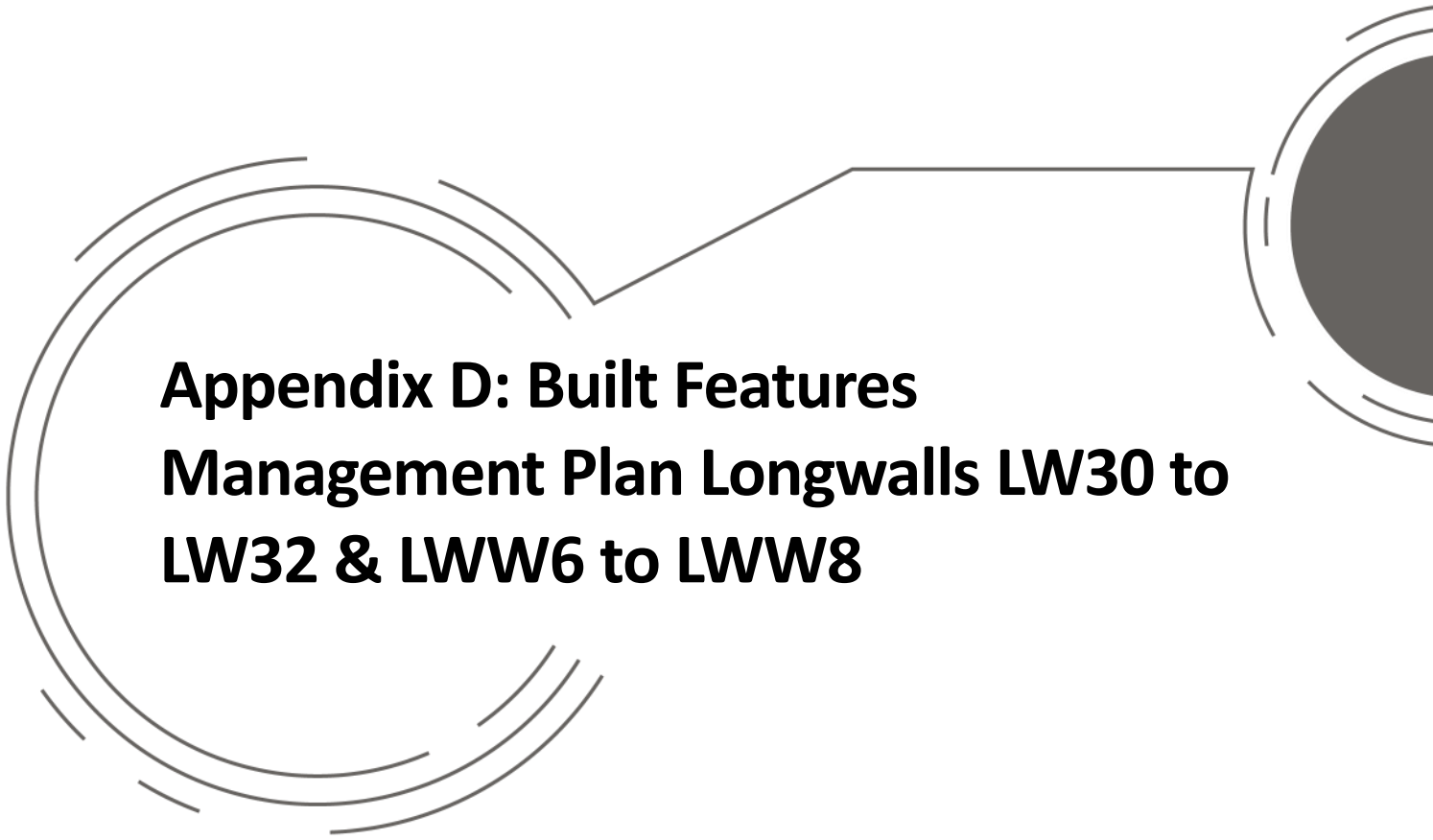




Appendix D: Built Features Management Plan Longwalls LW30 to LW32 & LWW6 to LWW8

Table of Contents

1.	Introduction	4
1.1	Background	4
1.2	Purpose & Scope	9
1.3	Structure of the BFMP.....	9
1.4	Revised Trigger Action Response Plans.....	10
2.	Plan Development and Consultation	11
2.1	Regulatory Requirements	11
2.1.1	Subsidence Performance Measures.....	13
2.2	Specialist Assessments	13
2.3	Risk Assessments.....	13
2.4	Consultation	15
2.4.1	Private Land.....	15
2.4.2	DSCA	15
2.4.3	Public Utilities.....	16
3.	Subsidence Assessment	17
4.	Monitoring Programs	20
4.1	Baseline	20
4.1.1	Objectives.....	24
4.1.2	Built Features Monitoring	24
4.1.2.1	Essential Energy SWER Line	25
4.1.2.2	State Survey Marks	26
4.1.2.3	Four Wheel Drive Track and Small Farm Dam in DSCA.....	26
4.1.2.4	Private Property Infrastructure.....	27
4.1.2.5	Private Bores	27
4.1.2.6	UCMPL Infrastructure	28
5.	Management, Mitigation, Remediation and Reporting Measures	31
5.1	Performance Measures and Performance Indicators	31
5.2	Management and Mitigation Measures	31
5.3	Remediation and Rehabilitation Measures.....	32
5.4	Trigger Action Response Plan.....	33
5.5	Adaptive Management and Contingency Planning.....	37
5.5.1	Adaptive Management.....	37
5.5.2	Contingency Plan.....	38
5.6	Incidents, Complaints, Exceedances and Non-Compliances.....	39
5.6.1	Incident, Exceedances and Non-Compliances.....	39
5.6.2	Community Complaints.....	39
5.7	Reporting Framework	40

5.7.1	Annual Review	40
6.	Plan Administration and Responsibilities	42
6.1	Review of the Extraction Plan	42
6.1.1	Review of Other Management Plans	43
7.	Document Information	44
7.1	Definitions	44
7.2	References.....	44
7.3	Change Information	44
	Appendix A - Correspondence Essential Energy	45
	Appendix B - Correspondence NPWS	52
	Appendix C - Post Mining Inspections of Non-UCMPL Built Features	62

Figures

Figure 1	The Application Area	6
Figure 2	The Extraction Plan Area	7
Figure 3	Built Features within The Extraction Plan Area	8
Figure 4	Built Features Monitoring – Privately Owned & Public Utilities	29
Figure 5	Built Features Monitoring – UCMPL Owned	30
Figure 6	Contingency Plan.....	38

Tables

Table 1	Performance Indicators and TARP Multilevel Response	10
Table 2	Guidelines and PA08_0184 Requirements.....	11
Table 3	Project Approval Built Features Subsidence Performance Measures.....	13
Table 4	Pre-Mining Condition of 4wd Track & Small Farm Dam within the DSCA	20
Table 5	Pre-Mining Condition of Built Features on Private Property	21
Table 6	Pre-Mining Condition of SWER Line	22
Table 7	Built Features Monitoring Program	25
Table 8	Built Features Subsidence Performance Measures and Performance Indicators.....	31
Table 9	Built Features TARP Multilevel Response	35
Table 10	Summary of Reporting Framework.....	40
Table 11	UCMPL Responsibility for this Extraction Plan	42
Table 12	Change Information	44

1. Introduction

Ulan Coal Mines Pty Limited (UCMPL) have amended the approved *Ulan Underground Extraction Plan Longwalls LW30 and LWW6 to LWW8* (Version 4) to include LW31 and LW32 (the Application Area) for the Ulan Underground Mine (UUG). The amended *Ulan Underground Extraction Plan Longwalls LW30 to LW32 and LWW6 to LWW8* (Version 5) is herein referred to as the Extraction Plan.

Subject to approval of the Application Area (**Figure 1**), the current approved Extraction Plan Area for LW30 & LWW6 to LWW8 would therefore include LW31 and LW32 as displayed in **Figure 2**, herein referred to the Extraction Plan Area.

This Extraction Plan has also been prepared in consideration of the DPE's most recent *Extraction Plan Guidelines – October 2022* (the Guidelines) and the recent First Workings Amendment to LW32 and LW33.

1.1 Background

At the time of preparing the Extraction Plan (Version 5), UCMPL had completed secondary extraction of LWW6, LWW7 and partial secondary extraction of LW30 with no exceedances of the subsidence performance measures as outlined in PA08_0184. Subsidence behaviour has been consistent with expectation and subsidence effects are less than forecasts made in SCT (2016) and SCT (2019) to inform the Extraction Plan for LW30 and LWW6-LWW8.

The majority of built features within the Extraction Plan Area are owned by UCMPL. Privately owned infrastructure includes a small shelter, farm dam, fences and tracks located on private property. Public utilities include an overhead power line owned and managed by Essential Energy and state-owned survey control marks. A four-wheel drive track along the western boundary of the Durrigere State Conservation Area (DSCA) is also located within both the Extraction Plan Area (**Figure 3**).

There is one public utility within the Extraction Plan Area. An overhead 12.7kW Single Wire Earth Return (SWER) line owned by Essential Energy has been managed without issue, in accordance with the Extraction Plan. Consultation and management measures of the SWER line have been ongoing since 2011 with Essential Energy (formally Country Energy) regarding previous Extraction Plans for UUG (**Appendix A**). No significant impacts are expected to this powerline from the planned mining in LW31 and LW32 (**Figure 4**).

Public amenities identified are limited to four-wheel drive track and a single waterhole¹ on Curra Creek within the DSCA. The main channel of Curra Creek is located within the Extraction Plan Area but is not above LW31 or LW32. A waterhole on this creek is located just to the north of the start of LW31, outside the edges of LW31 and LW32 and is not expected to be significantly impacted by the planned mining (**Figure 3**).

A small shelter made of timber and corrugated iron is located on Private Property at the western end of LWW6. Agricultural built features of the private property within the Extraction Plan Area include boundary and internal farm fences, tracks and two farm dams (**Figure 3**).

¹ Confirmation the waterhole is a small dam constructed in the flow line of the creek line

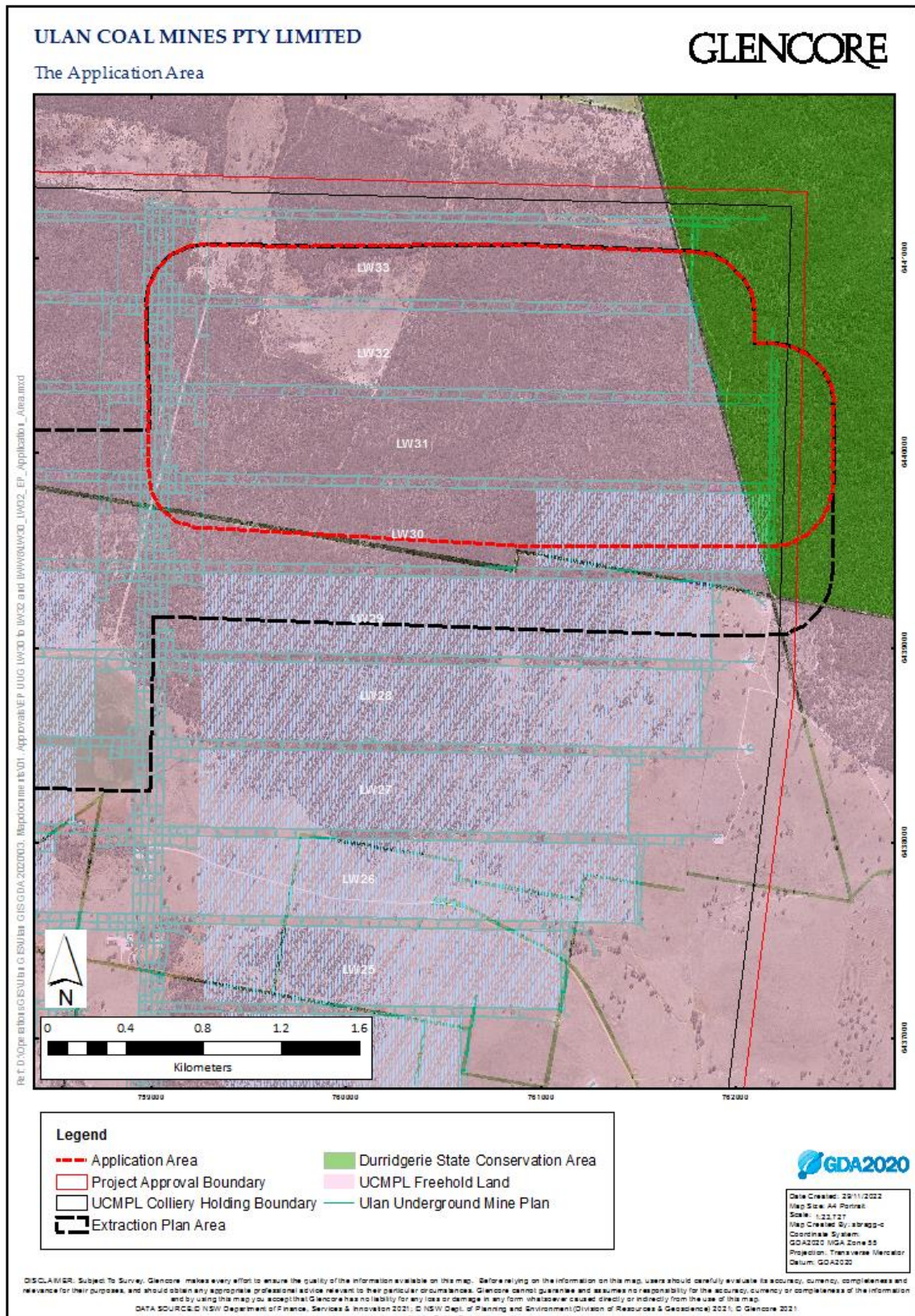
Several state survey control marks are located within the Extraction Plan Area and a further ten marks within a two-kilometre radius. Some of these state survey controls marks are already reported as 'disturbed' by mining.

UCMPL owned infrastructure located within the Extraction Plan Area includes permanent irrigation pivots, an overhead power line and polyethylene water pipeline servicing the Bobadeen Irrigation Scheme (BIS), MG29 Dewatering Station (including surface equipment, power supply and surface polyethylene pipeline), a services monitoring site, several groundwater monitoring piezometers, farm dams and farm fences. A new service corridor installed by UCMPL is positioned diagonally across the western corners of LWW6 - LWW7 and consists of an unsealed road, powerline and pipelines to service UWO's small bore ventilation shaft and dewatering installations to the west of the Extraction Plan Area (**Figure 5**).

Changes to the location of UCMPL owned infrastructure as a result of MOD4 include the mine dewatering systems at the eastern end of LW30. The infrastructure within the service corridor and mine dewatering systems above LW30, LW32 and LW33² have been designed to accommodate the subsidence movements forecast in these areas.

² Mine dewatering systems above LW30, LW32 and LW33 to be constructed prior to longwall extraction.

