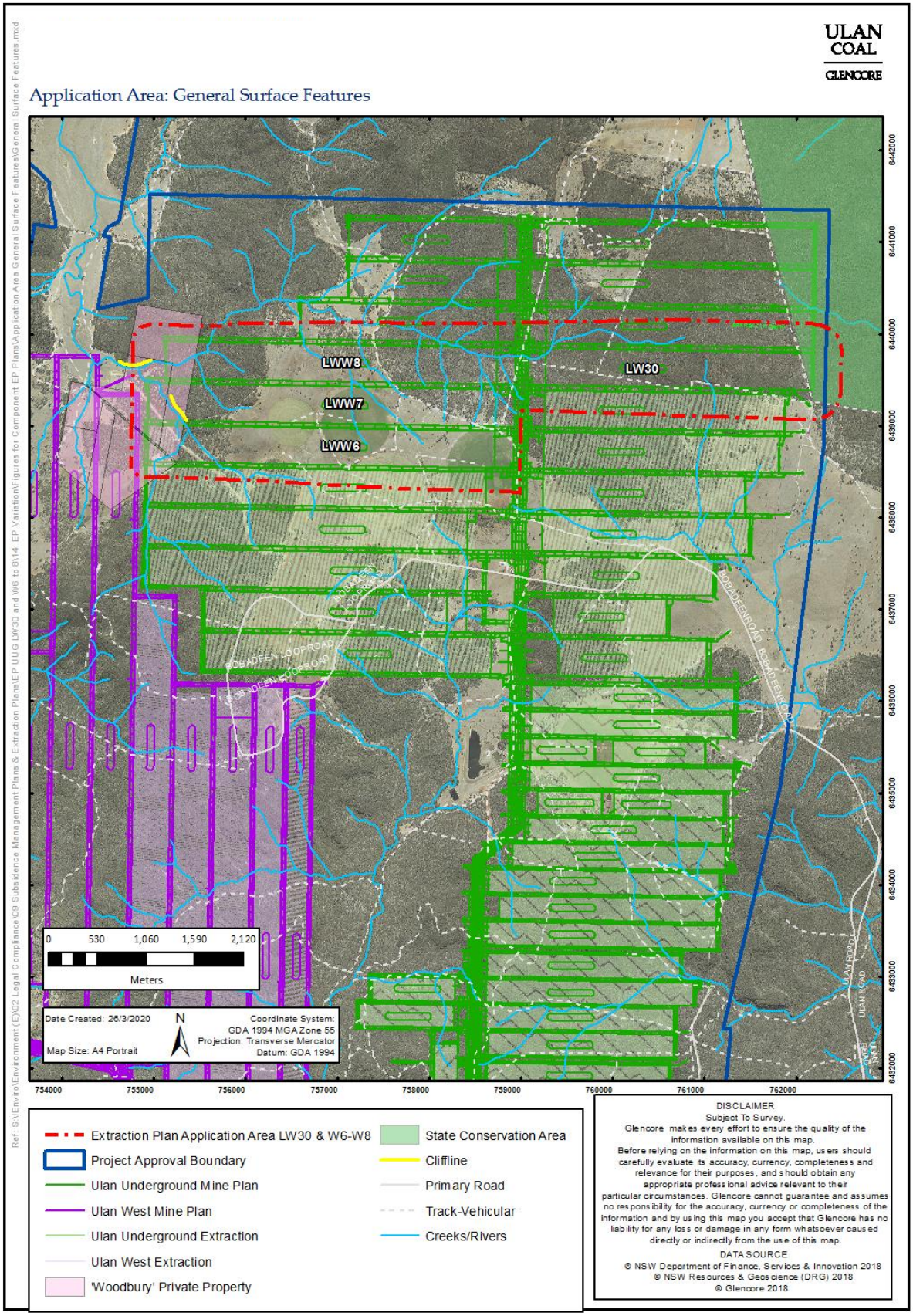
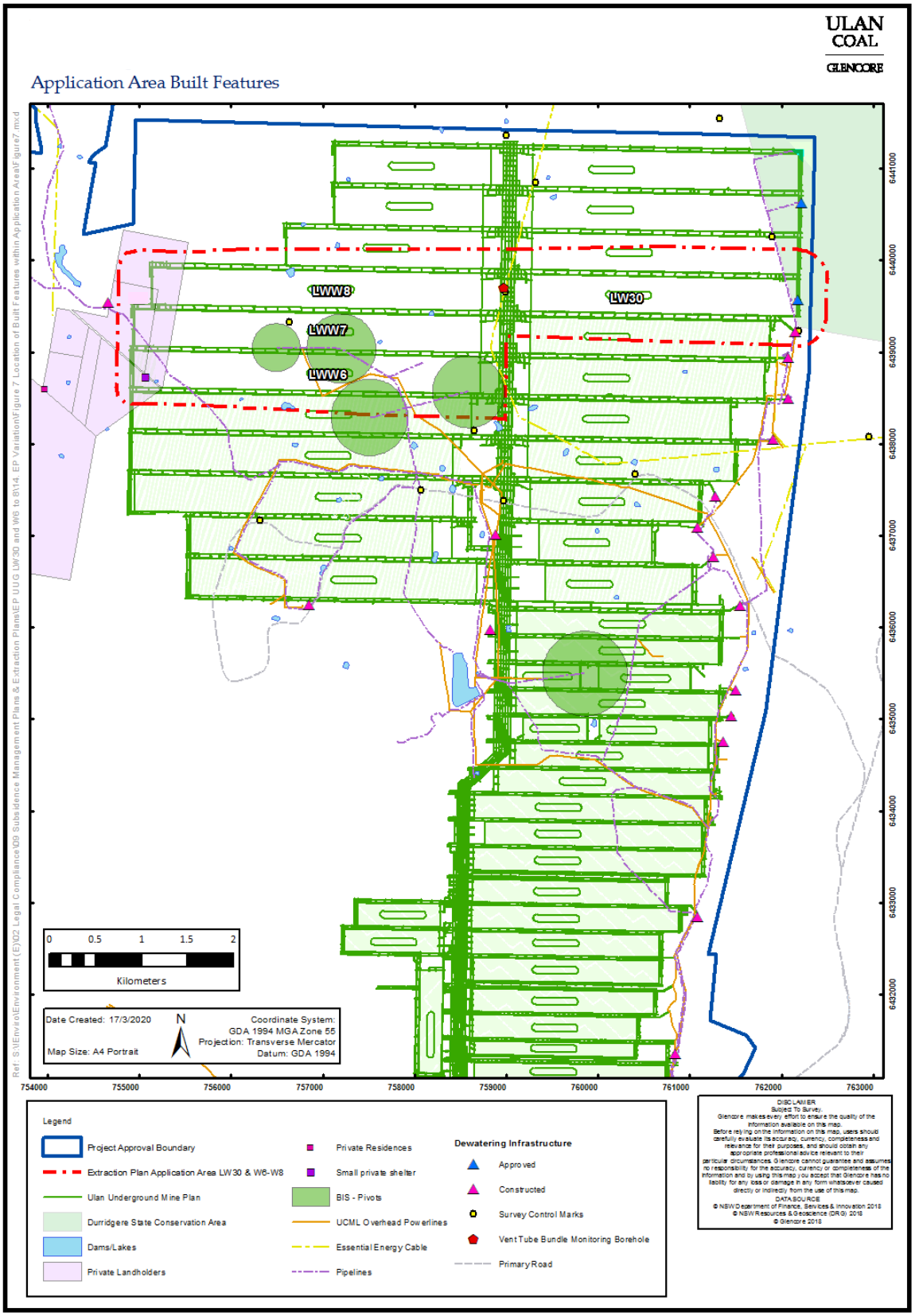


