



# Longwalls 205 to 208

## Glencore Asset Management Plan

October 2020



**DOCUMENT CONTROL**

<b>DOCUMENT DETAILS</b>	<b>Title</b>	Longwalls 205-208 Glencore Asset Management Plan		
	<b>Reference</b>	Longwalls 205-208 Built Features Management Plan		
	<b>Document Status</b>	Final		
<b>APPROVAL</b>				
<b>Originator</b>	Jeff Peck	Position Registered Surveyor Ashton Coal Operations Pty Ltd	Signed	Date
<b>Reviewed</b>	Tony Sutherland	Position Technical Services Manager Ashton Coal Operations Pty Ltd	Signed	Date
<b>Approved</b>	Klay Marchant	Position Environment and Community Manager Ravensworth Operations (Glencore)	Signed	Date

<b>REVISIONS</b>				
<b>Version</b>	<b>Date</b>	<b>Description</b>	<b>By</b>	<b>Approved</b>
1	July 2020	Draft for Consultation	ACOL	-
2	October 2020	Final for Submission	ACOL	

<b>TABLE OF CONTENTS</b>	<b>Page</b>
<b>1 INTRODUCTION .....</b>	<b>1</b>
<b>2 SCOPE &amp; OBJECTIVE.....</b>	<b>5</b>
<b>3 ASSETS AND IMPACTS .....</b>	<b>7</b>
3.1 SUBSIDENCE PARAMETER DEFINITIONS .....	7
3.2 MAXIMUM PREDICTED SUBSIDENCE .....	7
3.3 PREDICTED SUBSIDENCE IMPACTS .....	8
3.3.1 33 kV Transmission Line .....	8
3.3.2 Ravensworth Operations #2 Bayswater Pit .....	9
3.3.3 Ravensworth Void 5 Ash Dam .....	9
3.3.4 Pipeline from Narama Dam to Mt Owen Mine .....	10
3.3.5 Ravensworth Underground Mine #5 Ventilation Shaft.....	10
<b>4 PERFORMANCE MEASURES.....</b>	<b>11</b>
<b>5 MONITORING AND MANAGEMENT.....</b>	<b>13</b>
5.1 SUBSIDENCE INSPECTIONS.....	15
5.1.1 Scope of Inspections.....	15
5.1.2 Public and/or Infrastructure Safety Issues Identified During Inspections.....	15
5.1.3 Remediation of Infrastructure Safety Issues .....	15
5.2 CONTINGENCY PLANS .....	16
5.3 REPORTING .....	16
<b>6 RESPONSIBILITIES.....</b>	<b>17</b>
6.1 ASHTON OPERATIONS MANAGER.....	17
6.2 TECHNICAL SERVICES MANAGER .....	17
6.3 ASHTON ENVIRONMENT & COMMUNITY SUPERINTENDENT .....	17
6.4 ASHTON REGISTERED MINING SURVEYOR .....	17
6.5 ASHTON TECHNICAL SERVICES TEAM .....	18
6.6 GLENCORE.....	18
6.7 PAYMENT OF COSTS IN RELATION TO REPAIRS .....	18
<b>7 TRAINING.....</b>	<b>19</b>
<b>8 AUDIT AND REVIEW .....</b>	<b>20</b>
8.1 AUDIT .....	20
8.2 REVIEW.....	20
<b>9 REFERENCES.....</b>	<b>21</b>

**TABLE OF FIGURES/PLANS**

---

Figure 1: Regional Location

Figure 2: General Arrangement

Figure 3: Upper Lower Liddell Seam Longwall Layout

Figure 4: Plan Showing Location of Glencore Infrastructure in the Vicinity of Longwalls 205 to 208

