



Longwalls 201 to 204

Public Safety Management Plan

November 2016



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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 NSW.

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 multiseam longwall extraction, targeting four coal seams in descending order (Pikes Gully (PG), Upper Liddell (ULD), Upper Lower Liddell (ULLD) and Lower Barrett (LB)). 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 longwall mining of LW201 to 204 in the ULLD Seam of the Ashton Underground Coal Mine, varying between 105 metres and 230 metres below the surface. Proposed longwall mining in the Extraction Plan area of 201 to 204 (the **EP Area** – refer **Figure 1**) is due to commence in April 2017, and is planned to take place over a three year period.

The location of Ashton’s mining areas, and previous mining is shown with the Ashton Mine Complex in **Figure 1**.

1.1 SCOPE & OBJECTIVE

This Management Plan describes the process developed, including identification of key risks and proposed management strategies, to manage Public Safety in any surface areas that may be affected by subsidence arising from longwall mining within the EP Area as defined by the predicted 20mm subsidence contour from secondary extraction of LW201 to LW204 as shown in **Figure 1**.

The objective of this Plan is to outline the management measures to minimise surface safety risks to the public during mining within the Extraction Plan Area such as:

- monitoring of areas posing safety risks;
- erection of warning signs and possible entry or use restrictions;
- backfilling of surface cracks and/or re-profiling of humps and swales on tracks and roads in conjunction with the Mine Subsidence Board (MSB);
- infilling of subsidence pot holes;
- securing of potentially unstable structures and rockmasses;
- identification of potential flood-related impacts that may pose a risk to public safety; and

- provision of regular updates regarding mining progress to the community where management of public safety is a significant issue.

Required actions and responsibilities are defined to ensure detection and timely remediation of any potential public safety hazards from mining induced subsidence.

2 RESPONSIBILITIES AND RESOURCES

The Regional Technical Services Manager is responsible for monitoring the implementation of this plan.

The Ashton Operations Manager is responsible for ensuring that sufficient resources are available to implement the requirements of this Plan.

Each of the management strategies developed to manage subsidence allocates responsibilities in relation to their implementation. Relevant personnel will be provided with a copy of appropriate documents. Training will be provided.

3 BACKGROUND

3.1 ACOL HISTORICAL PUBLIC SAFETY PERFORMANCE RELATING TO SUBSIDENCE

ACOL has successfully undertaken longwall mining using conventional longwall mining methods in the PG seam (LW1 to LW8) and ULD seam (LW101 to LW105) over the period of 2007 to 2016 (refer to **Figure 1**).

ACOL's experience during that period has indicated that some reactive public safety management actions have been required. This reactive work has included backfilling of surface cracks and/or re-profiling of humps and swales on tracks and roads. Consequently risks to public from secondary extraction in the Extraction Plan Area are also expected to be low. This is supported by the subsidence assessment for Longwalls 201 – 204 (ASH4552_REV3, 2016).

3.2 SURFACE FEATURES, LAND OWNERSHIP AND PUBLIC ACCESS TO LAND

Land ownership within the EP Area is shown in **Figure 2**. The EP Area extends underneath predominately cattle grazing land owned by ACOL with a small area of privately owned land in the south east known as Property 130. Property 130 is a privately owned dairy farm. This property is serviced on a daily basis with access across the ACOL land located above the underground mine provided via a 'right of way' agreement. The access road is an unsealed road that traverses the EP Area from north to south. An alternative access road is available across the central part of the mining area. This alternative access can be used during periods when the primary right of way is being undermined

The topography of the EP Area is dominated by a steeply rising ridge line adjacent to Glennies Creek above Longwall 201 from which the ground slopes west towards Bowmans Creek (Foy Brook) floodplain and the broader Hunter River floodplain to the south. There are a number of ephemeral streams and drainage lines that flow mainly in the direction of Bowmans Creek. A series of farm dams are located on these watercourses, most of which were constructed prior to mining.

Non mining related infrastructure located within the EP area includes an Ausgrid 132 kV electricity line that traverses the southern end of Longwalls 201 to 204, an Ausgrid local area 11kV electricity line on the western edge of the EP area, a buried Telstra copper wire telecommunication line servicing Property 130, and various farming related infrastructure such as fences, farm dams and access roads, most of which are owned by ACOL.

