



LWB4 to LWB7

Public Safety

Management Plan

January 2019



DOCUMENT CONTROL

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1 INTRODUCTION

Austar Coal Mine Pty Ltd (Austar), a subsidiary of Yancoal Australia Limited (Yancoal), owns Austar Coal Mine, an underground coal mine located approximately 10 kilometres south of Cessnock in the Lower Hunter Valley in NSW. The mine is an aggregate of the former Ellalong, Pelton, Cessnock No.1 and Bellbird South Collieries and is located in the South Maitland Coalfields. These operations, including coal extraction, handling, processing and transport, collectively form the Austar Mining Complex.

A modification to the Bellbird South development consent (DA29/95 MOD7) was approved under delegated authority of the Minister for Planning on 25 August 2017. The modification extends the Bellbird South consent area and permits the transfer of coal from four conventional longwall panels (Longwalls B4 to B7) within the Ellalong Colliery and Bellbird South Colliery areas to existing infrastructure for processing and transport of coal.

On the 18 September 2018, the Department of Planning and Environment approved the shortening of Longwall B4 by 279m due to geological factors and the occurrence of coal burst incidents in the LWB4 panel.

The location of Austar's mining areas, and previous mining is shown with the Austar 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 **Extraction Plan Area** as defined by the predicted 20mm subsidence contour from secondary extraction of LWB4 to LWB7 as shown in **Figure 2**.

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 Subsidence Advisory NSW (SA NSW);
- 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 Austar Technical Services Manager is responsible for monitoring the implementation of this plan.

The Austar 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 AUSTAR HISTORICAL PUBLIC SAFETY PERFORMANCE RELATING TO SUBSIDENCE

Austar has successfully undertaken mining using the Longwall Top Coal Caving (LTCC) mining method for Stage 1 (LWA1 to LWA2), Stage 2 (LWA3 to LWA5a) and Stage 3 (LWA7 to LWA8) over the period of 2006 to 2015 and conventional longwall mining in the Bellbird South Area (LWB2 to LWB4) over the period of 2016 to 2018 (refer to **Figure 1**).

Austar's experience during that period has indicated no reactive public safety management actions have been required at any time. This is due to the high depth of covers, with minimal observed surface impact. Consequently, risks to public from secondary extraction in the Extraction Plan Area are also expected to be very low. This is supported by the subsidence assessment for Longwalls B4 – B7 (MSEC903, 2017 & MSEC966, 2018).

3.2 SURFACE FEATURES, LAND OWNERSHIP AND PUBLIC ACCESS TO LAND

Land ownership within the Extraction Plan Area is shown in **Figure 3**. Land within the Extraction Plan Area is overlain by a combination of private landholdings, crown land, Austar owned land and public roads. The private landholdings include residential dwellings and farm infrastructure (sheds, dams, etc).

The topography of the Extraction Plan Area is generally characterised by low undulating hills and creek flats associated with Quorrobolong Creek and its unnamed tributaries. Elevations within the area range from approximately 115 metres to 160 metres Australian Height Datum (AHD).

Austar 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 several private properties subject to this plan prior to any potential impacts from subsidence occurring.

Austar continues to consult with landholders of private lands within the Extraction Plan Area to support Austar's obligations of DA29/95 in relation to subsidence management. This will significantly assist in identification of public safety issues to be managed by this plan.

It is important to note that Austar may not undertake any works (including inspections) on land outside of Austar'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, Austar 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

The performance measures in relation to public safety will be based around reducing risk to members of the public to as low as reasonably practical. **Table 1** indicates the performance measures in relation to Public Safety for the Extraction Plan Area.

Table 1 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 Subsidence Advisory NSW. |
| 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. |

The performance measures in relation to public safety on Sandy Creek Road within the Extraction Plan Area (**Figure 4**) are provided in **Table 2**.