**APPENDICES**

---

Appendix A Stakeholder Contact Details

Appendix B Subsidence Inspection Checklist

---

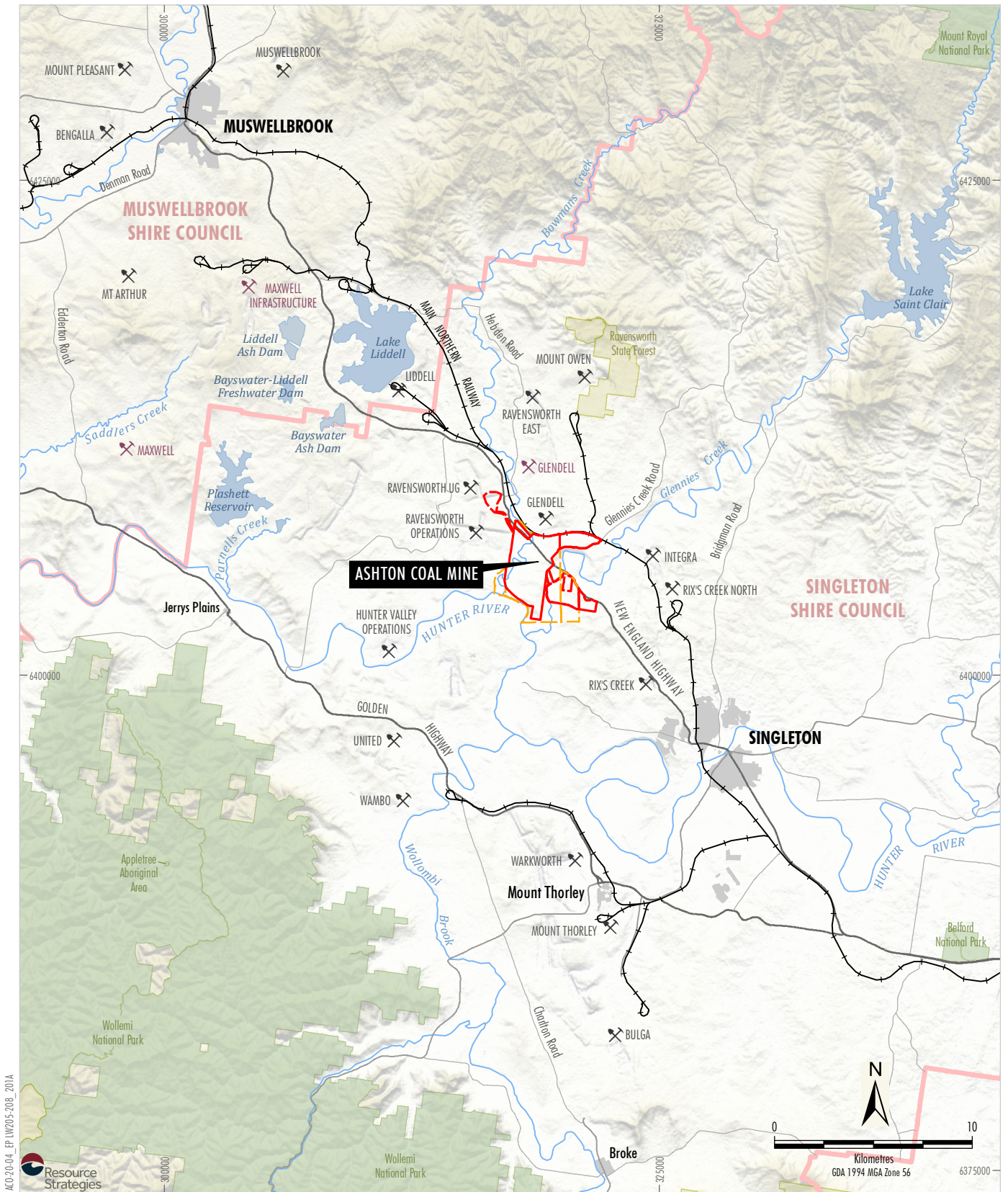
## 1 INTRODUCTION

Ashton Coal Operations Pty Ltd (ACOL), a subsidiary of Yancoal Australia Limited (Yancoal), owns the Ashton Coal Project (ACP), an underground coal mine located approximately 14 kilometres north-west of Singleton in the Hunter Valley in New South Wales (NSW) (**Figure 1**).

The ACP was granted consent on 11 October 2002 by the Minister of Planning pursuant to the provisions of the Environmental Planning and Assessment Act 1979 (DA 309-11-2001-i). The Mine is approved to produce up to 5.45 million tonnes per annum (Mtpa) of run of mine (ROM) coal and operate until 2024. The consolidated Development Consent has been modified on ten occasions, with the most recent amendment approved on 20 June 2016.

The underground mine is approved for multi-seam longwall extraction, targeting four coal seams in descending order (Pikes Gully (PG), Upper Liddell (ULD), Upper Lower Liddell (ULLD) and Lower Barrett (LB)) (**Figure 2**). Development of the underground mine commenced in December 2005 and is accessed through the southern wall of the Arties Pit under the New England Highway.

ACOL has subsequently prepared an Extraction Plan for mining of Longwalls 205 to 208 in the ULLD Seam of the Ashton Underground Coal Mine, varying between 185 metres and 255 metres below the surface. Proposed mining of Longwalls 205 to 208 (the **Extraction Plan Area** – refer **Figure 3**) is due to commence in March 2021 and is planned to take place over a three-year period.



AKO-20-04, EP LW2015-208, 2014  
Resource Strategies

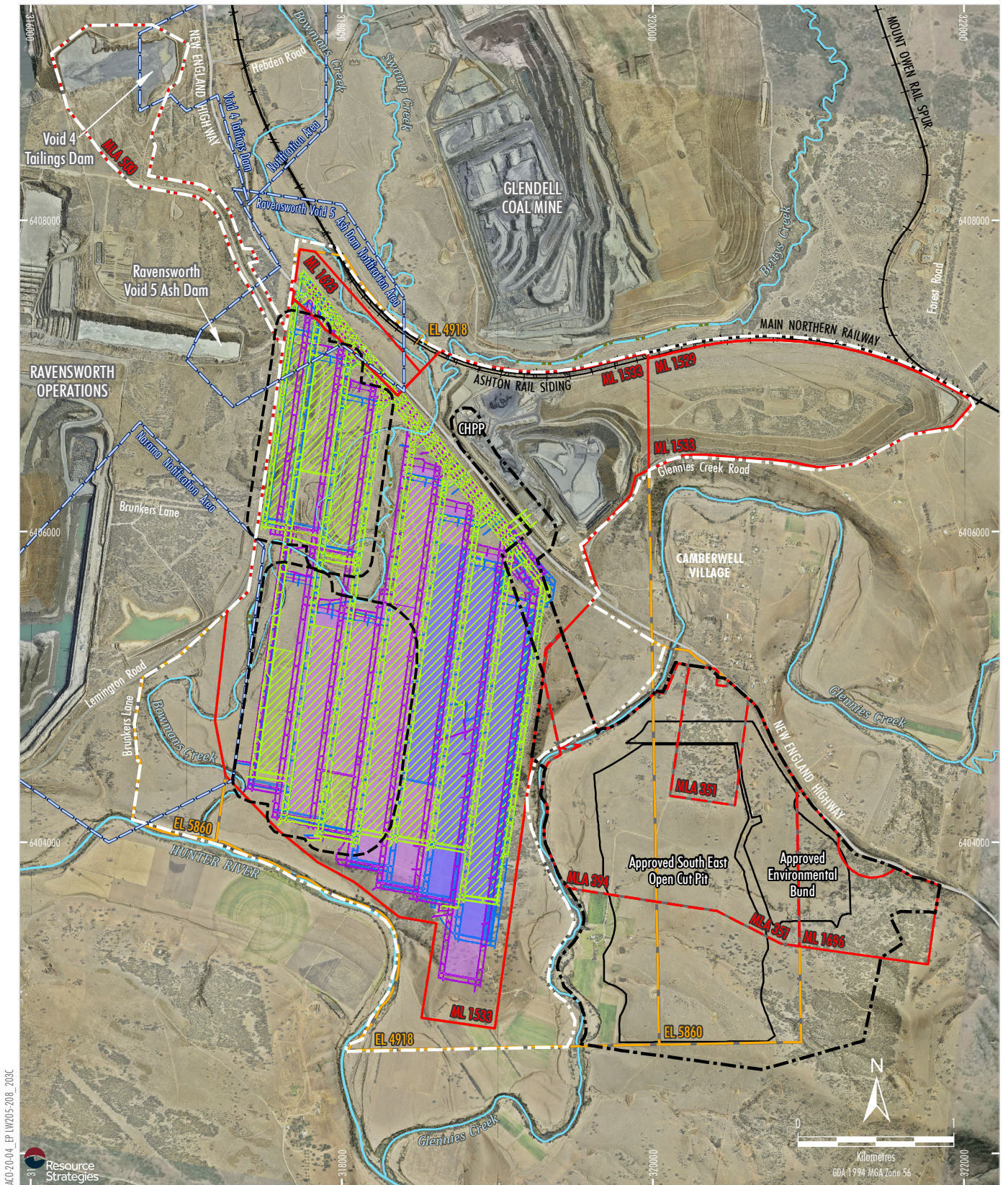
Source: NSW Spatial Services (2020)