Figure 1 The Application Area



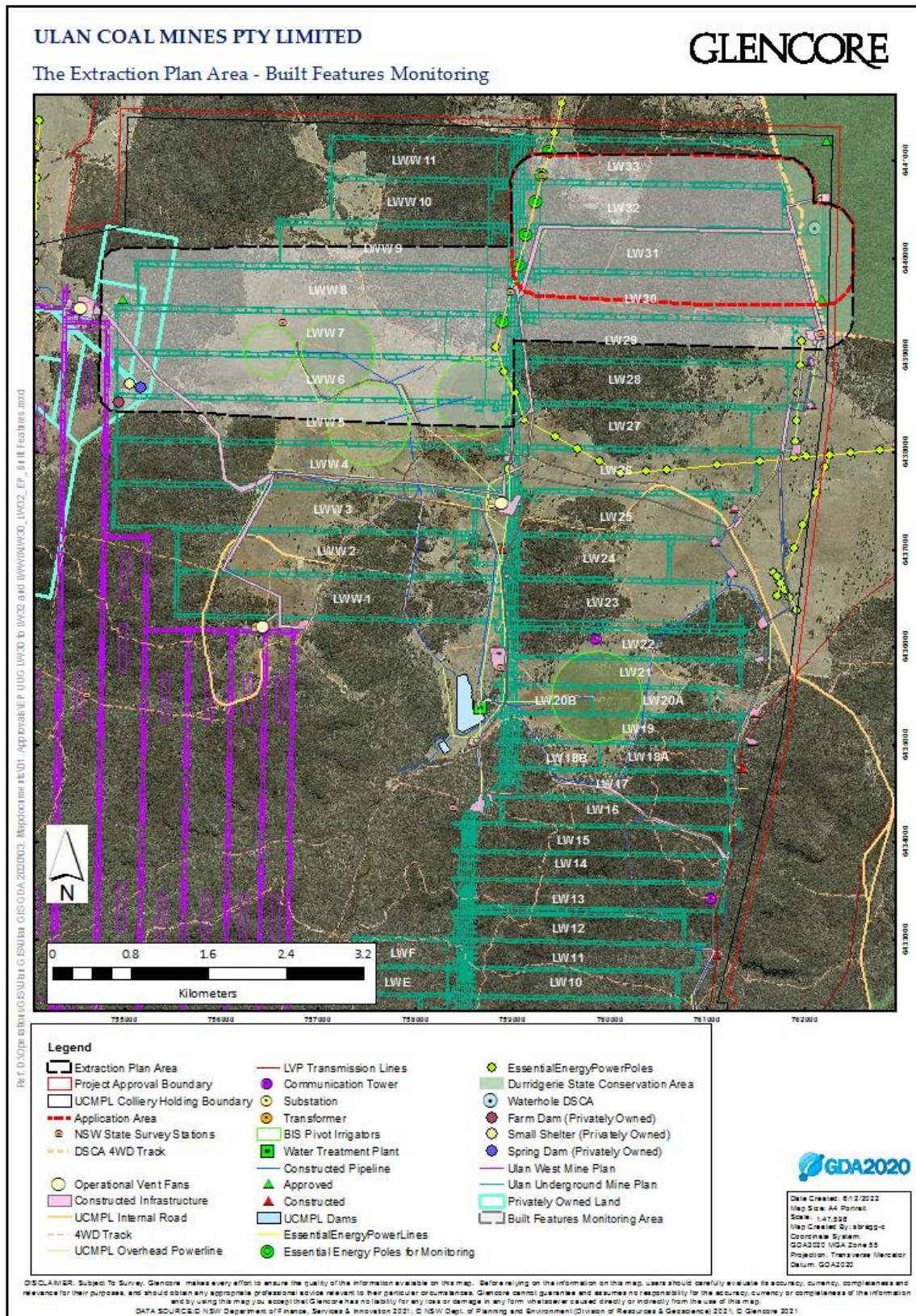
Notes: Longwall progress for LW30 as of 29 November 2022

Figure 2 The Extraction Plan Area



Notes: Longwall progress for LW30 as of 29 November 2022

Figure 3 Built Features within The Extraction Plan Area



1.2 Purpose & Scope

The purpose of this *Built Features Management Plan for LW30-LW32 & LWW6-LWW8* (BFMP LW30-32 & LWW6-LWW8) or (this BFMP) is to outline the management strategies, controls and monitoring programs to be implemented for the management of built features (either UCMPL owned or non-UCMPL owned) regarding potential subsidence impacts and environmental consequences in the UUG mining area from the secondary extraction of longwalls within the Extraction Plan Area (**Figure 2**).

This BFMP is a key Sub-Plan which supports the Extraction Plan.

Subsidence impacts, monitoring and management measures on private land regarding built features will be managed in accordance with each individual Private Property Subsidence Management Plan (PPSMP) in **Section 2.4.1**.

The Extraction Plan was prepared by UCMPL, with assistance from Strata Control Technology (SCT), Eco Logical Australia (ELA), Australasian Groundwater and Environmental Consultants Pty Ltd (AGE), Engeny and OzArk Environment & Heritage (OzkArk). The appointment of the suitably qualified and experienced persons were endorsed by the Secretary of the DPE on the 10 May 2022 (Attachment C of the Extraction Plan).

1.3 Structure of the BFMP

The main Sections and Attachments of this BFMP are:

Section 1	Provides an introduction including purpose and scope, surface development and the underground mining area to which the BFMP applies, structure of the BFMP and revision of the TARP.
Section 2	Describes the process of the Extraction Plan regulatory requirements and where the general requirements for key sub plans area addressed, specialist assessments, review of subsidence predictions, summary of risks identified through the risk assessment process, avoidance and mitigation strategies and consultation.
Section 3	Provides an overview of the subsidence assessment.
Section 4	Describes the subsidence monitoring program and environmental monitoring programs. Also provides summary of UCMPL ongoing baseline data collection program.
Section 5	Describes the performance measures and indicators, management and mitigation measures, rehabilitation and remediation measures, TARP, adaptive management and contingency planning, process to manage incident, community complaints, exceedances, non-compliances, reporting and review for the Extraction Plan.
Section 6	The BFMP responsibilities
Section 7	Reference documents and abbreviations and terms used in this Extraction Plan.
Appendix A	Consultation with Essential Energy
Appendix B	Consultation with NPWS
Appendix C	Post Mining Inspections of Non-UCMPL Built Features

1.4 Revised Trigger Action Response Plans

UCMPL have developed a Trigger Action Response Plan (TARP) (**Section 5.4**) which details UCMPL's monitoring and performance indicators for built features within the Extraction Plan Area, via escalating triggers and levels of investigation, action and responses, in accordance with the relevant performance indicator levels provided in **Section 5.1**.

The TARP was updated to consider the Application Area for LW31 and LW32. The TARP is applicable to longwall mining activities within the Extraction Plan Area. The TARP utilises the results from UCMPL subsidence monitoring program (**Section 4**) to:

- Inform if the subsidence performance measures are likely to be exceeded during the secondary extraction within the Extraction Plan Area;
- Monitor, evaluate and validate subsidence effects against the maximum subsidence predictions;
- Allow analysis of the relationship between subsidence effects and subsidence impacts and any ensuing environmental consequences; and
- Provide ongoing subsidence data to improve predictive methods and understanding subsidence related ground movements.

UCMPL's Environment and Community Manager (ECM) or delegate, will implement the TARP to ensure the necessary investigations, notifications, management and contingency actions for potential subsidence related impacts for this Extraction Plan are completed as required.

Table 1 Performance Indicators and TARP Multilevel Response

Performance Levels	General Description	Action/Response
Level 1 (Condition Green)	Operations within predictions, and within approved impacts.	Continued operations and monitoring as required by the Extraction Plan.
Level 2 (Condition Amber)	Operations exceeding Extraction Plan predictions but within approved subsidence impact performance measures.	Review and investigation processes are engaged, with adaptive management as required.
Level 3 (Condition Red)	Operations exceed approved subsidence impact performance measures.	In addition to Level 2 actions and responses adaptive management measures are fully initiated as outlined in the MTARP.

As required by the DPE, a specific trigger action response plan for the MCRSS must be submitted by UCMPL and approved by the DPE prior to the commencement of extraction in LWW8.

2. Plan Development and Consultation

2.1 Regulatory Requirements

The Ulan Coal Mine currently operate under a number of regulatory approvals. Regulatory approvals relevant to this Extraction Plan include:

- PA08_0184 (as modified) granted 15 November 2010, issued under the EP&A Act;
- Approval from the Commonwealth Minister for the Environment of the *Environment Protection and Biodiversity Conservation Act 1999* (approval reference No. 2009/5252);
- Mining Leases ML1468, ML1341 and CCL741 issued under the *Mining Act 1992*; and
- Environmental Protection Licence (EPL) 394 issued under the *Protection of the Environment Operations Act 1997*.

For further information regarding Project Approval, regulatory requirements, relevant legislation and mining leases refer to Section 2.0 of the Extraction Plan.

This BFMP LW31-LW32 & LWW6-LWW8 (this BFMP) is a component of the Extraction Plan and has been prepared specifically to address Condition 26 of Schedule 3 which states:

26. The Proponent must prepare and implement an Extraction Plan for all second workings on site to the satisfaction of the Secretary. Each Extraction Plan must:

(g)...include the following to the satisfaction of the DRG:

... A Built Features Management Plan, which has been prepared in consultation with the owner/s of any relevant features, to manage the potential subsidence impacts and/or environmental consequences of the proposed second workings on these features; and

- *a program to collect sufficient baseline data for Future Extraction Plans³.*

The structure of this BFMP also follows the Guidelines provided by DPE. **Table 2** identifies where the requirements of PA 08_0184 and the Guidelines are where they are addressed either in the BFMP or the Extraction Plan.

Table 2 Guidelines and PA08_0184 Requirements

Guidelines and PA08_0184 Requirements	BFMP Section
EP Guidelines (General Requirements)	
<i>A short overview of relevant landscape features, heritage sites, environmental values, built features or other values to be managed under the Sub-Plan.</i>	Section 1.1
<i>Setting out the consent's performance measures directly relevant to the features or values to be managed under the Sub-Plan.</i>	Section 2.1.1
<i>Setting out clear objectives to ensure the delivery of the performance measures and all other relevant statutory requirements.</i>	Section 1.2 Section 4.1.1
<i>Setting out performance indicators to ensure compliance with the performance measures and all applicable statutory requirements.</i>	Section 5.1
<i>Adequate description of the relevant features or values to be managed under the Sub-Plan, and their significance.</i>	Section 1.1 Section 4.1

³ UCMPL's program to collect baseline data for Future Extraction Plans is provided in Section 4.4 of the Extraction Plan.

Guidelines and PA08_0184 Requirements	BFMP Section
<i>Description of all currently-predicted subsidence impacts and environmental consequences relevant to the features and values to be managed under the Sub-Plan.</i>	Section 3.0
<i>Description of all measures planned to remediate these impacts and/or consequences, including any measures proposed to ensure that impacts and/or consequences comply with performance measures and/or the mining company's commitments.</i>	Section 5.3
<i>Description of the baseline monitoring network and baseline monitoring results, including pre-subsidence photographic surveys of key landscape features and key heritage sites which may be subject to significant subsidence impacts.</i>	Section 4.1
<i>Description of the proposed environmental monitoring of subsidence impacts and environmental consequences.</i>	Section 4.1.2
<i>Description of proposed monitoring of the success of remediation measures following implementation.</i>	Section 5.3
<i>Description of adaptive management proposed to avoid repetition of unpredicted subsidence impacts and/or environmental consequences.</i>	Section 5.5
<i>Listing responsibilities for implementation of the Plan.</i>	Section 6.0
<i>An attached TARP (effectively a tabular summary of most of the above).</i>	Section 5.4
<i>All Sub-Plans should give appropriate consideration to risk assessment and risk management. This is particularly the case for Public Safety Management Plans and Built Features Management Plans.</i> <i>results of risk assessment conducted by a competent person in accordance with relevant standards and guidelines;</i> <i>description of the investigation and analysis methods used in determining the risk control measures and procedures, carried out by a competent person;</i> <i>description of all risk control measures and procedures, including a statement of the feasibility to manage identified risks; and</i> <i>proposed program for implementation of the proposed risk control measures and procedures.</i>	Section 2.2
Condition 2, Schedule 5 of PA08-0184	
Condition 2(a) <i>detailed baseline data.</i>	Section 4.1
Condition 2(b) <i>a description of: the relevant statutory requirements (including any relevant approval, licence or lease conditions);</i>	Section 2.1
Condition 2(b) <i>a description of: any relevant limits or performance measures/ criteria;</i>	Section 2.1.1
Condition 2(b) <i>a description of: 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.</i>	Section 5.1
Condition 2(c) <i>a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria.</i>	Section 5.0
Condition 2(d) <i>a program to monitor and report on the:</i> <i>impacts and environmental performance of the project;</i> <i>effectiveness of any management measures (see c above)</i>	Section 4.0 Section 5.7
Condition 2(e) <i>a contingency plan to manage any unpredicted impacts and their consequences</i>	Section 5.5.1
Condition 2(f) <i>a program to investigate and implement ways to improve the environmental performance of the project over time.</i>	Section 6.0
Condition 2(g) <i>a protocol for managing and reporting any:</i> <i>incidents;</i> <i>complaints;</i> <i>non-compliances with statutory requirements; and</i> <i>exceedances of the impact assessment criteria and/or performance criteria</i>	Section 5.6
Condition 2(h) <i>a protocol for periodic review of the plan.</i>	Section 6.1

2.1.1 Subsidence Performance Measures

In accordance with Condition 24 of Schedule 3 of the PA08_0184, UCMPL must ensure that there is no exceedance of the subsidence impact performance measures. The subsidence performance measures specified in Table 14 of Condition 24 of Schedule 3 of the PA08_0184 relevant to the BFMP is provided in **Table 3**.

Table 3 Project Approval Built Features Subsidence Performance Measures

Built Features	Performance Measure	Relevance to the Extraction Plan	Section Addressed
All built features	Safe, serviceable and repairable unless the owner agrees otherwise in writing	- Essential Energy as the owner of the 12.7KW powerline that crosses through the Extraction Plan Area. There have been no recorded impacts to the powerline as a result of mining LWW6 and LWW7. - NPWS as the land owner for the DSCA within the eastern portion of the Extraction Plan Area. Mining is now complete under the DSCA for LW30. Impacts have been minor in accordance with predictions. Consultation with NPWS is ongoing. - Several State Survey marks are located within the Extraction Plan Area. - Other non-UCMPL owned built features on private land are within the Extraction Plan Area include a small timber shelter, boundary an internal fencing and two farm dams. The built features have been undermined by LWW6 and LWW7 with recorded impacts in accordance with predictions.	This BFMP

2.2 Specialist Assessments

Strata Control Technology (SCT) were engaged by UCMPL to estimate the likely subsidence effects from LW31 and LW32, assess the expected impacts from these two longwall panels and prepare a subsidence assessment report to support the Extraction Plan to include Longwalls 31 and 32 (**Section 3.0**).

SCT have previously provided subsidence assessment reports to support the initial Extraction Plan for LW30 and LWW6-LWW8 and its revision to align with MOD4 (**Section 7.2**). A detailed summary of the subsidence assessment by SCT for LW31 and LW32 is provided in **Section 3.0**, with their complete technical report provided in Attachment F of the Extraction Plan.

2.3 Risk Assessments

A risk assessment for the initial Extraction Plan was completed on 7 July 2016 for LW30 and LWW6-LWW8. The risk assessment was facilitated by AXIS Consulting and attended by relevant UCMPL personnel and subsidence specialists. The potential consequences raised during the risk assessment process included natural features (i.e. sandstone cliff formations, creeks and groundwater), threatened species, native vegetation, Aboriginal and European sites, public utilities, public safety, private land, privately owned built features and UCMPL owned infrastructure. All hazards were ranked as low with the implementation UCMPL's existing and additional controls

As required by the Guidelines, a risk assessment workshop was completed on the 28 July 2022 for the inclusion of LW31 and LW32 to ensure that appropriate consideration was given to potential subsidence risks and risk management for natural features, threatened species, native vegetation, Aboriginal and European sites, public utilities, public safety, private land, privately owned built features and UCMPL owned infrastructure.

UCMPL's risk assessment process for each Extraction Plan also considers the former SMP Guidelines (2003) list of potentially environmentally sensitive areas and surface and sub-surface features that may be affected by underground mining in the risk assessment (Attachment E of the Extraction Plan).

The risk assessment workshop was attended by key UCMPL personnel from UUG and UCMPL's environmental department and Steve Wilson from SCT. The risk assessment workshop indicated that risks associated with LW31 and LW32 were in the "Low" or "Medium" category, and it was expected that the risks could be managed with implementation of the appropriate mitigation, management and/or control measures in the Extraction Plan. The outcomes from the risk assessment workshop have been incorporated into the relevant key component management plans and this Extraction Plan were applicable. A description of all risk control measures and procedures as identified through the risk assessment process applicable to the BFMP include:

- UCMPL Owned Built Features
 - SCT provided subsidence predictions to inform the powerline design in the EP area, drawing on experience with previous undermining at UUG.
 - SCT involved in design of infrastructure location of dewatering stations to be outside area of impact.
 - Monthly subsidence inspections.
 - Existing approach to manage remediation of tracks.
 - Back-up generator on MG31 dewatering station.
- DSCA
 - Consultation strategy and agreed monitoring with NPWS.
 - NPWS visits to the site for pre-condition monitoring.
 - Weekly inspection of the DSCA during mining of LW31 in the development of the revised Extraction Plan.
- Privately Owned Built Features
 - PPSMP and consultation process. To date UCMPL haven't observed too many impacts to fencing.
 - Monitoring and repair. The PPSMP includes commitment to make good all repairs to the satisfaction of the landowner. UCMPL have repaired farm dam on Woodbury property associated with associated with LWW6.
- Essential Energy Built Features
 - Powerline management measures specific in BFMP.
 - The SWER Line runs north-south above the mains.
 - Monitoring of the SWER line accordance with the BFMP.
 - Monthly environmental subsidence inspection.
 - No poles will be directly undermined.
 - Have previously undermined this line at UUG with no impacts.
- NSW State Survey Marks
 - Management of the survey marks as required by the BFMP.

2.4 Consultation

Consultation with relevant government authorities and stakeholder groups has been ongoing and extensive since 2016 during preparation of the initial Extraction Plan and subsequent amendments (Section 1.2 of the Extraction Plan). This historical consultation with relevant government authorities and stakeholder groups is provided in Attachment B and Attachment C of the Extraction Plan.