Table 2 Public Safety Performance Measures

| Subsidence Impact | Performance Measure |
|-------------------|---|
| Sandy Creek Road | Before carrying out any underground mining that will potentially lead to subsidence impacts to Sandy Creek Road, Austar must prepare, in consultation with Council (and following approval implement) a Public Safety Management Plan for Sandy Creek Road, to the satisfaction of DRG. |

6 IDENTIFICATION OF RISKS

It is not expected that mining of LWB4 to LWB7 in the Greta seam will pose a significant risk to public safety as there are no areas of shallow depth of cover (less than 80 metres). 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 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 risk category were identified. One risk was identified in the high-risk category, having a potentially major consequence. 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 Sandy Creek Road and Barraba Lane due to impact of mine subsidence (addressed in Built Features Management Plan);
- 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 public roads – 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 (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 MSEC903 (MSEC, 2017) and MSEC966 (MSEC, 2018).

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 Sandy Creek Road 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:

- Newspaper advertisement relating to LWB4 – B7 modification application
- 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 2**.

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 (based on the relevant 20mm subsidence contour). Inspections are concentrated on items identified in the initial pre-mining survey.

Inspections are carried out by experienced persons and follow an inspection checklist to include the items above. **Table 2** below list a schedule of inspections and subsidence survey frequencies of areas of potential Public Safety risk.

8 ACTIONS AND REMEDIAL MEASURES

Austar will install appropriate warning signage, positioned along public roads prior to the commencement of potential subsidence impacts, advising of the potential for subsidence impacts. The objective of the signage is to ensure users of public roads 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 Environmental 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 Department of Planning & Environment – Resources & Geosciences, landholder and any infrastructure owner.

8.2 REMEDIATION OF PUBLIC SAFETY ISSUES

Following completion of the above, the Manager 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 Planning & Environment – Resources and Geosciences, landholder, possibly SA NSW, 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 part of the remediation plan.

8.3 ADAPTIVE MANAGEMENT

It is unlikely based on subsidence predications and previous mining impact observed in Stages 1, 2, 3 and Bellbird South thus far that any adaptive management will be required. If, however continued impact outside that expected occurs due to mining subsidence, Austar is committed to reviewing options with landholders, SA NSW 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, Austar 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 Austar 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 B4 to B7 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:

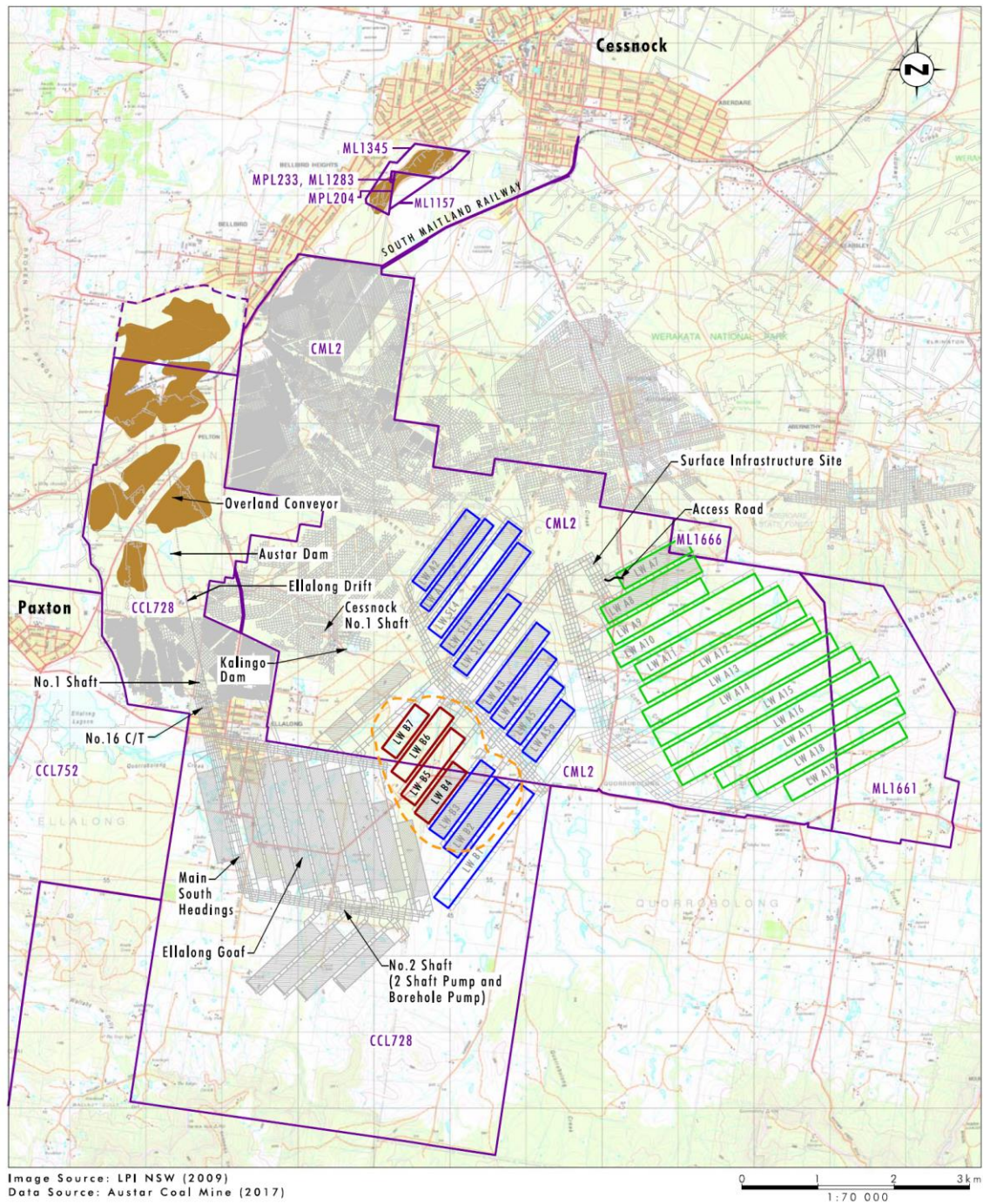
- In the event that the Director Mine Safety Operations raises issues that necessitate a review;
- In the event that any landholders or infrastructure owners raise issues that necessitate a review; and
- Inspections or monitoring demonstrates that the impacts are such that a review is warranted.

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.

Table 2 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 monthly 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 | Austar survey staff or external survey contractor |
| Infrastructure – Ausgrid Power Lines | Refer to the Built Features (Ausgrid) Management Plan | | | | | |
| Infrastructure – Cessnock Council Public Roads | Refer to the Built Features (Public Roads) Management Plan | | | | | |
| Infrastructure – Telecommunication cables | Refer to the Built Features (Telstra) Management Plan | | | | | |
| Crown Land | Refer to the Built Features (Crown Land) Management Plan | | | | | |

Figures



Legend

- LWB4-B7 Extraction Plan Longwall Panels
- LWB4-B7 Extraction Plan Area
- Bellbird South LWB1-B3 Extraction Plan, Stage 1, Stage 2 and Southland Longwall Panels (DA 29/95)
- Stage 3 Longwall Panels (PA08_0111)
- Approved Reject Emplacement Areas
- Completed Underground Workings
- Mining Lease Boundary
- Austar owned CHPP Land