- LEGEND**
- Mining Operation
  - Proposed Mining Operations (Application Lodged)
  - Local Government Area
  - State Forest
  - National Parks and Wildlife Estate
  - Exploration License Boundary
  - Mining Lease Boundary
  - Mining Lease Application Boundary

**YANCOAL**  
 宏业澳洲大矿业有限公司  
**ASHTON COAL MINE**  
 Regional Location

Figure 1



AKO20-04-EP-1W2015-208\_203C

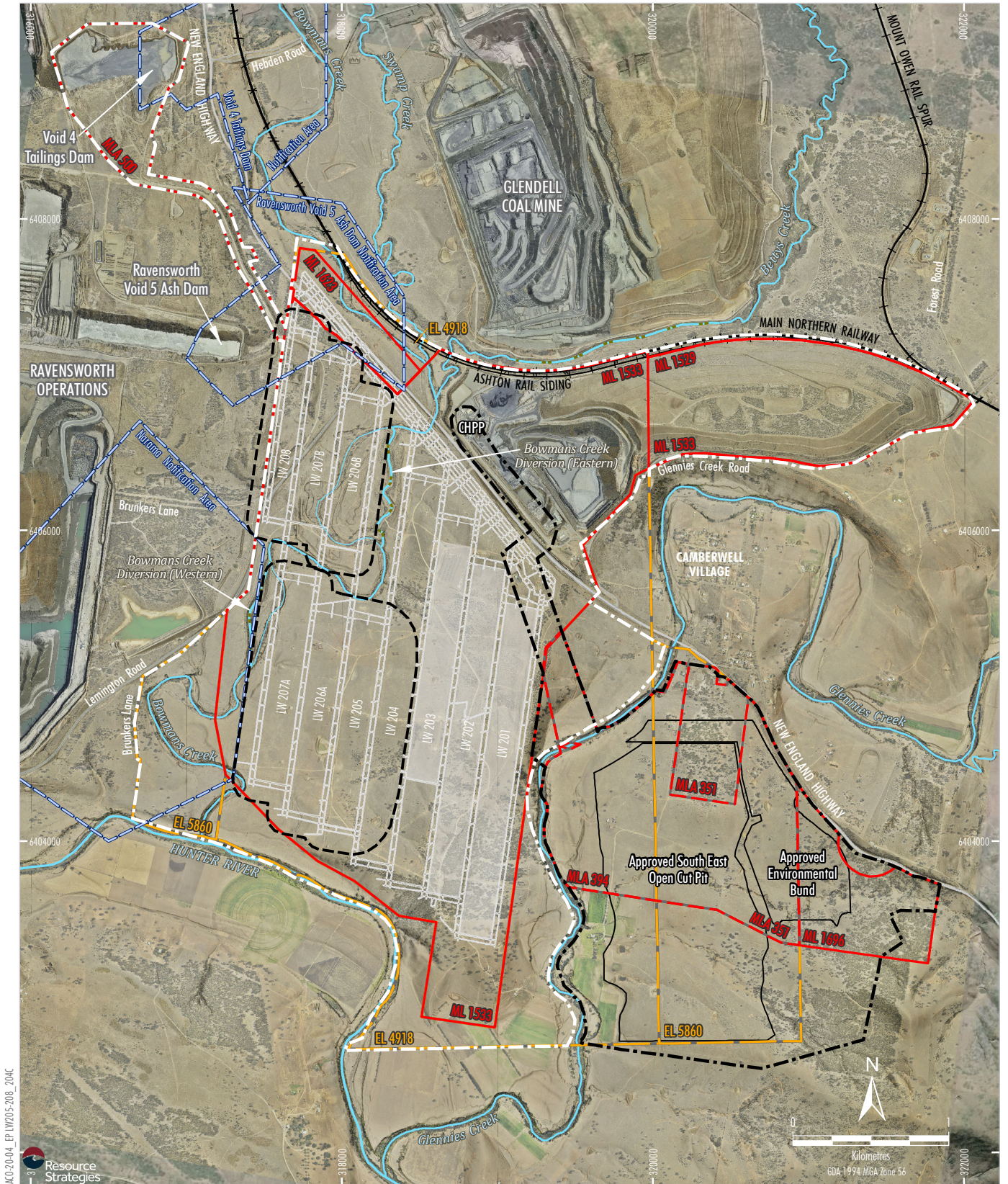


- LEGEND**
- Exploration Licence Boundary
  - Mining Lease Boundary
  - Mining Lease Application Boundary
  - Prescribed Dam Notification Area
  - Project Approval Boundary
  - South East Open Cut Approval Boundary
  - Pike's Gully Seam Longwall
  - Upper Liddell Seam Longwall
  - Upper Lower Liddell Seam Longwall
  - Extraction Plan Application Area

Source: NSW Spatial Services (2020)  
 Orthophoto: Ashton Coal (Dec 2019); NSW Spatial Services (2019)

  
 ASHTON COAL MINE  
 General Arrangement

Figure 2



AKO20-04-EP LW2015-208\_2014C



Source: NSW Spatial Services (2020)  
 Orthophoto: Ashton Coal (Dec 2019); NSW Spatial Services (2019)

- LEGEND**
- Exploration Licence Boundary
  - Mining Lease Boundary
  - Mining Lease Application Boundary
  - Prescribed Dam Notification Area
  - Project Approval Boundary
  - South East Open Cut Approval Boundary
  - Upper Lower Liddell Seam Longwall
  - Extraction Plan Application Area



ASHTON COAL MINE  
 Upper Lower Liddell Seam Longwall Layout

Figure 3



## 2 SCOPE & OBJECTIVE

This Asset Management Plan has been developed to manage risks associated with potential subsidence impacts to Glencore infrastructure as a result of the secondary extraction of Longwalls 205 to 208 within the ULLD Seam.