The majority of land above the Extraction Plan Area is owned by UCMPL with the exception of one private landowner to the west and DSCA managed by the NSW National Parks and Wildlife Service (NPWS) to the east. The one private property above the western portions of LWW6 to LWW8 is also referred to as the Woodbury Property (**Figure 3**).

2.4.1 Private Land

Under the approved *Ulan Underground Extraction Plan for Longwalls LW30 & LWW6 to LWW8 (Version 4)*, the extraction of LWW6 and LWW7 beneath the Woodbury Property had been completed during August 2020 and October 2021 respectively. The management, monitoring and remediation measures required by the relevant Private Property Subsidence Management Plans (PPSMPs) for each longwall has been implemented by UCMPL. Consultation with the landowner of the Woodbury Property at all stages of mining i.e. pre, during and post, has been extensive and ongoing.

As detailed by Statement of Commitments (SoC) 6.3.1, “...Where a potential subsidence impact is predicted on private property, UCML will prepare a Private Property Subsidence Management Plan for each of the potentially affected private landholders. These plans will clearly outline impacts of mining on the property and the management and remediation measures to be implemented, by agreement with the landowner”.

UCMPL have prepared individual PPSMPs for each longwall (LWW6 and LWW7) which outlines impacts of mining on the landowner’s property and the monitoring, management and remediation measures to be implemented by UCMPL, in agreement with the landowner. There are no residential buildings and associated outbuildings on the Woodbury Property within the Extraction Plan Area. Prior to mining LWW8, UCMPL and the landowner will have in place a PPSMP for LWW8.

2.4.2 DSCA

During mining under the approved Ulan Underground Extraction Plan for Longwalls LW30 & LWW6 to LWW8 (Version 4), UCMPL was granted a Licence for Works and Occupations (Occupation Licence) by the Minister administering the National Parks and Wildlife Act 1974 for the DSCA on the 1 March 2020. The Occupation Licence permits installation, operation and maintenance of three dewatering bores, associated infrastructure and tracks (refer to Appendix D: BFMP LW30-32 & LWW6-LWW8). The Occupation Licence expires on the 28 February 2025.

Prior to the commencement of LW30, a pre-mining inspection above LW30 was carried out by UCMPL with a Senior NPWS representative on the 24 May 2022. UCMPL will continue to consult with NPWS on a regular basis to inform of the development of this Extraction Plan and complete the necessary site inspections with a NPWS Authorised Officer in attendance and reporting requirements to the NPWS regarding the DSCA. Refer to Appendix B for correspondence with NPWS.

2.4.3 Public Utilities

Public utilities within the Extraction Plan Area with the potential to be affected by subsidence include an overhead Essential Energy Single Wire Earth Return (SWER) 12.7 kV power line and several NSW State Survey control stations (**Figure 3**).

UCMPL commenced consultation with Essential Energy in May 2016 during the development of the initial Extraction Plan. Under the approved *Ulan Underground Extraction Plan for Longwalls LW30 & LWW6 to LWW8 (Version 4)*, there has been no recorded impacts to the SWER Line as a result of mining LWW6 and LWW7. No significant impacts are expected to this powerline from the planned mining in LW31 and LW32 as provided by SCT's subsidence assessment (**Section 3.0**).

The initial *BFMP LW30 & LWW6-LWW8* was accepted by Essential Energy on the 26 October 2016.

Further consultation with Essential Energy on the 31 August 2022 was undertaken for LW31 and LW32. Information provided included *SCT's Ulan Underground Mine: Subsidence Assessment for Longwalls 31-32 Extraction Plan* report and a commitment to provide the updated BFMP for their review and consideration. The revised BFMP was issued for consultation to Essential Energy on the 28 October 2022. The management, monitoring and mitigation measures in the revised BMP are consistent with previous versions.

In accordance with this BFMP, UCMPL will repair the serviceability of the SWER Line at the full cost of UCMPL if the serviceable of this public utility is lost during extraction as a result of subsidence. A summary of the historical consultation for the BFMP with Essential Energy is provided in **Appendix A**.

Several state survey control marks are located within the Extraction Plan Area and a further eighteen marks within three kilometres of the Extraction Plan Area (**Figure 3**). Some of these state survey controls marks are already reported as 'disturbed' by mining. The NSW State Survey control stations will be reinstated after active subsidence, in accordance with the *Surveyor-General's Direction No. 11 – Preservation of Survey Infrastructure - Version 4.0 January 2020*, as confirmed by NSW Spatial Services in March 2019.

3. Subsidence Assessment

The potential subsidence impacts of longwall mining and environmental consequences have been undertaken by Strata Control Technology (SCT) for the Mine's Project EA (Umwelt, 2009), and subsequent modification assessments, including but not limited to:

- *Assessment of Subsidence Impacts for Amended Ulan No 3 and Ulan West Mine Plans' SCT Report ULA3839 – 9 June 2011.*
- *Ulan West Modification Environmental Assessment - Umwelt (Australia) Pty Limited, March 2015.*
- *Subsidence Assessment for Proposed Ulan West Mine Modification Longwalls 3 to 12 SCT Report ULA4229A - 18 September 2015.*
- *Ulan Continued Operations Project – Modification 4 Longwall Optimisation Project Environmental assessment" – Eco Logical Australia Pty Ltd, 29 January 2018.*

Revised subsidence assessments have also been conducted for each revision of the Extraction Plan by SCT. The revised subsidence assessment reports for each revision of the Extraction Plan by SCT have included:

- The initial *Subsidence Assessment for Extraction Plan LW30 and LWW6 - LWW8 at Ulan Underground Mine (2016)* was prepared by SCT.
- A revised *Subsidence Assessment for Amendment to LW30 and LWW6 - LWW8 Extraction Plan (2019)* was prepared by SCT to align with MOD4.
- *Ulan Underground Mine: Subsidence Assessment for Longwalls 31-32 Extraction Plan (2022)* was prepared by SCT for LW31 and LW32.

As required by Condition 26(e), Schedule 3 of PA08_0184, UCMPL engaged SCT to complete a subsidence assessment for LW31 and LW32. The *Ulan Underground Mine: Subsidence Assessment for Longwalls 31-32 Extraction Plan (2022)* was prepared by SCT for LW31 and LW32. The following summary of the subsidence assessment relevant to built features includes:

- *The only public utilities or public amenities identified within the EP Area or in positions with potential to be affected by the planned mining of Longwalls 31 and 32 are an overhead powerline, unsealed access roads/four-wheel drive tracks and a number of state survey control stations.*
- *A single pole overhead powerline, owned by Essential Energy, traverses the surface above the western edge of the EP Area but not above Longwalls 31 and 32. This powerline supplies private properties including an abandoned homestead, referred to as C133 or ID#279, now owned by UCM, located to the north of Longwall 33. The position and alignment of the powerline relative to the planned mining and access road is shown in Figure 2.*
- *No significant impacts are expected to this powerline from the planned mining in Longwalls 31 and 32.*
- *The two nearest poles to the planned mining in Longwalls 31 and 32 are along a straight section positioned on a ridgeline approximately 50-100m outside the panel edges of Longwall 32.*
- *Vertical subsidence is expected to be less than 100mm with corresponding low levels of tilt and strain at these poles. Maximum horizon stress relief movement could be greater than 300mm. However, the risk of significant impacts from all these subsidence effects at the poles is expected to be low with no perceptible impacts to the overhead conductors.*

- *Regular visual inspections and monitoring during the period of active subsidence with timely remediation, if necessary, are considered to be appropriate measures to manage any impacts to this built feature.*
- *Including this infrastructure in a BFMP, after consultation with the asset owner and consideration of mitigation and remediation measures, is recommended.*
- *Unsealed access roads/four-wheel drive tracks positioned along the boundary of the DSCA and UCM owned land cross over Longwall 31 but not Longwall 32. This access road is referred to as the Curryall perimeter fire trail on some maps.*
- *Any impacts are expected to be minor due to the greater overburden depth. Nevertheless, minor impacts may be perceptible on access roads within the EP Area, but these impacts are not expected to be significantly out of character with the general condition of the track and other hazards that might exist from time to time including from falling trees.*
- *Minor cracking of the surface is expected especially on hard surfaces near panel edges and some of these cracks may intersect access roads. Steps in the surface are possible but unlikely. If steps do form these are likely to occur relatively suddenly but given the low traffic volumes no additional risk to public safety is expected. Some minor repair work may be required to smooth out irregularities and close up open cracks. Any steps that form may require some greater effort to remediate.*
- *The use of subsidence warning signs to increase awareness and vigilance, regular visual inspections and monitoring during the period of active subsidence, and timely remediation of any impacts are recommended as appropriate measures to manage potential impacts. Including the access road in an LMP, BFMP and PSMP to ensure public safety in the mining area is also recommended.*
- *Two state survey marks have been identified within the EP Area for Longwalls 31 and 32.*
- *An additional 18 marks, likely to have been affected by the previous mining at the Ulan Complex or located within approximately 3km of the planned mining in Longwalls 31 and 32 and having potential to be affected by the far-field subsidence movements measured at the site, have been identified.*
- *State survey marks are expected to be stable reference points. Ground movements caused by mining subsidence have potential to impact this stability to the extent where continued reference to a mark displaced by mining could, in certain circumstances, have significant consequences.*
- *A BFMP that includes a process to manage these impacts is recommended. This approach has been used in the past at the Ulan Complex and elsewhere and is considered a practical way to manage subsidence impacts from longwall mining on survey control stations. The asset owner is notified to temporarily decommission a mark that may be affected by removing its coordinates from the database during the period of active subsidence. Once the subsidence effects have taken place and stabilised, the horizontal and vertical position of the mark are re-established and the mark is returned to service with revised coordinates and height values.*
- *However, subsidence impacts to access tracks, dams and fences/gates are expected to be minor and repairable. Restricting grazing during the period of active subsidence and until after any required remediation is complete is suggested to safeguard livestock.*
- *Impacts to access tracks expected to be minor and not significantly out of character with the general condition of the track and other hazards that might exist.*

- *Impacts to dams may include cracking and water loss during the period of active subsidence. Any such impacts are expected to be repairable with a small amount of remediation work.*
- *Fences may become affected in areas of high strain to the extent that they become ineffective for stock control. The operation of gates may also be affected depending on their specific location. In general, these impacts can most easily be managed as and when they occur.*
- *A program of visual inspections and appropriate remediation as required is recommended as a satisfactory way to manage any impacts.*
- *Installing subsidence warning signs, visual inspections during the period of active subsidence, and appropriate remediation as required is recommended as a satisfactory way to manage any impacts to these features. Including these features in a BFMP or LMP is also recommended.*
- *A waterhole on this creek is located just to the north of the start of Longwall 31, outside the edges of Longwalls 31 and 32 and is not expected to be significantly impacted by the planned mining.*

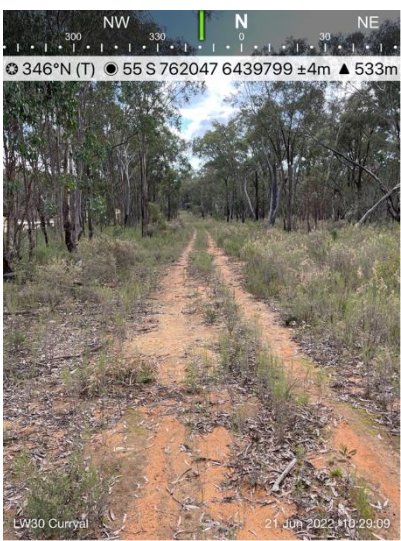
4. Monitoring Programs

4.1 Baseline

The majority of built features within the Extraction Plan Area are owned by UCMPL. Privately owned infrastructure includes a small shelter, farm dam, fences and tracks located on private property. Public utilities include an overhead power line owned and managed by Essential Energy and state-owned survey control marks. A four-wheel drive track along the western boundary of the DSCA is also located within both the Extraction Plan Area (**Figure 4**).

Public amenities identified are limited to NPWS assets including a section of four-wheel drive track (also known as Curryall Perimeter Fire Trail), a section of NPWS park boundary fencing and access gates, DSCA signage and a waterhole (a small dam) on Curra Creek within the DSCA. The main channel of Curra Creek is located within the Extraction Plan Area but is not above LW31 or LW32. A small dam on this creek is located just to the north of the start of LW31, outside the edges of LW31 and LW32 and is not expected to be significantly impacted by the planned mining (**Figure 4**). The pre-mining condition of the 4wd track and dam are provided in **Table 4**.

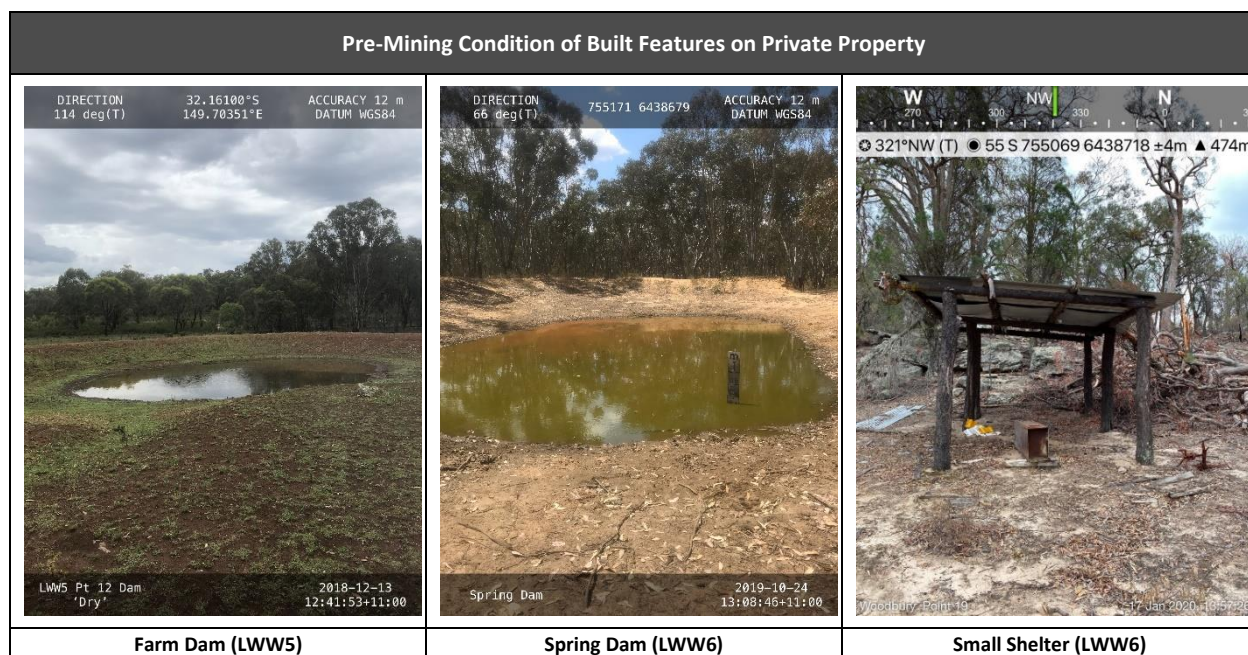
Table 4 Pre-Mining Condition of 4wd Track & Small Farm Dam within the DSCA

Pre-Mining Condition of 4wd Track within the DSCA		
		
4wd Track in the DSCA	4wd Track in the DSCA	4wd Track & Warning Signage in the DSCA



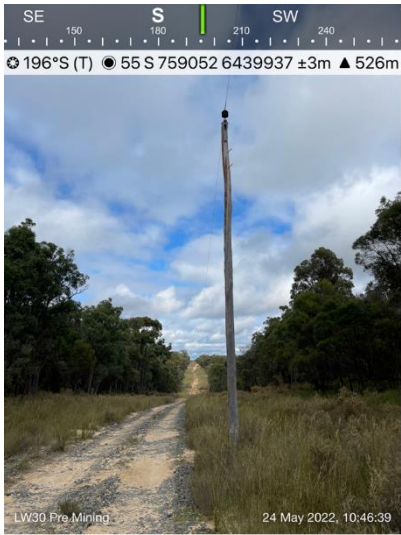
Agricultural built features of the private property within the Extraction Plan Area include a small shelter made of timber and corrugated iron, boundary and internal farm fences, tracks and two farm dams (**Figure 4**). The pre-mining condition of the two dams and small shelter is displayed in **Table 5**.

Table 5 Pre-Mining Condition of Built Features on Private Property



An Essential Energy Single Wire Earth Return (SWER) 12.7 kV power line is located in a north-south alignment over the main headings of UUG within the Extraction Plan Area. The power line services one rural property to the north of the Project Area (**Figure 4**). The pre-mining condition of the SWER Line is displayed in **Table 6**.