Figure 3 Built Features within Application Area



1.3 Description of the Application Area

The Application Area is a combination of undeveloped bushland, gently undulating open grazing and irrigation agricultural lands. The Application Area is split by the Great Dividing Range with land in the east in the Goulburn River Catchment, and land in the west in the Talbragar River catchment. Bushland in the east is gently undulating, bushland in the west is a little steeper dominated by sandstone outcrops and partially cleared valleys. Most of the land within the Application Area is owned by UCMPL, with the exception of one private property in the west of the Application Area and a small section of the Durridgere State Conservation Area (DSCA) in the east (Figure 2). There are no privately owned dwellings within the Application Area. The mining authorisations applicable to UUG include ML1468, ML1341, ML1511, ML1554, ML1656, ML 1365, ML 1366, ML1467 and CCL741 (Figure 4).

The depth of cover as measured from the top of seam varies from 165 meters to 335 meters. The depth of cover increases in northeast direction as the seam dips between 1 and 3 degrees along this orientation. Therefore the depth, in general terms, ranges from 165 meters to 270 meters for western panels (LWW6 to LWW8) and from 270 meters to 335 meters in the east (LW30).

Longwall mining at UUG targets the economic portion of the Ulan Coal Seam. The thickness of this section varies across the revised Application Area from approximately 2.5m to 3.3m with an average of 2.9m.

UCMPL owned and controlled land within the Application Area is used for mining related activities (e.g. underground mining and surface support infrastructure) and agricultural purposes (e.g. grazing and cropping) including the Bobadeen Irrigation Scheme (BIS). Privately owned land within the Application Area is used for cattle grazing. The DSCA is State-owned land controlled by the NSW National Parks and Wildlife Services (NPWS).

Non UCMPL owned built features within the Application Area include an overhead Essential Energy power line, permanent mark state survey stations, a small shelter, two farm dams and farm fences. The Essential Energy owned 12.7kV single wire earth return (SWER) type minor power line passes through the Application Area over the main headings and will not be undermined within the Application Area (Figure 3). There are no private bores within the Application Area, however a number of private bores could be affected by groundwater drawdown (Figure 5).

The major natural features within the Application Area include sandstone formations, a number of ephemeral watercourses, a spring fed dam and the DSCA. The spring is located within a dam located on privately owned land. All water courses within the Application Area are ephemeral in nature comprising of drainage lines and occasional pools that form after rain. Flow lines in the east of the Application Area report to Ulan Creek, Curra Creek and Bobadeen Creek in the Goulburn River catchment. Flow lines in the west report to Mona Creek in the Talbragar River catchment (Figure 2).

Approximately 2.8ha of the DSCA is located directly above the eastern portion of LW30. The revised Application Area that extends over the DSCA is predominately undeveloped bushland. There are no features of specific conservation values known to exist within the Application Area over DSCA.

There are two cliff formations within the Application Area. The cliff line in the north-west corner of the Application Area across both UCMPL owned land and privately owned land and contains the Mona Creek Aboriginal rock shelter sites (Ulan ID#180 to 187) which are protected from subsidence impacts by an offset from mining. The cliff line over LWW7 is approximately 300m in length, is less than 20 meters high and has no recorded Aboriginal rock shelter sites. This cliff line extends from UCMPL owned land onto privately owned land.