Major infrastructure located in the general vicinity of the EP Area but beyond the zone of influence of subsidence impacts includes the New England Highway to the north of the mining area including a bridge over Bowmans Creek, a buried AAPT fibre optic cable, an Ausgrid 132kV powerline, and an Ausgrid 66kV/11kV powerline all of which run alongside the New England Highway.

ACOL owned infrastructure located within the EP area includes several farm buildings and houses (not occupied), farm dams, farm roads, fences, a fresh water polyline from the Hunter River and the Mine water pump out polyline from the southern end of the panels with associated pumping equipment, ventilation shafts with fan installations, a methane gas drainage plant and associated

infrastructure, BOC nitrogen plant and associated boreholes with collar hardware and surface pipeline networks as well as 11kV electricity line to supply this infrastructure.

ACOL has a comprehensive consultation program to facilitate access for monitoring and potential remediation activities within the Extraction Plan Area, and has already secured access to Property 130 subject to this plan prior to any potential impacts from subsidence occurring. This will significantly assist in identification of public safety issues to be managed by this plan.

It is important to note that ACOL may not undertake any works (including inspections) on land outside of ACOL's ownership described in this plan without landowner permission.

4 APPROACH TO PUBLIC SAFETY MANAGEMENT

The Mine's overall strategy to ensure Public Safety relating to the surface areas that may be affected by subsidence arising from the extraction of coal using conventional longwall mining methods is:

1. **Measure Baseline Information** - Establish background data for the surface above the mining area by inspection and in certain areas also subsidence survey.
2. **Regular Monitoring of the effects of mining** – Continue monitoring and inspection of identified key positions relating to the extraction process.
3. **Regularly assess and interpret monitoring and inspections** – Monitoring and inspection data is analysed to identify any variations from predictions, unexpected anomalies, visual impact or items presenting potential impact in Public Safety.
4. **Implement Immediate Responses** – If potential impact on Public Safety is observed or reported implement an immediate response including notification to the landowner.
5. **Re-assess any impacts** – Where variations and/or impacts are greater than predictions made in the Extraction Plan, as nominated in the Trigger, Action and Management Response Plan, additional assessment/investigation of impacts will be undertaken. This will be carried out by specialist consultants, ACOI personnel and appropriate stakeholders where required.
6. **Identify and implement remedial actions** – If impacts require mitigation and/or remedial action, these actions will be implemented in conjunction with the landholder and appropriate relevant stakeholder.

5 PERFORMANCE MEASURES

Performance objectives in relation to subsidence impacts in the LW201-LW204 Extraction Plan Area from DA 309-11-2001-i (MOD 5) are presented in **Table 5.1**.

Table 5.1 Subsidence Performance Measures from DA 309-11-2001-i

Domain	Performance Measure
Public Safety	No additional risk due to mining.

The performance measures in relation to public safety will be based around no additional risk to members of the public due to mining. Error! Reference source not found. indicates the performance measures in relation to Public Safety for the EP Area.

Table 5.2 Public Safety Performance Measures

Subsidence Impact	Performance Measure
Surface Cracking	Surface cracking or deformation remediated where required in accordance with the Land Management Plan (LMP) to not impact on public safety.
Dams	Impacts to dam walls monitored and maintained to minimise risk of failure in accordance with individual Built Features Management Plan (BFMP) and Water Management Plan (WMP).
Public roads and tracks	Public roads and tracks remediated to not impact on public safety in conjunction with the MSB.
Steep slopes and unstable ground/structures	Exclusions established where risk to public identified. Remedial measures implemented to remove risk.
Flooding and access	Access to and from private properties established to maintain safe passage.

6 IDENTIFICATION OF RISKS

It is not expected that mining of LW201 to LW204 in the ULLD seam will pose a significant risk to public safety. As part of the Extraction Plan process a Risk Assessment was conducted to examine the potential impact by subsidence on the surface above the Extraction Plan mining area. A copy of the risk assessment is included as an appendix to the main Extraction Plan document. No public safety risks in the extreme or high risk category were identified. All risks identified had either existing controls or additional controls / further actions which have been implemented or are available to identify, control or remediate these risks.

The possible public safety risks are listed below for the Extraction Plan Area.