Table 6 Pre-Mining Condition of SWER Line

Pre-Mining Condition of Essential Energy SWER Line		
		
Pole ID#6305	Pole ID#107617	Pole ID#107616
		
Pole ID#6309	Pole ID#6310	Pole ID#6311



UCMPL owned infrastructure located within the Extraction Plan Area includes permanent irrigation pivots, an overhead power line and polyethylene water pipeline servicing the Bobadeen Irrigation Scheme (BIS), MG29 Dewatering Station (including surface equipment, power supply and surface polyethylene pipeline), a services monitoring site, several groundwater monitoring piezometers, farm dams and farm fences. A new service corridor installed by UCMPL is positioned diagonally across the western corners of LWW6 - LWW7 and consists of an unsealed road, powerline and pipelines to service UWO's small bore ventilation shaft and dewatering installations to the west of the Extraction Plan Area. Changes to the location of UCMPL owned infrastructure as a result of MOD4 include the mine dewatering systems at the eastern end of LW30 (**Figure 5**).

The UCMPL infrastructure within the service corridor and mine dewatering systems above LW30, LW32 and LW33⁴ have been designed to accommodate the subsidence movements forecast in these areas.

⁴ Mine dewatering systems above LW30, LW32 and LW33 to be constructed (if required) prior to longwall extraction.

Several state survey control marks are located within the Extraction Plan Area and a further eighteen marks within a three-kilometre radius. Some of these state survey controls marks are already reported as 'disturbed' by mining (**Figure 4**).

There are no Private Bores located within the Extraction Plan Area.

4.1.1 Objectives

The objectives of the BFMP to outline the management strategies, controls and monitoring programs to be implemented for the management of built features (either UCMPL owned land or non-UCMPL owned land) regarding potential impacts from UCMPL mining activities, as described in the Extraction Plan within the Extraction Plan Area (**Figure 4** and **Figure 5**).

The relationship of the BFMP to UCMPL's Environmental Management Strategy (EMS) is shown by Figure 4 in the Extraction Plan. The key subsidence impacts that may have potential consequences on built features associated with the extraction of longwalls within the Extraction Plan Area include:

- Public utilities and amenities including an overhead power line, State survey marks and 4wd track in the DSCA;
- UCMPL owned infrastructure including internal roads, farm dams, powerlines, dewatering sites, pipelines, fences and irrigation pivots; and
- Private property infrastructure includes a small shelter, farm dams, fences and tracks.

4.1.2 Built Features Monitoring

To evaluate the impacts from subsidence on built features within the Extraction Plan Area, the Extraction Plan has developed the following key monitoring components to measure and evaluate the subsidence performance measure for built features, including:

- Public utilities and amenities monitoring;
- Built features owned UCMPL property monitoring; and
- Built features on private property monitoring.

A detailed description of the monitoring locations, frequency and parameters measured for each of these components of the monitoring program is provided in **Figure 4**, **Figure 5** and **Table 7**.

Table 7 Built Features Monitoring Program

Parameter/Methodology	Site	Frequency
Public Utilities and Amenities - Essential Energy Powerline: Surveyor to record the 3D Position (X, Y, Z) of each pole for pre and post mining comparisons. - Visual observations and photographic monitoring with GPS camera to record general condition of each pole.	Power poles located within the Extraction Plan Area and with pole identification numbers: 69305 ⁴ , 69309 ⁴ , 69310 ³ , 69311 ³ , 69312 ³ , 69313 ³ , 69314 ³ , 69315 ³ , 107616 ⁴ and 107617 ⁴ . <i>(refer to Figure 4)</i>	- Pre-mining survey and visual inspection - During mining visual inspection (monthly) - Post mining survey and visual (within one month¹)
State Survey Marks: Reinstate and resurvey the Survey State Marks as required by the <i>Surveyor-General's Direction No. 11 – Preservation of Survey Infrastructure - Version 4.0 January 2020</i>.	Reinstate and resurvey the Survey State Marks within 3km of the Extraction Plan Area. Refer to Section 4.1.1.2 . <i>(refer to Figure 4)</i>	After cessation of subsidence movements has been verified by UCMPL's subsidence engineer and Subsidence Monitoring Program.
DSCA: Visual observations and photographic monitoring with GPS camera to record general condition of the four-wheel drive track in the DSCA for serviceability and safety.	Four-wheel drive track associated with the Extraction Plan Area within the DSCA. <i>(refer to Figure 4)</i>	- Pre-mining. - During mining (weekly) when longwall retreat is under DSCA. - Post mining (within one month after longwall has retreated from DSCA)
Built Features on UCMPL Property Visual observations and photographic monitoring with GPS camera to record the general condition of the built feature assets including serviceability and safety.	UCMPL owned built features associated with the Extraction Plan Area on UCMPL land. <i>(refer to Figure 5)</i>	- Pre-mining - During mining (monthly) - Post mining (within three months)
Built Features on Private Property Visual observations and photographic monitoring with GPS camera to record the general condition of the built feature assets including serviceability and safety.	Privately owned built features associated with Extraction Plan Area on private property. <i>(refer to Figure 4)</i>	- Pre-mining² - During mining (monthly)² - Post mining (within one month²)

Notes: ¹ Survey completed prior to the commencement of the next longwall. ² As agreed in the PPSMP, in general: Pre-mining inspections to record the baseline condition of natural and built features. Monthly during longwall active mining under privately owned land. Post mining inspections within one month to record subsidence related impacts for comparative assessments and develop remediation strategies. Annual inspection with UCMPL's subsidence specialist. ³ Visual inspections, photographic recordings and survey of the nearest poles to actively retreating longwalls will be undertaken before, during and after mining. ⁴ Monitoring of poles no longer required as mining has now already occurred.

4.1.2.1 Essential Energy SWER Line

The Essential Energy owned 12.7kV single wire earth return (SWER) type minor power line passes through the Extraction Plan Area over the main headings in a north-south alignment and no poles will be undermined within the Application Area. The power line services one rural property to the north of the Project Area. A total of 6 timber poles have been identified for monitoring with the inclusion of the Application Area (**Figure 4**). If the Essential Energy line is considered unserviceable as a result of mining, UCMPL in consultation with Essential Energy will reinstate the serviceability at the full cost of UCMPL (**Section 2.5.3** and **Section 5.3**).

Pre and post mining 3D positional surveys will be carried out of the poles and conductors to monitoring for subsidence related impacts. Visual inspections and photographic recordings of the nearest poles to actively retreating longwalls will be undertaken before, during and after mining (**Table 7**). The results of the SWER Line monitoring will be provided to Essential Energy at the end of mining each longwall panel.

If monitoring identifies a subsidence related impact that has potentially affected the integrity of the SWER Line, UCMPL will immediately notify Essential Energy once becoming aware of the impact and develop a plan to undertake the necessary repairs in consultation Essential Energy.

In the event the performance indicators (**Section 5.1**) for the SWER Line has been triggered, UCMPL will carry out an investigation to determine if the exceedance is subsidence related as described in the TARP (**Table 9**).

4.1.2.2 State Survey Marks

Several state survey control marks are located within the Extraction Plan Area and an additional 18 marks, likely to have been affected by the previous mining at the Ulan Complex or located within approximately 3km of the planned mining in Longwalls 31 and 32 and having potential to be affected by the far-field subsidence movements measured at the site, have been identified (**Figure 4**). These include:

- PM78729, PM78730, PM113078, PM113079, PM170448, PM170449, PM170450, PM170452, PM170453, PM170454, PM170459, PM170460;
- SS3765, SS3766, SS3767, SS183785;
- CP8338763; and
- TS5964 (BOBADEEN).

In accordance with Section 40 of the *Surveying Regulation 2006*, UCMPL will notify the Surveyor General when it becomes aware the survey marks have been spatially moved as a result of subsidence from mining.

UCMPL will reinstate and resurvey the survey marks, in accordance with the *Surveyor-General's Direction No. 11 – Preservation of Survey Infrastructure - Version 4.0 January 2020*, after cessation of subsidence movements has been verified by UCMPL's subsidence engineer and Subsidence Monitoring Program. The reinstatement was confirmed during consultation with NSW Spatial Services and proposed mitigation and remediation measures by NSW Spatial Services in March 2019.

4.1.2.3 Four Wheel Drive Track and Small Farm Dam in DSCA

There is an unsealed access roads/four-wheel drive track positioned along the boundary of the DSCA and UCMPL owned land cross over LW30 to LW32. This NPWS asset is referred to as the Curryall Perimeter Fire Trail (**Figure 4**). A section of NPWS park boundary fencing, access gates and DSCA signage are also within the Extraction Plan Area.

In consultation with the NPWS for LW30, UCMPL have commenced visual and photographic monitoring of the section of the four-wheel drive track and surrounding bushland above LW30 (**Table 7**). UCMPL will continue to consult with NPWS and complete the necessary pre-mining, during mining (weekly whilst under the DSCA) and post mining inspections within the DSCA affected by LW30 to LW32. If monitoring identifies a subsidence related impact requiring remedial works, UCMPL will develop a plan to undertake the necessary repairs in consultation NPWS.

The small farm dam, or waterhole that has been constructed in the flow line of Curra Creek, will be monitored before, during and after mining of LW31 in the DSCA. This waterhole is located just to the north of the start of LW31 (**Table 4**).

In the event the performance indicators (**Section 5.1**) for built features in the DSCA has been triggered, UCMPL will carry out an investigation to determine if the exceedance is subsidence related as described in the TARP (**Table 9**).

4.1.2.4 Private Property Infrastructure

Privately owned land referred to as the Woodbury Property is located at the western ends of LWW6, LWW7 and LWW8 within the Extraction Plan Area. The Woodbury Property consists primarily of sparsely timbered land with some sections of open grazing land. Farm infrastructure includes a small timber shelter, two farm dams, tracks and farm fences (**Figure 4**). At the time of updating the Extraction Plan for LW31 and LW32, secondary extraction of LWW6 and LWW7 beneath the Woodbury Property had been completed. Subsidence behaviour observed on this private property has been consistent with expectation.

Prior to longwall mining under the Woodbury Property, UCMPL in consultation with the landowner, will have in place a Private Property Subsidence Management Plan (PPSMP)⁵ that describes the impacts, monitoring and management measures to be implemented to maintain the relevant built features safe serviceable and repairable or as agreed to by the landowner.

Pre-mining and during mining inspections with the landowner will be undertaken at regular intervals (as agreed with the landowner) during longwall mining activities under the Woodbury Property. Post mining inspections will be completed within one month to develop a conditional assessment reports for the landowner.

All necessary land and infrastructure rectification work after mining on the Woodbury Property will be completed at the full cost of UCMPL and to the satisfaction of the landowner, as described in the PPSMP.

If monitoring identifies a subsidence related impact that has the potential to create a risk to the landowner, UCMPL will immediately notify the landowner once becoming aware of the impact and develop a plan to undertake the necessary repairs in consultation with landowner.

In the event the performance indicators (**Section 5.1**) for built features within private property has been triggered, UCMPL will carry out an investigation to determine if the exceedance is subsidence related as described in the TARP (**Table 9**).

4.1.2.5 Private Bores

There are no private bores within the Extraction Plan Area, however a number of private bores could be affected by groundwater drawdown. For private bores outside of the Extraction Plan Area, UCMPL undertake private bore monitoring in accordance with the GWMP and Section 4.2.2 in the Extraction Plan. An assessment of the groundwater levels and water quality in privately owned bores will include

⁵ Condition 26(h), Schedule 3 of PA08_0184 include a Land Management Plan that has been prepared in consultation with the relevant landowners.

departures from baseline data and exceedance of applicable trigger valves as described in Section 4.2.2 of the Extraction Plan.

4.1.2.6 UCMPL Infrastructure

UCMPL will carry out monitoring and management measures on its own infrastructure within the Extraction Plan Area (**Figure 5**) in accordance with the Public Safety Management Plan PSMP LW30-32 & LWW6-LWW8 (**Appendix F**).

Pre-mining and during mining inspections will be undertaken monthly during longwall mining activities. Post mining inspections will be completed within three months. If monitoring identifies a subsidence related impact requiring remedial works, UCMPL will develop a plan to undertake the necessary repairs as described in **Section 5.3**.

Figure 4 Built Features Monitoring – Privately Owned & Public Utilities

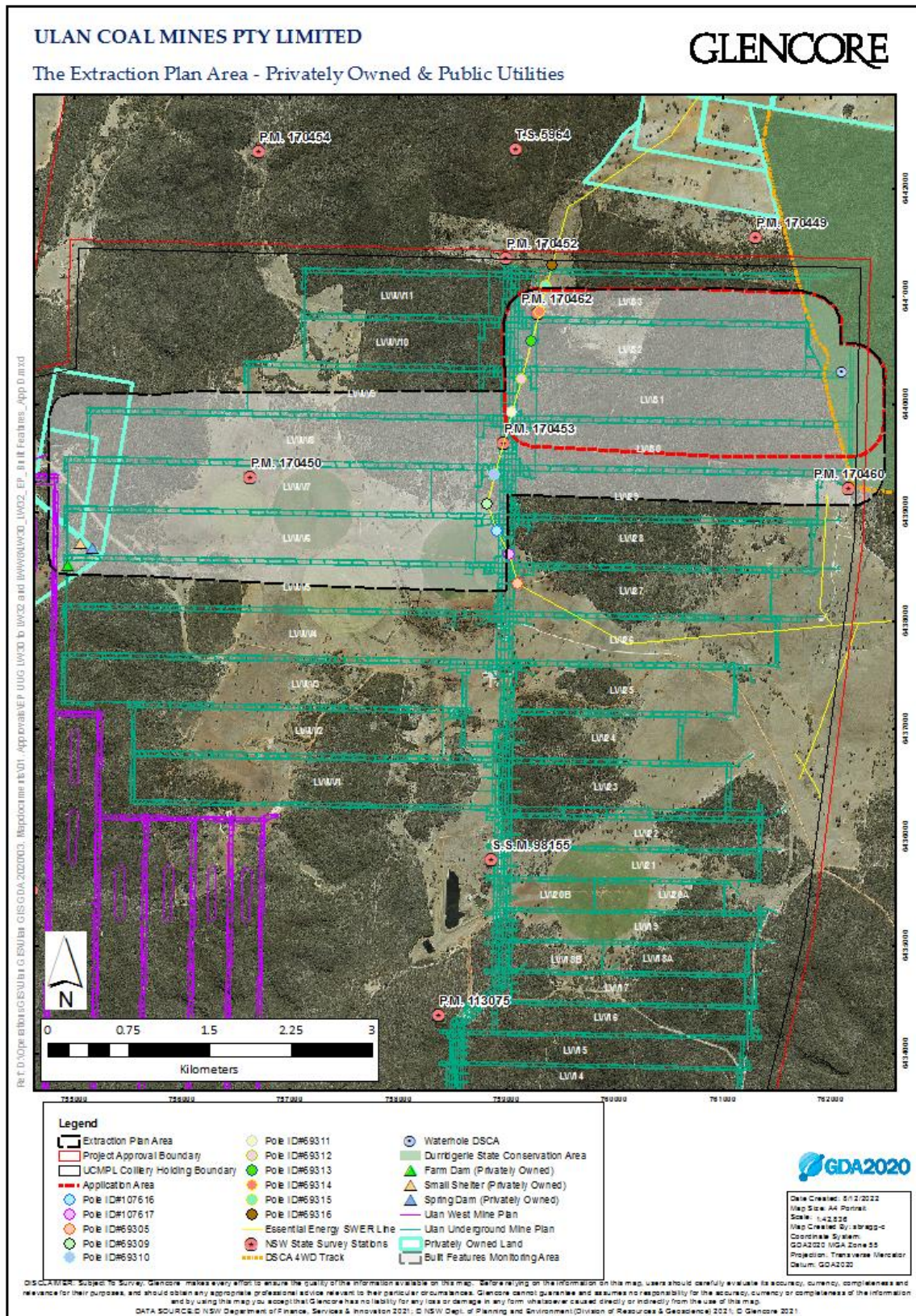
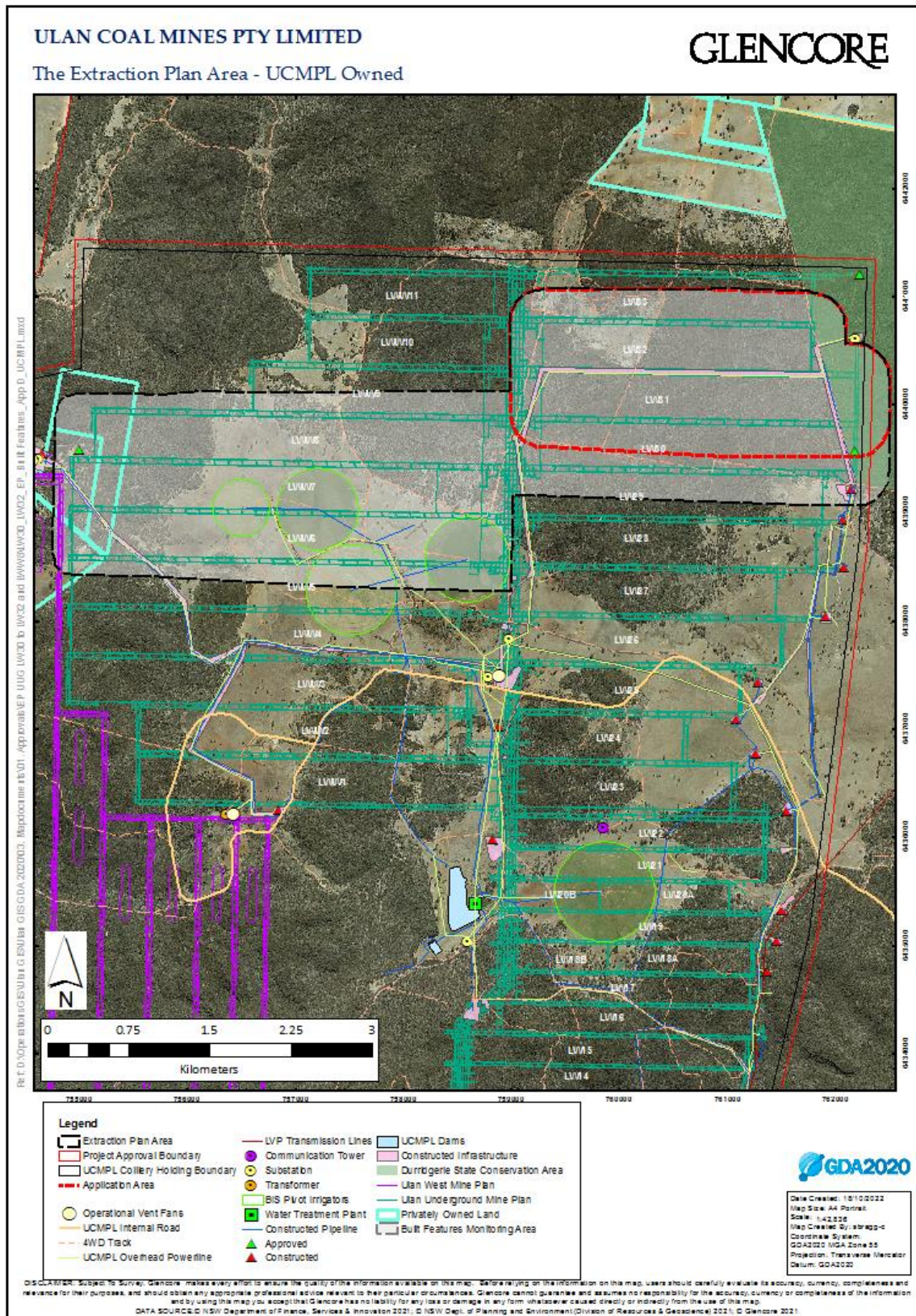