Figure 4 Applicable Mining Authorisations

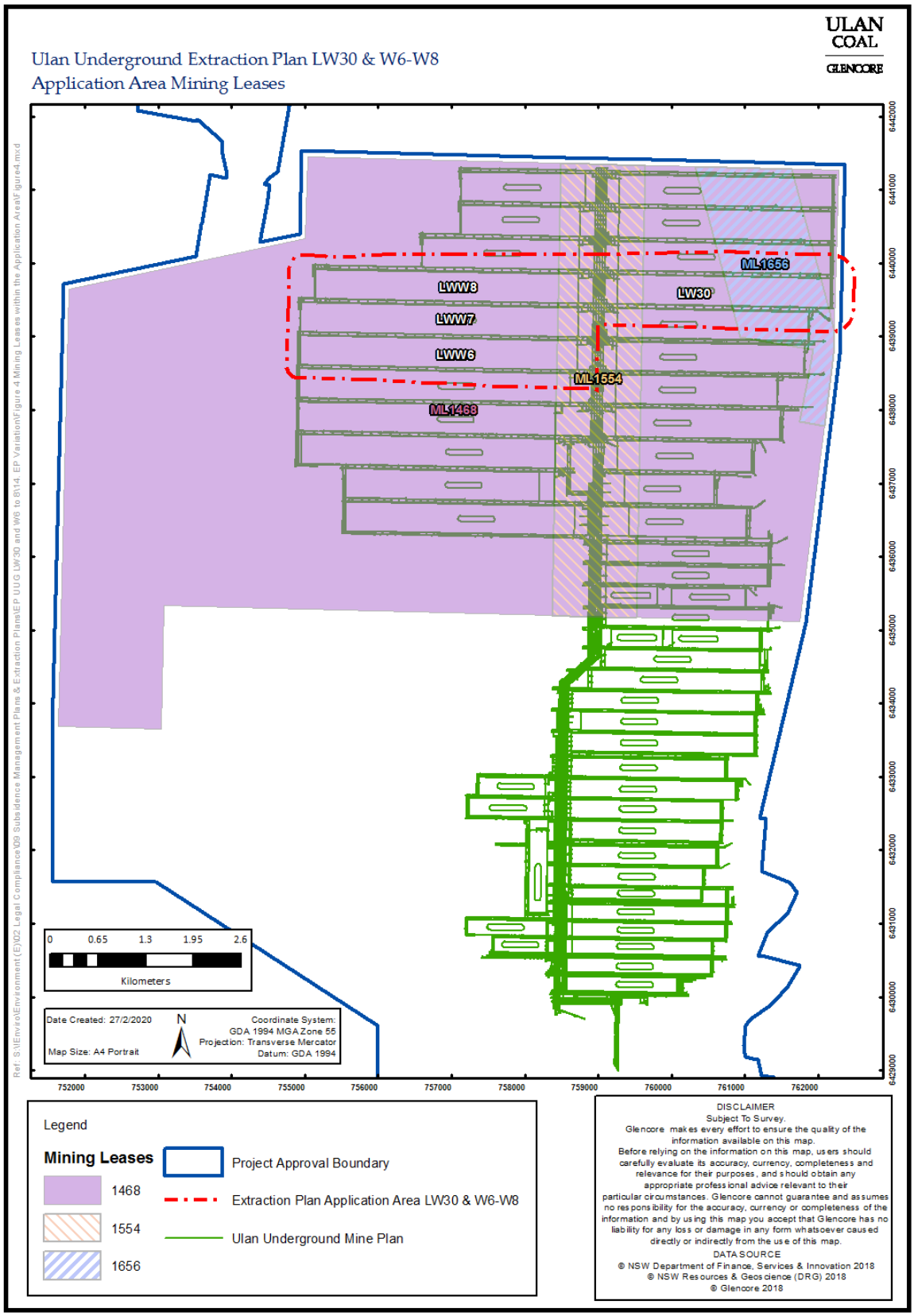


Figure 5 Private Bore and Groundwater Monitoring

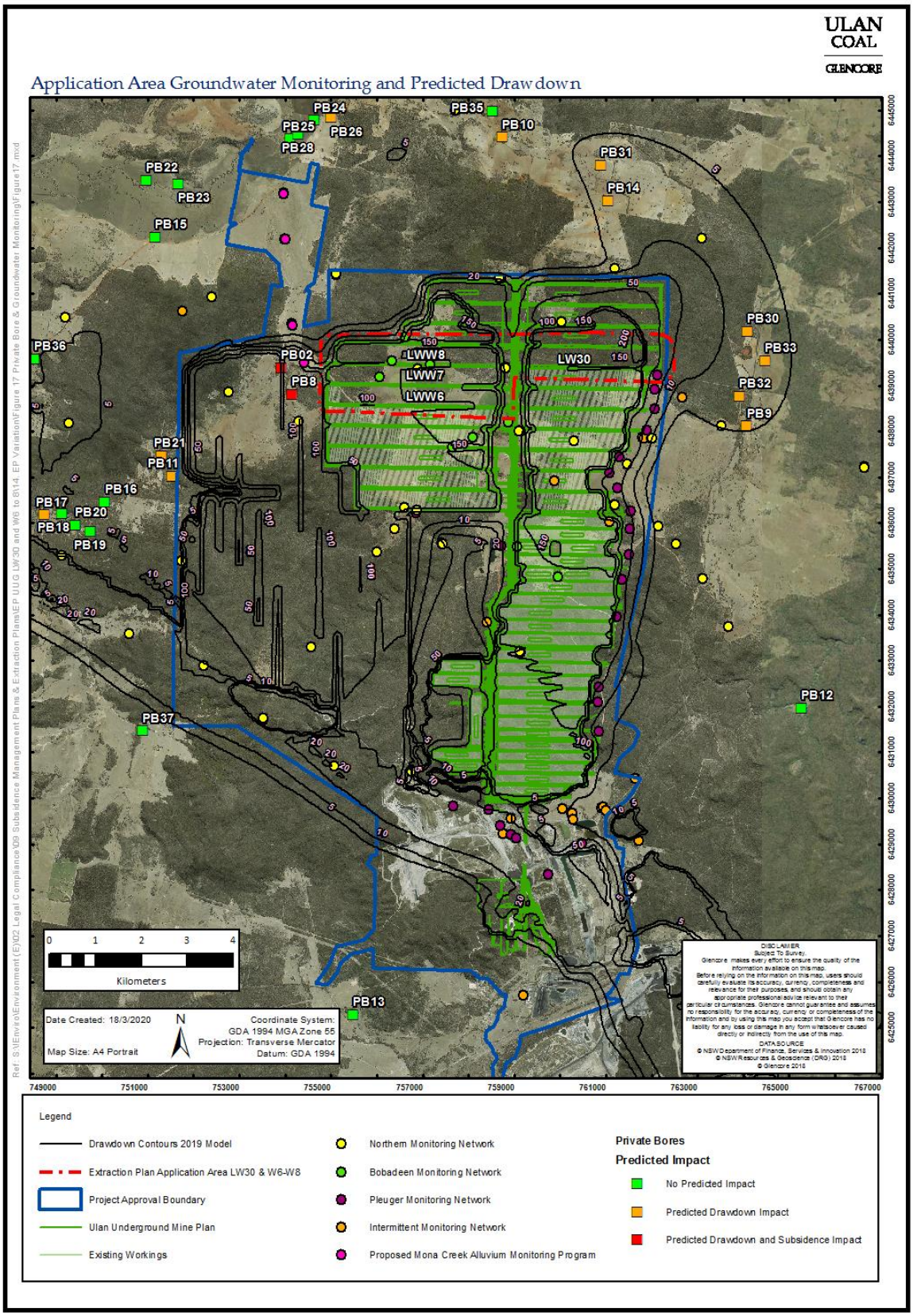
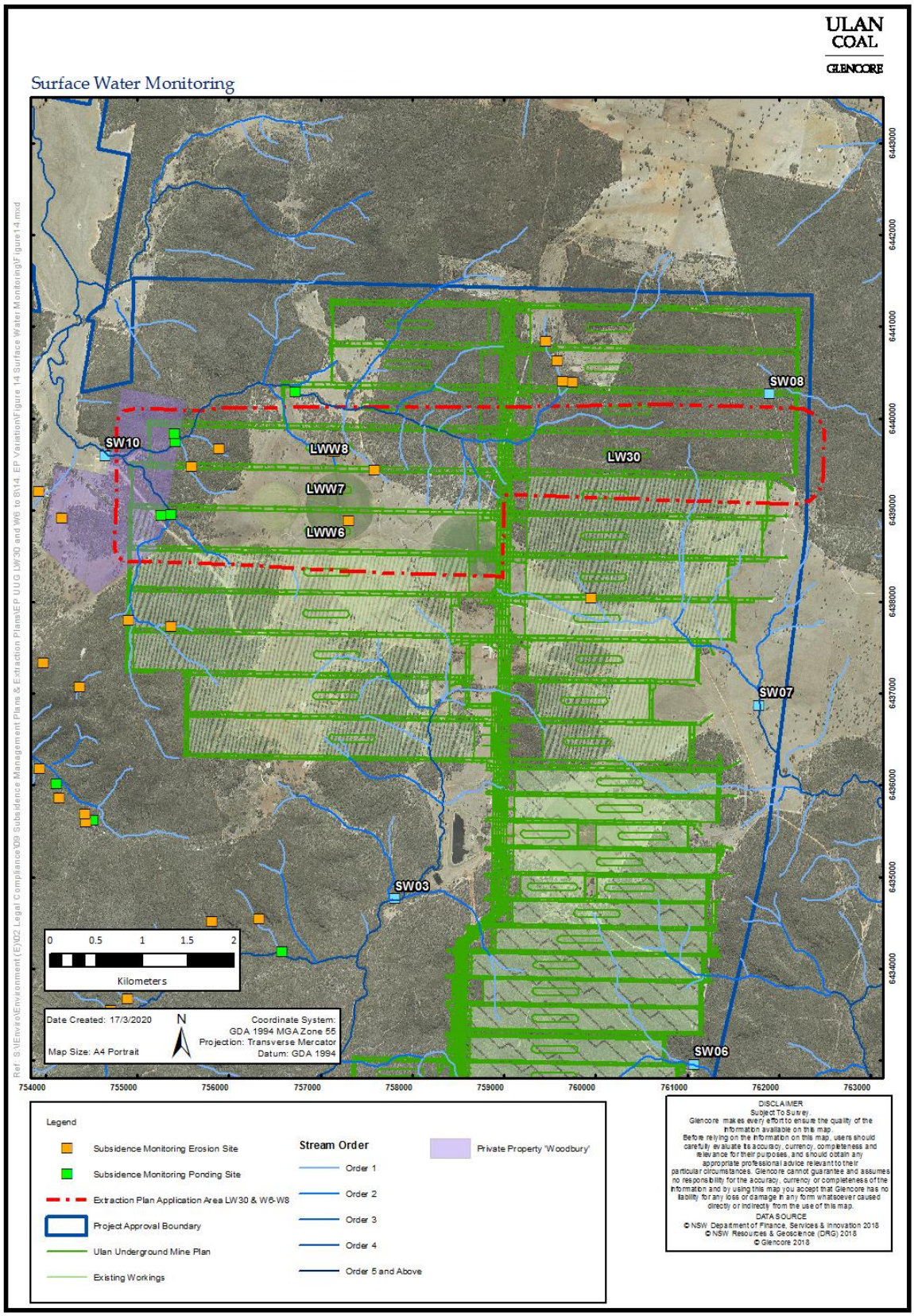