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20181213 9.46

FIGURE 1.1
Austar Coal Mine Complex

Figure 1 Austar Coal Mine Complex

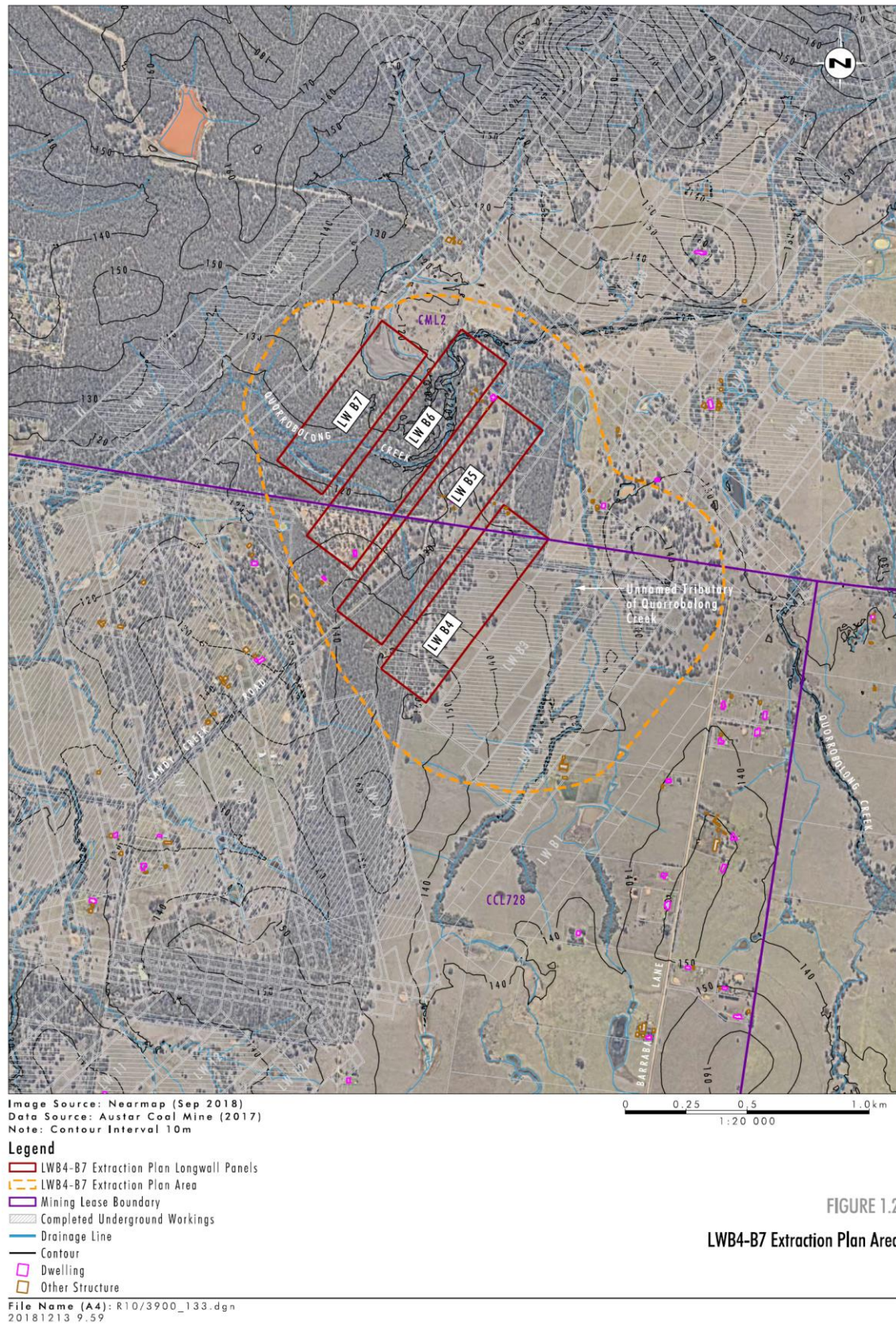


FIGURE 1.2

LWB4-B7 Extraction Plan Area

Figure 2 Extraction Plan Area

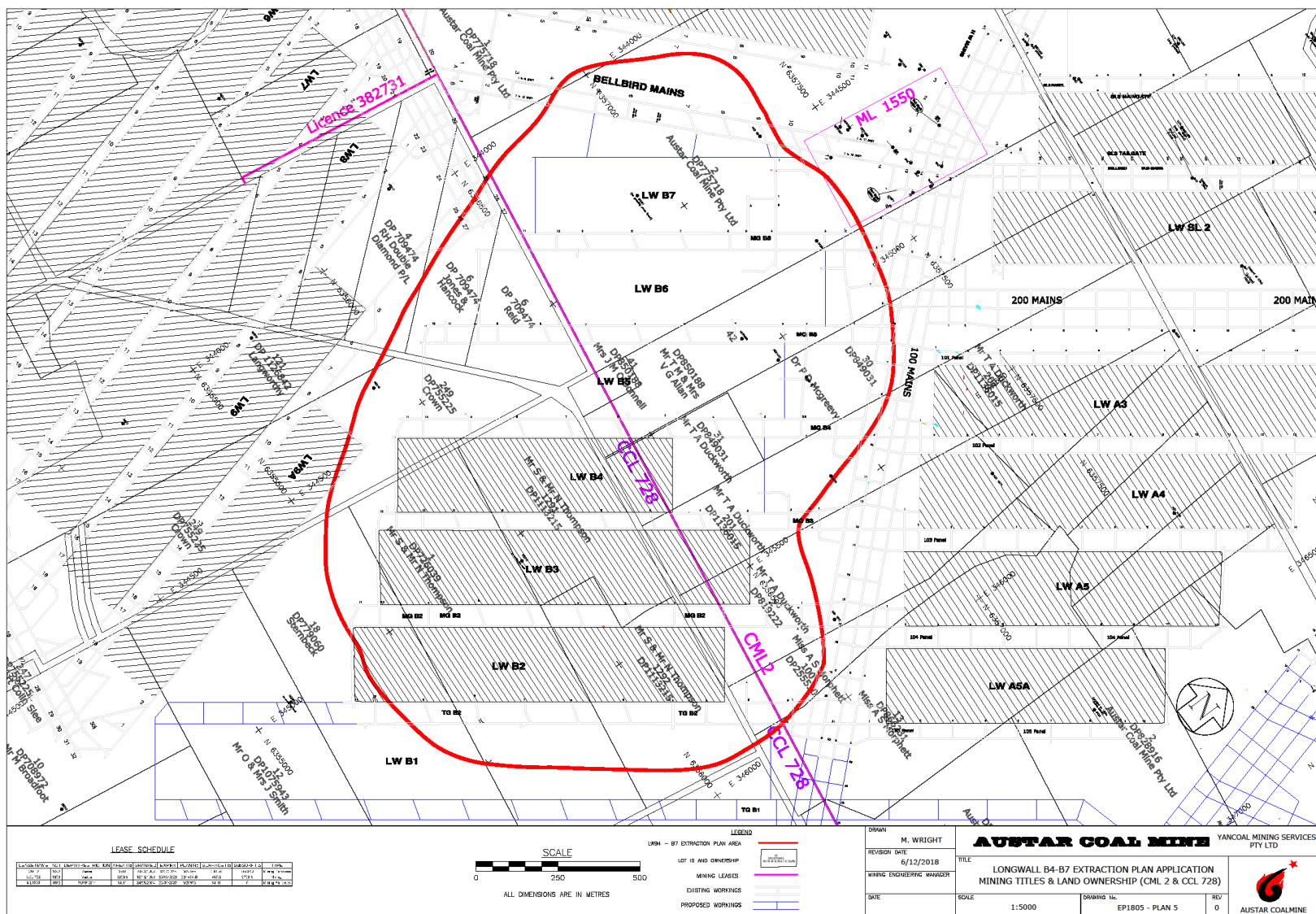


Figure 3 Land Ownership

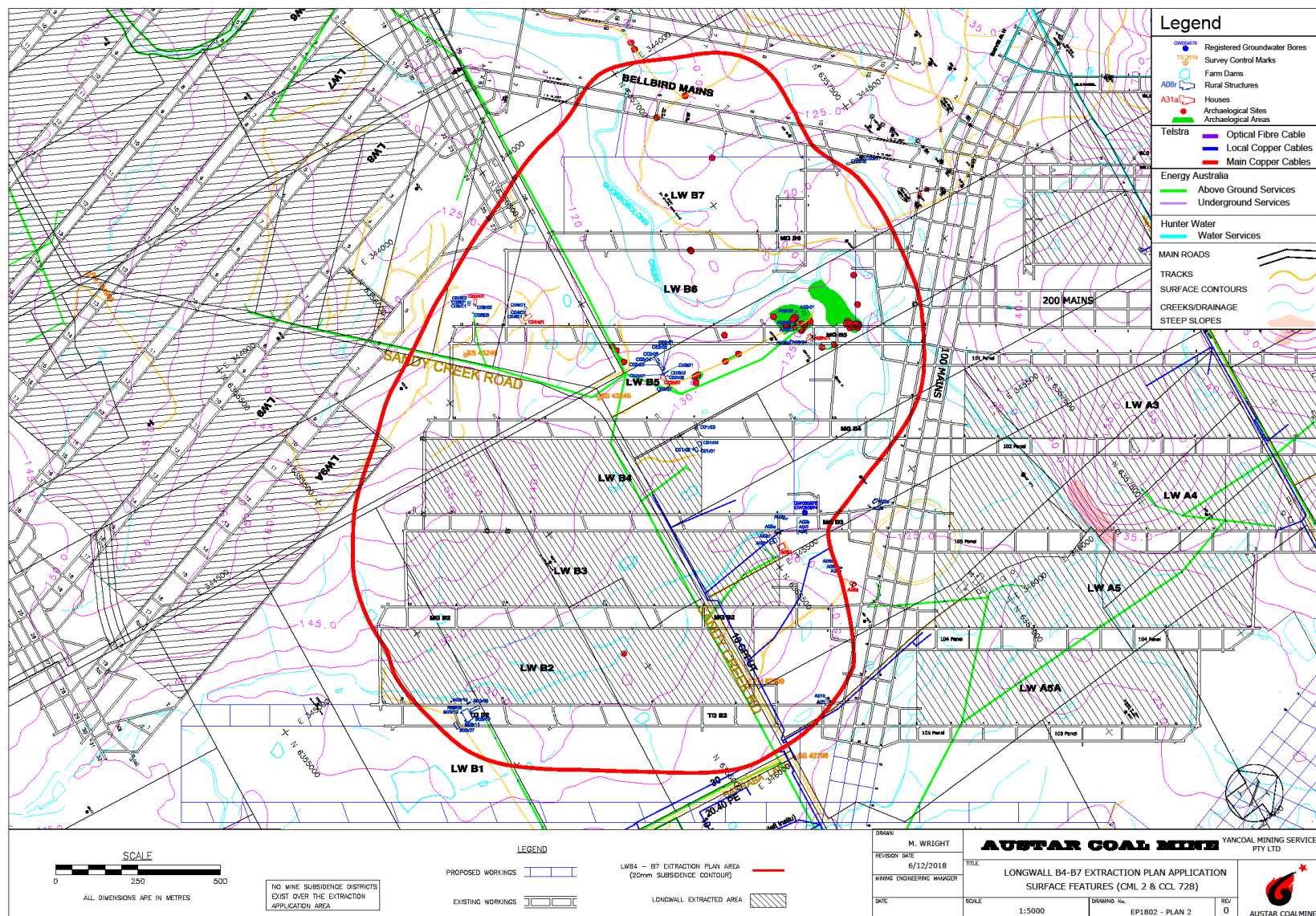


Figure 4 Surface Features

Appendices

Appendix A

Stakeholder Contact Details

Austar Coal Mine LWB4 to LWB7 Extraction Plan Stakeholder List

| Position | Name | Phone |
|--|---|--------------|
| AUSTAR | | |
| Mine Manager | Brian Wesley | 4993 7356 |
| Technical Services Manager | Bill Farnworth | 4993 7279 |
| Environment and Community Superintendent | Carly McCormack | 4993 7334 |
| Mine Surveyor | Matthew Wright | 4993 7206 |
| Austar After Hours | Control Room | 4993 7220 |
| | | |
| GOVERNMENT | | |
| SA NSW (24hr Emergency Hotline) | - | 1800 248 083 |
| SA NSW | - | 4908 4300 |