Figure 5 Built Features Monitoring – UCMPL Owned



5. Management, Mitigation, Remediation and Reporting Measures

5.1 Performance Measures and Performance Indicators

In accordance with Condition 24 of Schedule 3 of the PA08_0184, UCMPL must ensure that there is no exceedance of the subsidence impact performance measures for built features (**Table 2**). **Table 8** provides a summary of the subsidence performance indicators developed by UCMPL to inform if the relevant subsidence performance measures are likely to be or potentially have been exceeded, during the secondary extraction within the Extraction Plan Area.

UCMPL will compare the results of the subsidence monitoring against the built features performance measures and performance indicators. In the event that a subsidence performance indicator for a built feature has been triggered, UCMPL will carry out an investigation to determine if the exceedance is subsidence related as described in the TARP (**Table 9**).

Table 8 Built Features Subsidence Performance Measures and Performance Indicators

Subsidence Performance Measure		Subsidence Performance Indicator	Assessment of Performance Measure
Built Features			
All built features	Safe, serviceable and repairable unless the owner agrees otherwise in writing.	Performance indicators will be considered to have been triggered if analysis of data from the built features monitoring program (Section 4.1.2) indicates. – A greater impact than predicted to the integrity and functionality of applicable public utility has occurred within the Extraction Plan Area (e.g. loss of electrical supply from the SWER line or 4WD access track in the DSCA not safe to use or impacts to water supply dam); and/or – A greater than predicted impact to the integrity and functionality of a privately-owned built features (e.g. significant impacts to farm dams i.e. non-repairable, extensive damage to stock fencing, tracks unsafe to use or complete structural failure of the small shelter) within the Extraction Plan Area ; and/or – UCMPL receive a complaint from a landowner regarding a built feature that may have been potentially impacted by subsidence.	The subsidence performance measure for built features is exceeded if investigations completed by the ECM confirm any of the built features subsidence performance indicators are mining related, due to subsidence impacts, as outlined in the TARP (Section 5.5).

5.2 Management and Mitigation Measures

As described in Section 2.1.2 of the Extraction Plan, MOD4 allowed changes to the approved mine plans at both UUG and UW mines, and for associated infrastructure. As a result of the minor amendment to the First Workings of the UUG mine plan for LW32 and LW33, the area of potential impacts and consequences in the DSCA is reduced from that previously approved by MOD4, due to the shortening of these two longwalls by approximately 415m.

The majority of the surface within both the Extraction Plan Area is undeveloped bushland with a small area of cleared or semi-cleared land. The overburden depth to the mining horizon ranges from approximately 275m to 335m. The depth varies from approximately 275m in the west, to 335m in the central section and back down to 325m in the east.

The only public utilities and public amenities identified within the Extraction Plan Area or in positions with potential to be affected by the planned mining of Longwalls 31 and 32 are an overhead powerline, an unsealed four-wheel drive track, a waterhole, section of boundary fencing, gates and signage in the DSCA and a number of state survey control stations.

A small shelter made of timber and corrugated iron is located on Private Property at the western end of LWW6. Agricultural built features of the private property within the Extraction Plan Area include boundary and internal farm fences, tracks and two farm dams. At the time of updating the Extraction Plan for LW31 and LW32, secondary extraction of LWW6 and LWW7 beneath the Woodbury Property had been completed. Subsidence behaviour observed on this private property has been consistent with expectation.

UCMPL have prepared individual PPSMPs for each longwall (LWW6 and LWW7) which outlines impacts of mining on the landowner's property and the monitoring, management and remediation measures to be implemented by UCMPL, in agreement with the landowner. There are no residential buildings and associated outbuildings on the Woodbury Property within the Extraction Plan Area. Prior to mining LWW8, UCMPL and the landowner will have in place a PPSMP for LWW8

A summary of the management and mitigation measures regarding built features includes:

- The majority of land above the Extraction Plan Area is located undeveloped bushland, on land largely owned and/or controlled by UCMPL.
- The majority of infrastructure is owned by UCMPL.
- Privately owned land located over the western end of LWW6 to LWW8 will have PPSMPs prior to commencement secondary extraction, to the satisfaction of the landowner.
- Essential Energy have previously endorsed the built features management plan for their asset regarding the management of the SWER line. To date the integrity of the SWER line has been maintained. The revised BFMP has been issued to Essential Energy for their consideration and endorsement.
- Reinstate and resurvey the State survey marks after cessation of subsidence movements as required by the *Surveyor-General's Direction No. 11 – Preservation of Survey Infrastructure - Version 4.0 January 2020*.
- UCMPL was granted a Licence for Works and Occupations (Occupation Licence) by the Minister administering the *National Parks and Wildlife Act 1974* for the DSCA on the 1 March 2020.
- Access is also restricted due to the remote location.

5.3 Remediation and Rehabilitation Measures

In the unlikely event the Essential Energy SWER Line is considered unserviceable as a result of subsidence within the Extraction Plan Area, UCMPL in consultation with Essential Energy will reinstate the serviceability of the SWER powerline at the cost of UCMPL.

A number of state survey marks have been identified within the Extraction Plan Area. In accordance with Section 40 of the *Surveying Regulation 2006*, UCMPL will notify the Surveyor General when it becomes aware the survey marks have been spatially moved as a result of subsidence from mining within the Extraction Plan Area. After active subsidence has been verified by UCMPL's subsidence engineer and Subsidence Monitoring Program, the NSW State Survey marks will be reinstated in accordance with the *Surveyor-General's Direction No. 11 – Preservation of Survey Infrastructure - Version 4.0 January 2020* as confirmed by NSW Spatial Services in March 2019.

During longwall mining within the Extraction Plan Area, UCMPL will undertake monthly inspections for subsidence affected landforms and cliff lines to identify potential subsidence hazards on both UCMPL owned land and non-UCMPL owned land. Weekly inspections are proposed whilst LW31 and LW32 retreat directly under the DSCA.

The inspections will identify, record subsidence affected areas where cracking or other subsidence related impacts has occurred and then recommend appropriate remediation works, where necessary.

All necessary land and infrastructure rectification work after mining on the Woodbury Property will be completed at the full cost of UCMPL and to the satisfaction of the landowner, as described in the PPSMP. Remedial actions to address the subsidence impacts on privately owned land will be completed as soon as practicable, in consultation with the landowner.

There are no private bores within the Extraction Plan Area. For private bores outside of the Extraction Plan Area, UCMPL undertake private bore monitoring in accordance with the GWMP. An assessment of the groundwater levels in privately owned bores will include departures from the predicted drawdown levels as described in Section 4.2.5.3 of the Extraction Plan.

Remedial measures proposed on UCMPL owned land and on non-UCMPL owned land are provided in further detail in Section 5.3 of the Extraction Plan. Monitoring of remediated subsidence impacts will be completed to identify if any maintenance actions or further remedial works are required, as provided in Section 5.4 of the Extraction Plan.

5.4 Trigger Action Response Plan

UCMPL have developed a Trigger Action Response Plan (TARP) for built features (**Table 9**) which details the UCMPL's performance indicator triggers for each of the relevant subsidence performance measures for surface and sub-surface features, via escalating triggers and levels of investigation, action and responses, in accordance with the relevant performance indicator levels described in **Section 5.1**.

As required by the DPE, a specific trigger action response plan for the MCRSS must be submitted by UCMPL and approved by the DPE prior to the commencement of extraction in LWW8.

UCMPL will compare the results of the subsidence monitoring against the built features performance measures and performance indicators. In the event the subsidence performance measures for built features as summarised in **Table 2** are considered to have been exceeded or are likely to be exceeded, response and management measures in the TARP (**Table 9**) will be undertaken in accordance with the relevant protocols for:

- Adaptive management (**Section 5.5**);

- Incident reporting (**Section 5.6**);
- Reporting framework (**Section 5.7**); and
- Review of the Extraction Plan (**Section 6.0**).

UCMPL's Environment and Community Manager (ECM) or delegate, will implement the TARP that relate to investigations required, notifications to be undertaken, management and contingency actions for potential subsidence related impacts for this BFMP.

Table 9 Built Features TARP Multilevel Response

Monitoring Sites	Monitoring Parameters	TARP Levels	Subsidence Performance Indicator Triggers	Action/Response
Built Features				
Built Features on Private Property	Built Features on Private Property: Visual observations and photographic monitoring with GPS camera to record the general condition of the assets including serviceability and safety	Level 1: Operations within predictions, and within approved impacts	No greater impact than predicted to the integrity and functionality of public utilities/amenities or a privately-owned built feature within the Extraction Plan Area; and no community complaints from landowners regarding a built feature.	Continue all built feature monitoring during all TARP Levels as required by Section 4.2.5 of the Extraction Plan and the BFMP LW30-32 & LWW6-LWW8. Provide a summary of built features monitoring results and if triggered, the investigation outcomes and remedial actions plans as completed also within the Annual Review as outlined in Section 5.8.1 of the Extraction Plan.
		Level 2: Operations exceeding Extraction Plan predictions but within approved subsidence impact performance measures	A greater impact than predicted to the integrity and functionality of a privately-owned built features (e.g. significant impacts to farm dams i.e. non-repairable, extensive damage to stock fencing, tracks unsafe to use or complete structural failure of the small shelter) within the Extraction Plan Area; and/or UCMP receive a community complaint from a private landowner regarding a built feature potentially impacted by subsidence.	Investigation completed by UCMP's subsidence engineer to review subsidence effects monitoring data, other influences, climatic conditions and UCMP's operational activities to confirm if exceeded predictions/approved impacts are within or outside of predictions. If Level 2 investigations confirm exceedances remain within predictions proceed to Level 1. If Level 2 investigations confirm exceedances are mining related but operations remain within approved subsidence impacts performance measures initiate the Adaptive Management Measures (Section 5.5.1) and Incident Notification (Section 5.6.1). Confirmation of an exceedance or greater than predicted subsidence impact that results in an exceedance of a subsidence performance measure then proceed to Level 3.
		Level 3: Operations exceed approved subsidence impact performance measures	A greater than predicted impact to the integrity and functionality of privately-owned built feature has occurred within the Extraction Plan Area that results in an exceedance of a subsidence performance measure.	Government agency notification and maintain correspondence as outlined in the Contingency Response (Section 5.5.2). Investigations initiated with UCMP's subsidence engineer to assist with investigations and remedial action plans as required. Implement management measures and corrective plans in consultation with government agencies as outlined in the Contingency Response including engaging UCMP's subsidence engineer to assist development of adaptive management and remedial strategies as required; and UCMP implement adaptive and remedial measures as required. Reassess subsidence impacts and update written agreement and/or agreed management strategies with public utility owner and reassess subsidence impacts and update PPSMP with the applicable landowner Review the Extraction Plan and Subsidence Impacts and Performance Indicators as outlined in the Contingency Response in Section 5.5.2 .

Monitoring Sites	Monitoring Parameters	TARP Levels	Subsidence Performance Indicator Triggers	Action/Response
Built Features				
Public Utilities and Amenities - SWER Line - DSCA 4WD track - Waterhole	Public Utilities and Amenities: Survey the 3D Position (X, Y, Z) of each powerline pole for pre and post mining comparisons. Visual observations and photographic monitoring with GPS camera to record the general condition of the assets including serviceability and safety	Level 1: Operations within predictions, and within approved impacts	No greater impact than predicted to the integrity and functionality of public utilities/amenities within the Extraction Plan Area.	Continue all built feature monitoring during all TARP Levels as required by Section 4.2.5 of the Extraction Plan and the BFMP LW30-32 & LWW6-LWW8. Provide a summary of built features monitoring results and if triggered, the investigation outcomes and remedial actions plans as completed also within the Annual Review as outlined in Section 5.8.1 of the Extraction Plan.
		Level 2: Operations exceeding Extraction Plan predictions but within approved subsidence impact performance measures	A greater impact than predicted to the integrity and functionality of applicable public utility has occurred within the Extraction Plan Area (e.g. loss of electrical supply from the SWER line or 4WD access track in the DSCA not safe to use or impacts to water supply dam).	Investigation completed by UCMPL's subsidence engineer to review subsidence effects monitoring data, other influences, climatic conditions and UCMPL's operational activities to confirm if exceeded predictions/approved impacts are within or outside of predictions. If Level 2 investigations confirm exceedances remain within predictions proceed to Level 1. If Level 2 investigations confirm exceedances are mining related but operations remain within approved subsidence impacts performance measures initiate the Adaptive Management Measures (Section 5.5.1) and Incident Notification (Section 5.6.1). Confirmation of an exceedance or greater than predicted subsidence impact that results in an exceedance of a subsidence performance measure then proceed to Level 3.
		Level 3: Operations exceed approved subsidence impact performance measures	A greater than predicted impact to the integrity and functionality of public utilities/amenities has occurred within the Extraction Plan Area that results in an exceedance of a subsidence performance measure.	Government agency notification and maintain correspondence as outlined in the Contingency Response (Section 5.5.2). Investigations initiated with UCMPL's subsidence engineer to assist with investigations and remedial action plans as required. Implement management measures and corrective plans in consultation with government agencies as outlined in the Contingency Response including engaging UCMP's subsidence engineer to assist development of adaptive management and remedial strategies as required; and UCMPL implement adaptive and remedial measures as required. Reassess subsidence impacts and/or agreed management strategies with public utility owner and reassess subsidence impacts and update PPSMP with the applicable landowner. Review the Extraction Plan and Subsidence Impacts and Performance Indicators as outlined in the Contingency Response in Section 5.5.2 .

5.5 Adaptive Management and Contingency Planning

5.5.1 Adaptive Management

The regular reviewing and evaluating the effectiveness of management strategies includes analysis of subsidence effects and impacts data (Section 4.1 of the Extraction Plan) and environmental monitoring data (**Section 4.1.2**), against predicted impacts (**Section 3.0**), performance indicators (**Section 5.1**) and performance measures (**Section 2.1.1**).