This management plan provides a mechanism through which the potential subsidence impacts from longwall mining can be managed to maintain the safety and serviceability of Glencore infrastructure whilst mining is in progress.

Glencore infrastructure of relevance to Longwalls 205-208 has been identified as (**Figure 4**):

- 33 kV transmission line, on the western side of Lemington Road.
- Ravensworth Bayswater Pit (No. 2), extends into the Extraction Plan area and a small section will be directly undermined by Longwall 208.
- Void 5 Ash Dam, approximately 260 m from the edge of Longwall 208 (the Void 5 Ash Dam Notification Area extends into the Extraction Plan area but will not be directly undermined).
- Water supply pipeline from the Narama Dam to Mt Owen Complex.
- No. 5 Ventilation Shaft, approximately 120 m west of the goaf edge of Longwall 8 in the PG Seam.

This Asset Management Plan forms part of the Ashton Longwalls 205 to 208 Extraction Plan and should not be read in isolation.

Other infrastructure of relevance to Glencore that will be impacted by Longwalls 205 to 208 includes Lemington Road and associated culverts (owned by Singleton Shire Council), a buried copper wire telephone cable and a buried fibre optic cable (both owned by Telstra). This infrastructure is discussed further in the relevant Asset Management Plans (i.e. for Singleton Shire Council and Telstra).

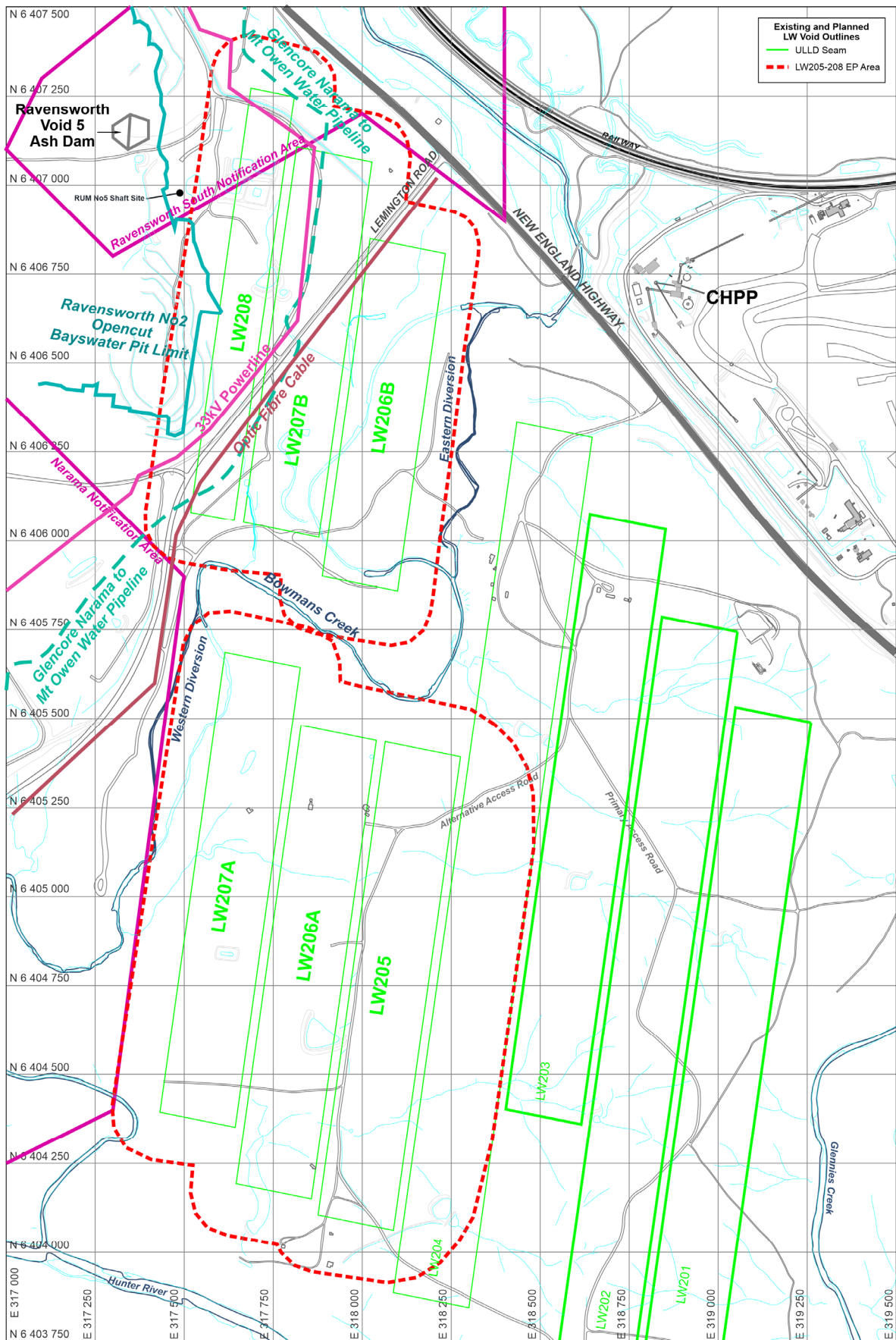


Figure 4: Plan Showing Location of Glencore Infrastructure in the Vicinity of Longwalls 205 to 208

### 3 ASSETS AND IMPACTS

#### 3.1 SUBSIDENCE PARAMETER DEFINITIONS

Subsidence, tilt and strain are the subsidence parameters commonly used to define the extent of surface movements that will occur as mining proceeds.