- Injury to road user on the “right of way” access road accessing Property 130 and the New England Highway due to impact of mine subsidence (addressed in Built Features Management Plan);
- Damage and or loss of clearance to 132kV Ausgrid powerlines;
- Damage and or loss of clearance to 11kV Ausgrid powerlines;
- Damage and/or loss of Telstra communication cables;
- Damage (cracking) to internal property access tracks;
- Damage (cracking) to general surface;
- Damage (cracking) to buildings;
- Damage to fences; and
- Damage to dams.

Controls, monitoring and remedial action, identified as core items have been addressed in this Management Plan including:

- Regular monitoring of areas posing potential safety risks;
- Erection of warning signs along access road – to include mine contact numbers to report damage and be installed prior to longwall extraction;
- Entry restrictions – identified as part of management actions and remedial measures in Public Safety Risk identified;
- Backfilling of dangerous surface cracks – noted as remedial measure if identified;
- Remediation of any areas with adverse grade impacts or potential ponding restricting access (deformation);
- Provision of timely notification of mining progress to the landholder, community and any other stakeholders where management of Public Safety is required – noted as part of management actions.

Further detail regarding subsidence predictions is contained in the subsidence reports ASH4552_REV3 (2016).

7 NOTIFICATION, MONITORING AND INSPECTION SCHEDULE

The subsidence from mining in the Extraction Plan Area is not expected to have a major impact on the general surface though there may be impact on the right of way accessing Property 130 which will require actions and are addressed in the Built Features Management Plan. Management of Public Safety is largely controlled by programmed and targeted inspections as well as reviewing predicted subsidence against actual subsidence.

7.1 NOTIFICATION

Notifications to any landholders, the general public, relevant stakeholders and appropriate authorities either have or will be provided. These include:

- Notification of Extraction Plan approvals to relevant parties
- Signposting of mining area

7.2 SUBSIDENCE MONITORING

A description of the surface, relevant features and improvements above the Longwall panels is contained in **Section 3** with locations of these items shown in the attached plan.

Monitoring is conducted as per the various Management Plans and Monitoring Programs submitted, consisting of a combination of subsidence surveys, surface and underground monitoring and inspections and monitoring of ecological conditions.

These Plans and Programs generally focus on intensive monitoring in the initial stages of Longwall extraction and the long term monitoring of subsidence effects that may develop over time.

7.3 SUBSIDENCE INSPECTIONS

Inspections are to be conducted as per the various Management Plans and Monitoring Programs submitted, consisting of a combination of visual and photographic inspections as detailed in the Management Plans and programs and referenced in **Table 7.1**.

7.4 SCOPE AND FREQUENCY OF INSPECTIONS

Regular inspections at frequencies detailed in the Management Plans and Programs are to be initially concentrated on the current mining area, mining location and subsidence area. Inspections are concentrated on items identified in the initial pre-mining survey.

Inspections are carried out by experience persons and follow an inspection checklist to include the items above.

At the completion of mining in each Panel a full surface inspection will be conducted and results included in the Annual Environmental Management Report / Annual review.

Table 7.1 below list a schedule of inspections and subsidence survey frequencies of areas of potential Public Safety risk.

Table 7.1 Inspection and Survey Schedule

Area of Influence	Visual Inspection Frequency	Visual Inspection by	Photographic Monitoring Frequency	Photographic Monitoring by	Subsidence Survey Frequency	Subsidence Survey By
Private Properties requiring an individual BFMP (including dams, access tracks, fences, other structures etc)	Pre and post mining plus fortnightly while in active mining zone (frequency increased to daily if triggers exceeded as per TARP)	Technical Services Representative	Pre and post mining plus if changes noted on visual inspections	Technical Services Representative	As detailed in Subsidence Monitoring Program and individual BFMP	Ashton survey staff or external survey contractor
Infrastructure – Ausgrid Power Lines	Refer to the Ausgrid 132kV and 11kV Built Features Management Plan					
Infrastructure – Road & Maritime Services Public Roads	Refer to the RMS (New England Highway) Built Features Management Plan					
Infrastructure – Telecommunication cables	Refer to the Telstra Built Features Management Plan					

8 ACTIONS AND REMEDIAL MEASURES

Ashton will install appropriate warning signage, positioned along the right of way access road prior to the commencement of longwall extraction, advising of the potential for subsidence impacts. The objective of the signage is to ensure users of the right of way access road and the surrounding area are aware of the potential hazards resulting from subsidence. Mine contact details shall be included to enable any damage to be reported.

Visual inspections will identify impacts on natural features. Inspections and monitoring noted in the relevant monitoring plans will identify impacts on infrastructure and improvements.