Figure 6 Surface Water Monitoring



1.4 Rehabilitation Management Plan

UCMPL have prepared and implemented a Mining Operations Plan (MOP[3]). The MOP was developed to satisfy the requirements of a Rehabilitation Management Plan[4] (RMP). The MOP describes the rehabilitation management strategies that are to be implemented within the Project Area.

The approved MOP is available on the UCMPL website at: https://www.ulancoal.com.au/en/about-us/approvals-licenses/MOP/20191126%20Mining%20Operations%20Plan%202017-2024%20MOD%204%20FINAL%20Amendment%20A.pdf

1.4.1 Rehabilitation Planning

In order for rehabilitation planning to address the complexity of different land uses and rehabilitation objectives, the operational areas are divided into a series of rehabilitation management domains or Primary Domains (refer to Section 5 of the MOP).

The Primary domains (Operational Domains) are defined on the basis of land management within the mine site, with unique operational and functional purpose and therefore similar geophysical characteristics during mining. The Application Area is within Primary Domain 5 (Underground Mining Area). As outlined in Section 2.3.9 of the MOP, remediation of subsidence impacts will be progressively rehabilitated where required throughout the MOP period.

1.5 Structure of the RMP LW30 & LWW6-LWW8

Table 3 identifies where the requirements of PA 08_0184, Schedule 5, Condition 2 are addressed in this Plan.

An overview of the main text sections of this Plan are:

Section 1 Provides an introduction to the Plan, including the purpose and scope and relationship to the EMS for the Ulan Mine Complex and the document structure.

Section 2 Describes the regulatory requirements, the rehabilitation objectives relevant to this Plan, provides a summary of relevant legislation and stakeholder consultation

Section 3 Summarises the predicted subsidence impacts and environmental consequences within the Application Area.

Section 4 Describes the rehabilitation management strategies to be implemented to for the management of subsidence induced impacts from the proposed secondary extraction workings within the Application Area

Section 5 Provides a Contingency Plan to manage any unpredicted impacts and their consequences. Provides a Trigger Action Response Plan (TARP) for this Plan which is a simple and transparent snapshot of the monitoring of environmental performance and where required the implementation of management and/or contingency measures.

Section 6 Provides a summary of the review and improvement process and reporting requirements

Section 7 Outlines the roles and responsibilities for this Plan.

Section 8 Lists the documents referred to in **Sections 1 to 6** of this Plan.

Section 9 Provides a historical review reference of this Plan.

[3] The current MOP was approved on 16 September 2017 and expires in 30 November 2024. A new MOP will be prepared and submitted for approval prior to the MOP expiry date.
[4] In accordance with Condition 57, Schedule 3 of PA08_0184,

2 Regulatory Requirements

2.1 Project Approval

This Plan is a component of the Ulan Underground Extraction Plan Longwalls LW30 & LWW6-LWW8 (the Extraction Plan) This Plan has been prepared specifically to address Condition 26 of Schedule 3 of PA08-0184 (Table 1).

> *26. The Proponent shall prepare and implement an Extraction Plan for all second workings on site to the satisfaction of the Director-General. Each Extraction Plan must:*
>
> *…*
>
> *Include to the satisfaction of DRE:*
>
> *…*
>
> - *a revised Rehabilitation Management Plan; and*
> - *a program to collect sufficient baseline data for Future Extraction Plans[5].*

The structure of this Plan also follows the draft *Guidelines for the Preparation of Extraction Plans* (the Guidelines) provided DPIE. **Table 1** identifies where the requirements of PA 08_0184 and the Guidelines are addressed in this Plan.

Table 1 Supporting Documents - Reference Summary

EP Guidelines for Extraction Plan Management Plans	PA 08_0184 Requirements for Management Plans Condition 2, Schedule 5	This Plan Reference	Section Description
Overview of landscape features, heritage sites and environmental values to be managed under the component plan; and *Description of landscape features, heritage sites and environmental values to be managed under the component plan and their significance.*	Condition 2(a) *detailed baseline data*	**Section 1.*3*** of this Plan	Provides a general description of the Project Area environmental setting.
	Condition 2(b) *a description of:* • *the relevant statutory requirements (including any relevant approval, licence or lease conditions);*	**Section 2** of this Plan	Provides descriptions of project approval, subsidence performance measures and legislation applicable to this Plan.
Performance measures relevant to the landscape features, heritage sites and environmental values to be managed under the component plan	Condition 2(b) *a description of:* • *any relevant limits or performance measures/ criteria;*	**Section 2.2** of this Plan Section 6.0 of the MOP	Provides the rehabilitation objectives for the Project
Performance indicators to establish compliance with these performance measures	• *the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures*	Appendix B of the MOP	Contains Completion and Success Criteria
	Condition 2(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria	Section 4.1 of the MOP	Outlines all the rehabilitation requirements for the Ulan Complex from PA08_0184 and Mining Tenements held by UCMPL.
Currently predicted subsidence impacts and environmental		**Section 3** of this Plan	Provides a summary of the approved subsidence

[5] UCMPL program to collect baseline data for Future Extraction Plans is provided in Attachment 3 of the Extraction Plan.