**Subsidence** is the vertical distance (usually measured in millimetres) that the ground surface lowers as a result of mining, and depends on the depth of the coal seam, the thickness of the seam, the width of the extraction area and the characteristics of the overburden.

**Tilt** is calculated as the change in subsidence between two points divided by the distance between those points (i.e. change in slope of the surface landform as a result of mining). The maximum tilt, or the steepest portion of the subsidence profile, occurs approximately 50 metres from the edge of the longwall panel. Tilt is usually expressed in millimetres per metre.

**Strain** results from horizontal movements in the strata. Strain is determined from monitoring survey data by calculating the change in the horizontal length of a section of a subsidence profile and dividing this by the initial horizontal length of that section. If the section has been extended, the ground is in tension and the change in length and resulting strain are both positive. If the section has been shortened, the ground is in compression and the change in length and strain are both negative. Strain is usually expressed in millimetres per metre.

#### 3.2 MAXIMUM PREDICTED SUBSIDENCE

Table 1 below describes the predicted subsidence estimates detailed in the subsidence assessment for Longwalls 205-208 (SCT Operations, 2020). Subsidence impacts have been categorised as:

- incremental subsidence: subsidence as a direct result of mining in the ULLD Seam; and
- cumulative subsidence: combined subsidence as a result of mining the ULLD Seam and previously mined seams (i.e. PG Seam and ULD Seam).

**Table 1. Maximum Predicted Subsidence Parameters for ULLD Seam Longwall Panels**

ULLD Seam Longwall Panels (depth range in brackets [m])	Longwalls 205-208 Forecast							
	ULLD Subs (m)	ULLD Strain (mm/m)			ULLD Tilt (mm/m)			
		General	Stacked Edges	Undercut Edges	General	Stacked Edges	Undercut Edges	
<b>Incremental Subsidence Parameters</b>								
LW205 (185-225)	2.8	30	53	N/A	53	106	N/A	
LW206A (205-240)	2.8	27	48	N/A	48	96	N/A	
LW206B (175-210)	2.5	29	50	N/A	56	100	N/A	
LW207A (220-260)	2.6	24	41	47	45	83	95	
LW207B (190-225)	2.5	26	46	53	52	92	105	
LW208 (210-240)	2.2	21	37	N/A	33	73	N/A	
<b>Cumulative Subsidence Parameters</b>								
LW205 (185-225)	5.8	47	110	N/A	94	219	N/A	
LW206A (205-240)	5.8	42	99	N/A	85	198	N/A	
LW206B (175-210)	3.9	33	78	N/A	67	156	N/A	
LW207A (220-260)	4.4	30	70	80	60	140	160	
LW207B (190-225)	4.2	33	77	88	66	155	177	
LW208 (210-240)	3.1	22	52	N/A	44	103	N/A	

### 3.3 PREDICTED SUBSIDENCE IMPACTS

The following sections describe predicted subsidence impacts to Glencore infrastructure as a result of mining Longwalls 205-208.

#### 3.3.1 33 kV Transmission Line

The 33 kV transmission line is located within or immediately adjacent to the Extraction Plan area. Seven transmission poles are located above or between Longwalls 207B and 208. The transmission line was constructed prior to mining Longwall 8 in the PG Seam. The line traverses the surface immediately to the west of Lemington Road before changing direction to follow the AGL Macquarie (AGLM) south access road to the north west (**Figure 3**) (**Plate 1**).

When inspected, several of the poles along the straight section of the transmission line had roller sheaves fitted to support the conductors and allow conductor tension to be equilibrated. Tension poles at changes in direction did not have sheaves fitted. These poles were stabilised with guy wires.

Subsidence impacts to the 33 kV transmission line are expected to have the potential to affect serviceability of the infrastructure without mitigation and remediation works. The seven poles located above or between Longwalls 207B and 208 are expected to experience the full range of temporary and permanent subsidence effects. Poles located near the panel edges are expected to experience the maximum subsidence effects. Three poles positioned above solid coal outside the outermost panel edges are not expected to be significantly affected by the likely ground movements although increased conductor tension at these poles may affect pole alignment.

Maximum cumulative subsidence of up to 4.2 m in the centre of Longwall 207B and tilt of up to 155 mm/m is forecast at poles near the stacked goaf edges of Longwall 207B (SCT, 2020).



**Plate 1: 33kV Transmission Line Adjacent to AGLM South Access Road**

### 3.3.2 Ravensworth Operations #2 Bayswater Pit

A section of the Ravensworth Operations (RO) No. 2 Bayswater Pit is located within the limits of the Extraction Plan area along the western boundary (**Figure 4**). A minor section of the backfilled pit is planned to be undermined by Longwall 208, which will form a stacked edge with Longwall 8 (in the PG Seam). The depth from the current surface level to the as-mined floor of the Bayswater Seam at this point is approximately 10 m. No significant impacts occurred during mining of Longwall 8.

A large portion of the Bayswater Pit within the Extraction Plan area is located over solid coal and more than 40 m from the edge of the nearest longwall panel. The current landform surface slopes towards the east. Vertical subsidence along the edge of this pit is expected to be generally less than 100 mm with low levels of tilt and strain.

The RO No. 2 Bayswater Pit within the Extraction Plan area is expected to experience no significant impacts as a result of mining Longwalls 205-208. Some surface cracking may be evident in the area located directly above the edge of Longwall 208 (SCT, 2020).

### 3.3.3 Ravensworth Void 5 Ash Dam

**Figure 4** shows the location of the Void 5 Ash Dam, approximately 260 m from the edge of Longwall 208 and outside the Extraction Plan area. The dam is a prescribed dam as defined by the *NSW Dams Safety Act, 2015*. No significant impacts to this structure are expected but planned extraction is expected to require approval from the Dams Safety NSW and the Chief Inspector of Coal Mines.

The Void 5 Ash Dam was constructed during 2013 and 2014 on fill material at the end of a remnant void in the Ravensworth No 2 Bayswater Pit. Longwall 8 (in the PG Seam) was mined in 2012. Any far-field subsidence movements that occurred at the dam site at that time were complete before the dam wall was constructed.