8.1 PUBLIC SAFETY ISSUES IDENTIFIED DURING INSPECTIONS OR MONITORING

If these inspections reveal any public safety issue (see **TARP**) that requires remedial works to ensure public safety the person conducting the inspection shall:

- Immediately notify the Mining Engineering Manager and/or Environment and Community Manager of the findings;
- Erect “NO ROAD” or barrier tape and warning signs (e.g. traffic control signs, traffic controllers as appropriate) if immediate remediation is not possible; and
- The manager of Mining Engineering shall immediately notify the District Inspector of Coal Mines, landholder and any infrastructure owner.

8.2 REMEDIATION OF PUBLIC SAFETY ISSUES

Following completion of the above, the Manger of Mining Engineering or his nominee shall:

- Arrange inspections of the area at regular intervals including installation of appropriate barriers if required, until remediation works are carried out; and
- Arrange for remediation works as detailed in the **TARP**. This will require consultation with the Department of Industry, Division of Resources and Energy, landholder, possibly Mine Subsidence Board, infrastructure owner, specialist consultants and appropriate stakeholders, as noted in the current Management Plans and Programs, to prepare appropriate remediation plan relating to the particular item. Notification to the general public may form a part of the remediation plan.

8.3 ADAPTIVE MANAGEMENT

It is unlikely based on subsidence predications and previous mining impact observed thus far that any adaptive management will be required. If however continued impact outside that expected occurs due to mining subsidence, ACOL is committed to reviewing options with landholders, the MSB and service/infrastructure providers to put measures in place to prevent on-going reoccurrence.

8.4 CONTINGENCY PLANS

Where any unexpected and uncontrolled public safety risk presents itself, ACOL will provide on-going resources to prevent access to the affected area until such time a remediation plan can be enacted. If this prevents members of the public access to their residence ACOL will assist in making alternative arrangements including temporary accommodation.

9 TRAINING

All personnel who conduct Subsidence Monitoring Program inspections will be trained in the requirements of this Public Safety Management Plan. Training will be conducted on the identification of the various subsidence impacts and the associated public safety risks.

10 REPORTING

The results of inspections will be documented with the Subsidence Monitoring Program. The effectiveness of the Longwalls 201 to 204 Public Safety Management Plan in managing public safety risks will be reported where relevant in the Extraction Plan Stakeholder Reporting process and the Annual Review / Annual Environmental Management Report.

Additionally notification will be provided to relevant authorities of any incident or occurrence as detailed in the Triggers Action and Management Responses.

11 REVIEW

This plan will be reviewed as necessary including:

- In the event that the Director Mine Safety Operations raises issues that necessitate a review;
- In the event that any landholders or infrastructure owners raise issues that necessitate a review; and
- Inspections or monitoring demonstrates that the impacts are such that a review is warranted.

Any review will be conducted in consultation with the Director Mine Safety Operations. In the event of the management plan being changed a copy will be sent to the relevant agencies.

12 REFERENCES

Strata Control Technology (ASH4552_REV3 2016). Ashton Coal Operations Pty Ltd: *Subsidence Assessment for the Extraction Plan for Longwalls 201 – 204 in the Upper Lower Liddell Seam*, Report Number ASH4552.