| Cessnock City Council After Hours Contact Number (Emergency) | - | 4940 7816 |
| Cessnock City Council Operations – Works Delivery Manager | Geoff Bent | 4993 4284 |
| Cessnock City Council Design Delivery Manager | Katrina Kerr | 4993 4281 |
| DPI-Crown Land | Melanie Osborne | 4937 9332 |
| Ausgrid – Manager of Customer Supply, Planning and Reliability, Lower Hunter | Pat Boyle | 4910 1701 |
| Telstra – Senior Technical Specialist | Mark Schneider | 8851 2297 |
| Land and Property Information - Senior Surveyor, Hunter Survey Infrastructure & Geodesy, | Joel Edwards | 4925 9983 |
| WaterNSW (groundwater monitoring bores) | Rod Gleeson | 4904 2684 |
| LANDHOLDERS | Refer to Austar internal contact register | |

Appendix B

Timing for BFMP

Development and Actions for Public Safety Management

| Asset | Description | Ownership – Folio Identifier | Specific Management Plan | Timing for preparation of BFMP | Safety Actions |
|---|--|--|--|--|--|
| Public Roads | Sandy Creek Road (sealed) | Cessnock City Council | Public Safety Management Plan BFMP – Cessnock Council | Prior to LWB4 impacting | Erect subsidence warning signage and contact details |
| Electricity Transmission Lines | 11 kV Transmission Line Local Distribution lines | Ausgrid | BFMP – Ausgrid | Prior to LWB4 impacting | Inspections as per the Ausgrid BFMP |
| Telecommunications infrastructure | Local Copper Cables | Telstra | BFMP – Telstra | Prior to LWB4 impacting | Inspections as per the Telstra BFMP |
| Crown Land | Vacant Crown Land | The Crown – 249/755225 | BFMP – Crown Land | Prior to LWB4 impacting | Inspections as per the Crown Land BFMP |
| Private properties with dwelling in Extraction Plan Area | Features may include: House Water tanks Poultry sheds Rural sheds Dams Private access roads Fences Swimming Pool Gas/Fuel Storage | Duckworth – 2/819222 (A06a) Duckworth – 201/1136015 (A02d) Allan – 42/850188 (A08h01) O'Donnell – 41/850188 (C02h01) Jones & Hancock – 5/709474 (C05h01) Reid – 6/709474 (C04h01) | Individual landholder specific BFMPs | Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB5 impacting Prior to LWB5 impacting | As per the individual property BFMP |
| Private properties without dwelling in Extraction Plan Area | Features may include: Rural sheds Water tanks Dams Groundwater bores Private access roads Fences | Sternbeck – 18/779060 Thompson – 1/726039 Thompson – 1292/1113215 Thompson – 1291/1113215 Morphett – 100/255530 Morphett – 13/866231 Duckworth – 31/849031 McGreevy – 30/849031 Langworthy – 121/1126842 RH Double Diamond P/L – 4/709474 | Individual landholder specific BFMPs | Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB4 impacting Prior to LWB6 impacting Prior to LWB5 impacting | As per the individual property BFMP |
| Survey Marks | Survey marks: PM 82899 SSM 43245 SSM 43246 | NSW Land and Property Information | BFMP | Prior to LWB4 impacting | Notify the Land and Property Information as the per the Surveyor General's Directions No. 11 Preservation of Survey Infrastructure |