The Void 5 Ash Dam is being used to store ash from nearby power stations. The dam wall is constructed from rock fill material that is likely to be tolerant to the small far-field subsidence movements expected from mining Longwalls 206B, 207B and 208.

Of the longwalls to be extracted, only Longwall 208 will be within the Ravensworth South Notification Area for the Void 5 Dam and within the 1.2D and 1.7D zones from the dam wall. Longwall 208 is more than one times the depth (45° angle of draw) from the toe of the dam. Vertical and horizontal subsidence movements from the mining of Longwalls 205-208 are expected to be imperceptible at the dam wall and have no potential to cause any impact to the dam structure (SCT, 2020).

### **3.3.4 Pipeline from Narama Dam to Mt Owen Mine**

The 315 mm diameter polyethylene pipeline supplies water from the Glencore Narama Dam to Mt Owen Mine Complex to the north. Within the Extraction Plan area, the pipeline crosses Lemington Road once, and the southern AGLM access road twice, as well as crossing double stacked goaf edges above Longwall 207B and 208.

Cumulative maximum strain is expected to reach 77 mm/m at the stacked edges and 33 mm/m more generally. If all the strain is localised at single, pre-existing fractures, as is expected, there is potential for the pipeline to be damaged.

Potential impacts include damage to the pipeline, loss of water supply and a possible environmental issue associated with unlicensed discharge (SCT, 2020).

### **3.3.5 Ravensworth Underground Mine #5 Ventilation Shaft**

The Ravensworth Underground Mine No.5 Ventilation Shaft is approximately 120 m west of the goaf edge of Longwall 8 in the PG Seam and was constructed after Longwall 8 was mined. The shaft is outside the Extraction Plan area and not connected to the underground workings but has been assessed because of its proximity to the Extraction Plan area.

Mining of Longwalls 205-208 may cause horizontal shear movements within the overburden strata that extend as far as the shaft, however, the magnitude of these movements is likely to be so small as to be of no practical significance for the operational integrity of the shaft if it is to be used in the future (SCT, 2020).

## 4 PERFORMANCE MEASURES

ACOL will aim to ensure that all built features owned by Glencore within the Extraction Plan area are always maintained as safe and serviceable. Any subsidence damage from ACOL’s mining activities will be repaired as necessary, or else replaced and/or fully compensated or dealt with under the terms of an access or compensation agreement.

The subsidence impact performance measures relevant to Glencore assets under Schedule 3, Condition 29 of DA 309-11-2001-I are summarised in **Table 2**, while more specific objectives and performance measures developed by ACOL are listed in **Table 3**.

**Table 2. Subsidence Impact Performance Measures**

Built Features	
Other built features, including other public infrastructure.	<ul style="list-style-type: none"> <li>• Always safe.</li> <li>• Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated.</li> <li>• Damage must be fully repaired or replaced, or else fully compensated.</li> </ul>
Public Safety	
Public safety.	No additional risk due to mining.

**Table 3. Glencore Asset Management Objectives**

Objective	Performance Measure
General.	<ul style="list-style-type: none"> <li>• All infrastructure is assessed in consultation with Glencore and any required mitigation / relocation works are carried out prior to undermining.</li> </ul>
Water and Power Utilities: <ul style="list-style-type: none"> <li>• To ensure unplanned disruptions to water or power supply do not occur as a result of subsidence related damage to powerlines or pipelines.</li> <li>• To prevent public safety hazards resulting from damaged transmission lines.</li> </ul>	<ul style="list-style-type: none"> <li>• No unplanned power shortages occur due to subsidence induced damage to power lines.</li> <li>• No unplanned interruptions to water supply occur due to subsidence induced damage to pipelines.</li> <li>• Where subsidence related impacts are realised, transmission lines and poles within the site to remain structurally sound and serviceable at all times.</li> </ul>
Narama Dam: <ul style="list-style-type: none"> <li>• To confirm that no perceptible impact due to subsidence movements are experienced near Narama Dam.</li> </ul>	<ul style="list-style-type: none"> <li>• No impacts (outside proposed subsidence impact area).</li> </ul>

Objective	Performance Measure
<p>Lemington Road:</p> <ul style="list-style-type: none"> <li>• To prevent public safety hazards resulting from subsidence damage to Lemington Road.</li> <li>• To consult with RO and Singleton Shire Council so that ACOL can remediate subsidence induced impacts to roads.</li> </ul>	<ul style="list-style-type: none"> <li>• Always safe.</li> <li>• Management as per the Lemington Road Subsidence Deed.</li> <li>• To consult with RO and Singleton Shire Council so that RO can ensure all subsidence related damage is identified and remediated as soon as practicable to prevent public safety hazards resulting from subsidence damage to Lemington Road. ACOL to repair immediate subsidence impacts (make road serviceable), with RO responsible for 100% of the costs associated with the repairs.</li> </ul>



## 5 MONITORING AND MANAGEMENT

The management actions that ACOL undertakes to satisfy the performance measures outlined in Section 4 are outlined in Table 4. These actions include monitoring, management and incident reporting.