In addition to the existing mitigation measures outlined in **Section 5.2**, UCMPL will implement adaptive management measures where performance indicators identify a Level 2 TARP condition has occurred (**Table 9**), to ensure the subsidence impact performance measures (**Table 2** and **Table 8**) are not exceeded by UUG. In the event a Level 2 TARP condition has been confirmed (**Table 9**), UCMPL will immediately:

- Notify applicable landowners and public utilities that a Level 2 TARP condition associated with their property or built feature has occurred.
- Notify NPWS that a Level 2 TARP condition associated with a built feature or public safety related within the DSCA has occurred.
- Engage UCMPL's subsidence engineering specialist and other specialists (for example groundwater and surface water, heritage and ecological specialists) as required, to review and evaluate (as described above), the subsidence effects monitoring results, subsidence impacts and environmental monitoring data and the adequacy of the performance indicators.
- Subject to the review outcomes from the specialists, the following adaptive management measures available to UCMPL include:
 - Additional monitoring of subsidence effects and impacts and environmental monitoring.
 - For example, but not limited to Level 2 TARP condition associated with groundwater, the Drip, surface water, cliff lines, UCMPL will increase and adapt the monitoring as recommended by UCMPL's subsidence engineering specialist, groundwater specialist, surface water specialist and ecological specialist. The revised monitoring program will remain in place until such time UCMPL's subsidence engineering specialist and other specialists have confirmed operations at UUG are within predictions and/or within approved impacts.
 - Modifying the UUG mine plan as mining proceeds to ensure that the effects, impacts and/or associated environmental consequences remain within predictions and/or designated ranges and/or do not exceed a subsidence performance measures.
 - For example but not limited to Level 2 TARP conditions associated with groundwater, the Drip, surface water, cliff lines, UCMPL will review the UUG mine plan. If the review identifies a Level 2 TARP condition is likely to progress to a Level 3 TARP condition, UCMPL in consultation with the DPE may consider modifying the UUG mine plan as required to mitigate this risk and ensure UCMPL's subsidence performance measures are not exceeded.

An incident or a Level 3 TARP condition will initiate the review process as outlined in **Section 6.1** and a revision of this Extraction Plan and its component sub-plans.. Any revised management strategies for the Extraction Plan to improve performance, particularly following an exceedance of a subsidence

impact performance measure and/or an unexpected subsidence impact and/or subsidence related incident, will be undertaken in consultation with relevant government agencies.

5.5.2 Contingency Plan

In the event the subsidence performance measures in **Table 2** are considered to have been exceeded (i.e. Level 3 TARP condition in **Table 9**), or are likely to be exceeded and/or a subsidence related incident has occurred (**Section 5.6.1**), the Contingency Plan as displayed in **Figure 6** will be implemented.

Responsibilities during contingency response are outlined in **Section 6.0** to identify actions, levels of responsibility and reporting requirements of personnel.

Figure 6 Contingency Plan



5.6 Incidents, Complaints, Exceedances and Non-Compliances

5.6.1 Incident, Exceedances and Non-Compliances

An incident is defined as a set of circumstances that causes or threatens to cause or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in UCMPL's Project Approval (08_0184) and EPL394.

UCMPL will notify the Secretary and any other relevant government agencies⁶, as identified in **Table 10**, as soon as practicable after becoming aware of the incident exceedance and/or if a Level 3 TARP condition has been determined (i.e. a subsidence performance measure is considered to have been exceeded, or is likely to have been exceeded). The notification must be in writing to compliance@planning.nsw.gov.au and identify the Project (including the project number and name) and set out the location and nature of the incident.

For other exceedances and/or non-compliances associated with the Extraction Plan that result in a Level 2 TARP determination (i.e. does not exceed a subsidence performance measure) and/or does not causes or threatens to cause material harm to the environment and remains compliant with PA08_0184, then as required by Condition 3, Schedule 5 of PA08_0184, these exceedances and/or non-compliances with the Extraction Plan will be reported in the Annual Review (**Section 5.7.1**).

UCMPL will also notify applicable landowners, public utility owners and NPWS of a Level 2 or 3 TARP condition, associated with either their property, built feature or is public safety related.

Within seven days of the date of the incident or determination of a Level 3 TARP condition, UCMPL will provide the Secretary of the DPE and any relevant agencies with a detailed report⁶ on the incident and/or Level 3 TARP condition, including:

- The Project number and name;
- The date, time and nature of the exceedance/incident;
- The condition that the Project is non-compliant with;
- Identify the likely cause of the exceedance/incident;
- Description of the response action that has been undertaken to date; and
- Description of the proposed management measures to address the exceedance/incident.

5.6.2 Community Complaints

Community complaints management includes receipt of complaints, investigation, implementation of appropriate remedial action, and feedback to the complainant as well as communication to site management or personnel and notification to external bodies, where necessary.

UCMPL maintain a 24-hour, 7 day a week community and employee information telephone line **1800 647 630** and email address UlanCommunity@glencore.com.au to:

- Manage complaints received by Ulan Coal that may be a result of mining and/or associated activities conducted within land owned or managed by UCMPL; and

⁶ In accordance with Condition 6 & 6A of Schedule 5 of PA08_0184

- Provide access and incident information to employees during emergency situations.

Access to the Community Complaints Register is via UCMPL's internet site at <http://www.ulancoal.com.au>

Details of community complaints are also reported in the AR. Further details regarding community complaint management are described in Section 3.4.7 of the Environmental Management Strategy.

5.7 Reporting Framework

The key elements of the external reporting framework, include:

- Incident Reporting; and
- Annual Review.

Table 10 provides the detailed reporting framework, including which government stakeholders will receive copies of each report and the method of distribution. Attachment D of the Extraction Plan provides a list of the key government departments and contact details.

Table 10 Summary of Reporting Framework

Report	Frequency	Distribution	Distribution Method	UCMPL Responsibility
Incident Report	As required Section 5.7.1	DPE and DPE-RR, EPA (where relevant) DPE-Water, BCS (where relevant), NPWS (where relevant)	Email NSW Planning Portal	General Manager
Annual Review	Annually	DPE, DPE-RR, DPE-Water, NRAR, BCS, EPA, MWRC & CCC	NSW Planning Portal Email to MWRC & CCC Website (post approval)	Environment & Community Manager

5.7.1 Annual Review

UCMPL must review the environmental performance of the Project to the satisfaction of the Secretary. UCMPL must prepare an Annual Review (AR) in accordance with Condition 3, Schedule 5 of PA 08_0184, by the end of March each year. The reporting period for the AR is 01 January to 31 December. The AR will include:

- Describe the development (including any rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year;
- Include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the:
 - relevant statutory requirements, limits or performance measures/criteria
 - the monitoring results of previous years; and
 - the relevant predictions in the EA
- Identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
- Identify any trends in the monitoring data over the life of the project;

- Identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
- Describe what measures will be implemented over the next year to improve the environmental performance of the project.

A copy of the Annual Review and its associated reports and results regarding subsidence monitoring and evaluation of impacts are provided on the UCMPL website <http://www.ulancoal.com.au>

6. Plan Administration and Responsibilities

Key responsibilities for this Extraction Plan of which this Sub-Plan is a component, are summarised in **Table 11**.

Table 11 UCMPL Responsibility for this Extraction Plan

Responsibility	Accountabilities
Ulan Underground Operations Manager	• Authorise the Extraction Plan and approve appropriate resources for the implementation of this Extraction Plan; and • Authorise internal and external reporting requirements of this Extraction Plan
Ulan Underground Technical Services Manager	• Ensure the Subsidence Effect Monitoring pertaining to the H and F Line are implemented, carried out within specified timeframes, are adequately checked, processed and are prepared to the required standard.
Environment and Community Manager (ECM)	• Implement this Extraction Plan in 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 the Extraction 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 Extraction Plan; • Instigate investigation and response in the event the performance indicators, TARP Levels and/or Contingency Plan are triggered; and • Allocate resources for monitoring and review of subsidence monitoring survey results.
Environment and Community Coordinator (ECC)	• Implement monitoring programs as required by this Extraction Plan and conduct analysis of results against performance indicators as described in this Extraction Plan; • Prepare this Extraction 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 Extraction Plan.
Ulan Underground Registered Mine Surveyor	• Undertake subsidence effects monitoring as required by this Extraction Plan and to the required survey standard within the specified timeframes and ensure data are adequately checked, processed and recorded.
All UCMPL Employees and Contractors	• Comply with requirements of this Extraction Plan; • Undertake all works in accordance with this Extraction Plan, the attached Management Plans and Programs and all other UCMPL 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.

6.1 Review of the Extraction Plan

Ongoing monitoring and evaluating the performance of this Extraction Plan will be undertaken, and revised if necessary, in accordance with Section 5 of the Environmental Management Strategy (ULNCX-111515275-870). The evaluation of performance during the review process (**Section 6.1**) will examine

any unpredicted subsidence impacts and/or environmental consequences, exceedance of performance measures and implementation of Contingency Plans.

This Extraction Plan and its component management plans and Sub-Plans will be reviewed and revised if necessary if there is a significant change in the operation that may affect the environment and or community.

As required by Condition 4, Schedule 5 of PA08_0184, UCMPL must review, and if necessary revise, the strategies, Extraction Plans, and programs required under this approval to the satisfaction of the Secretary, within 3 months of:

- The submission of the Annual Environment Review (Con 3, Sch 5 of PA08_0184);
- The submission of an incident report (Con 6 & 6A of Sch 5 of PA08_0184);
- The submission of an audit report (Con 8 of Sch 5 of PA08_0184); and
- Any modification to the conditions of this project approval, (unless the conditions require otherwise).

Where this review leads to revisions in any such document, then within 4 weeks of the review, unless the Secretary agrees otherwise, the revised documents must be submitted to the Secretary for approval.

This Extraction Plan will reflect changes in statutory requirements, regulatory requests, technology and operational procedures. The Environment and Community Manager (ECM) (or delegate) will undertake the review of this Extraction Plan. Substantive changes made to this Extraction Plan as a result of the review will be made in consultation with DPE and other relevant government agencies.

A copy of the revised Extraction Plan will be supplied to the Secretary of DPE for approval, and supplied to the relevant government agencies. Updated versions of the approved Extraction Plan will be made publicly available on the UCMPL website <http://www.ulancoal.com.au>

6.1.1 Review of Other Management Plans

Ongoing monitoring and evaluating the performance of the Ulan Complex environmental management plans (EMPs) will be undertaken, and revised if necessary, in accordance with Section 5 of the EMS and as required by Condition 4, Schedule 5 of PA08_0184.

7. Document Information

7.1 Definitions

Definitions as provided in Section 7.1 of the Extraction Plan.

7.2 References

References as provided in Section 7.2 of the Extraction Plan.

7.3 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 10** below.

Table 12 Change Information

Version	Date	Review team (Consultation)	Change Summary
0.1	October 2016	Tara Stokes, Robyn Stoney, Ben Anderson	Document Development.
0.2	October 2017	Jessica Southgate	Document formatting updated in accordance with Dept. of Planning feedback. Included statement of commitments summary.
1.0	May 2019	Robyn Stoney, Lucy Stuart and Brad Tanswell	Review and update in response to feedback received from DPIE, DPI Water and OEH in October 2018.
2.0	August 2019	Tara Stokes	Updated correspondence for DPIE Approval of plan 19/08/2019.
3.0	April 2020	Robyn Stoney, Lucy Stuart, Stephen Bragg	This EP was amended to align with the approved MOD4 for the extension of longwall panels.
4.0	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 feedback.
5.0	December 2022	Lucy Stuart, Tara Stokes, Stephen Bragg, SCT, AGE, ELA, OzArk & Engeny	Revised to include: new Guidelines for an Extraction Plan (May 2022), inclusion of LW31 and LW32, amendment to LW32 and LW33 First Workings and incorporate comments from agencies as recieved on the 13 April 2023 after submission of draft EP on the 3 March 2023 and as received on the 23 June 2023.

Notes: Any 'version' discrepancies displayed in the Footer of this Document are a function of the UCMP document control register. The actual revisions and summary of changes to this Document are provided in the table above and in Table 30 of the Extraction Plan.

Appendix A - Correspondence Essential Energy



Ref: SEQ No. 45/21 & Appendix D – Build Features
Management plan Longwalls LW30 to LW32 and LWW6 to
LWW8
9 February 2023

Stephen Bragg
Ulan Coal mines Ltd
Private Bag 3006
MUDGEE NSW 2850

Dear Stephen

**Build Features Management Plan for Longwalls LW30 to LW32 and LWW6 to LWW8 and impact
on Essential Energy owned assets**

Thank you for your correspondence regarding the above extraction plans at you Ulan site. Essential Energy has reviewed the revised plan and your additional correspondence clarifying the requirement for the operation of the impacted poweline, following my letter dated 22/12/2022.

Essential Energy approves the proposed monitoring and mitigation measures to be implemented to ensure the existing Essential Energy network in the area remains in a safe and reliable state. This letter is therefore Essential Energy's acceptance of the proposed 2022 BFMP.

If you wish to discuss this further, feel free to contact myself, Andrew McIntyre on 0429 924 518.

Yours sincerely

A handwritten signature in black ink that reads "Andrew McIntyre".

Andrew McIntyre
Planning Manager - South

PO Box 5730 Port Macquarie NSW 2444 | ABN 37 428 185 226
Telephone: (02) 6391 5377 | Interpreter Services 13 14 50 | essentialenergy.com.au



You Ref: ULN SD PLN 0071

26 October 2016

Environment & Community Coordinator
Ulan Coal Mines Ltd
Private Bag 3006
MUDGEE NSW 2850
Attention Tara Stokes

Dear Tara,

Essential Energy Management Plan for Longwalls LW30 and W6-W8

Essential Energy has received your correspondence regarding the proposed Essential Energy Management Plan (EEMP) for you proposed longwall panels LW30 and W6 –W8 at the Ulan Coal Mines site.

Essential Energy has reviewed the draft Management Plan. Essential Energy approves the proposed monitoring and mitigation measures to be implemented to ensure the existing Essential Energy network in the area remains in a safe and reliable state. This letter is therefore Essential Energy's acceptance of the proposed 2016 EEMP.

If you would like to discuss this issue further, you can contact Andrew McIntyre – Planning Manager Northern Region, on 02 6391 5377.

Yours sincerely

A handwritten signature in black ink, appearing to read "Andrew McIntyre", written over a horizontal line.

Andrew McIntyre
Manager Planning - Northern Region

PO Box 5730 Port Macquarie NSW 2444 | Telephone: (02) 6391 5377 | essentialenergy.com.au



EE Ref: 15/1707:RSR
UC Ref: Seq 156/12

18 September 2012

Ms R Stoney
Environment and Community Manager
Ulan Coal Mines Ltd
Private Mail Bag 3006
MUDGEE NSW 2850

(via email: RStoney@xstratacoal.com.au, CC: IFlood@xstratacoal.com.au)

Dear Ms Stoney

RE: Revised Mine Schedule, Finalisation of Essential Energy Management Plan

Thank you for your letter and supporting documentation provided 29 August 2012 advising Essential Energy of Ulan Coals revised mining schedule and wish to finalise the Essential Energy Subsidence Management Plan that commenced in July 2011.

Essential Energy wish to advise we have now reviewed the draft Essential Energy Management Plan (EEMP) and the additional information provided. This letter is therefore acceptance of, to Essential Energy's satisfaction, the current 2012 EEMP.

The 2012 EEMP meets all of the requirements of Essential Energy in relation to the monitoring frequency and mitigation measures to be implemented, ensuring the Essential Energy network remains reliable and safe to operate for the customers supplied in this area of the network.

Should you have any further questions relating to the above please give me a call on 02 6883 4543.

Yours sincerely

A handwritten signature in black ink, appearing to read "Richie Richardson".

Richie Richardson *GradAIEAust*
Manager Planning North Western Region
Network Planning - Engineering Services

PO Box 718 Queanbeyan NSW 2620 Telephone: (02) 6883 4543 Facsimile: (02) 6883 4541
essentialenergy.com.au



29 August 2012

Seq 156/12

Mr Richardson
Network Planning Engineering Officer
Network Planning NW, Engineering Services
Essential Energy
PO Box 718
QUEANBEYAN NSW 2620

Tel + 61 2 6372 5300
Fax + 61 2 6372 5333
Web www.xstratacoal.com

Address Ulan Coal Mines
4505 Ulan Road
Ulan NSW 2850
Private Mail Bag 3006
Mudgee NSW 2850
Australia

Dear Mr Richardson,

RE: Revised Mine Schedule, Finalisation of Essential Energy Management Plan

In September 2011, Ulan Coal Mines Limited (UCML) submitted an *Integrated SMP/Extraction Plan Application* for the North 1 SMP Area (LWC,E,F,G) and LW27-29, W4-W5 SMP Area, herein referred to as 'the SMP Application'. The SMP and Extraction Plan are detailed secondary approvals required under NSW legislation to provide for the effective *management* of subsidence from longwall mining ('secondary extraction'), within areas already granted development consent for longwall mining under existing Project Approval PA08_184.