EP Guidelines for Extraction Plan Management Plans	PA 08_0184 Requirements for Management Plans Condition 2, Schedule 5	This Plan Reference	Section Description
consequences relevant to the features, sites and values to be managed.			impacts and revised impacts.
Measures planned to remediate these impacts and/or consequences		**Section 4.1** of this Plan	Provides a summary of the subsidence management measures.
Existing baseline monitoring network and baseline monitoring results. *Proposed monitoring of subsidence impacts and environmental consequences.*	*Condition 2(d) a program to monitor and report on the:* • *impacts and environmental performance of the project* • *effectiveness of any management measures (see c above)*	Section 8.0 of the MOP SMP LW30 & LWW6 – LWW8	Provides a summary of post mining rehabilitation and revegetation monitoring.
Proposed monitoring of the success of remediation measures following implementation		**Section 4.2** of this Plan	Provide a summary of the subsidence management measures.
Adaptive management proposed to avoid repetition of unpredicted subsidence impacts and/or environmental consequences *Contingency plans proposed to remediate unpredicted subsidence impacts and/or environmental consequences* *Trigger, Action, Response Plan*	*Condition 2(e) a contingency plan to manage any unpredicted impacts and their consequences*	**Section 5.1** of this Plan	Outlines the Contingency Plan to be implemented in the event rehabilitation strategies are unsuccessful. The Contingency Plan outlines the requirement to develop the appropriate course of actions, including corrective and preventative actions. Provides a TARP for to identify the appropriate response measures and responsibilities.
Responsibilities for implementation of the component plan		**Section 7** of this Plan	Responsibilities for implementation of this Plan.
	Condition 2(f) a program to investigate and implement ways to improve the environmental performance of the project over time	**Section 6.1** of this Plan	Describes the review mechanism for improvement.
	Condition 2(g) a protocol for managing and reporting any: • *incidents;* • *complaints;* • *non-compliances with statutory requirements; and* • *exceedances of the impact assessment criteria and/or performance criteria*	**Section 6.2** of this Plan	Describes the reporting and community response process. A summary of reporting requirements is provided.
	Condition 2(h) a protocol for periodic review of the plan	**Section 6.1** of this Plan	Describes the review process of this Plan.

2.2 Rehabilitation Objectives

In accordance with Condition 55 of Schedule 3 of the PA08_0184, UCMPL shall comply with the objectives in Table 16. The rehabilitation objectives specified in Table 16 of Condition 55 of Schedule 3 of the PA08_0184 are listed in *Table 2*.

Table 2 Rehabilitation Objectives

Feature	Objective
Mine site (as a whole)	Safe, stable & non-polluting
Surface infrastructure	To be decommissioned and removed, unless the Secretary agrees otherwise
Watercourses to be undermined	Hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining
Cliff Formations	No additional risk to public safety compared to prior to mining
Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of: • local native plant species; and • a landform consistent with the surrounding environment
Built features affected by subsidence	Repair to pre-mining condition or equivalent unless the owner agrees otherwise
Community	Minimise the adverse socio-economic effects associated with mine closure

2.3 Relevant Legislation

2.3.1 Mining Act 1992

The *NSW Mining Act 1992* (Mining Act) places controls on methods of exploration and mining, the disposal of mining waste, land rehabilitation, and environmental management activities. The extraction of coal using the mining methods described in the Extraction Plan occurs within the subsurface Mining Lease (ML) ML1468, granted approval under the Mining Act on the 18 May 2000.

2.3.2 Environmental Planning and Assessment Act 1979

Project Approval 08_0184 (PA08_0184) under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) was granted on 15 November 2010. As required by PA08_0184 UCMPL are required to prepare an Extraction Plan, to the satisfaction of the Secretary of DPIE. A component of the Extraction Plan is the preparation of a Subsidence Monitoring Plan in accordance with Condition 26, Schedule 3 of PA08_0184.

2.4 Consultation

Consultation was undertaken during the Project EA[6]. Consultation specific to the Extraction Plan was undertaken with government agencies, asset owners, Ulan Coal's Community Consultative Committee (CCC) and registered Aboriginal stakeholders. Further information regarding consultation is provided in Section 2.1 of the Extraction Plan.

[6] Ulan Coal - Continued Operations Environmental Assessment (Umwelt 2009).

3 Predicted Subsidence Impacts & Environmental Consequence

The approved subsidence impacts and environmental consequences of extraction within the Application Area are described in the Project EA and subsequent modifications.

The revised subsidence impact assessment[7] was completed by SCT Operations Pty Ltd (SCT) specifically for the Application Area (**Technical Report 1**). The SCT assessment concluded that no significant changes in subsidence impacts are expected from those described in the Project EA.

Section 3.1 provides a brief summary of approved subsidence impacts from the Project EA and subsequent modifications on general surface features.

Section 3.2 provides a summary from the revised subsidence assessment by SCT in August 2016, describing surface impacts within the Application Area.

Section 3.3 provides a summary of the revised subsidence impacts as they relate to MOD4 from *the Ulan Continued Operations Project - Modification 4 Longwall Optimisation Project Environmental Assessment 2018 (ELA, 2018)* and *Subsidence Assessment for Amendment to LW30 and LWW6 - LWW8 Extraction Plan (SCT, 2019).*

3.1 Approved Subsidence Impacts and Environmental Consequences

The following summary of subsidence related impacts on general surface and sandstone cliff formation features, were described in Project EA, which stated:

> *Surface cracks are expected to be generally isolated and increase in size inversely to overburden thickness ranging from 40mm wide where the overburden is 250m thick, 100mm wide where the overburden is 150m thick, and up to 250mm wide where the overburden is 80m thick.*
>
> *There are numerous sandstone cliff formations located within the project area. Based on previous experience of mining under similar sandstone cliffs at Ulan, mining subsidence is expected to cause rock falls on 10-20% of the sandstone cliff formations located directly above the mining area. In general, cliff formations that are high, overhanging, re-entrant and laterally extensive are likely to experience perceptible changes the most.*
>
> *Agricultural utilisation or agricultural suitability of farm land is not expected to be significantly impacted by mining subsidence movements.*

The following summary of revised subsidence related impacts as a result of modifying the Ulan Continued Operation Mine Plan within the Interaction Zone were described in the Environmental Assessment Modification (MOD3) of Ulan Coal - Continued Operations (Umwelt 2012), which stated:

> *The environmental impacts within the Interaction Zone were assessed as part of the UCCO Project EA and subsequently approved within PA 08_0184. The potential environmental impacts associated with the proposed modification within the Interaction Zone are consistent with the approved operations.*

[7] PA08_0184, Schedule 3, Condition 26(e).