**Table 4. Glencore Asset Monitoring and Management**

Item	Feature	Action/Response	Trigger/Timing
<b>1.0</b>	<b>Monitoring</b>		
1.01	33 kV Transmission Line	Pre-subsidence survey of 33 kV poles (top and base) to obtain xyz coordinates. The survey is to be undertaken in accordance with the approved <i>Subsidence Effects Monitoring Program</i> and the proposed methods therein.	Prior to mining Longwall 207B.
1.02		<ul style="list-style-type: none"> <li>Assets to be monitored in accordance with the <i>Subsidence Effects Monitoring Program</i>.</li> <li>Subsidence monitoring and post subsidence inspection of poles and lines including visual inspections noting condition, line clearances and pole tilts.</li> <li>Undertake final inspections following completion of mining.</li> </ul>	<ul style="list-style-type: none"> <li>During active subsidence; and</li> <li>Final inspection and survey following completion of mining.</li> </ul>
1.03	Bayswater Pit (No. 2) and No. 5 Ventilation Shaft	<ul style="list-style-type: none"> <li>Assets to be monitored in accordance with the <i>Subsidence Effects Monitoring Program</i>.</li> <li>Undertake visual inspections and survey of shaft centre following completion of mining.</li> </ul>	<ul style="list-style-type: none"> <li>During active subsidence; and</li> <li>Final inspection and survey following completion of mining.</li> </ul>
1.04	Void 5 Ash Dam	<ul style="list-style-type: none"> <li>Survey of subsidence monitoring pegs.</li> </ul>	<ul style="list-style-type: none"> <li>Prior to mining Longwall 208; and</li> <li>Following completion of mining at Longwall 208.</li> </ul>
1.05	Water Supply Pipeline	<ul style="list-style-type: none"> <li>Visual inspection/monitoring of exposed sections of pipeline.</li> <li>Glencore to continue monitoring of pipeline flows.</li> </ul>	<ul style="list-style-type: none"> <li>Prior to mining Longwall 207B;</li> <li>During active subsidence; and</li> <li>At completion of each longwall panel.</li> </ul>
<b>2.0</b>	<b>Management</b>		
2.01	33 kV Transmission Line	Structural assessment of the 33 kV transmission line and implement remedial works, if required.	<ul style="list-style-type: none"> <li>Assessment to be completed prior to subsidence.</li> <li>Modifications to be completed prior to subsidence impacts occurring.</li> </ul>

Item	Feature	Action/Response	Trigger/Timing
2.02	Bayswater Pit (No. 2) and No. 5 Ventilation Shaft	Assets to be managed in consultation with Glencore if any subsidence impacts identified.	ACOL to consult Glencore if subsidence impacts have been identified.
2.03	Void 5 Ash Dam	Detailed assessment of potential subsidence impacts to Void 5 Ash Dam in accordance with <i>Dams Safety Act 1978</i> . Obtain DSC approval to mine within notification area.	Prior to commencement of secondary extraction of Longwall 207B.
2.04	Water Supply Pipeline	Expose pipeline and place on surface to reduce subsidence impacts and/or provision for leak detection in predicted high strain areas.	Prior to subsidence if flow monitoring equipment is not installed.
2.05		If required, ensure pumping is stopped and notify ACOL immediately so that potential damage to pipeline can be investigated.	If flow monitoring indicates a leak or failure of the pipeline.
<b>3.0 Incident Response</b>			
3.01	33 kV Transmission Line	Notify Ausgrid on 13 13 88 of any fallen/damaged electrical assets and take appropriate measures to prevent potential injury (e.g. signage, fencing). Notify Glencore.	If required as a result of subsidence impacts (i.e. either through inspections or service disruptions), as soon as practicable.
3.04	Water Supply Pipeline	Repairs to pipeline to be made as soon as practicable.	If required due to subsidence impacts.
<b>4.0 Reporting</b>			
4.01	Item 1.01	Provide a copy to Glencore.	Once completed.
4.02	Items 1.02 to 1.05	Notify Glencore and provide copies of monitoring results.	If subsidence monitoring results are greater than predicted or if potential impacts are identified.
4.03	Item 2.01	Notify Ausgrid and Glencore. Provide copy of assessment report to Glencore.	Once completed.
4.04	Item 2.02	Notify Glencore and provide copies of monitoring results.	ACOL to consult Glencore if subsidence impacts have been identified.
4.05	Item 2.03	In accordance with DSC Approval.	In accordance with DSC Approval.
4.06	Item 2.04	Notify Glencore and provide copies of monitoring results.	If required.
4.07	Item 2.05	Notify ACOL as soon as practicable.	As soon as practicable.
4.08	Item 3.01	Notify stakeholders. Notify Resources Regulator if deemed a reportable incident.	Reporting as per Extraction Plan requirements.
4.09	Item 3.02	Notify Glencore.	As soon as practicable.

## 5.1 SUBSIDENCE INSPECTIONS

Subsidence inspections will be carried out by mine staff pre-mining and every three days until the completion of subsidence. Observed impacts on the ground surface may indicate an impact on infrastructure. The inspection checklist used for this task is shown in **Appendix B**.

### 5.1.1 Scope of Inspections

Regular surface inspections will cover a zone defined as being 200 m behind and 100 m in front of the current face position. The inspections will cover the full subsidence bowl out to the 45 degree angle of draw. Inspections will be carried out by trained persons and will follow the inspection checklist. Inspections will identify the following subsidence impacts:

- surface cracking - edges of extraction void and start and travelling abutments particularly in rock outcrop areas;
- surface humps (compression) - near centre of extracted panels and travelling abutment;
- step change in land surface - associated with cracking;
- damage to towers, conductors, powerlines, pipelines and cables;
- reduce ground clearances of conductors;
- tilting of towers, increased/decreased tension in conductors; and
- bent crossarms or insulators.

### 5.1.2 Public and/or Infrastructure Safety Issues Identified During Inspections

If any public safety issue is identified during inspections the person conducting the inspection shall:

- immediately notify the Technical Services Manager and/or Environment & Community Superintendent;
- erect “NO ROAD” or barrier tape and warning signs if immediate remediation is not possible; and
- the Operations Manager shall immediately notify the NSW Resources Regulator, landholder and the infrastructure owner (contact details in Appendix A).

### 5.1.3 Remediation of Infrastructure Safety Issues

If any public safety issue is identified during inspections or other public safety issue is identified during assessment of monitoring or inspection results that person shall:

- immediately contact Glencore and advise the identified impact;
- arrange for Glencore to implement immediate repairs if necessary; and
- liaise with Mine Management and Subsidence Advisory NSW to arrange long term repairs.

## **5.2 CONTINGENCY PLANS**

Should interruption of power supply to a user occur as a result of or suspected to be related to subsidence impact to the network, ACOL will attempt to provide auxiliary power supply to affected users where the interruption cannot be immediately repaired or if there is a medical or safety reason the user needs continued power supply.

## **5.3 REPORTING**

The results of inspections will be recorded and filed. Monitoring results will be reported annually in the Annual Review (AR) where relevant. Other communications will be as detailed in the Public Safety Management Plan.