On 20th December 2011, the NSW Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy (DTIRIS-DRE) and the NSW Department of Planning and Infrastructure (DP&I) conditionally approved the North 1 SMP area. Part of the completion requirements for the remaining SMP Area (LW27-29, W4-W5) to finalise approval requires the finalisation of the *draft Essential Energy Management Plan (EEMP)* which was submitted with the SMP Application in 2011. Following recent discussions between Essential Energy and GSS Environmental (on behalf of UCML), we understand that previously outstanding information and monitoring requirements have now been completed by UCML to the satisfaction of Essential Energy (including a site visit), and finalisation of the EEMP can now be progressed. A copy of the draft EEMP as submitted in the SMP Application in 2011 is enclosed for reference if required (**Attachment 1**).

Essential Energy assets managed by the EEMP include those in relation to LW27, the first within the LW27-29, W4-W5 SMP Area. The SMP Application in 2011 listed LW27 as scheduled for secondary extraction during 2013. Following a recent revision to the mining schedule due to complexities within the western panels, commencement of extraction in LW27 has been revised to early 2013. Accordingly, the finalisation of the EEMP is sought to Essential Energy's satisfaction. An outline to the reasoning for the revised mine schedule is provided below as requested during recent discussions.

Revised Mine Schedule:

There has been a change in development / extraction sequences from those included in the original 2011 submission for the SMP Application. This has been driven by poor geological conditions encountered in the western development sections of the mine, including current mining in western panel W3 (previous '2007 SMP Area' for panels W2, W3).

The poor conditions were not economical to mine with our existing development equipment and a decision was made to alter the schedule in order to mine those areas which could be safely and



Coal Mines Limited ABN 80 000 189 248



economically mined whilst fit for purpose development equipment was procured. The first of these new machines has been delivered with the second being due in Quarter 2 of 2013.

Subsequently, the mine schedule has been revised as presented in **Table 1** below in relation to the two mining areas which were the subject of the 2011 SMP Application (North 1 SMP Area and the LW27-29, W4-W5 SMP Area). Effectively, due to the above-mentioned delays in western panels, eastern panels will generally be mined earlier and western panels later than the original schedule within the 2011 SMP Application.

It is noted that initial mine development works ('first workings') to establish the mining layout ahead of secondary extraction by longwall mining (including main headings and gateroads) provide support to the surface (pillars) which results in negligible subsidence at the surface and no expected impacts (detailed subsidence assessment is undertaken during part of the Environmental Assessment for the Project Approval). Accordingly first workings are approved under PA08_184 without need for further secondary approvals for subsidence management.

Table 1: Revised Mine Schedule

Panel	Revised Commencement	Revised Completion
North 1 SMP Area (LWC, E, F):		
Maingate C	Mar-2011	Sep-2011
LWC	Jan-2012	May-2012
Maingate E	Sep-2011	Jan-2012
LW E	May-2012	Aug-2012
Maingate F	Feb-2012	Jun-2012
LW F	Aug-2012	Q4 2012
Maingate G	<i>Removed</i>	<i>Removed</i>
LW G	<i>Removed</i>	<i>Removed</i>
LW27-29, W4-W5 SMP Area:		
Maingate 27**	Aug-2011	Q4 2012
LW27	Q1 2013	Q4 2013
Maingate 28	Q3 2012	2013
LW28	Q1 2014	Q4 2014
Maingate 29	Q4 2013	2014
LW29	2014	2015
Maingate W3*	2014	2015
LW W3*	2015	2016
Maingate W4	2012	2016
LW W4	2017	2017
Maingate W5	2014	2017
LW W5	2018	2019

* LWW3 was subject of a previously approved SMP (W2, W3), it has been included for completeness and understanding of scheduling and sequencing.



*** 'Maingate development is 'first workings' providing support to the surface (pillars) with negligible subsidence effect, and is approved under the existing Project Approval PA08_184 as outlined earlier above.*

We trust the enclosed information will allow for finalisation of the EEMP ahead of secondary extraction of LW27 in January 2013. UCML kindly requests a formal letter of response which can be supplied to DTIRS-DRE and DP&I to demonstrate that requirements have been met for Essential Energy to your satisfaction. UCML would like to provide supplementary information in support of completion of the SMP Application within the coming few weeks. We appreciate your timely response at your earliest convenience and wish to thank Essential Energy for your assistance throughout the process since inception last year for development of the management plan.

Should you have any questions relating to this letter or the EEMP, please do not hesitate to contact me on 02 6372 5368 at your earliest convenience.

Yours Sincerely,

p.p. Ian Wood

Robyn Stoney
Environment and Community Manager
Ulan Coal Mines Ltd

Attachments:

1. Copy of draft Essential Energy Management Plan (EEMP) as submitted September 2011.

Appendix B - Correspondence NPWS



23 June 2022

Lisa Menke
Manager, Mudgee Area
NSW National Parks & Wildlife Service
27 Inglis Street
MUDGEE, NSW 2850

Seq No: 55/22

Dear Ms Menke,

Re: Update of Longwall Mining Commencement Beneath Durridgere State Conservation Area

Ulan Coal Mines Pty Limited (UCMPL) plan to commence longwall mining beneath the Durridgere State Conservation Area (DSCA) between the 15th and 17th July 2022. Further notification will be provided to the Mudgee Branch of the National Parks and Wildlife Service (NPWS) via email the week of commencement.

A pre-mining condition inspection was undertaken on the 21st June 2022 and from this inspection a Pre-mining Condition Report will be provided to the NPWS. Additionally during the inspection, subsidence warning signs were installed on the single access track on the northern and southern sections prior to entering the subsidence zone.

If you require any additional information or have any questions, please contact Amanda Sales on 0486 007 781 or Amanda.Sales@glencore.com.au.

Yours Sincerely,

A handwritten signature in blue ink, appearing to read "Lucy Stuart".

Lucy Stuart
Environment and Community Manager
Ulan Coal Mines Pty Limited

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4505 Ulan Road, Ulan, NSW 2850
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Ulan Coal Mines Ltd ABN 80 000 189 248
Manager of the Ulan Joint Venture

ULAN COAL

GLENCORE

10 February 2022

Lisa Menke
Manager, Mudgee Area
NSW National Parks & Wildlife Service
27 Inglis Street
MUDGEE, NSW 2850

Seq No: 20/22

Dear Ms Menke,

Re: Notification of Longwall Mining Commencement Beneath Durrigere State Conservation Area

Ulan Coal Mines Pty Limited (UCMPL) plan to commence longwall mining beneath the Durrigere State Conservation Area (DSCA) in June 2022. Longwall extraction is proposed to start from the eastern end of Ulan Underground Longwall 30 (LW30) and progress back toward the west (Attachment 1- Figures). Mining beneath the DSCA is approved via UCMPLs Project Approval (PA 08_0184) and the Ulan Underground Extraction Plan for LW30 & LWW6-LWW8 (approved by NSW Department of Planning, Industry and Environment in February 2021).

The Mudgee Branch of the NPWS was consulted during the development of the Extraction Plan for Ulan Underground LW30 & LWW6-LWW8 (Extraction Plan), Table 1 is an extract from Section 2.1.1 of the Plan. The subsidence performance measures provided in Schedule 3, Condition 24 of PA08_0184 and potential subsidence impacts predicted in the Extraction Plan are summarised below. The Extraction plan and copies of supporting plans are available on the Ulan Coal website at [Approvals documents \(glencore.com.au\)](http://Approvals documents (glencore.com.au)).

Table 1: NPWS Consultation undertaken during preparation of the Extraction Plan for LW30 & LWW6-LWW8

Government Department	Summary of Consultation	Matters Raised by Department During Consultation
NSW National Parks & Wildlife Service (NPWS)	28 June 2016 meeting outlined Extraction Plan Application Area and predicted impacts. 8 July 2016 letter sent to NPWS providing information regarding the commencement of preparation of the Extraction Plan LW30 & W6-W8. NPWS to receive copy of the draft Water, Land, Biodiversity and Public Safety Management Plans once prepared. 26 September 2016 Consultation regarding proposed management and monitoring of potential subsidence within the Durrigere State Conservation Area. 10 October 2016 Provision of draft Extraction Plan for review. - Draft DSCA Access Licence issued from UCMPL to NPWS 4 March 2019 in relation to MOD4 infrastructure. - NPWS replied on 26 July 2019 with updates regarding the DSCA Access Licence process. - DSCA Access Licence issued by NPWS for Execution on the 5 June 2020.	No matters raised at the time of submission or since.

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Ulan Coal Mines Ltd ABN 80 000 189 248
Manager of the Ulan Joint Venture

Ulan Coal Subsidence Performance Measures

Under PA 08_0184 Ulan Coal are required to comply with the following Subsidence Performance Measures.

Table 2 Subsidence Performance Measures

Water	
Ulan, Mona & Cockabutta Creeks	No greater environmental consequences than predicted in the EA
Biodiversity	
Threatened species, populations, habitat or ecological communities	Negligible impact
Land	
Cliffs in the Brokenback Conservation Area	Nil environmental consequences
Other cliffs	Minor environmental consequences
Heritage	
Aboriginal sites	Nil impact in the Brokenback Conservation Area (CA), Grinding Groove Conservation Area; and on Mona Creek Rock Shelter Sites
Talbragar Fish Fossil Reserve	Negligible impact
Other Heritage Sites	No greater impact than predicted in the EA
Built Features	
All built features	Safe, serviceable and repairable unless the owner agrees otherwise in writing
Public Safety	
Public Safety	No additional risk due to mining

Location of DSCA in relation to the Extraction Plan and Mining

The Application Area extends approximately 445 meters into the DSCA which is managed by NPWS. As a result of the extension of LW30, approximately 2.8ha would be mined below the DSCA.

Potential Subsidence Impact Predictions for DSCA

SCT Operations Pty Ltd (Subsidence Engineers) assessed potential subsidence impacts and provided detailed impact reports during the preparation of the Extraction Plan (relevant extracts from the Extraction Plan are provided in Attachment 2). In summary, the reports predicted:

- no perceptible impact to surface or natural features within the DSCA, including the ephemeral tributaries of Curra Creek located to the north east;
- no significant impacts to flora or fauna, including threatened species, populations, habitat or ecological communities;
- no impacts to public safety (there are no cliff lines within the DSCA component of the Extraction Plan Area, therefore rockfall is not considered a relevant risk); and
- potential for minor land cracking on hard surfaces, including the access road within the DSCA component of the Extraction Plan Area.

No heritage sites have been recorded within the subject area during previous surveys conducted for Modification 4 of PA 08_0184, therefore impacts to items of heritage significance will not occur.

Proposed Monitoring within the DSCA

1. Pre-mining condition inspection and report for the DSCA, to be provided to Mudgee Branch of NPWS;

2. During mining monthly inspections for the period of expected subsidence impact (mining under the DSCA is expected to take less than a month); and
3. Post mining condition inspection and report for the DSCA (at least 3 months after cessation of mining in the area, within 12 months of cessation of mining), to be provided to Mudgee Branch of NPWS.

Access for monitoring is proposed to be undertaken by UCMPL authorised personnel in a light vehicle and on foot. Existing tracks and infrastructure corridors within the DSCA will be utilised.

Mitigation Measures within the DSCA

The Mudgee Branch of the NPWS will be kept informed by UCMPL of the progress of longwall mining beneath the DSCA through provision of the above condition assessment reports and via email post an inspection.

Subsidence warning signs will be installed on the single access track potentially impacted by subsidence within the DSCA to inform persons entering that they are entering a mine subsidence area. Subsidence warning signs will inform persons entering of possible surface cracking within the impacted area.

If an open crack is identified during inspections of the DSCA;

1. Hazard tape will be erected immediately around the area;
2. Mudgee Branch of NPWS will be contacted and provided with photos and a location;
3. UCMPL will arrange repair of the crack as soon as practicable. Gravel material will be brought in via light vehicle or bobcat to fill cracks, utilising existing access tracks. Minor areas of topsoil to be removed via shovel prior to filling with gravel. Following fill and compaction with gravel the topsoil will be re-spread over the top of the crack site; and
4. UCMPL will notify the Mudgee Branch of NPWS that repairs have been carried out and provide photo evidence.

UCMPL are happy to meet to discuss this further, if required. Could you please confirm in writing if you are satisfied with the above proposed access, monitoring and mitigation of subsidence impacts during the mining of Ulan Underground LW30 beneath the DSCA?

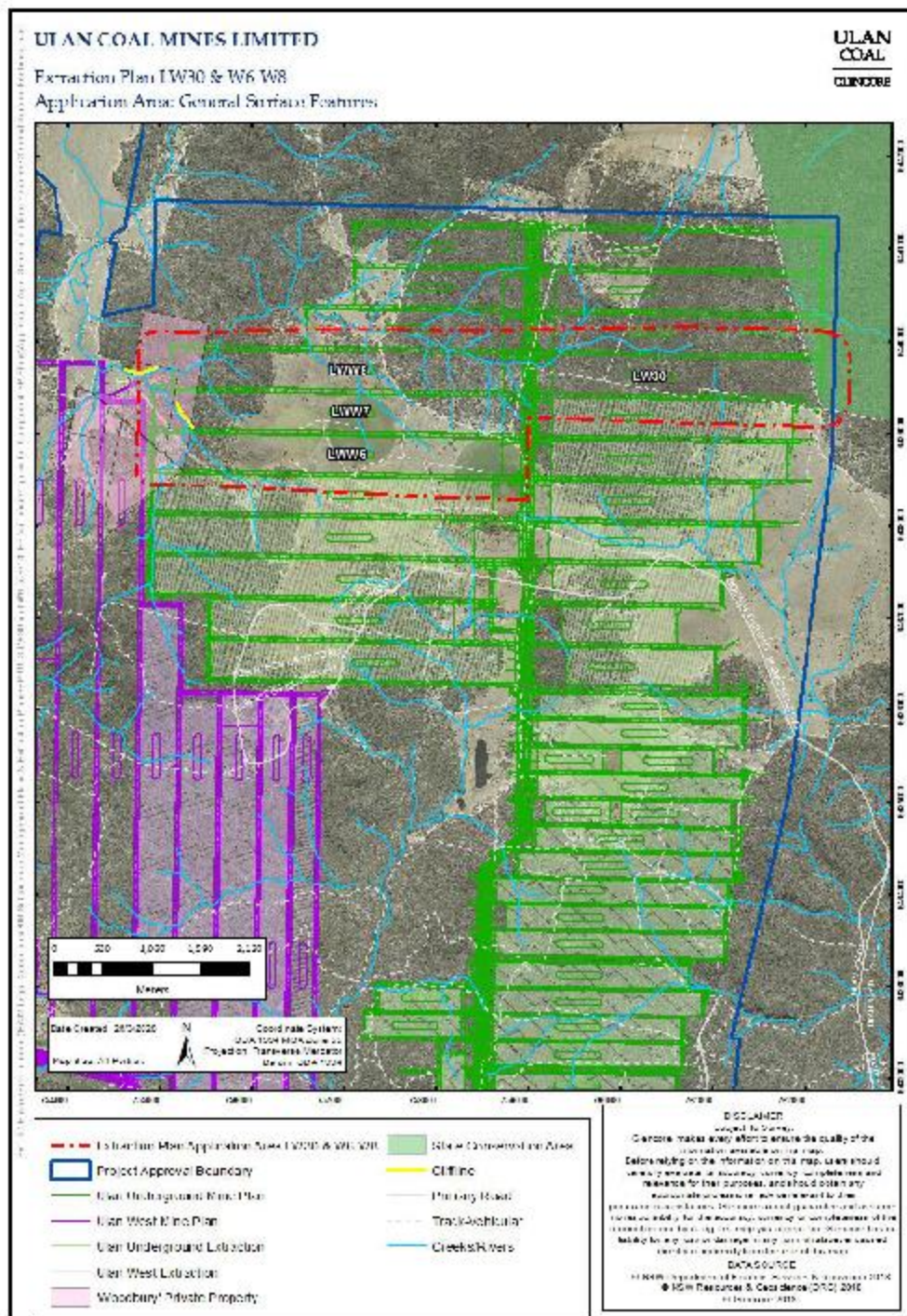
Thank you for your consideration, if you require any additional information or have any questions, please contact Tara Stokes on 0419 464 296 or Tara.Stokes@glencore.com.au.