3.2 Revised Subsidence Impacts and Environmental Consequences

A summary of the revised subsidence assessment on general surface and sandstone cliff formation features by SCT (**Technical Report 1**) is provided below. The revised subsidence assessment by SCT concluded:

> *No significant changes in subsidence impacts for Longwalls 30 & W6-W8 are expected from those described in the EA (notwithstanding that the maximum predicted subsidence has increased slightly in the revised EP).*
>
> *The proposed mining of Longwall 30 and Longwalls W6, W7 and W8 is not expected to have any greater impact to agricultural utilisation or agricultural suitability of farm land than those outlined in the UCCO Project EA.*
>
> *The impacts of mining subsidence on the tracks are expected to be essentially similar to impacts previously observed over Ulan No 3 Mine, there is some potential for cracks and steps to form.*
>
> *Subsidence induced Rock fall could occur on up to 20% of the length of sandstone formations, perceptible cracking is expected along up to 50-70% of the length of steep slope sandstone formations within the footprint of extracted longwall panels, no environmental consequence predicted.*
>
> *Tension cracks occur in areas of tensile strain. Cracks are expected to develop over the longwall panels and remain in the vicinity of panel edges and along the tops of topographic highs once mining is complete. Tension cracks are expected to be most perceptible at the start of each panel and at the top of steep slopes and cliffs that are directly mined under. Tension cracks typically align with natural joint directions in the rock mass and may form en echelon type cracks along goaf edges. Transient tension cracks may also occur at regular intervals above the centre of the panel typically just behind the longwall face. Over recent panels on the eastern side of the main headings, perceptible cracking has been limited to only a few small areas.*
>
> *The magnitude of tensile strain at which surface cracking is detectable is sensitive to the nature of the surface terrain. Cracks are typically evident on hard surfaces such as roads and bare rock outcrops at strains of greater than 2-5 mm/m and in bushland environments at strains of greater than about 5-10 mm/m. Cracks are typically less than about 20 mm wide in flat or gently undulating terrain but may be larger, generally less than 100 mm wide but possibly up to 200 mm wide, in shallower areas.*
>
> *Permanent compression humps and fracturing may become apparent at topographic lows such as drainage channels, particularly where stream channels flow directly on bedrock.*

3.3 Revised Subsidence Impacts (MOD4)

A summary of the revised subsidence assessment relevant to this Plan and the Application Area by SCT (**Technical Report 1a**) is provided below. The revised subsidence assessment by SCT concluded [extract]:

> *Subsidence effects at the edge of the DSCA are expected to increase with vertical subsidence up from around 0.1m to approximately 1.0m as a result of the proposed extension to LW30. Subsidence impacts to features in and within the vicinity of the revised Extraction Plan Application Area are expected to be consistent with those presented in SCT (2018a) for MOD4. Impacts are expected to be largely imperceptible given the large overburden depth and manageable under existing subsidence management plans. Minor impacts in the form of cracking on hard surfaces, including the access road, are considered possible but easily manageable.*

4 Management and Monitoring & Evaluation

Section 4.1 describes surface features within the Application Area, their respective rehabilitation objectives and references the proposed rehabilitation strategy as provided by the relevant component management plan. Rehabilitation of surface features as a result of mine induced subsidence was also considered in the Project EA.

4.1 Subsidence Management Measures

The need to address and remediate subsidence impacts will be assessed on a case by case basis. The decision to remediate subsidence impacts will take into consideration accessibility, potential risks to public, employee and contractor safety and the environment. If assessments determine subsidence cracking does not present a safety risk or risk to the environment, the crack will be left to self-remediate to prevent further clearing/disturbance works associated with the remediation. If further assessments determine subsidence cracking requires remediation, the appropriate method of remediation will be selected to minimise the potential disturbance to the surrounding environment.

Prior to the commencement of subsidence remediation works, a Ground Disturbance Process (GDP) must be completed (in accordance with the EMS) to identify any potential environmental and heritage issues (e.g. threatened flora and fauna, Aboriginal archaeology sites) and the works are undertaken in an environmentally sustainable manner.

Table 3 identifies the applicable affected surface features within the Application Area, against their respective rehabilitation objectives (*Table 2*) and references the proposed rehabilitation strategy as provided by the relevant component management plan.

Table 3 Subsidence Rehabilitation Strategies

Surface Features	Rehabilitation Objective	Component Management Plan Reference
Mine site (as a whole)	Safe, stable & non-polluting	***The management measures of potential subsidence related impacts on general surface areas within the Application Area are detailed in Section 4.1.2 of the LMP LW30 & LWW6-LWW8, which states:*** *Access tracks affected by subsidence steps identified during mining inspections (Section 4.2), will be barricaded off and accompanied by warning signs to alert track users of the hazard until appropriate road repairs are completed. Remediation of any subsidence steps in accessible areas will be undertaken in a timely manner. Remediation will be undertaken using a backhoe to break up the sandstone overhang and re-grading of the area.* *In the event that cracking is observed on land (including access tracks) that requires remediation, the remediation will proceed in accordance with this Plan and in consultation with relevant stakeholders. This will generally involve the filling of subsidence cracks with inert material, compaction and re-grading of the surface to prevent ponding or as required, to maintain safe access.*
Watercourses to be undermined	Hydraulically and geomorphologically stable, with riparian vegetation that is the same or better than prior to mining	***The management measures of potential subsidence related impacts on drainage lines within the Application Area are detailed in Section 4.1.1 of the WMP LW30 & LWW6-LWW8, which states:*** *Any remediation works required to rectify surface cracking, surface ponding or out of channel flows are not expected to be substantial based on previous experience at UCML. Due to the limited remediation works undertaken as part of the existing operations any future*

Surface Features	Rehabilitation Objective	Component Management Plan Reference
		remediation works are expected to also be limited in extent and be able to be undertaken either by hand or small earthmoving equipment, e.g. bobcat. *Management measures of potential subsidence related impacts on drainage lines are provided in the SWGWRP. As outlined in Table 3.1, Section 3.1.6 of the SWGWRP, provide details of surface water management measures and responses as a result of subsidence related impacts.*
Cliffs	No additional risk to public safety compared to prior to mining	***The management measures of potential subsidence related impacts on cliff formations within the Application Area are detailed in Section 4.2.2 of the LMP LW30 & LWW6-LWW8, which states:*** *Except where a rock fall represents a safety hazard, no specific corrective action will be taken to correct subsidence impacts resulting from the subsidence of cliff features (i.e. rock falls). Where safe to do so, and in order to reduce the need for further environmental disturbance, these features will be left in situ. Where remediation is required, a specific remediation strategy will be developed in accordance with the Contingency Plan process. Should impacts be greater than predicted, the Contingency Plan will apply.*
Other land affected by the project	Restore ecosystem function, including maintaining or establishing self-sustaining eco-systems comprised of: • local native plant species; and • a landform consistent with the surrounding environment	***The management measures of potential subsidence related impacts on flora and fauna within the Application Area are detailed in Section 4.1 of the BMP LW30 & LWW6-LWW8, which states:*** *No perceptible impacts to flora and fauna within the Application area are expected.* *Remediation works in relation to subsidence impacts on flora and fauna are expected to be limited in extent (by hand or small earthmoving equipment). The plan for any flora and fauna remediation strategy will be developed in accordance with the Contingency Plan process outlined in Section 5 and the requirements of the BMP.*
Built features affected by subsidence Private or Publicly Owned	Repair to pre-mining condition or equivalent unless the owner agrees otherwise.	***The management measures of potential subsidence related impacts on publicly owned built features within the Application Area are detailed in Section 4.1 of the BFMP LW30 & LWW6-LWW8, which states:*** **Essential Energy Power Line** *No perceptible impact to this power line is expected.* *Where minor remediation work is required this would occur in consultation with Essential Energy.* ***Survey Control Marks*** *In accordance with Section 40 of the Surveying Regulation 2006, Ulan Coal will notify the Surveyor General of the likely subsidence induced movement to each state survey mark with 2km of active longwall mining. Ulan Coal will request that the mark is temporarily 'decommissioned' by removing its coordinates from the database during the period of active mining and subsidence effects. Ulan Coal will resurvey and reinstate the state survey marks after cessation of subsidence movements has been verified by Ulan Coal's subsidence engineer and Subsidence Monitoring Program (Appendix G of the Extraction Plan).* ***The management measures of potential subsidence related impacts on privately owned built features within the Application***