Figures

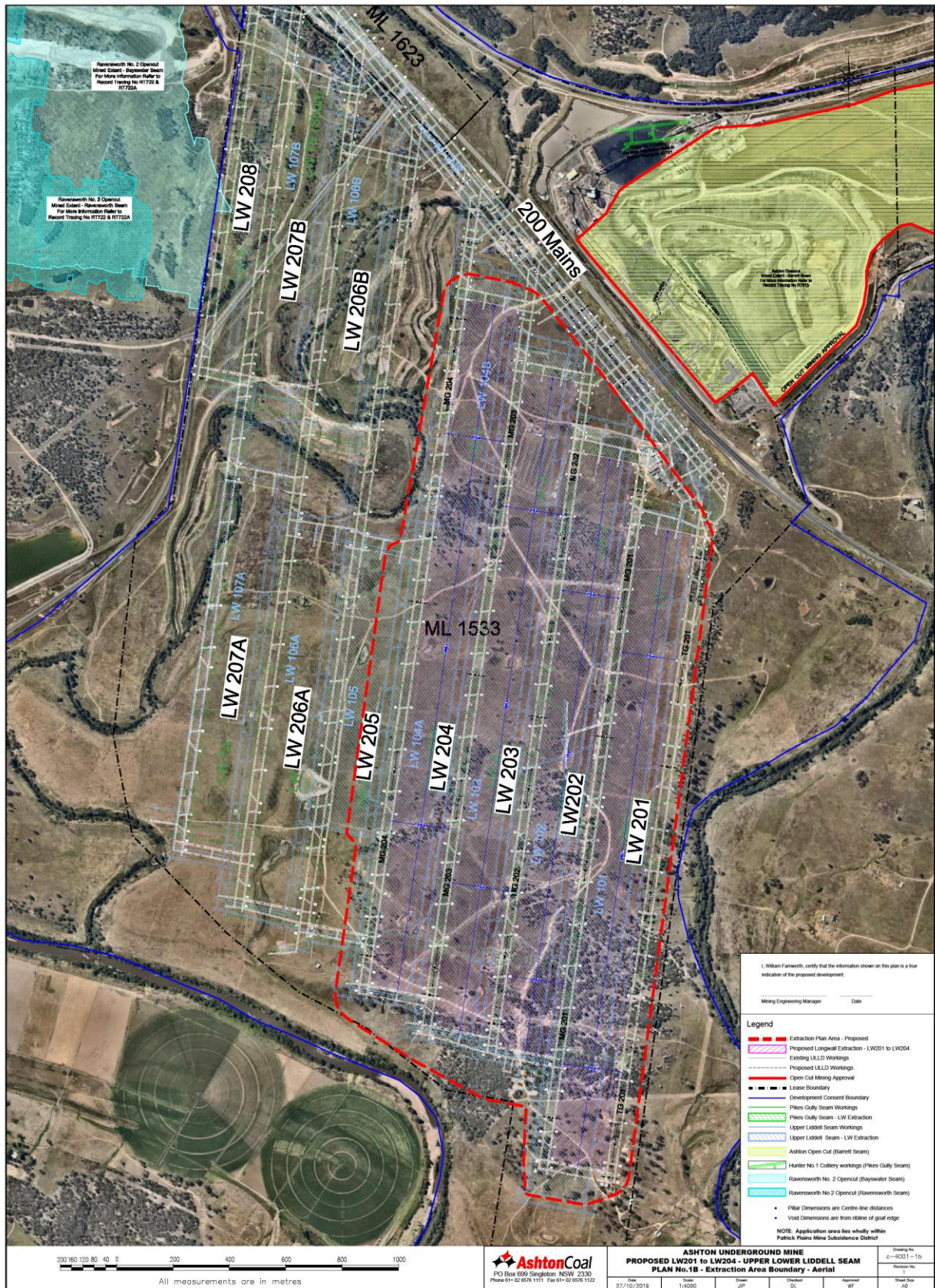


Figure 1 Extraction Plan Area

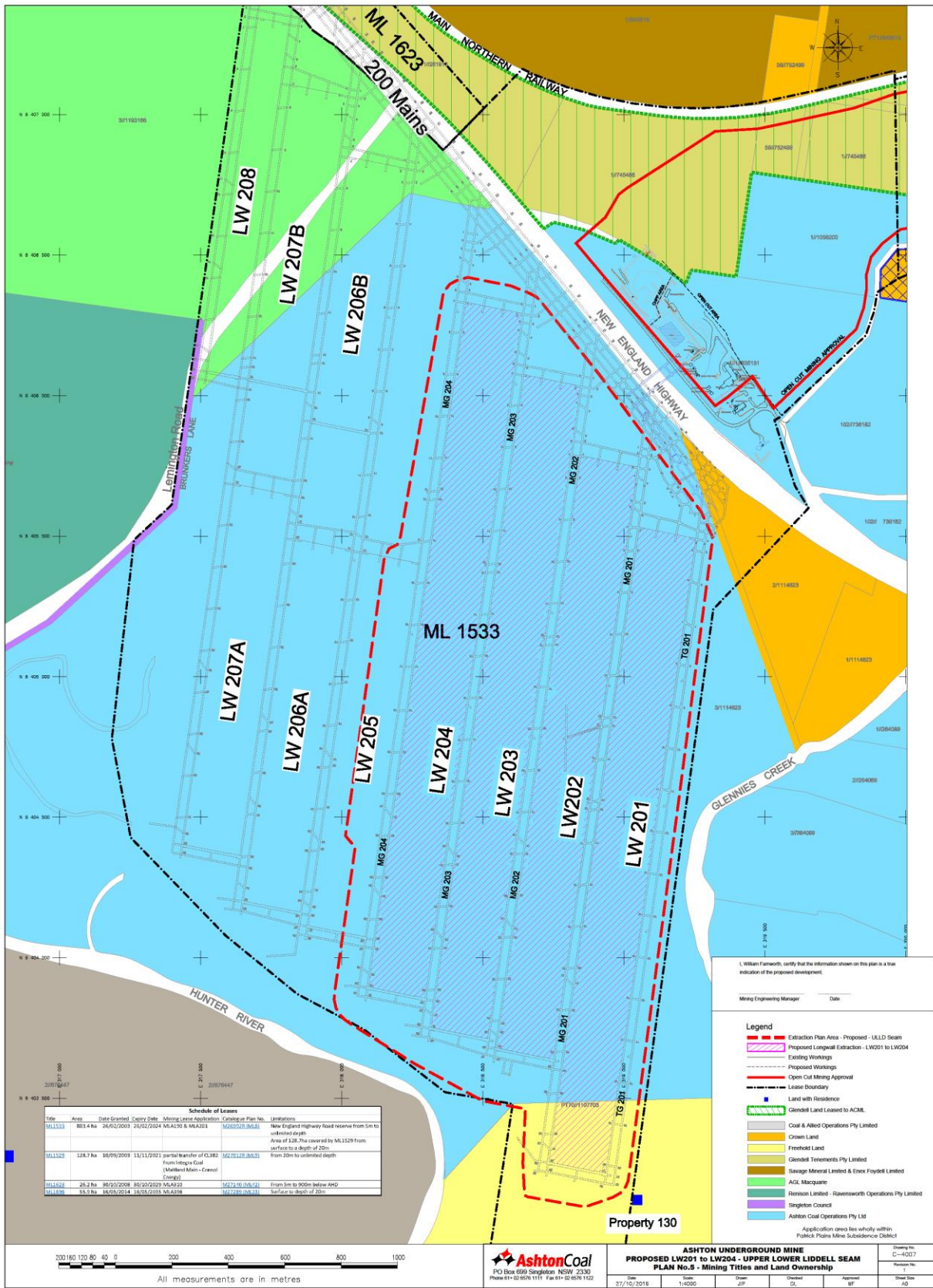


Figure 2 Land Ownership

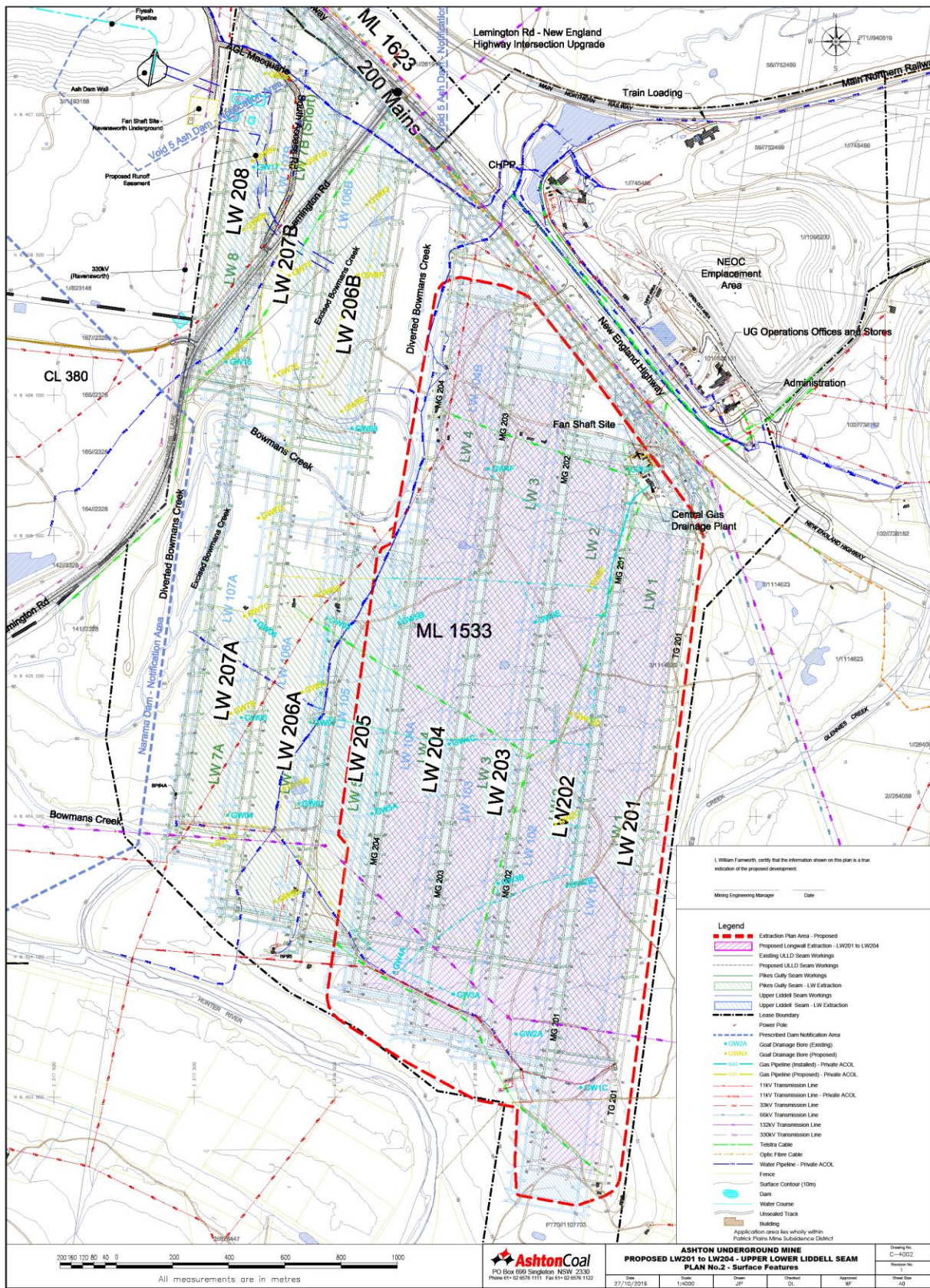


Figure 3 Surface Features

Appendices

Appendix A

Stakeholder Contact Details

LW201 to LW204 Extraction Plan Stakeholder List

Position	Name	Phone
ASHTON		
Operations Manager	Bill Farnworth	6570 9104
Technical Services Manager	Tony Sutherland	4015 1105
Environment and Community Manager	Digby Short	6570 9219
Mine Surveyor	Jeff Peck	6570 9125
Mining Engineer	Thomas Kaltschmidt	6570 9124
After Hours	Control Room	4993 7220
GOVERNMENT		
MSB District Manager	Richard Pickles	4908 4353
Road & Maritime Service – Asset Manager	Adam McKensie	4924 0357