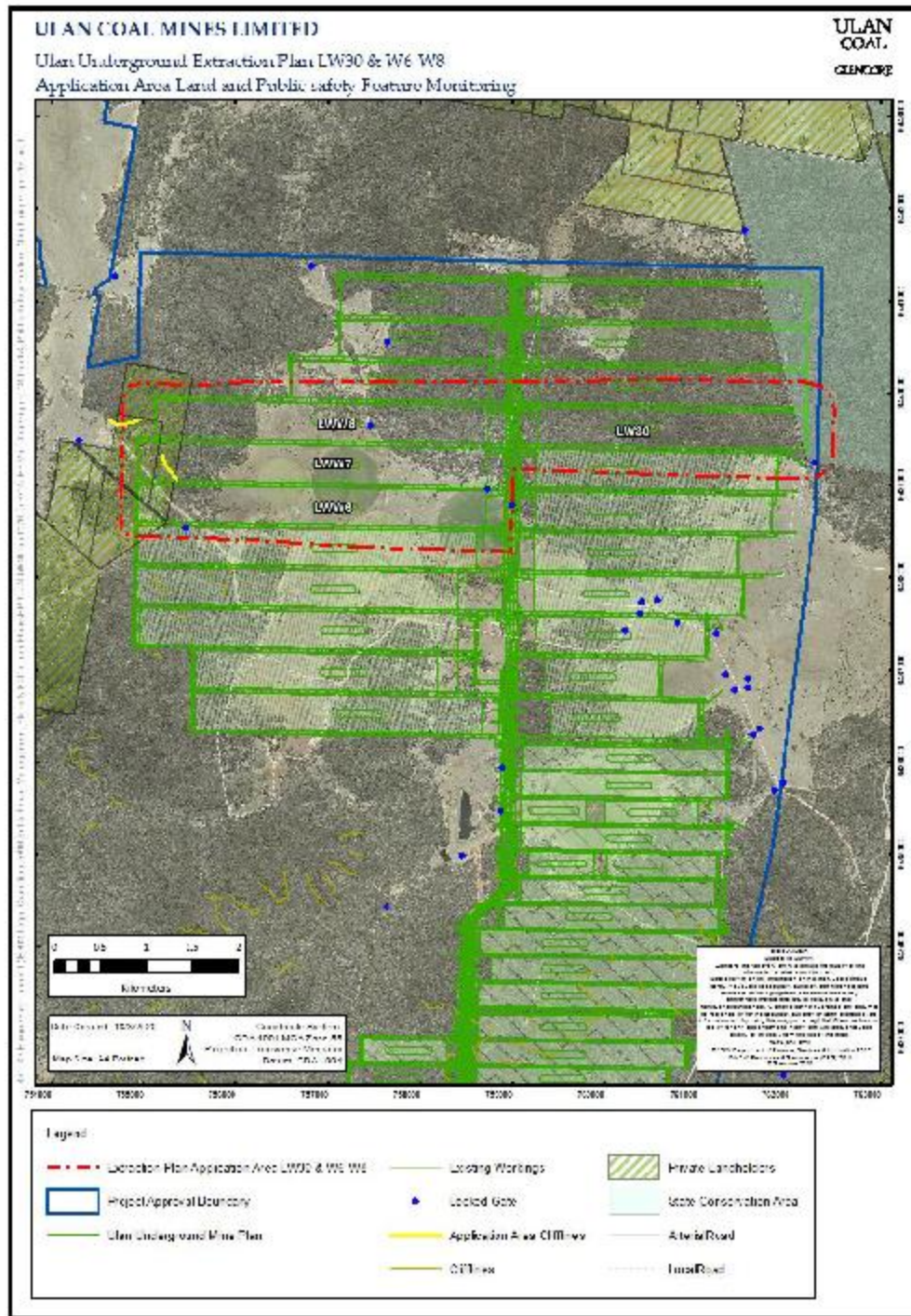
Yours Sincerely,

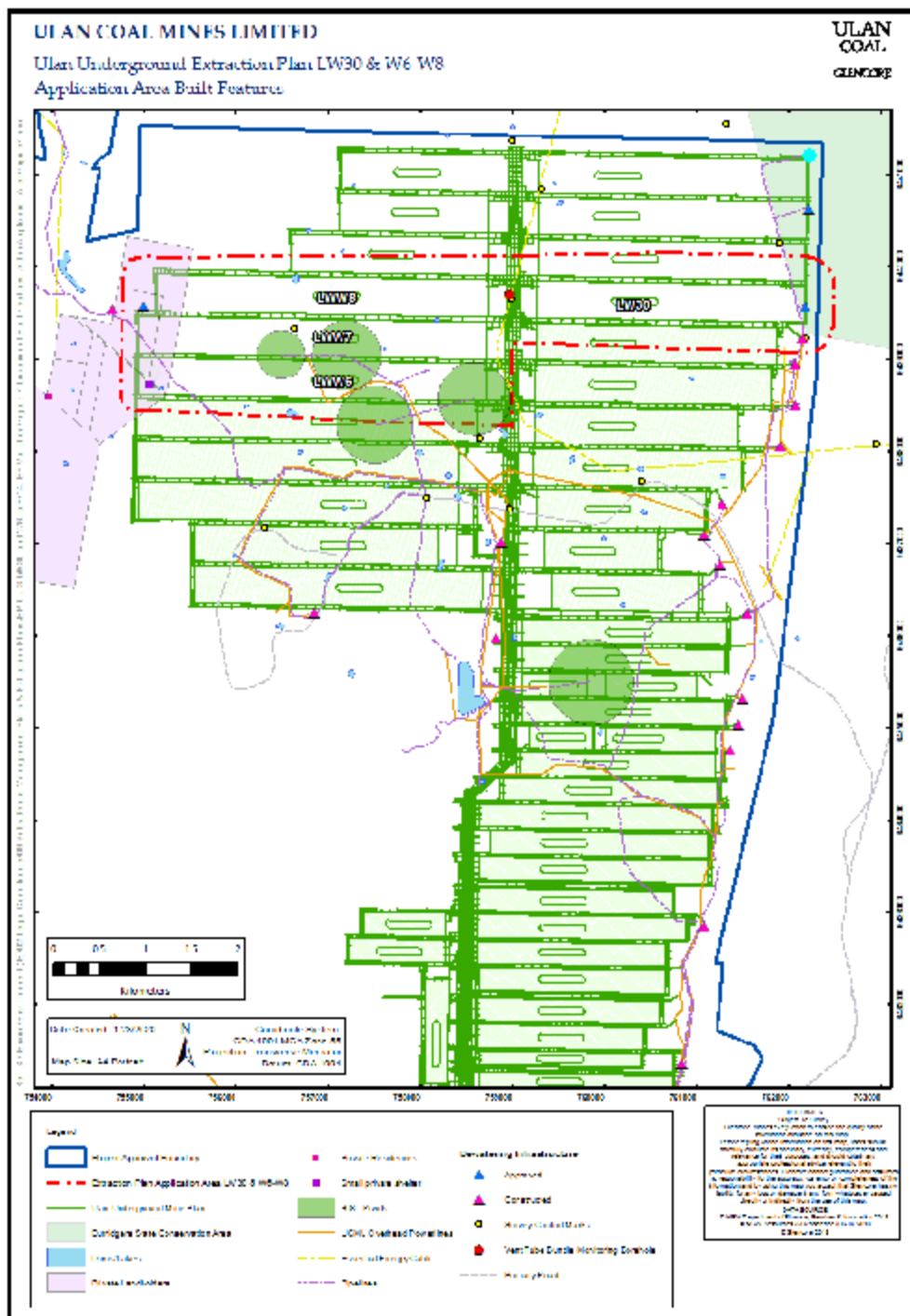


Lucy Stuart
Environment and Community Manager
Ulan Coal Mines Pty Limited

Attachment 1: Figures







[illegible]



Attachment 2: Relevant Extracts from Ulan Underground Extraction Plan Longwalls 30 & W6-W8

Extract from Section 3.2 of the Extraction Plan: Land Subsidence Predictions, Monitoring and Measurement

The key subsidence impacts that may have potential consequences on land associated with the extraction of LW30 & LWW6-LWW8 include:

- Surface cracking (including steps, overrides and erosion holes);
- Agricultural utilisation or agricultural suitability of farm land; and
- Rock falls and cracking on cliff lines.

Post mining inspections of the land above previously mined longwalls at UUG have been undertaken by Ulan Coal and SCT Operations personnel for the preparation of post mining reporting. Subsidence predictions for land outlined in Table 19 are expected to be consistent with impacts previously observed at UUG.

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. There is potential for unconventional subsidence movements including steep, compression overrides, and high compression zones at low topographic points.

Previous experience over Longwalls 27, 28, and 29 indicates that subsidence impacts are imperceptible at the start of the panel for all practical purposes. This experience is consistent with the 300-320 m overburden depths in this area and the low levels of tilt and strain that are observed as a result of the subsidence.

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.

Extract from Section 3.3 of the Extraction Plan: Biodiversity Subsidence Predictions, Monitoring and Management

In 2015, Eco Logical Australia (ELA) conducted an assessment of biodiversity impacts from subsidence which occurred during the previous five years. This review included analyses of data collected for terrestrial and aquatic fauna and microbats monitoring as required by the BMP, as well as specific floristic assessment. Monitoring results for the Ulan Coal Mine Complex indicate:

- The observed stability of overall vegetation structure and canopy species health in floristic-based subsidence (FBS), determined that there are no clear impacts of subsidence upon vegetation above longwall panels;
- Analysis of terrestrial fauna data showed that there are no significant differences between the habitat and biodiversity values as a result of mining activities. Therefore, no discernible impacts from subsidence upon threatened species, populations, habitats or ecological communities associated with the terrestrial environment have been shown;
- Aquatic fauna diversity and stream health remains stable, and that there are no significant or observable impacts from subsidence on these values; and

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Manager of the Ulan Joint Venture

- *Results from the four years of consistent microbat monitoring indicate that overall microbat diversity and abundance has not declined during this time, and that both age composition and body condition of the two most commonly captured species have remained stable. These latter two measures are indicators of population health and composition; as such, these results suggest that microbat population dynamics are similarly stable, and not under stress from mining related impacts.*
- *Negligible subsidence impacts to biodiversity were predicted in the Project EA (Umwelt 2009). Results of monitoring to date do not indicate any declining trends or significant changes in vegetation or fauna.*

Extract from Section 3.6 of the Extraction Plan: Public Safety Subsidence Predictions, Monitoring and Management

The primary public safety hazards associated with the extraction of LW30 & LWW6-LWW8, include:

- *Surface cracking; and*
- *Rock falls.*

The impacts of mining subsidence on the tracks are expected to be essentially similar to impacts previously observed over UUG.

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 by SCT 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.

Appendix C - Post Mining Inspections of Non-UCMPL Built Features

Table C-1: Pre & Post Mining Inspections – Farm Dam above LWW6 (Flow Line & Farm Dam)



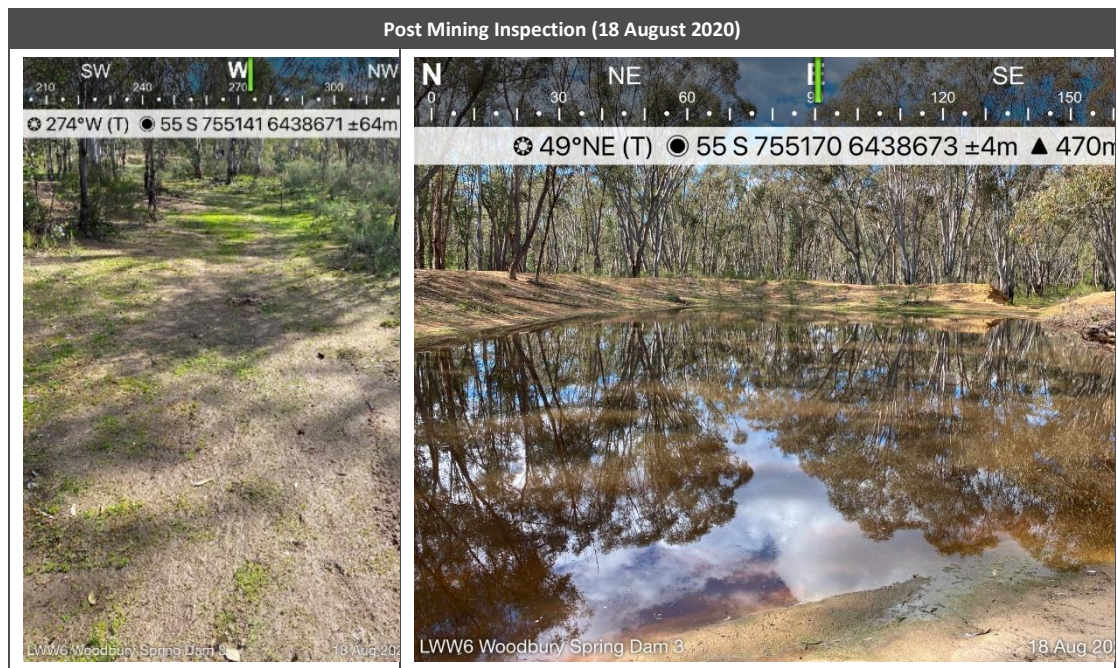


Table C-2: Pre & Post Mining Inspections Small Structure above LWW6



Post Mining Inspection (18 March 2020)



Notes: No change to pre-mining condition of the small shelter during post mining inspection.

Table C-3: DSCA Access Track Western boundary – Southern edge of longwall LW30

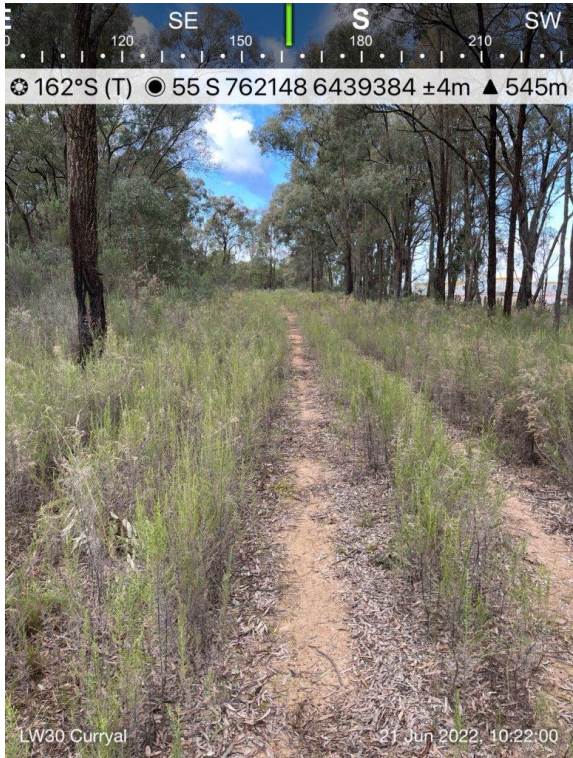
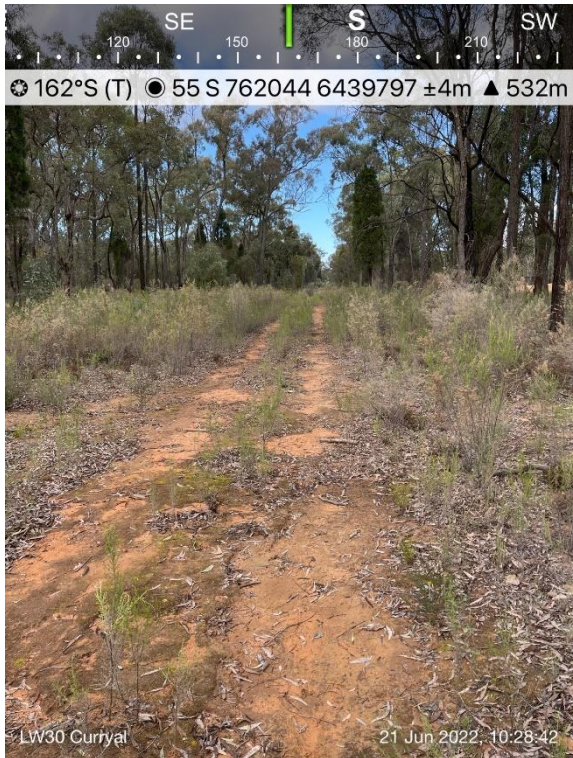
Pre Mining	Post-Mining
	
	

Table C-4: DSCA Access track Western boundary - Northern edge of longwall of LW30

Pre Mining	Post-Mining
 344°N (T) 55 S 762042 6439797 ±4m ▲ 536m LW30 Curryal 21 Jun 2022, 10:29:15	 336°NW (T) 32°8'52\"S, 149°46'41\"E ±19ft ▲ 1748ft LW30 DSCA 11 Aug 2022, 10:57:25
 162°S (T) 55 S 762044 6439797 ±4m ▲ 532m LW30 Curryal 21 Jun 2022, 10:28:42	 179°S (T) 32°8'52\"S, 149°46'41\"E ±78ft ▲ 1749ft LW30 DSCA 11 Aug 2022, 10:57:18