Surface Features	Rehabilitation Objective	Component Management Plan Reference
		Area are detailed in Section 4.1 of the BFMP LW30 & LWW6-LWW8, which states: ***Private Property Built Features*** *Remediation of built features on private property will be conducted to restore the feature to its pre-mining condition unless otherwise agreed with the landholder or outlined in the management strategies within the PPSMP (Appendix J of the EP).*
Built features affected by subsidence (Ulan Coal Owned)	Not Applicable	***The management measures of potential subsidence related impacts on Ulan Coal owned built features within the Application Area are detailed in Section 4.1 of the BFMP LW30 & LWW6-LWW8, which states:*** ***Ulan Coal Owned Infrastructure*** *Inspection and maintenance requirements for Ulan Coal Owned power lines and pipelines will be generated by the maintenance management system. Inspections of the power lines, including any necessary repairs to the power lines as result of subsidence, is coordinated and managed by the Ulan Surface Operations Electrical Superintendent. Inspections of the pipelines, including any necessary repairs to the pipelines as a result of subsidence, is coordinated and managed by the Ulan Surface Operations Water Manager.* *Farm dams will be monitored during and post mining and repaired as required.* *Internal fences will be repaired as required. Boundary fences will be repaired as soon as possible.*

4.2 Subsidence Monitoring & Evaluation

4.2.1 Rehabilitation Maintenance

The measures as described in this Plan apply, where applicable in the Application Area. To assist in the rehabilitation of post-mining areas the following general land management and maintenance is undertaken with the Project Area:

- Fencing to prevent access to stock, vehicles or human entry;
- Signage to identify significant ecological features and protect rehabilitation, regeneration and revegetation areas;
- Soil conservation (i.e. erosion and sediment control in accordance with ESCP[8]);
- Weed management in accordance with the BMP[9];
- Bushfire management in accordance with the BMP; and
- Control of feral animals in accordance with the BMP.

4.2.2 Rehabilitation Criteria

Rehabilitation success of areas affected by subsidence will be evaluated against relevant preliminary completion criteria in Section 6 of the MOP. The preliminary completion criteria for the Ulan Coal Mine Complex outlines the goals which must be achieved for these strategies to be deemed a success.

[8] Erosion and Sediment Control Plan, as required by PA08_0184 (ULN SD PLN 0025)
[9] Biodiversity Management Plan, as required by PA08_0184 (ULN SD PLN 0026)

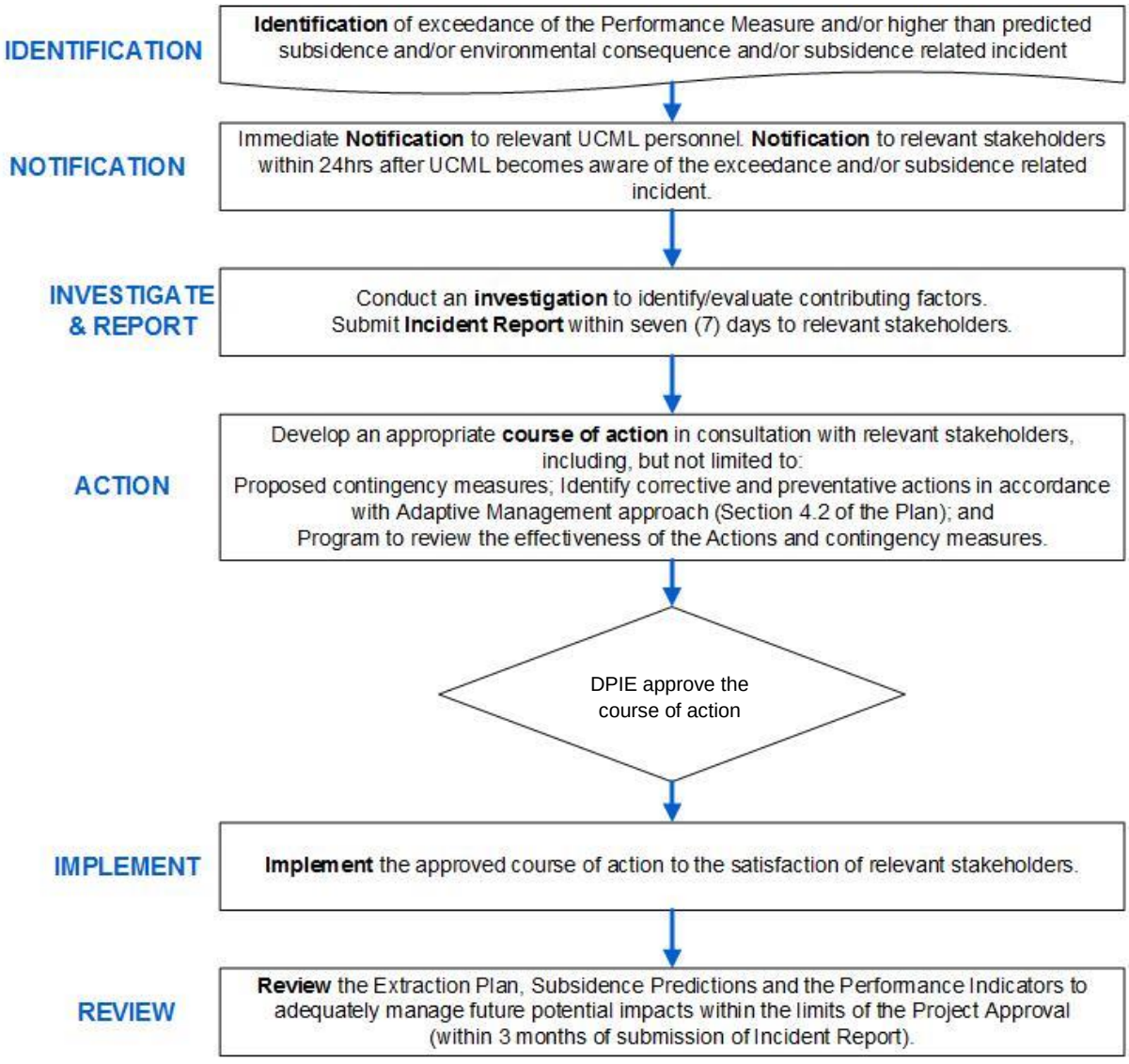
5 Contingency Plan

5.1 Adaptive Management

Section 4.3 of the Extraction Plan describes the process for handling and investigating non-conformances, including allocation of responsibility, external and internal reporting requirements, and initiating and completing corrective and preventative actions.