## **6 RESPONSIBILITIES**

### **6.1 ASHTON OPERATIONS MANAGER**

The Operations Manager must:

- promptly notify the Resources Regulator of any identified public safety issue via telephone to the central reporting number 1300 814 609; and
- complete a written notification using the online incident notification form via the Regulator Portal at <https://www.resourcesregulator.nsw.gov.au/safety-and-health/notifications/incident-or-injury>.

### **6.2 TECHNICAL SERVICES MANAGER**

The Technical Services Manager must:

- authorise the Plan and any amendments;
- ensure that the required personnel and equipment are provided to enable this Plan to be implemented effectively;
- inform the Operations Manager of impacts requiring notification to Division of the NSW Resources Regulator and/or Glencore; and
- liaise with officers of Glencore and remediation consultants and contractors as required.

### **6.3 ASHTON ENVIRONMENT & COMMUNITY SUPERINTENDENT**

The Environment & Community Superintendent must:

- inform the landholders of impacts requiring remediation; and
- report monitoring results in the AR.

### **6.4 ASHTON REGISTERED MINING SURVEYOR**

The Registered Mining Surveyor must:

- ensure that subsidence inspections are conducted to the required schedule and that the persons conducting the inspection are trained in the requirements of this plan and understand their obligations;
- review and assess subsidence monitoring results and inspection checklists; and
- promptly notify Technical Services Manager and/or the Environment and Community Superintendent of any identified public safety issue.

## **6.5 ASHTON TECHNICAL SERVICES TEAM**

The Ashton Technical Services Team members must:

- conduct the subsidence inspection within the applicable subsidence zone to the standard required and using the subsidence inspection checklist;
- take actions to remediate any public safety issue identified during inspections; and
- where actions are beyond their capabilities immediately attempt to notify the landowner or infrastructure owner and Technical Services Manager.

## **6.6 GLENCORE**

Glencore must arrange repairs as necessary through consultation between Glencore and ACOL.

## **6.7 PAYMENT OF COSTS IN RELATION TO REPAIRS**

ACOL will liaise with Subsidence Advisory NSW in relation to payment for any necessary repairs such that no cost will be borne by Glencore, except where features have been constructed following approval of the ACP (e.g. fibre optic cable along Lemington Road).

## **7 TRAINING**

All personnel who conduct inspections will be trained in the requirements of the Ashton LW205 to LW208 Built Features Management Plan, LW205 to LW208 Subsidence Monitoring Program and the LW205 to LW208 Glencore Asset Management Plan.

Training will be conducted on the identification of the various subsidence impacts detailed in the Public Safety Management Plan and will include any safety aspects of those inspections.

## **8 AUDIT AND REVIEW**

### **8.1 AUDIT**

The requirements of the Longwalls 205 to 208 Glencore Asset Management Plan are to be audited as required.

### **8.2 REVIEW**

A review of this plan will be undertaken:

- if the mine design criteria are changed;
- if subsidence impacts are greater than predicted;
- if required by Glencore; and
- following each audit.



## 9 REFERENCES

Strata Control Technology (2020) *Subsidence Assessment for the Extraction Plan for Longwalls 205 – 208 in the Upper Lower Liddell Seam*, Report Number ASH4927.

# Appendices

# **Appendix A**

# **Stakeholder Contact Details**

**Longwall 205 to 208 Extraction Plan Stakeholder List**

<b>Position</b>	<b>Name</b>	<b>Phone</b>
<b>ASHTON</b>		
Operations Manager	Aaron McGuigan	6570 9104
Technical Services Manager	Tony Sutherland	6570 9110
Environment and Community Superintendent	Phillip Brown	6570 9219
Mine Surveyor	Jeff Peck	6570 9125
Senior Mining Engineer	Ben Tockuss	6570 9124
After Hours	Ashton Control Room	6570 9166
<b>GOVERNMENT</b>		
Subsidence Advisory NSW	Newcastle Office	4908 4300
Resources Regulator		1300 814 609
<b>GLENCORE</b>		
Environment and Community Manager (Ravensworth Operations)	Klay Marchant	6570 0684
<b>LANDHOLDERS</b>		
Refer to Ashton internal contact register.		

# **Appendix B**

# **Subsidence Inspection Checklist**

SUBSIDENCE INSPECTION CHECKLIST		
<b>Longwall Panel</b>		
<b>Date</b>		
<b>Face Position</b>		
<b>Subsided Inspection Zone</b>		
<b>Pre-Subsidence Inspection Zone</b>		
<b>Area Inspected by (Print Name and sign)</b>		
INSPECTION ITEM	CHECKED	COMMENTS
Surface cracking		
Surface humps (compression)		
Hunter River, Mine Water and Gas drainage pipelines		
Access roads and tracks		
Fences, gates, cattle grids		
Damage to Power-poles, Cross-arms, Insulators and Conductors e.g. leaning poles, increased sag in conductors, reduced ground clearance		
Dams		
Structures (houses, outbuildings)		
Other (den and/or nest trees)		

**SUBSIDENCE INSPECTION CHECKLIST****Where to Inspect**

200 metres behind and 100 metres in front of the current face position.

Cover the full subsidence bowl out to the 45 degree angle of draw.

**What to look for**

- surface cracking - edges of extraction void and start and travelling abutments particularly in rock outcrop areas and topographic high;
- surface humps (compression) - near centre of extracted panels, the travelling abutment and topographic lows if adjacent to steep terrain;
- step change in land surface - associated with cracking;
- slope, boulder and tree instability;
- surface slumping, erosion;
- serviceability of access tracks;
- changes to creeks, ponding, sediment load;
- general vegetation condition (in particular dieback of vegetation);
- change in conditions of 'right-of-way' access track or surrounding verges including drainage culverts and water flows as well as road cutting stability; and
- power poles and wires – adverse tilts on poles and ground clearances for wires, especially when crossing access tracks.

**Actions if there is damage to non-ACOL infrastructure**

Immediately notify the:

- Operations Manager;
- Technical Services Manager and/or Environment & Community Superintendent; and
- relevant infrastructure owner/operator.

If repairs or remediation work is required these will be undertaken or organised by Glencore.