Ausgrid – Manager of Customer Supply, Planning and Reliability, Upper Hunter	Ian Hall	13 15 35
Telstra – Project Specialist	Mark Schneider	8842 5185
LANDHOLDERS	Refer to Ashton internal contacts register	

Appendix B

Timing for BFMP

Development and Actions for Public Safety Management

Asset	Description	Ownership	Specific Management Plan	Timing for preparation of BFMP	Safety Actions
Private Roads	Property 130 "right of way" access road (unsealed)	ACOL / Bowmans	Public Safety Management Plan BFMP – Property 130	Prior to LW201 impacting	Erect subsidence warning signage and contact details
Public Roads	New England Highway (unsealed)	Roads & Maritime Service	Public Safety Management Plan BFMP – RMS	Prior to LW201 impacting	As per the RMS (New England Highway) BFMP
Electricity Transmission Lines	132 kV Transmission Line	Ausgrid	BFMP – Ausgrid 132kV	Prior to LW201 impacting	Inspections as per the Ausgrid 132kV BFMP
	11 kV Transmission Line	Ausgrid	BFMP – Ausgrid 11kV	Prior to LW204 impacting	Inspections as per the Ausgrid 11kV BFMP
Telecommunications infrastructure	Local Copper Cables	Telstra	BFMP – Telstra	Prior to LW201 impacting	Inspections as per the Telstra BFMP
Private properties without dwellings in Extraction Plan Area	Features may include: Rural sheds Water tanks Private access roads Fences Dams	Bowman – 70/1107703 (Property 130)	Individual landholder specific BFMPs	Prior to LW201 impacting	As per the individual property BFMP