Figure 4 displays the Contingency Plan to be implemented in the event the performance measures are exceeded, higher than predicted subsidence or environmental consequence has occurred or in the event of a subsidence related incident.

Figure 7 Contingency Plan



5.1.1 Trigger Action Response Plan

Trigger action response plans (TARPs) were developed to identify appropriate response measures for rehabilitation management.

Table 4 displays how the various predicted subsidence impacts, monitoring components, performance measures and responsibilities are structured to achieve compliance with the relevant statutory requirements and the framework for management and contingency actions.

Table 4 Rehabilitation Management Plan Trigger Action Response Plan

	Normal State Predicted Impacts	Level 1 Response Management Measures	Level 2 Response Contingency Phase
Trigger	• As predicted, subsidence impacts are consistent with Section 3 of this Plan and Section 2.5 of the Extraction Plan.	• Assessments identify that subsidence impact presents a safety risk or risk to the environment.	• Assessment identifies a greater than expected environmental consequence.
Action	• Continue monitoring in this Plan and the Subsidence Monitoring Program (Appendix G of the Extraction Plan).	• Implement subsidence remediation works in accordance with **Section 4.1** of this Plan, following completion of Ground Disturbance Permit (GDP).	• Implementation of management and contingency measures responses as identified in the Contingency Plan and reporting requirements as described in **Section 5.1**. • Review this Plan
Frequency	• Monitoring frequency in accordance with this Plan and the Subsidence Monitoring Program (Appendix G of the Extraction Plan).	• Monitoring frequency in accordance with this Plan and the Subsidence Monitoring Program (Appendix G of the Extraction Plan).	• Review monitoring methodology and frequency for the Extraction Plan accordance with Contingency Plan.
Responsibility	• Environment and Community Manager	• Environment and Community Manager • UUG Technical Services Manager	• Environment and Community Manager • UUG Technical Services Manager • UUG Operations Manager

6 Review and Improvement

6.1 Review

Ongoing monitoring and review on the performance and implementation of this Plan will be undertaken in accordance with Section 4.6 of the Extraction Plan. Any changes made to this Plan will be made in consultation with DPIE. A copy of the revised management plan will be supplied to the Secretary of the DPIE for approval.

6.2 Reporting Requirements

External reporting requirements, including incident and annual reporting, for this Plan will be in accordance with Section 4.3 of the Extraction Plan.

In the event of an incident, UCMPL will notify the government agencies as identified in Section 4.3 of the Extraction Plan within 24 hours of becoming aware of the incident. Within seven days of the date of the incident, a detailed report of the incident will be provided and include, but not limited to, the following details:

- The date, time and nature of the exceedance/incident;
- The process to identify and investigate the likely cause of the exceedance/incident;
- Description of the response action undertaken to date; and
- Description of the proposed measures to address the exceedance/incident.

6.3 Community Complaints

Community complaints are managed in accordance with Section 4.4 of the Extraction Plan, including receipt of complaints, investigation, implementation of appropriate remedial action, and feedback to the complainant, communication to site management or personnel and notification to government agencies where necessary.

7 Roles and Responsibilities

The key responsibilities of UCMPL personnel in relation to this Plan are summarised in **Table 5**. Please note that responsibilities may be delegated as required.

Table 5 Rehabilitation Management Plan Roles and Responsibilities

Responsibility	Accountabilities
Operations Manager **(Ulan Underground)**	• Authorise the Plan and approve appropriate resources for the implementation of this Plan; and • Authorise internal and external reporting requirements of this Plan.
Technical Services Manager **(Ulan Underground)**	• Ensure the Subsidence Monitoring Program are implemented; • Ensure monitoring and required under the Subsidence Effects Monitoring Program and this Plan are carried out within specified timeframes, are adequately checked and processed and are prepared to the required standard; and • Ensure appropriate controls are in place to manage subsidence impacts upon surface operational infrastructure; •
Environment and Community Manager	• Review this Plan in accordance with **Section 4.5** and **Section 4.6** and other legal requirements and operation standards; • Ensure the effective implementation of strategies designed to reduce impacts from the operation; • Ensure any potential or actual issue is reported in accordance with this Plan and other legal requirements and corporate standards; • Review and prepare internal and external reports as identified in the reporting framework; • Approve subsequent revisions of this Plan; • Instigate response in the event the performance indicators, TARP and/or Contingency Plan are triggered; and • Allocate resources for monitoring and review of subsidence monitoring survey results.
Environment and Community Coordinator	• Implement monitoring programs as required by this Plan and conduct analysis of results against performance indicators as described in this Plan; • Prepare this Plan and subsequent revisions for approval by the Environment and Community Manager; • Assist in the preparation of reports as identified in reporting framework; and • Assess any triggers as described in performance indicators and provide advice to implementation of TARPS and the Contingency Plan.
Environment and Community Officer	• Assist the Environment and Community Coordinator in the implementation of monitoring programs and analysis of results against performance indicators as described in this Plan; • Assist in the preparation of reports as identified in reporting framework; and • Assist the Environment and Community Coordinator in the assessment of triggers as described in performance indicators and provide advice to implementation of TARPS and the Contingency Plan.
All employees and contractors	• Comply with all requirements of this Plan; • Undertake all works in accordance with this Extraction Plan, the attached Management Plans and Programs and all other Ulan Coal Mine Complex systems; • Report all potential environmental incidents to their supervisor immediately; and • Seek Ground Disturbance Permits (GDP) approval from the Environment and Community Manager prior to any surface disturbance activities.

8 Document Information

Relevant legislation, standards and other reference information must be regularly reviewed and monitored for updates and should be included in the site management system. Related documents and reference information in this section provides the linkage and source to develop and maintain site compliance information.

8.1 Definitions

Definitions as provided in Section 5.1 of the Extraction Plan.

8.2 Accountabilities

Refer to Section 7 of this Plan.

8.3 References

References as provided in Section 5.2 of the Extraction Plan.

8.4 Change Information

Full details of the document history are recorded in the document control register, by version. A summary of the current change is provided in **Table 6** below.

Table 6 Change Information

Version	Date	Review Team (consultation)	Change Summary
0.1	October 2016	Tara Stokes	Document Development
1.0	October 2017	Jessica Southgate	Document formatting updated in accordance with Dept. of Planning feedback.
2.0	April 2020	Stephen Bragg, Lucy Stuart	This EP was amended regarding extension of longwall panels to align with the approved MOD 4.
3.0	December 2020	Robyn Stoney, Lucy Stuart, Stephen Bragg	This EP was resubmitted on the 21/12/2020 to address the requirements from the DPIE Water feeback